

## Article

# Relationships among athletic identity, mental health and social support in Japanese student-athletes during the COVID-19 pandemic

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**Abstract:** The purpose of this study was to investigate the relationships among student athlete's identity and mental health during the COVID-19 pandemic. In addition, this study aimed to clarify the relationship between perceived social support from teammates and mental health in student-athletes. Two studies were conducted to investigate to clarify the mental health states of student-athletes in Japan during the COVID-19 pandemic. In Study 1 conducted in April 2020, the participants were 402 male student-athletes, and examined the relationships among student-athlete's identity and mental health. The results of correlational analyses indicated that there were significant negative correlations between degree of student-athlete's identity and depression and sports helplessness. In Study 2 conducted in March 2021, the participants were 136 male student-athletes, and examined the relationship between perceived social support from teammates, student-athlete's identity and mental health. The results indicated that there was significant correlation among social support, student athlete's identity and mental health. These results suggested that mental health may be improved if student-athletes are strongly aware of their social identity, which is their social role, when unforeseen events such as the COVID-19 pandemic occur. In addition, social support provided by significant others such as teammates may contribute to the improvement of mental health.

**Keywords:** athletic program; collegiate sports; UNIVAS; COVID-19; mental management

## 1. Introduction

The Japan Association for University Athletics and Sports (UNIVAS) – the national governing body for intercollegiate sports – was established in 2019. The UNIVAS aims to ensure the safety of student-athletes and has started offering programs to support the physical and mental health of student-athletes in Japan. However, in April 2020, shortly after the UNIVAS started its support program, the COVID-19 pandemic caused most Japanese universities to close their campuses and move their classes online, leaving many student athletes unable to play sports or study satisfactorily. Many student-athletes were then unable to participate in their sports. Therefore, there is an important need to study

mental health during the COVID-19 pandemic and to better understand the psychological and emotional perspectives among student-athletes in Japan.

Athletic identity has been defined as "the degree to which an individual identifies with the athletic role" [1]. Athletic identity is often used to examine the social identity of student-athletes and encompasses the psychological, emotional, and behavioral components of an athlete's self-identity [2]. The relationship between athletic identity and mental health has been examined. Miller and Hoffman [3] found that athletic identity was negatively related to symptoms of depression. Furthermore, Graupensperger et al. [4] stated that it is also important to consider the importance of athletic identity when investigating the impact on mental health among student-athletes during the COVID-19 pandemic in the United States, and also found a negative correlation between athletic identity and depressive symptoms. The higher degree of athletic identity then tended to be better mental health states [4,5,6]. However, the relationship between student-athletes' athletic identity and mental health under the COVID-19 pandemic has not been examined in Japan. Therefore, two studies are conducted to better understand the relationship between athletic identity and mental health and to examine the factors that positively influence these factors.

The purpose of the Study 1 was to investigate the relationships among athlete's identity and mental health in Japanese intercollegiate student-athletes under the first COVID-19 pandemic (April, 2020) in Japan. In addition, this study examined the current state of mental health of Japanese student-athletes based on their year in college, as athletic identity can be investigated from a developmental perspective [1]. Therefore, several studies have examined the degree of athletic identity in time series [7,8,9]. The first-year students had a higher degree of athletic identity compared with fourth-year student [8]. The degree of athletic identity decreased from first-year to fourth-year in college [7]. This study would also examine the relationship between different degrees of athletic identity and mental health based on year in universities. Graupensperger, et al. [4] noted that it is important to evaluate athletic identity under the COVID-19 pandemic to assess its impact on student-athletes' mental health. They showed that social support with teammates might be related to mental health and athletic identity. Lakey and Cohen [10] also emphasized that several perspectives on "social support" locate identity as a mechanism linking supportive relations with significant others and mental health. Described above could be inferred that there was a relationship among social identity, mental health, and social support with significant others. It would be possible to approach the issue of student athletes' mental health by examining these three factors.

Social support has gained attention from researchers as a beneficial resource for particular health-related issues [11]. Generally, social support is defined as "the help provided by individuals who comprise the social network of a person who occupies apposition of ego in this network" [12]. According to Hisada [13], the major findings on social support show that "various forms of support provided by others should play the major role in maintaining or improving the person's mental health". Drawing on these findings, many researches have begun focusing on the relationship between receipt of social support and mental health [14,15,16,17,18]. This line of research has produced a number of important findings. For example, social support has been shown to reduce stress, anxiety, and helplessness related to engaging in, or continuing, competitive sports [19,20]. Thus, social support from significant others might be beneficial for maintaining the mental health of intercollegiate student-athletes.

In addition, Erikson [21], a pioneer in identity research, stated that in the process of identity formation, especially in adolescence, the personality is formed by clarifying the position of the self in the social context of the nation, culture, and relationships with significant others. It can be inferred that the process of individual identity formation differs depending on social factors. In addition, relationships with significant others in social contexts such as family, peers, school, and work are deeply related to the formation of adolescent identities [22]. The relationships that adolescents have with their significant others such as family members and peers who live in the same context as themselves, affecting

their social identity formation. From this standpoint, the field of social psychology has been examining the relationship between identity formation and social support. Caldwell et al. [23] examined the degree of identity and satisfaction with the recognition of social support from significant others, and found that the higher the degree of recognition of social support indicated the higher the degree of identity. In Japan, the higher the level of recognition of social support demonstrated the higher the level of identity in college students [24]. Thus, social support from others may have an impact on the formation of identity, and research focusing on social support has been increased.

In the sport science, Hagiwara and Isogai [25] examined the relationship between the degree of perceived social support relationship with teammates and athletic identity among student-athletes. The relationship between perceived social support from teammates and athletic identity was found to be higher for student-athletes who perceived receiving social support from teammates. As described above, college sport research has shown that social supports from teammates on sport teams are related formation of identity as a student-athlete.

In Japan, the first state of COVID-19 emergency was declared in April 2020, forcing student athletes to suspend their activities, practices, and competition. In addition, a second state of COVID-19 emergency was declared in January 2021, forcing the cancellation of campus and athletic activities. And as of the end of February 2021, the state of COVID-19 emergency has been lifted and activities and practices at the university have begun to resume. With the resumption of athletic club activities at the university, student athletes are gradually freeing themselves from social isolation as they resume interaction with their teammates. Therefore, the purpose of the Study 2 was to add social support as it relates to mental health and aimed to better understand the relationship among social support from teammates, student-athlete's identity, and mental health.

## 2. Method

### 2.1. Participants

In Study 1, a web-based survey was conducted at five universities. Five 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-year of college students, 109 were second-year, 83 were third-year, and 105 were fourth-year. 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.

In Study 2, a web-based survey was conducted at three universities, and they also have national level athletic teams and provides scholarships for student-athletes. Participants were 136 male Japanese collegiate student-athletes (Mean age=20.01, SD=1.11). Only student-athletes who had resumed their club activities and were able to practice and play games were included in the study. Their sporting activities included basketball (99), rugby football (35) and 50 were first-year of college students, 41 were second-year, and 44 were third-year. The fourth-year of college students were not included in the survey because they had already retired from athletic club activities. The participants recruited for Study 2 were also scholarship student-athletes with the same conditions as in Study 1.

### 2.2. Instruments

In Study 1 and Study 2, the Japanese version of the BIMS (BIMS-J) [26] 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

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the measurement were confirmed via Cronbach's alpha and confirmatory factor analysis [26].

In Study 1 and Study 2, to measure the athletes' mental health issues, the depression and sports helplessness subscales of the Stress Response Scale for Athletes [27] 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 [27].

In Study 2, for measuring perceived social supports from teammates, the Receiving Social Support Scales for Sports Teams [28] was used. This questionnaire assesses individuals' perceptions of receiving social support from their teammates. The scale consists of six items, which are preceded by the sentence, "We would like to ask you about the help and support you receive from your teammates when you play or decide to continue playing competitive sports. Your teammates..." Example items include "give you advice to help solve your problems" and "cheer you up when you are feeling low." These items are rated on a scale of 1 (strongly disagree) to 5 (strongly agree) and are summed to provide a total score representing the amount of received social support. For this social support scales, evidence of reliability and validity was obtained in previous studies [28]. The scales demonstrated sufficient values for Cronbach's alpha ( $>.70$ ) and the goodness of fit index ( $<.90$  for GFI, AGFI and CFI with RMSEA  $<.08$ ).

### 2.3. Procedure

In Study 1, a 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. In Study 2, a web based-survey was conducted in early March 2021. During this period, the declaration of the state of emergency due to the second COVID-19 pandemic was lifted, and some universities were able to conduct athletic club activities and other activities.

This study was approved by the institutional review board of National Institute of Fitness and Sports in Kanoya (No.8-1, April 2020). 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

In Study 1, 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 year of college. Pearson's correlation coefficients were used to examine the relationships among the degree of student-athletes' identity and depression and sports helplessness by college year. In Study 2, a one-way ANOVA analyses was used to compare among student-athlete's identity, depression, sports helplessness and perceived social supports from teammates by year of college. In addition, Pearson's correlation coefficients were used to examine the relationships among the degree of student-athletes' identity, depression and sports helplessness perceived social supports with teammates by college year. All data were analyzed using IBM SPSS Statistics 27.0.

### 3. Results

#### 3.1. Descriptive statistics

In study 1, 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 college year ( $F=5.32$ ,  $p<0.001$ ). In addition, the results of Tukey post hoc analyses, there were significant differences between first-year, second-year and fourth year of student-athletes (Table. 1).

**Table 1.** Means (SD) and post hoc analysis for subscales between college year.

Variable	First-year (n=105)		Second-year (n=109)		Third-year (n=83)		Fourth-year (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	1 <sup>st</sup> , 2 <sup>nd</sup> < 4 <sup>th</sup> **

Note: \*\* $p<0.01$

In study 2, the descriptive statistics of the scores for student-athlete's identity, depression, and sports helplessness are shown in Table 2. Results of the one-way ANOVA analyses that there were no significant differences in student-athlete's identity, depression, and sports helplessness. (Table. 2).

**Table 2.** Means (SD) and post hoc analysis for subscales between college year.

Variable	First-year (n=51)		Second-year (n=41)		Third-year (n=44)		Post hoc
	Mean	SD	Mean	SD	Mean	SD	
Student-athlete's identity	51.53	9.00	50.68	9.77	50.84	9.23	n.s.
Depression	8.57	3.59	8.56	3.42	7.66	4.32	n.s.
Sports helplessness	7.49	3.31	7.95	3.33	6.77	3.48	n.s.

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

In study 1, correlational analyses indicated, that for third-year and fourth-year of student-athletes, there were significant negative correlations between student-athlete's identity and depression. In second-year, third-year and fourth-year of student-athletes, student-athlete's identity was significantly correlated with sports helplessness. In addition, there were significant correlations between depression and sports helplessness. (Table 3)

**Table 3.** Correlation coefficients between student-athlete's identity with Depression and Sports Helplessness.

Factors/ College years	1 (AI)				2 (DP)				3 (SH)			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1 Student-athlete's identity (AI)	-	-	-	-	-0.01	-0.13	-0.16	-0.16	-0.14	-0.24*	-	-
2 Depression (DP)	-0.01	-0.13	-0.16*	-0.16*	-	-	-	-	-	0.52**	0.60**	
3 Sports helplessness (SH)	-0.14	-0.24*	-	-	0.52**	0.60**	-	-	0.32**	0.33**	-	-
									*	*	0.32**	0.33**

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001, 1st=first-year, 2nd=second-year, 3rd=third-year, 4th=fourth-year.

### 3.3. Relationships between received social support from teammates, degree of student-athlete's identity and depression, sports helplessness

In study 2, correlational analyses indicated, that there were significant negative correlations between student-athlete's identity and sports helplessness in all year of student-athletes. In addition, there were positive significant correlations between student-athlete's identity and received social supports from teammates in all year of college. On the other hand, there were no significant correlation between student-athlete's identity and depression in all year of college. In the relationship between social support and depression, a significant negative correlation was found among first-year, but no significant difference was found among second and third-year students. In the relationship between social support and sports helplessness, there were significant negative correlations among first and third-year student, on the other hand, there was no significant difference in second-year students. In addition, there were significant correlations between depression and sports helplessness. (Table 4).

**Table 4.** Correlation coefficients between student-athlete's identity, depression, sports helplessness, and social supports from teammates.

Factors/ College years	1 (AI)			2 (DP)			3 (SH)			4 (SS)		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
1 Student-athlete's identity (AI)	-	-	-	-0.16	-0.19	-0.20	-0.33*	-0.32*	-	0.37**	0.42**	0.56**
2 Depression (DP)	-0.16	-0.19	-0.20	-	-	-	0.63**	0.66**	0.80**	-	-0.02	-0.14
3 Sports helplessness (SH)	-0.33*	-0.32*	-	0.47**	*	*	*	-	-	-0.33*	-0.12	0.41**
4 Social supports (SS)	0.37**	0.41**	0.56**	-	0.43**	-0.02	-0.14	-0.33*	-0.12	0.41**	-	-

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001, 1<sup>st</sup>=first-year, 2<sup>nd</sup>=second-year, 3<sup>rd</sup>=third-year.

## 4. Discussion

The purpose of these two studies were to better understand the relationship between athletic identity and mental health and examine the factors that positively influence these factors during the COVID-19 pandemic in Japan. Specifically, Study 1 examined the relationship among identity, depression, and sports helplessness. Study 2 examined the social supports that positively affecting identity and mental health 1 year after the first COVID-19 pandemic in Japan.

Both Study 1 and 2 indicated no significant difference in student-athlete's identity by college year. Previous studies have shown that athletic identity increased during peak athletic performance and declines during retirement from competition [8,29,30,31]. Therefore, this study was assumed that the athletic identity of the senior athletes would be higher than that of the other years. Because, in Japan, the start of the new school year is in April, and the senior year is the start of the final year of school, so that student-athlete's identity would be especially high in the senior athletes. However, this study did not show the tendency found in previous studies. This result is thought to be due to the cessation of athletic activities in university caused by the COVID-19 pandemic. Student-athletes in their fourth year were in the final year of their academic and athletic careers. They are at the termination of their athletic careers, but the COVID-19 pandemic has prevented them from playing satisfactorily. As a result, when the athletic identity is supposed to be strongly formed in the final year, it might indicate same degree of identity than other

years. In Study 1, there was no significant difference in depression, but a significant difference was found in sports helplessness. The fourth-year students showed higher sport helplessness than the first- and second-year students. In Study 2, there was no significant difference in depression and sports helplessness by college year. The risk of depressive symptoms increased at the time of athletic retirement [32], and indicated that depression symptom has emerged as one of the most common emotional reactions when an athlete is injured [33]. From these knowledges, this study was assumed that athletes in the fourth-year athletes who were close to retirement from collegiate sports or athletes who cannot play sports by COVID-19 pandemic would have higher depressive tendencies than athletes in the other years; however, no difference was found. The fourth-year college students tended to be significantly higher in sports helplessness, which may be due to the impact of the cancellation of competitions and practices by COVID-19 pandemic. Especially in the last year of intercollegiate sports, COVID-19 pandemic was thought to dramatically increase this tendency.

Regarding the relationships among the degree of student-athletes' identity, depression and sports helplessness by college year, there were significant correlations among these factors in Study 1 and 2. First, there were significant positive correlations between depression and sports helplessness in both Studies. Previous studies have shown a relationship between helplessness and depression [34,35]. A relationship between helplessness and depressive symptoms in cancer patients was examined, and found that helplessness was a predictor for depression, and that feelings of helplessness might induce depressive symptoms [35]. Helplessness may be an antecedent of depressive feelings, and it was possible that the same might occur in athletes in this study. In particular, the fourth-year student-athletes 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.

Secondly, there was a significant negative correlation between student-athlete's identity and mental health. In Study 1, a negative correlation was found between identity and depression in third- and fourth-year students. In addition, negative correlations were also found between identity and sports helplessness in above second-year students. In Study 2, there were significant negative correlations between student-athlete's identity and sports helplessness in all year of student. On the other hand, there was no significant correlation between student-athlete's identity and depression in all year of college. The higher degrees of athletic identity tend to be associated with better mental health [4,6,36]. Graupensperger et al. [4] 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 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 addition, Miller and Hoffman (2010) 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 fourth 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 the COVID-19 pandemic, which may have increased their sports helplessness. The results also showed a strong correlation between depression and sports helplessness – associated with helplessness that is an antecedent of depression in previous studies [34,35]. To prevent student-

athletes from depression, it is necessary to support them in maintaining their identity as student-athletes.

Finally, regarding the relationships among social supports from teammates, and student-athlete's identity and mental health, there were significant correlations. In the relationship between social support and depression, a significant negative correlation was found among the first-year, but no significant difference was found among second- and third-year students. In the relationship between social support and sports helplessness, there were significant negative correlations among first- and third-year student. On the other hand, there was no significant difference in second-year students. In addition, there were significant correlations between depression and sports helplessness. Moreover, there were positive significant correlations between student-athlete's identity and received social supports from teammates in all year of college.

Previously, several studies mentioned that there was a relationship between social supports, mental health and social identity [4,10,18]. Hagiwara et al. [18] examined the relationships between social support and mental health among American collegiate student-athletes, and indicated that received social supports from teammates were negatively correlated with both depression and sports helplessness. In addition, Graupensperer, et al. [4] noted that it is also important to consider the importance of athlete identity when examining the impact on student-athletes' mental health during the COVID-19. In addition, they demonstrated that social support with teammates might be related to mental health and athletic identity. Lakey and Cohen [10] also emphasized that several perspectives on "social support" locate identity as a mechanism linking supportive relations with significant others and mental health. As described above, previous studies inferred that there is a relationship between social identity, mental health, and social support with significant others, and it can be inferred that this study followed these previous studies.

Finally, we discuss the limitations of this study. First, the protocol of this study was originally designed to conduct a survey on the same participants in April 2020 and March 2021 in order to clarify the relationship between student-athlete's identity and mental health. However, as of March 2021, the universities that was the target of study 1 had not resumed athletic activities and it was not possible to conduct the survey, so study 2 was conducted on student-athletes who had resumed athletic activities and were at the same level as study 1. Originally, it was planned to conduct a comparison in the same participants to examine when COVID-19 occurred and after it ended. However, due to the prolonged COVID-19 pandemic and repeated university lockouts, the study turned out to be very different from the original plan. In this study, we conducted surveys at one-year intervals to clarify the relationship between identity and mental health and the impact of social support received from teammates. However, future studies with the same participants and after the end of the COVID-19 pandemic will provide more insight. Secondly, the findings of this study were based only on student-athletes receiving scholarships. In addition, since all the teams that consented to the web-survey were male teams, the study was limited to only male student-athletes. There are approximately 175,000 student-athletes in Japan [37], and the results of this study do not cover the findings of student-athletes of all competitive levels and sex. In the further study, the findings of this study can be generalized by conducting a survey with a larger sample size, including the survey methodology, in cooperation with UNIVAS, the governing body for university sports in Japan.

## 5. Conclusion

In conclusion, this study examined the relationship between identity and mental health of Japanese student-athletes under the COVID-19 pandemic, and also examined the relationship with social support received from teammates. During study 1, the first COVID-19 pandemic occurred in Japan. We conducted a survey in April 2020 to examine social identity and mental health in student-athletes, and found a negative correlation between student-athlete's identity, depression and sports helplessness. In study 2,

conducted in March 2021, we found a negative correlation between student-athlete's identity and sports helplessness. In addition, the negative correlation between social supports from teammates and depression, sports helplessness was clarified. These results suggested that mental health may be improved if student-athletes are strongly aware of their social identity, which is their social role, when unforeseen events such as the COVID-19 pandemic occur. In addition, social support provided by significant others such as teammates may contribute to the improvement of mental health.

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