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Relationships among student-athlete's identity and mental health condition - survey in the COVID-19 pandemic- †

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Abstract: The purpose of this study was to investigate the relationships among degree of student athlete's identity and mental health problems in Japanese intercollegiate student-athletes in the COVID-19 pandemic, and this study clarifies the current state of mental problems of student-athletes in Japan. The participants were 402 male student-athletes (Age M=19.72±1.37). The results of correlational analyses indicated, that there were significant negative correlations between degree of student-athlete's identity and depression and sports helplessness for senior grade student-athletes. In addition, as a result of dividing the degree of student-athlete's identity into three groups and examining the relationship with mental problems, it demonstrated that student-athletes who has the stronger student-athlete's identity showed the lower degree of depression and sports helplessness.

Keywords: Japanese student; collegiate sports; mental health; sports science; identity

1. Introduction

In the United States, collegiate athletes who receive scholarship from university tend to receive a considerable amount of public attention and are often some of the most idolized individuals on campus [1,2]. Such adulation from their supporters and others can create pressure which can increase student-athletes' vulnerability to mental health-related issues. Further, college is a transition period characterized by highly stressful events (e.g., leaving families for the first time), which makes it a prime period for psychological disorders to develop or worsen [3]. These situations could be also applied to Japanese student-athletes; thus, it is important to consider and address the mental health problems of college student-athletes in Japan.

The Japan Association for University Athletics and Sports (UNIVAS)—the national organization governing intercollegiate sports—was established in 2019. UNIVAS intends to promote a safety of students-athletes and they just started to provide the physical and mental health support programs for Japanese student-athletes. However, in April of 2020, most of Japanese universities closed campuses and moved academic courses to online formats, thus, many student-athletes are unable to play sports and study satisfactorily due to the problem of COVID-19 pandemic. This is thus an important need to study mental health during the COVID-19 pandemic and to identify psychological and emotional perspectives of student-athletes in Japan.

Athletic identity has been defined as "the degree to which an individual identifies with the athletic role" [4]. Athletic identity is often used to verify the social identity of student-athletes, and it encompasses the psychological, emotional, and behavioral elements of athletes' self-identities [5]. In addition, athletic identity is investigated for its relationship to mental health. Miller and Hoffman [6] examined the relationships among athletic identity and mental health, and indicated that athletic identity was significantly

negatively associated with depression symptoms. Furthermore, Graupensperger et al. [7] mentioned that when investigating the impact of COVID-19 pandemic on the mental health of student-athletes, it is also important to consider the salience of the athlete's identity, and they conducted a research examining the relationships between mental health and athletic identity to American student-athletes during COVID-19 pandemic. The results of their study indicated that negative correlations among athletic identity and depression symptoms. As above, several studies have examined the relationship between athletic identity and mental health, and have demonstrated that mental health tends to be better when the degree of athletic identity is higher [7,8,9]. However, the relationship between student-athlete's athletic identity and mental health issues in the COVID-19 pandemic has not been examined in Japan. In addition, the individual level of athletic identity is important considerations relative to the COVID-19 changes to collegiate sports.

Thus, the purpose of this study is to investigate the relationships among degree of athlete's identity and mental health problems in Japanese intercollegiate student-athletes in the COVID-19 pandemic, and this study clarifies the current state of mental problems of Japanese student-athletes by grade.

Brewer et al. [4] mentioned that athletic identity can be investigated from a developmental perspective. Therefore, several studies examined the degree of athletic identity by changes with time [10,11,12]. Porios et al. [11] demonstrated that the first grade student scored higher in the variables of athletic identity compared with fourth grade student. In addition, Houle et al. [10] found that degree of athletic identity was decreased from freshmen to senior year in college. Thus, athletic identity generally decreases upon the collegiate athletic career termination. Based on the results of the previous studies, this study also examines the relationship between the difference in the degree of athletic identity and mental health by academic grade.

2. Method

2.1. Participants

This study was conducted a web based survey of five universities. Both universities have top-level collegiate athletic clubs in Japan and provide scholarships for student-athletes. Participants were 402 male Japanese collegiate student-athletes (Mean age = 19.72, SD = 1.37). Their sporting activities included track and field (192), swimming (113), judo (97) and 105 were first grade students (freshmen), 109 were second grade (sophomores), 83 were third grade (juniors), and 105 were fourth grade (seniors). They belonged to the collegiate athletic team and had participated in national collegiate championships. The national-level participants were those who had participated in national collegiate championships while attending university. In addition, they received scholarships from universities to enable them to balance between their academic and athletic activities.

2.2. Instruments

The Japanese version of the BIMS (BIMS-J) [13] was used to measure the degree of student-athletes' identity. This questionnaire consisted of 10 statements (e.g., "I consider myself a student-athlete"; "Other people see me mainly as a student-athlete") that were rated on a 7-point Likert scale with response options ranging from 1 (strongly disagree) to 7 (strongly agree). Support for the reliability and validity of the measurement were confirmed via Cronbach's alpha and confirmatory factor analysis [13].

To measure the athletes' mental health issues, the depression and sports helplessness subscales of the Stress Response Scale for Athletes [14] were used. Each subscale begins with the following sentence: "To what extent have you experienced the following within the past two to three weeks?" The question is then followed by items such as "I feel depressed" or "I cannot find a meaning in the purpose of playing sports." Each item was rated on a five-point scale ranging from 1 (completely disagree) to 5 (completely agree). Support for the reliability and validity of the measurement were confirmed via Cronbach's alpha and confirmatory factor analysis [14].

2.3. Procedure

The web based survey was conducted in early April 2020, a time when academic and athletic activities at the university were suspended due to the COVID-19 pandemic. The study was approved by the institutional review board of National Institute of Fitness and Sports in Kanoya. All participants were informed of the instructions and the purpose of this study during online meeting of their athletic activity, and their participation was voluntary. We contacted the club manager of each university in advance and conducted a web based survey on only those student-athletes who had received scholarships from their university.

2.4. Data Analysis

Descriptive statistics were calculated for each measure. A one-way ANOVA analyses was used to compare among student-athlete's identity, depression and sports helplessness by grade. Pearson's correlation coefficients were used to examine the relationships among the degree of student-athletes' identity and depression and sports helplessness. Finally, in order to examine the relationship between the degree of student-athlete's identity and mental health, the degree of student-athlete's identity was divided by the median value and classified into the higher and the lower identity group. Then, using a t-test, a comparison between the two groups will be conducted with depression and sports helplessness as dependent variables. All data were analyzed using IBM SPSS Statistics 27.0.

3. Results

3.1. Descriptive statistics

The descriptive statistics of the scores for student-athlete's identity, depression, and sports helplessness are shown in Table 1. Results of the one-way ANOVA analyses that there were significant differences in sports helplessness between each grade (F=5.32, p<.001). In addition, the results of Tukey post hoc analyses, there were significant differences between freshmen, sophomores and seniors' student-athletes (Table. 1).

Table 1. Means (SD) and post hoc analysis for subscales between grades.

Variable	Freshmen 1st grade (n=105)		Sophomores 2nd grade (n=109)		Juniors 3rd grade (n=83)		Seniors 4th grade (n=105)		Post hoc
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Student-athlete's identity	49.83	9.72	46.61	10.69	48.43	10.14	48.16	10.47	n.s.
Depression	7.16	3.14	6.67	3.49	7.33	3.79	7.30	3.61	n.s.
Sports helplessness	6.73	3.30	6.79	3.41	7.47	3.53	8.43	3.78	1st,2nd <4th **

Note: **p<0.01

3.2. Relationships between student-athlete's identity with Depression and Sports Helplessness

Correlational analyses indicated, that for juniors and seniors' student-athletes there were significant negative correlations between student-athlete's identity and depression. For sophomores, juniors and seniors' student-athletes, student-athlete's identity was significantly correlated with sports helplessness (Table 2).

Table 2. Correlation coefficients between student-athlete's identity with Depression and Sports Helplessness.

	Student-athlete's identity			
	Freshmen 1st grade	Sophomores 2nd grade	Juniors 3rd grade	Seniors 4th grade
Depression	-0.01	-0.13	-0.16 *	-0.16 *
Sports helplessness	-0.14	-0.24 *	-0.26 *	-0.30**

Note: *p<0.05, **p<0.01 .

3.3. Relationships between degree of student-athlete's identity and depression, sports helplessness

As a result of calculating the student-athlete's identity scores, the mean value was 48.16, the median value was 49, the standard deviation was 10.48, the minimum value was 13, and the maximum value was 70, confirming the normality of the distribution. In this study, following Tanimura and Watanabe [15], the participants were classified into two groups, higher and lower student-athlete's identity groups, based on the median value. As a result, 13 participants in the median group were excluded, and 192 participants in the higher identity group and 197 participants in the lower identity group, a total of 389 participants were included in the analysis of this section. The results of the t-test indicated that there was no significant difference in depression and a significant difference in sports helplessness. Student-athletes with higher degrees of identity tended to have significantly lower levels of sports helplessness.

Table 3. Comparison between Depression and Sports Helplessness by degree of student-athlete's identity.

	Degree of student-athlete's identity					
	Higher group (n=192)		Lower group (n=197)			
	Mean	SD	Mean	SD	t-value	
Depression	6.82	3.34	7.39	3.64	1.60	n.s.
Sports helplessness	6.85	3.52	7.89	3.58	2.86	p<0.01

4. Discussion

The purpose of this study was to investigate the relationships among degree of student athlete's identity and mental health problems in Japanese intercollegiate student-athletes in the COVID-19 pandemic, and this study clarifies the current state of mental problems of student-athletes in Japan.

The result of this study indicated no significant differences in student-athlete's identity by grade. Previous studies have shown that athletic identity increases during peak athletic performance and declines during retirement from competition [11,16,17,18]. Therefore, this study was assumed that the athletic identity of the senior athletes would be higher than that of the other grades. Because, in Japan, the start of the new school year is in April, and the senior grade is the start of the final year of school, so that student-athlete's identity would be especially high in the senior grade. However, this study showed different results from previous studies. This result is thought to be due to the cessation of athletic activities in university caused by the COVID-19 pandemic.

In addition, the results of a comparison of the mental health of student-athletes by grade level demonstrated that there was no difference in depression, but there was a significant difference in sports helplessness. The senior grade showed higher sport helplessness than the freshmen and sophomores grades. While Gouttebarge et al. [19] has shown that the risk of depressive symptoms increases at the time of athletic retirement, and depression symptom has emerged as one of the most common emotional reactions when an athlete is injured [20]. This study was assumed that athletes in the senior grade athletes who were nearing retirement from collegiate sports would have higher depressive

tendencies than athletes in the other grades, but no differences were found. As with the results for the degree of student-athlete's identity, it can be inferred that this may not yet have affected the depressive tendencies of the athletes, since the time of the study was April and the effects of COVID-19 were just beginning to appear. However, the results indicated that the degree of sports helplessness for senior student-athletes was significantly higher than freshmen and sophomore's student-athletes. Brothers and Andersen [21] examined the relationship between helplessness and depressive symptoms in cancer patients, and found that helplessness is a predictor for depression, and that feelings of helplessness may induce depressive symptoms. In other words, it has been suggested that helplessness may be an antecedent of depressive feelings, and it is possible that the same may occur in athletes. In particular, the senior student-athletes may have experienced a high level of sports helplessness because of a decrease in motivation to continue competing by the closure of the university and the cessation of athletic activities due to COVID-19 at the start of their final year of collegiate sports. In addition, helplessness is a predictor of depressive feelings, and increased sports helplessness in the COVID-19 pandemic may predict a mental health crisis in student-athletes.

As a result of examining the relationship between student-athlete's identity and mental health, a negative correlation was found between identity and depression in junior and senior grades. In addition, negative correlations were also found between identity and sports helplessness in sophomore grade and above. Previous studies have examined the relationship between athletic identity and mental health, and have shown that higher degrees of athletic identity tend to be associated with better mental health [7,8,9]. In addition, Miller and Hoffman [6] have indicated that athletic identity is significantly negatively associated with depression, so the results of this study might follow previous studies. These findings suggested that in order to maintain better mental health in student-athletes, it is necessary to maintain their student-athlete identity, which is their primary role or self-concept as a student and athlete. Particularly, this study found a moderate correlation between student-athlete's identity and sports helplessness in the senior grade. They were in their final year of collegiate sports, yet an unexpected interruption in competition due to the COVID-19 pandemic occurred. Some of them were forced to retire from college sports due to this effect, which may have increased their sports helplessness. It may be inferred necessary to support senior student-athletes in maintaining their student-athlete identity.

Finally, the results of examining the differences in depression and sports helplessness between the two groups with higher and lower degrees of student-athlete's identity indicated that the higher group had significantly lower sports helplessness than the lower group. In other words, student athletes who were higher perception of the role of the student-athletes demonstrated lower the sports helplessness. Graupensperger et al. [7] examined the relationship between mental health and athletic identity during the COVID-19 pandemic in American student athletes and found that athletes who formed a strong athletic identity were associated with lower feelings of depression. This study indicated that student-athlete's identity influenced the suppression of helplessness that is a predictor of depression [21] in Japanese student-athletes. The results support previous study in the U.S. and suggest that the current situation of student athletes around the world is similar.

In conclusion, this study inferred that a strong feelings of student-athlete identity may be able to suppress sports helplessness and depressive feelings even when unexpected events such as the COVD-19 pandemic occur.

Conflicts of Interest: The authors declare no conflict of interest.

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