

The Effect of Unity in Sport Teams on Athletes' Mental Health: Investigating the Mediating Role of Resilience

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Unity is one of the most important factors for individual and team performance in sports. Mental health is also identified an important factor for athletes' sports performance. Scholars have proposed that athletes' mental health is related to resilience, that includes environmental and personal factors. We have hypothesized that unity in sports teams predicts environmental and personal factors of resilience, which in turn relate to athletes' mental health. Therefore, the purpose of the present study was to this examine the effect of team unity on athletes' mental health, and the mediating effect of resilience in its relationship. A total of 626 university athletes (average age 20.08 ± 1.31 years) from 16 sports completed questionnaires. The survey questionnaire comprised the Unity Scale for Sports Teams (Yamada et al., 2013), the Psychological Resilience Scale for University Athletes (Ueno and Shimizu, 2012) and the General Health Questionnaire-30 (Nakagawa and Daibo, 1985). Relationships between team unity, resilience and mental health were tested, as well as the above hypothesis. Results showed that positive correlations between team unity, athletes' resilience and mental health. Additionally, the results supported the mediation hypothesis of resilience in the relationship between team unity and mental health. The results suggest that interventions aiming to support athletes' mental health should focus on both teams and individual athletes.

Keywords: unity, mental health, resilience, team, sport

1. Introduction

For athletes to succeed in sport, they need to be both mentally and physically healthy. Mental health is the foundation of athletes' daily life and competitive career (Uchida, 2011), and mental conditions affect their sporting performance (Morgan and Johnson, 1997).

Athletes are exposed to physical and mental health issues throughout their competitive career, and sport is associated with a range of psychological issues, including burnout and dropout (Oka et al., 1998). Uchida (2014) warned that mental health issues are more prevalent than previously thought, even among top athletes. In particular, mental disorders among university athletes are identified an important issue to be solved in clinical settings (Hori and Sasaki, 2005). Much research exists

seeking effective means for athletes to maintain or improve their mental health (see Ishihara et al., 2012; Katsura and Nakagomi, 1990; Murakami et al., 2001).

Studies across multiple disciplines have aimed to promote individuals' mental health (Takatsuji, 2002). In sports, resilience has emerged as a factor expected to influence the improvement of athletes' mental health. Fletcher and Sarkar (2012) defined resilience as "the role of mental processes and behavior in promoting personal assets and protecting an individual from the potential negative effect of stressors" (p. 675). Scholars argue that resilience is critical to athletes' recovery from repeated hardships, crises, and setbacks, and subsequent return to an adaptive condition (Kobayashi and Nishida, 2009), and contains the elements of mental health (Ishige and Muto, 2005).

Ueno and Shimizu (2012) examined resilience's constitutive factors in university athletes, and developed a resilience scale specifically for athletes, which allowed researchers to study resilience among athletes in Japan. A subsequent study by Ueno et al. (2014) modeled athletes' resilience, and indicated that resilience predicts self-esteem, and mitigates stress during the stress response process. In addition, Holt and Dunn (2004) showed that resilience supports successes of soccer players. Through the interviews with Olympic champions, Fletcher and Sarkar (2012) found that resilience is related to athletes' optimal performance.

However, there are generally few studies on resilience among athletes (Ueno and Shimizu, 2012), and no studies have comprehensively assessed athletes' mental health and tested the relationship between resilience and mental health. Also, very few studies on resilience are conducted utilizing quantitative approach; hence, testing a conceptual model that includes a wide range of individual attributes is necessary for the further understanding of resilience (Ueno et al., 2014). Further, Ihaya and Nakamura (2008) argue that assessing the process of resilience should improve our understanding of its concept. Thus, in this examination of resilience among athletes, we aimed to address these challenges and expectations for resilience research put forth by scholars. Also, we attempted to highlight the psychological process of resilience, and present data useful to improvement of athletes' mental health.

Masten et al. (1990) propose that resilience consists of "environmental" and "personal" factors, such as social support and competence, respectively. Similarly, Werner (1992) broadly categorized resilience into "environmental" or "personal" with a long-term longitudinal study. Obanawa (2002) argued that resilience must be understood through both its environmental and personal aspects, and this is effective particularly when these factors interact (Saito and Okayasu, 2014). Additionally, previous studies have shown that social support significantly predicts resilience, and that resilience functions when its environmental factors have a positive influence on its personal factors (Ishige and Muto, 2005; Saito and Okayasu, 2011).

Considering that resilience facilitates improvement of mental health, and that much research has been conducted to examine the factors that improve

resilience, particularly the roles of resilience's environmental factors, such as social support, warrant further investigations. Therefore, focusing on team unity as a new environmental factor may help understanding of promoting athletes' resilience.

Unity is defined as "to feel that a team is united as one" (Yamada et al., 2013, p. 490), and which is considered "an important element in the formation of a group, and it exerts a positive influence on group activities" (Honma, 2011, p. 32–33). Enhancing unity is significantly related to development of mutual interactivity between members of a group or large organization (Yukelson, 1997). In sport, increasing unity improves individual and team performance and results (Woodcock and Francis, 1994). Yamada et al. (2013) created a scale for assessing unity, and showed unity is associated with team members' attributes, group size, and collective efficacy.

Based on previous studies, it is clear that team unity promotes social support and other environmental factors of resilience. First, group cohesiveness, which is regarded as a superordinate factor of unity (Forsyth, 2010), is positively correlated with social support (Vincer and Loughhead, 2010), and is also related to factors of psychological well-being (Carron, 1982). Resilience in sport teams has recently gained some attentions in research (Morgan et al., 2013). Team resilience is characterized by team psychological factors, such as mutual support and teamwork, and group cohesiveness has been cited as an antecedent factor of team resilience (Lengnick-Hall et al., 2011). Furthermore, Katsura and Nakagomi (1990) and Murakami et al. (2001) identified team commitment and team interpersonal relations are associated with athletes' mental health.

In summary, the cohesiveness and inter-member relationships of athletes' teams are related to athletes' mental health. Because many athletes consider their team as a central unit in their sport activities, methodological approaches targeting the team are critical in athletes' mental health support. Nakagomi (2014) indicated the importance of considering the entire team dynamics, including interpersonal relation, when conducting mental training and sports counseling with athletes. Additionally, little research in Japan approaches athletes' psychological condition from a team perspective. As indicated, approaches aiming to support athletes' mental health need new perspectives that is more based

on team than individual. Further, identification of unity's positive association with resilience's environmental factors may provide insights into better, more practical, and more useful ways to support athletes' mental health.

Therefore, the relationships between team unity, resilience, and athletes' mental health were examined. This examination is necessary for two reasons. First, there are few studies which investigated the relationships among these three conceptions. It also leads to the primary purpose of the current study, which is to test the hypothesis that team unity predicts the environmental factors of resilience, which allow personal factors to predict athletes' mental health (**Figure 1**). Specifically, it was hypothesized that enhancing team unity is positively related to promoting resilience, and that promoting athletes' resilience positively related to improving their mental health. The investigation may inform effective interventions targeting the improvement of psychological condition and competitiveness of athletes and teams. Considering that university athletes are in need for more psychological support (Ishihara et al., 2012), it was aimed to provide insights into ways to assist university athletes in leading fulfilling lives as athletes and members of society.

2. Method

2.1. Participants and survey period

The participants were athletes from three universities in the Kanto region of Japan, and who played their respective sports in university teams. Incomplete or defective responses were excluded; 626 participants (422 males, 204 females: average age 20.08 ± 1.31) from 16 different sports remained. Sample demographics are reported in **Table 1**. The data collection was conducted from October to November, 2013.

2.2. Survey procedure

The survey was conducted based on the participant's approval. A survey questionnaire was distributed to participants after the oral explanation of this study's purpose. They received the questionnaire that included descriptions of the study purpose, instructions for completing the questionnaire, and explanation of confidentiality, anonymity and non-compulsion of the survey in the front page. Participants indicated their understanding and consent by own signature, and completed the questionnaire at their university class rooms.

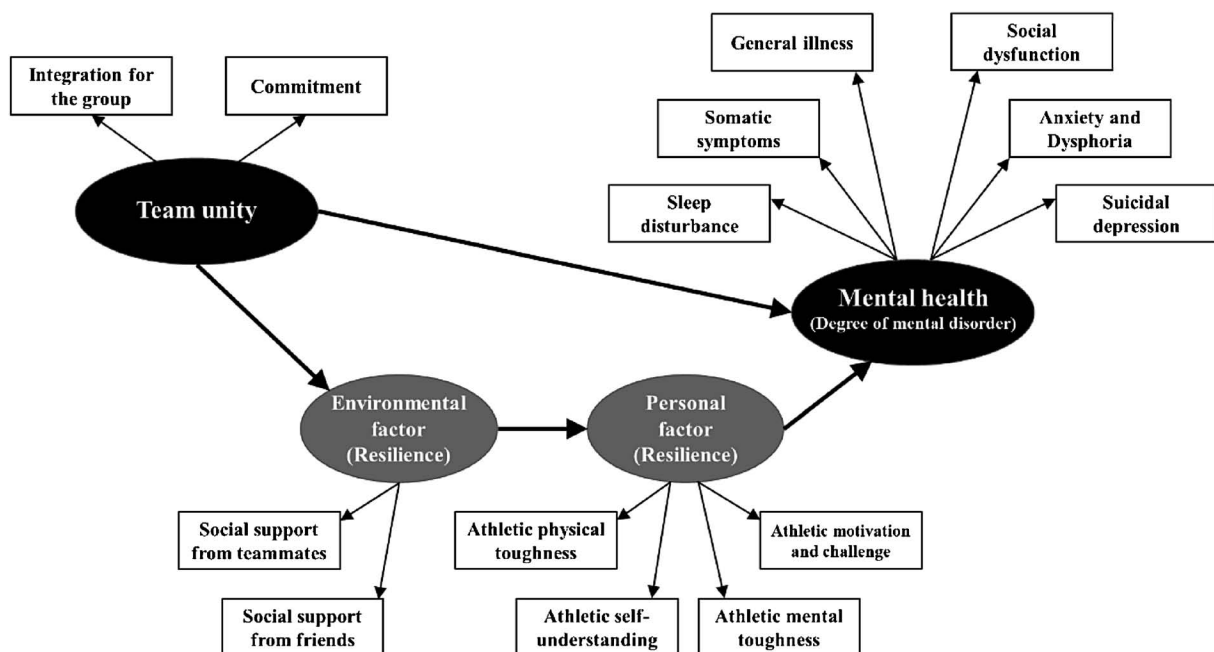


Figure 1 Hypothetical model

Table 1 Participant demographics.

	Academic year				Total
	Freshman	Sophomore	Junior	Senior	
Sporting event					
Co-active sports					
Track and field	42	23	35	26	126
Swimming	5	8	3	6	22
Badminton	3	0	0	2	5
Tennis	10	12	5	5	32
Gymnastics	7	5	9	5	26
Cycling	6	3	2	0	11
Golf	1	0	2	0	3
Judo	6	8	5	3	22
Kendo	11	9	5	10	35
Interactive sports					
Volleyball	15	12	16	16	59
Basketball	20	15	13	15	63
Soccer	19	19	15	16	69
Handball	17	13	3	8	41
Baseball	20	19	20	19	85
Softball	1	3	3	6	13
Rugby	4	4	3	3	14
Competitive level					
Prefectural or under	79	49	41	41	210
Regional	32	40	44	43	159
National	72	57	48	51	228
International	11	7	6	5	29
Role in the team					
Regular	70	87	68	65	290
Semi-regular	68	36	41	50	195
Non-regular	56	30	30	25	141
Total	194	153	139	140	626

2.3. Questionnaire

2.3.1. Participant demographics

Participants indicated their gender, age, academic year, sport played, competitive level (i.e., prefectural level or under, regional level, national level, or international level), and role in the team (i.e., regular, semi-regular, or non-regular).

2.3.2. Team unity

Team unity was measured using the Unity Scale for Sports Teams (USST: Yamada et al., 2013). This scale assesses unity via two factors: “integration for the group” and “commitment.” A total score was calculated. The scale reliability and validity have been demonstrated (Yamada et al., 2013). Participants indicated their agreement on a five-point Likert scale with 1 (*strongly disagree*) and 5 (*strongly agree*) for 8 items. Higher scores represented greater unity.

2.3.3. Resilience

Resilience was measured using the Psychological Resilience Scale for University Athletes (PRSUA: Ueno and Shimizu, 2012). This scale assesses resilience via two main factors and six sub-factors: “environmental (i.e., social support from teammates and social support from friends)” and “personal (i.e., athletic physical toughness, athletic self-understanding, athletic motivation and challenge, and athletic mental toughness).” A total score was calculated. The scale reliability and validity have been demonstrated (Ueno and Shimizu, 2012). Participants indicated their agreement on a five-point Likert scale with 1 (*disagree*) and 5 (*agree*) for 24 items. Higher scores represented higher resilience.

2.3.4. Mental health

Mental health was measured using the General Health Questionnaire 30 (GHQ-30: Nakagawa and Daibo, 1985). This scale assesses mental health via six factors: “general illness,” “somatic symptoms,” “sleep disturbance,” “social dysfunction,” “anxiety and dysphoria,” and “suicidal depression.” A total score was used to indicate overall mental health. The scale reliability and validity have been demonstrated (Nakagawa and Daibo, 1985). While this scale is generally used to screen for mental disorders, in this study it was used to measure participants’ mental health. Participants responded on a four-point Likert scale with 0 (*not at all*) and 3 (*much more than usual*) for 30 items. Higher scores represented poorer mental health.

2.4. Statistical analysis

To examine the relationship between team unity, resilience, and mental health, Pearson’s product-moment correlation coefficient was calculated. A covariance structure analysis was conducted to test the hypothetical model’s construct validity. In this hypothesized model, team unity was the explanatory variable, the environmental and personal factors of resilience were the parameters, and mental health was the criterion variable. IBM SPSS Statistics 21.0 and IBM SPSS Amos 21.0 were used for the analysis.

3. Results

3.1. Descriptive statistics

Table 2 shows each scale's average scores, and each participant's standard deviation. USST average scores were 13.84–28.99 ($SD=3.50$ – 6.73). PRSUA average scores were 12.64–93.65 ($SD=2.88$ – 14.08). GHQ-30 average scores were 5.69–54.59 ($SD=2.05$ – 12.73).

3.2. Relationship between team unity, resilience, and mental health

Table 3 shows correlation coefficients between team unity, resilience, and mental health. There was a significant positive correlation between team unity and resilience (USST–PRSUA; $r=.45$, $p<.001$). Significant positive correlations were demonstrated between all subordinate factors in both scales ($r=.15$ – $.53$, $p<.001$).

There was a significant negative correlation between team unity and mental health (USST–GHQ-30; $r= -.21$, $p<.001$). Significant negative correlations were demonstrated between many of

the subordinate factors in both scales, except for sleep disturbance in mental health ($r= -.09$ – $-.23$,

Table 2 Scores of mean and SD of each scale.

	Mean	SD
USST		
Integration for the group	13.84	3.85
Commitment	15.14	3.50
Unity (Total score)	28.99	6.73
PRSUA		
Social support from teammates	16.28	3.23
Social support from friends	16.82	2.98
Athletic physical toughness	15.36	3.04
Athletic self-understanding	16.22	2.90
Athletic motivation and challenge	16.33	2.88
Athletic mental toughness	12.64	3.45
Total score	93.65	14.08
GHQ-30		
General illness	8.94	2.55
Somatic symptoms	8.58	2.93
Sleep disturbance	8.96	3.39
Social dysfunction	8.64	2.05
Anxiety and Dysphoria	8.78	3.50
Suicidal depression	5.69	2.62
Total score	54.59	12.73

$n=626$

Table 3 Correlation coefficients between USST, PRSUA and GHQ-30.

	USST			PRSUA						
	IG	CO	UNI	SST	SSF	APT	ASU	AMC	AMT	Total score
PRSUA										
SST	.44***	.53***	.52***							
SSF	.29***	.34***	.34***							
APT	.25***	.39***	.34***							
ASU	.23***	.42***	.35***							
AMC	.24***	.36***	.32***							
AMT	.15***	.21***	.20***							
Total score	.35***	.49***	.45***							
GHQ-30										
GI	-.18***	-.18***	-.20***	-.19***	-.16***	-.17***	-.20***	-.17***	-.30***	-.26***
SS	-.09*	-.10**	-.11**	-.14***	-.08*	-.10*	-.17***	-.12**	-.27***	-.20***
SLD	-.04	-.03	-.04	-.07	-.08*	-.09*	-.10*	-.07	-.23***	-.14***
SOD	-.20***	-.23***	-.23***	-.25***	-.24***	-.25***	-.26***	-.25***	-.26***	-.33***
AD	-.17***	-.17***	-.19***	-.20***	-.08*	-.10*	-.20***	-.14***	-.39***	-.25***
SUD	-.19***	-.20***	-.21***	-.27***	-.24***	-.24***	-.28***	-.23***	-.30***	-.34***
Total score	-.18***	-.19***	-.21***	-.24***	-.18***	-.20***	-.26***	-.21***	-.40***	-.33***

$n=626$

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

IG: Integration for the group, CO: Commitment, UNI: Unity (Total score)

SST: Social support from teammates, SSF: Social support from friends, APT: Athletic physical toughness, ASU: Athletic self-understanding, AMC: Athletic motivation and challenge, AMT: Athletic mental toughness

GI: General illness, SS: Somatic symptoms, SLD: Sleep disturbance, SOD: Social dysfunction, AD: Anxiety and Dysphoria, SUD: Suicidal depression

$p < .05-.001$).

There was a significant negative correlation between resilience and mental health (PRSUA-GHQ-30; $r = -.33$, $p < .001$). Significant negative correlations were also demonstrated between subordinate factors in both scales, except for sleep disturbance in mental health ($r = -.08-.40$, $p < .05-.001$).

3.3. Validity of the hypothetical model

Figure 2 shows the results of the covariance structure analysis used to test the validity of the hypothetical model in which team unity predicts mental health via the environmental and personal factors of resilience. The model values for fit indices were $GFI = .93$, $AGFI = .90$, $CFI = .93$, $RMSEA = .08$. Each of these values was greater than the criteria for adoption (GFI , $AGFI$, $CFI \geq .90$, $RMSEA < .10$; Oshio, 2008); thus, the results supported the hypothetical model ($p < .001$).

The analysis showed significant positive paths from team unity to environmental factors of resilience ($\beta = .62$, $p < .001$), and environmental factors of resilience to personal factors of resilience ($\beta = .77$, $p < .001$). There was a significant negative path from personal factors of resilience to mental health ($\beta = -.26$, $p < .001$). The results also indicated a significant negative path from team unity to

mental health ($\beta = -.11$, $p < .001$), and significant positive paths from the terms (latent variables) to their subordinate factors (observable variables) ($\beta = .51-.93$, $p < .001$).

Thus, the direct effect of team unity on mental health was $-.11$, and the indirect effect via environmental and personal factors of resilience was $-.12$ $[(.62) \times (.77) \times (-.26)]$. Moreover, the total effect was $-.23$ $[(-.11) + (-.12)]$.

4. Discussion

The purpose of this study was to examine the relationships between team unity, the resilience of individual team members, and mental health. It was also examined the validity of a hypothetical model in which team unity predicts mental health with resilience as a mediating factor in the relationship.

First, a positive correlation was found between team unity and resilience. Results indicated that the more unified team members are the more resilient. This result suggests that increasing team unity is associated with increasing resilience of team members. Results also indicated that subordinate factors of team unity, specifically “integration for the group (unity of members and strength of the bond)” and “commitment (sense of belonging and dedication),” are related to all subordinate factors of resilience. Additionally, the correlation coefficient

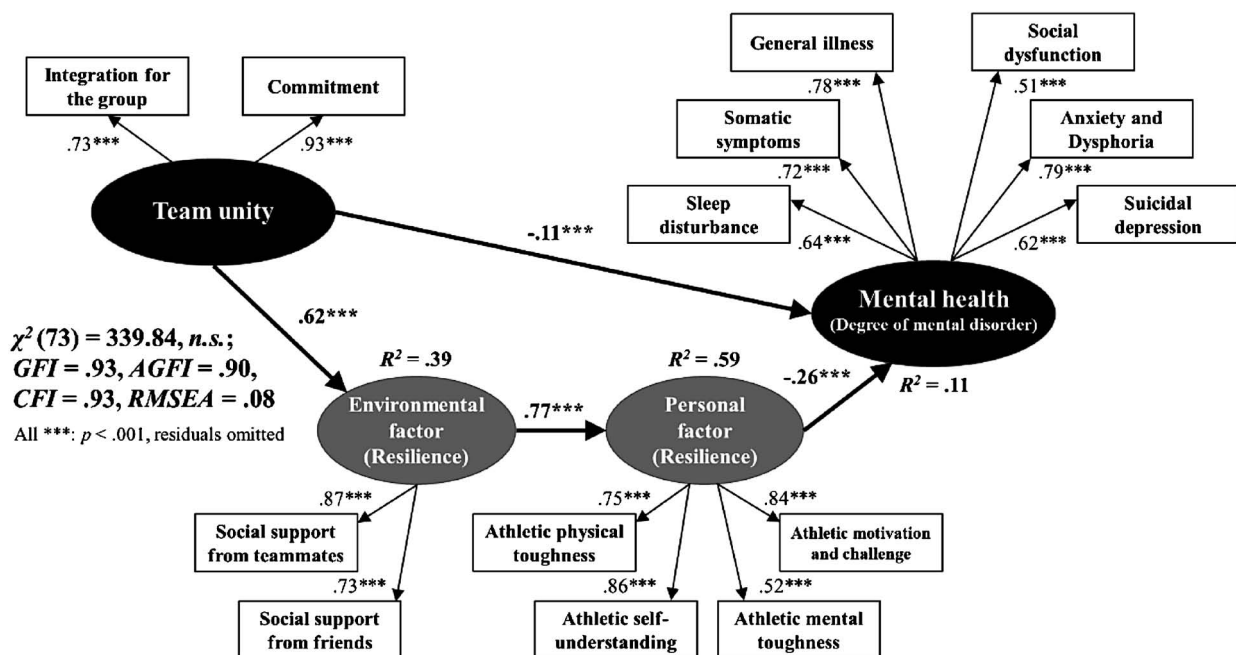


Figure 2 Validation result of the hypothetical model

between these components of team unity and “social support from teammates (psychological support from fellow team members)” was particularly high. This suggests that improvement in team unity will be associated with increase in perceived social support, which facilitate the environmental factors of resilience.

A negative correlation was found between team unity and mental health (operationalized as the degrees reported symptoms of mental disorder). Specifically, the more unified team members are the sounder mental health. Hence, increasing team unity may be associated with improving team members' mental health. However, the correlation coefficients were small. Takemura et al. (2013) observed that “team psychological variables, such as cohesiveness and collective efficacy, do not fully estimate group characteristics” (p. 485). In addition, unity is a subordinate factor of group cohesiveness (Forsyth, 2010), and is associated with collective efficacy (Yamada et al., 2013). Hence, it is reasonable to suggest that unity has a limited capacity to explain athletes' mental health. Also, one mental health factor, “sleep disturbance,” was uncorrelated with team unity; the reason may be that athletes' sleep disturbance largely depends on individual factors (Uchida, 2008). Hence, it was not possible to assume that team unity predicts athletes' mental health, and the limits of unity's explanatory power should be considered. Further examinations of the factors related to athletes' mental health and more effective mental health support strategies for athletes are warranted.

Besides “sleep disturbance,” a negative correlation was found between resilience and mental health, and between most of their subordinate factors. That is, the more resilient athletes are the sounder mental health. This suggests that increasing resilience is associated with improving athletes' mental health. Moreover, among resilience's subordinate factors, “athletic mental toughness (the ability to withstand mentally challenging situations and steer one's emotions in a positive direction)” showed strong correlations with all subordinate factors of mental health, including “sleep disturbance.” Further, correlation coefficient between the “athletic mental toughness” and overall mental health was greater than the relationships between other subordinate factors of resilience and mental health, suggesting athletes' mental health may be

improved by enhancing their mental toughness. Additionally, this implies that resilience's personal factors, namely “athletic mental toughness,” may be a primary predictor of athletes' mental health.

Next, covariance structure analysis was conducted to examine the validity of a hypothetical model in which team unity predicts environmental factors of resilience, which predict personal factors of resilience, and then, leads to mental health. Analysis showed adequate fit indices, demonstrating adequate validity. Also, the size of the indirect effect of team unity on mental health ($\beta = -.12$) was slightly greater than that of the direct effect ($\beta = -.11$). Hence, team unity may have an indirect positive effect on athletes' mental health via the mediating effect of resilience. Unity's significant direct effect on mental health suggests that bonds between team members may predict team members' psychological well-being. However, as these results only pertain to university athletes in many different sports, future research examining a specific sport or a single gender may show different results. Moreover, the paths from team unity to environmental factors of resilience, and environmental factors of resilience to its personal factors, and from personal factors of resilience to mental health, were all significant. This suggests that enhancing team unity may be related to an improvement in environmental and personal factors of resilience, and consequently may lead to athletes' mental health. These results are consistent with those of previous studies on non-student athletes (Ishige and Muto, 2005; Saito and Okayasu, 2011), and suggest that for university athletes, as with non-student athletes, an increase in environmental factors increases personal factors of resilience, which then related to an increase in mental health. The lack of a direct path from environmental factors of resilience to mental health ($\beta = .13$, *n.s.*) is interesting. Nonetheless, strengthening resilience's personal factors via intervening environmental factors, particularly social support, is essential to athletes' maintenance and improvement of mental health. Further, team unity may be the antecedent factor to strengthening the resilience.

In summary, because many athletes consider their team the main unit of their activities, building relationships in their teams to increase team unity will contribute to improving athletes' resilience, which will assist athletes in coping with stress, and improving mental health. Yamada et al. (2014)

proposed that free communication between teammates predicts teams' organizational climates, and it is positively related to team unity. If such communication can be facilitated and increased team unity, mental health, which is critical to team members' academic and competitive activities, may be improved and promoted. Therefore, athlete-focused mental health support or team-building activities that address the needs of both teams and individuals may work effectively and foster a comfortable team environment.

The findings of the present study can be summarized as follows. A correlation was found between team unity, athletes' resilience, and mental health. Regarding the relationships between these factors, the results suggest that team unity has a positive effect on environmental factors of resilience, which relate to personal factors of resilience, and then in turn, predict mental health. This study can contribute to the literature for several reasons. First, we examined the effects of team (group) factors on the athletes' individual psychological factors (resilience, mental health)—few studies have examined such relationships. Also, we identified the antecedent and subordinate factors, and the development process of resilience, which is noteworthy given the scarcity of studies on resilience in the field of sport. Finally, we conducted a comprehensive assessment of the mental health of university athletes; the findings contribute to the development of new perspectives and strategies regarding mental health support for university athletes.

This study did, however, have some limitations. Because this study was cross-sectional, cause-and-effect relationships between the factors cannot be fully identified. Furthermore, though the correlation coefficients between the factors were statistically significant, their values were too small to support conclusions regarding the hypothesized relationships. Evaluation of the factors using different assessment and testing the hypothesized relationships are needed. Alternatively, researchers should consider conducting a longitudinal study that uses a specific event (e.g., an official game or meet) as a criterion and examines changes in the factors before and after the event. Additionally, this study's results only sampled university athletes who were at a particular developmental stage—for example, participants in this study exhibited less cognitive unity than high school athletes did in

other recent studies (Yamada et al., 2013, 2014), relatively high resilience, and vulnerability to mental health problems (Hori, 2014). Therefore, further research examining athletes at other developmental stages is needed.

We were not able to examine all factors that constitute an athlete's mental health, including mental conditions specific to athletes, and the emotions that cause or result from such conditions. Thus, though this study's findings may be applied in sport settings, it is necessary to continue the investigations of the relationships between team unity and resilience, as well as other factors. Given that there are few quantitative studies examining the development of resilience among athletes (Ueno et al., 2014), further research in this area should address the above issues, and develop new perspectives toward intervention and strategies for supporting and promoting athletes' mental health. New strategies should encourage teams to work together to find solutions for the problems and setbacks that their individual members struggle to manage.

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