

# *Elite athletes' mental well-being and life satisfaction: a study of elite athletes' resilience and social support from an Asian unrecognised National Olympic Committee*

## BACKGROUND

This study aimed to investigate elite athletes' mental well-being, and to ascertain whether the personal factor resilience and the social factor social support can play a role in promoting mental well-being and life satisfaction. In addition, this is one of the first studies to investigate well-being among elite athletes who are from a region belonging to an unrecognised National Olympic Committee and are not eligible to join the Olympic Games.

## PARTICIPANTS AND PROCEDURE

Eighty-four full-time elite athletes (37 males, 47 females) with mean age of 22.36 years old participated in this quantitative research study. Formal letters describing the purpose and organiser of the study were sent to the sport entities in Macao asking their permission for the researchers to contact the elite athletes to participate in this study. After gaining the permission, the elite athletes belonging to these entities were approached individually, to inform them of the purpose of the study and receive their consent.

## RESULTS

Regression revealed that emotional support and adaptability of resilience were strong positive predictors of mental well-being. Additionally, mental well-being was found to be a strong positive predictor of life satisfaction. The results reflected that in elite athletes possessing high adaptability and receiving more emotional support could help to maintain their mental well-being.

## CONCLUSIONS

Implications (based on the findings) are discussed in order to provide insights for policy makers or coaches how to promote elite athletes' mental well-being.

## KEY WORDS

elite athletes; mental well-being; life satisfaction; resilience; social support

ORGANIZATION – University of Saint Joseph, Macau, China

AUTHORS' CONTRIBUTIONS – A: Study design · B: Data collection · C: Statistical analysis · D: Data interpretation · E: Manuscript preparation · F: Literature search · G: Funds collection

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## BACKGROUND

Psychological distress can occur for an athlete, or any person, when opportunities to succeed are not available to them. An athlete is “a person who is very good at sports or physical exercise, especially one who competes in organised events” (Cambridge Dictionary). Santos (2013) identified three types of athletes, namely, (1) amateur athletes, who choose to participate in any kind of competition; (2) semi-professional athletes, who have contracts with organisations that need them to perform and give them incentives; and (3) professional/elite athletes, who have written contracts with organizations, fixed training schedules, and receive a regular salary. Athletes who pass certain criteria may have an opportunity to participate in the Olympics. Thus, it would be distressing for excellent athletes to be prohibited from participating.

The Olympics are open every four years for qualified athletes from 206 countries or regions that have recognised National Olympic Committees (NOCs). Only athletes from these NOCs may participate in the Olympic Games (International Olympic Committees, 2019). But athletes who are not from an NOC location are not eligible to be in the Olympics. There are 19 non-NOC locations that have “unrecognised national Olympic committees”. One of those locations is Macao, a Special Administrative Region (SAR) of China (Political Geography Now, 2018). Hong Kong, another SAR of China, has an NOC, so its athletes can participate in the Olympics. But Macao’s athletes are not allowed in the Olympics even when they reach the same elite standard as those in Hong Kong.

Why may Hong Kong but not Macao participate in the Olympics even though both are SARs of China? In 1996, an amendment to the Olympic Charter stated that NOC recognition can only be granted after recognition as an independent state by the international community (International Olympic Committees, 1996). In practice, both Hong Kong and Macao, as SARs, are not independent states. Yet, Hong Kong continues to be allowed to participate and to have an NOC, even in the 2022 Winter Olympics.

This has generated psychological distress among Macao athletes, i.e., it seems unfair that they cannot participate in the Olympics even though they may join other competitions at advanced levels. For example, in the 18<sup>th</sup> Asian Games in 2018, Macao sent 110 elite athletes to take part in 16 different types of sports events, where they won gold and silver medals in the martial arts, silver and bronze medals in karate and a bronze medal in the triathlon (Olympic Council of Asia, 2018). These results suggest that Macao athletes can be deemed eligible not only by the Olympic Council of Asia but also for the International Olympic Games.

One of the greatest dreams of any athlete is to participate in the Olympic Games, but Macao athletes do not receive enough tangible (i.e., financial) support compared to that given to athletes in Hong Kong. The subsidy in Macao ranged from MOP 1,000 to MOP 25,000 (Macao Special Administrative Region Government Sports Bureau, 2019), and in Hong Kong ranged from HKD 2,340 to HKD 33,040 (Hong Kong Sports Institute, 2019). The currency conversion is MOP 1.00 = HKD 1.03; thus, Macao athletes receive considerably less.

Psychologically, these factors create a dilemma for Macao elite athletes. That is, why should they push themselves so hard to be elite athletes if they are not allowed to compete in the Olympic Games? This also creates a sense of cognitive dissonance, in which their behaviour conflicts with their desire (Festinger, 1957). And this is especially frustrating as they do not receive enough financial support for their efforts. Thus, Macao elite athletes are likely to experience psychological distress when their desire to compete is officially discounted.

Therefore, the aim of this study was to understand how to minimize the elite athletes’ cognitive dissonance, in terms of testing the relationship between their mental well-being, resilience, social support and life satisfaction. Although there have been studies about athletes’ mental well-being in many countries/regions (e.g., Reardon et al., 2019; Schinke et al., 2018), hardly any were found in countries/regions having unrecognised national Olympic committees. This actually can extend the theory of athletes’ mental well-being in specified context as well.

In addition, resilience, the ability one has to adapt to adversity positively (Luthar et al., 2000) and the capacity to recover quickly from difficulties (Kelle & Irak, 2018), is suggested to be a characteristic for athletes to deal with the challenges in sport. If the degree of resilience is low, it may lead to a result of weak performance causing negative feeling (Hosseini & Besharat, 2010). On the other hand, a high level of resilience may help to promote mental well-being (Kelle & Irak, 2018). Moreover, support from families, coaches, and peers has a positive effect on the athlete’s cognitive, emotional and behavioural aspects (Katagami & Tsuchiya, 2016) and it helps athletes to reduce the stresses that they receive by perceiving stress as less threatening (Cohen & Wills, 1985). Particularly, social support from coaches can improve psychological coping techniques (Folkmen et al., 1986; Ryska & Yin, 1999) and make them less likely to experience burnout (Lu et al., 2016). In return, social support acts as the athletes’ resource for enhancing their well-being.

Athletes found that when they were not allowed to participate in sport, it critically affected their life satisfaction negatively (Hawkins et al., 2004).

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The elite athletes in Macao (an Asian unrecognised National Olympic Committee) have restrictions to join international games, such as the Olympic Games. Thus, it is understandable that non-participation somehow impairs life satisfaction among the elite athletes in Macao. In addition, Diener et al. (1985) suggested that people would like to compare their circumstances (not able to participate at Olympic Games) to those standards they set for themselves (to participate at Olympic Games). Such a discrepancy would negatively affect their physical and mental well-being/health (Pritchard & Wilson, 2005). If an athlete's mental well-being is low, this can lower their performance in a competition as well as leading to significant problems in their daily life such as insomnia and eating disorders, which may lower their life satisfaction (Bird, 2013).

Thus, the objectives of this study are (1) to investigate the elite athletes' mental well-being; to find out (2) the relationships between elite athletes' resilience and mental well-being; and (3) the relationships between elite athletes' social support and mental well-being; (4) the relationship between elite athletes' mental well-being and life satisfaction; (5) to investigate the predictors of elite athletes' mental well-being and life satisfaction.

#### MENTAL WELL-BEING

The term mental well-being has been used interchangeably with positive mental health (Tennant et al., 2007). Mental health refers to the ability to conduct daily life activities, setting up an appropriate relationship and manifest appropriate social and cultural behaviour (Gheshlagh et al., 2016). Rice et al. (2016) claimed that there was less research but increasing concern for the mental health/well-being of elite-level athletes. There is an overlap in the period between the risk of elite athletes' onset of mental problem and their peak competitive years. It is important to notice that they receive demands psychologically and physically in the field of sport (Hughes & Leavey, 2012). Those stresses may affect the athletes' mental well-being, so it is critical for their success to cope with the challenges and demands. This phenomenon was not only found among elite athletes; student-athletes faced the stresses including the potential of injury and performance failure, causing mental disorders such as depression, anxiety, disordered eating or substance use (Kroshus, 2016). Even though athletes received so many stresses, they were less active to seek professional help due to factors such as stigma to seek treatment, i.e., a fear of perception of weakness from others; lack of information about mental health; and its hidden risk of affecting the performance (Van Slingerland et al., 2018; Rice et al., 2016).

#### RESILIENCE

Resilience refers to the maintenance, recovery, or improvement in mental or physical health challenge (Ryff & Singer, 2003). In other definition, resilience is defined as "a process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress" (APA, 2018). In order to capture the region of resilience, it can be separated as four dimensions of adult resilience, and named as determination, endurance, adaptability, and recuperability (Taormina, 2015). Determination refers to "the willpower and firmness of purpose that a person has and the decision to persevere and/or to succeed" (Taormina, 2015, p. 36). Endurance refers to "the personal strength and fortitude to survive in unpleasant or difficult situations without relinquishing" (Taormina, 2015, p. 37). Adaptability refers to "the ability to be flexible to adapt and to deal with unfavourable environments and adjust oneself to fit into the changing conditions" (Taormina, 2015, p. 37). Recuperability refers to "the capability to recover both physically and cognitively from different types of harm, frustration, and difficulties in order to return back to one's usual condition" (Taormina, 2015, p. 37).

The more resilience the people have, the better the mental well-being they have (Hu et al., 2015). Also, people with a high level of resilience may be inclined to have more positive emotions (Fredrickson et al., 2003), which can minimise the risk that people will experience mental disturbance (Ziaian et al., 2012). In the field of sport psychology, resilience was found to be an important psychological element among elite athletes (Fletcher & Sarkar, 2012; Galli & Vealey, 2008; Schinke et al., 2018). In addition, resilience was a predictor of elite athletes' mental well-being (Hosseini & Besharat, 2010). Thus: H1: The higher the degree of (a) determination, (b) endurance, (c) adaptability, and (d) recuperability the elite athletes have, the more mental well-being they have.

#### SOCIAL SUPPORT

Social support refers to the psychological and material resources from a social network to assist in coping with pressure (Cherry & Gans, 2019). Social support can be in different forms, such as to receive financial assistance, caring, coaches, teammates, family, and friends. Moreover, in the literature of sport psychology, there are four dimensions of social support (e.g., Rees & Hardy, 2000), namely, emotional support – to provide comfort, a sense of security and being loved, and giving concern and empathy to the athlete; esteem support – the recognition and identification of the athlete's ability and self-worth; informational

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support – to provide monition and guidance such as advice and teaching proper techniques; and tangible support – the provision of realistic and instrumental ministration such as a training schedule. These forms of support can be significant factors in maintaining physical health and psychological health (Malinauskas, 2008).

In sport psychology, social support was one of the most important forms of psychosocial influence upon the injury recovery process (Green & Weinberg, 2001) as well as to handle the negative psychological states due to injuries (Carson & Poleman, 2012), competitive stressors (Weston et al., 2009), such as anger, sadness, tension, and confusion for returning to training. The athletes can reduce their psychological stress or financial problems by receiving different forms of social support. Katagami and Tsuchiya's (2016) study suggested that the more social support the athletes receive, the better performance and psychological well-being they have. Thus: H2: The more the (a) emotional support, (b) esteem support, (c) informational support and (d) tangible support that the elite athletes receive, the more mental well-being they have.

## LIFE SATISFACTION

Life satisfaction refers as the subjectively perceived quality of life based on individual preferences and reported satisfaction in various life domains (Henrich & Herschbach, 2000). Fergusson et al. (2015) found out socio-economic factors, interpersonal relationship, financial situation, physical health are the predictors of life satisfaction. Besides those predictors, mental well-being was considered as an important predictor of life satisfaction (Lombardo et al., 2018). Some other researchers as also concluded that depression, anxiety, and stress (the opposite concept of mental well-being) are associated with poor satisfaction in life (Yazdanshenas Ghazwin et al., 2016). Moreover, elite athletes' mental well-being was found to be negatively related to the severity of their life events, suggesting that elite athletes with a high level of mental well-being are more likely to have positive evaluation of their life, i.e., life satisfaction (McLoughlin et al., 2021). Thus: H3: The more mental well-being the elite athletes have, the more life satisfaction they perceive.

## PARTICIPANTS AND PROCEDURE

### PARTICIPANTS

The respondents were elite athletes who belonged to the Macao sports teams and those who have experiences of representing Macao to participate in some international sport competitions. There were 84 (37 males, 47 females) Macao full-time elite athletes

from the disciplines of karate-do, taekwondo, judo, bowling, handball, as well as track and field. By athlete categories, there were 5 athletes who were Elite level 1, 11 athletes who were Elite level 2 and 57 athletes who were Elite level 3. For the criteria of the categories, see Macao Sport Bureau (2021). The average age was 22.36 years ( $SD = 5.49$ ) with the range of 18 to 47 years. By highest completed education level, 13 were primary school, 35 were secondary school, 32 had a bachelor degree, and 3 had a master degree. Regarding marital status, 8 were married, 53 were single, and 22 were in a relationship. There were 58 participants who had won a medal in an international competition and 26 who had not.

### MEASURES

*Mental well-being.* This was measured by the Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007). There were 14 items related to the positive view of mental well-being. A sample item was: "I've been feeling optimistic about the future" (original  $\alpha$  is .83). Respondents were asked their feeling over the previous two weeks with the measurement of a 5-point scale from 0 (*none of the time*) to 4 (*all of the time*). The reliability of the present study was .93.

*Resilience.* This was measured by the Adult Personal Resilience scale (Taormina, 2015). There were 20 items from four 5-item subscales, namely determination, endurance, adaptability, and recuperability. A sample item was "Once I set a goal, I am determined to achieve it" (for determination). The respondents were asked the extent to which they agreed with the items with a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The reliabilities of Adult Personal Resilience were .83 for determination, .76 for endurance, .78 for adaptability and .77 for recuperability; and those in the present study were .88 for determination, .91 for endurance, .91 for adaptability and .95 for recuperability.

*Social support.* This was assessed by a 22-item Athletes' Received Support Questionnaire (ARSQ; Freeman et al., 2014). There were four dimensions, namely, emotional, esteem, informational, and tangible support. There were five items for emotional and esteem support and six items for informational and tangible support. All items were following by the sentence "In the last week, how often did someone..." and a sample item was "give you advice about performing in a competitive situation" (for informational support). Respondents were asked their support that they received with the measurement of a 5-point scale: 0 (*not at all*), 1 (*once or twice*), 2 (*three or four times*), 3 (*five or six times*), 4 (*seven or more times*). The reliabilities of the ARSQ were .94 for emotional support, .94 for esteem support, .92 for informational

support and .90 for tangible support (Lu et al., 2016); and those in the present study were .83 for emotional support, .89 for esteem support, .92 for informational support and .93 for tangible support.

*Life satisfaction.* This variable was measured by a 5-item Satisfaction with Life Scale (SWLS; Galanakis et al., 2017). A sample item was “In most ways, my life was close to my ideal” (original  $\alpha$  is .84). The respondents were asked the extent to which they agreed with the items with a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*), and the reliability of the present study was .93.

## PROCEDURE

Since all the original instruments were in English but the target population (Macao elite athletes) was all Chinese, a back-to-back translation was adopted for all the items in order to ensure that the participants understood all the questions. A formal letter describing the purpose and organiser of the study was sent to 20 out of 56 sport entities in Macao (as those are the sport entities had their own full-time professional athletes), asking their permission for the researchers to contact the elite athletes to participate in this study. As a result, 6 sport entities provided the permission, and the elite athletes belonging to these entities were approached individually, informed of the purpose of the study and that the collected data were confidential, asked their consent and provided with the questionnaire to fill in. Also they were informed that they could discontinue participation at any time when they were filling in the questionnaire. The ethical approval of this study was granted by the department of psychology at the authors’ university.

## STATISTICAL ANALYSES

Pearson correlation was conducted to test the relationships between mental well-being and resilience as well as social support and to test the relationship between mental well-being and life satisfaction. Moreover, in order to investigate the predictors of mental well-being and life satisfaction, multiple linear regressions were run.

## RESULTS

### TEST FOR NORMALITY

This was assessed by exploring the skewness and kurtosis of the variables, then dividing the skew values or excess kurtosis by their standard errors to form a z-score. If the value is over  $\pm 3.29$  for sample sizes between 50 and 300, it indicates non-normality

(see Kim, 2013). For this study, the z-scores ranged between  $-1.86$  and  $1.6$ , indicating normality.

## INTERCORRELATIONS

Means, standard deviations and intercorrelations were computed for all variables to test the hypothesised relationships among the antecedent, dependent and outcome variables.

Positive correlations were found between all four facets of resilience and the elite’s mental well-being, i.e., determination and mental well-being ( $r = .59$ ,  $p < .001$ ), endurance and mental well-being ( $r = .54$ ,  $p < .001$ ), adaptability and mental well-being ( $r = .63$ ,  $p < .001$ ), recuperability and mental well-being ( $r = .56$ ,  $p < .001$ ). All these results supported H1(a) to H1(d).

Positive correlations were found between all four facets of social support and the elite’s mental well-being, i.e., emotional support and mental well-being ( $r = .54$ ,  $p < .001$ ), esteem support and mental well-being ( $r = .48$ ,  $p < .001$ ), informational and mental well-being ( $r = .44$ ,  $p < .001$ ), tangible support and mental well-being ( $r = .42$ ,  $p < .001$ ). All these results supported H2(a) to H2(d).

Finally, H3 expected a positive correlation between athletes’ mental well-being and athletes’ life satisfaction. The finding supported this hypothesis ( $r = .66$ ,  $p < .001$ ). The results for these correlations are shown in Table 1.

## REGRESSIONS

In order to further investigate their effects on elite athletes’ mental well-being, two multiple linear stepwise regressions were run: one used mental well-being as a criterion measure in which the predictors were emotional support, esteem support, informational support and tangible support, including demographics as control variables; the other used life satisfaction as a criterion measure in which the predictors were mental well-being including demographics as control variables.

For mental well-being, the variables emotional support and adaptability of resilience proved to be very good positive predictors. The strongest predictor was “adaptability of resilience”, for which  $\beta$  was .53,  $\Delta R^2$  was .40 with a significance level  $p < .001$ . The second predictor was “emotional support”, for which  $\beta$  was .40,  $\Delta R^2$  was .15 with a significance level  $p < .001$ . These variables combined and formed powerful predictors ( $R^2 = .55$ ,  $F = 49.76$ ,  $p < .001$ ). These results are shown in Table 2.

For life satisfaction, mental well-being proved to be a powerful positive predictor, for which  $\beta$  was .66,  $R^2$  was .44 with a significance level  $p < .001$  with  $F = 64.55$ ,  $p < .001$ . These results are shown in Table 3.

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**Table 1**

Means, standard deviations, and intercorrelation among the variables (N = 84)

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1. Mental health	2.26	0.67	(.93)									
2. Resilience – determination	3.89	0.71	.59***	(.88)								
3. Resilience – endurance	3.75	0.79	.54***	.75***	(.91)							
4. Resilience – adaptability	3.69	0.75	.63***	.63***	.75***	(.91)						
5. Resilience – recoverability	3.63	0.84	.56***	.49***	.58***	.73***	(.95)					
6. Social support – emotional	1.26	0.88	.48***	.35***	.26*	.27*	.26*	(.83)				
7. Social support – esteem	1.28	0.88	.54***	.47***	.17	.19	.17	.90***	(.89)			
8. Social support – informational	1.18	0.89	.44***	.34***	.18	.16	.17	.83***	.82***	(.92)		
9. Social support – tangible support	1.11	0.86	.43***	.29**	.16	.11	.18	.78***	.76***	.89***	(.92)	
10. Life satisfaction	4.45	1.33	.66***	.46***	.55***	.58***	.57***	.36***	.30**	.25*	.29**	(.93)

Note. Life satisfaction was measured on a 7-point scale; all other variables used 5-point scales. Reliabilities are in parentheses on the diagonal. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Table 2**

*Hierarchical stepwise regressions for mental well-being, using the demographics as control variables, and the antecedent variables as predictors (N = 84)*

Variables	$\beta$	$t$	$\Delta R^2$	$R^2$	$F$	$df$
Mental well-being				.55	49.76***	2, 81
Age	.04	0.47				
Gender	.08	1.08				
Marital status	.02	0.28				
Education level	.05	0.62				
Athlete category	-.15	-2.00				
Won a medal	-.04	-0.51				
<b>Social support – emotional</b>	<b>.40</b>	<b>5.20***</b>	<b>.15</b>			
Social support – esteem	.10	0.60				
Social support – informational	.09	0.63				
Social support – tangible support	.13	1.10				
Resilience – determination	.13	1.27				
Resilience – endurance	.09	0.81				
<b>Resilience – adaptability</b>	<b>.53</b>	<b>6.87***</b>	<b>.40</b>			
Resilience – recoverability	.16	1.42				

Note. \*\*\* $p < .001$ .

**Table 3**

*Hierarchical stepwise regressions for life satisfaction, using the demographics as control variables, and mental health (N = 84)*

Variables	$\beta$	$t$	$\Delta R^2$	$R^2$	$F$	$df$
Life satisfaction				.44	64.55***	1, 82
Age	-.01	-0.09				
Gender	-.04	-0.52				
Marital status	.04	0.17				
Education level	.06	0.78				
Athlete category	.08	0.93				
Won a medal	.14	1.71				
<b>Mental health</b>	<b>.66</b>	<b>8.03***</b>	<b>.44</b>			

Note. \*\*\* $p < .001$ .

## DISCUSSION

### ELITE ATHLETES' RESILIENCE AND MENTAL WELL-BEING

Resilience can be considered as an essential factor to predict the elite athletes' status of mental well-being. It matched the recent review of Schinke et al.

(2018) about athletes' mental health, i.e., resilience is the key indicator of mental health. As elite athletes often face many difficulties or risk such as injuries and maintain the performance in competition which mainly causes them to receive many stresses, thus increasing the risk of developing mental illnesses (Kroshus, 2016; Van Slingerland et al., 2018), the result has shown no doubt about the positive effect of

resilience on the status of mental well-being. More specifically, this study also found that adaptability was a significant predictor of mental well-being in the perspective of elite athletes. Those who had a high level of adaptability were more able to adapt to difficult and stressful conditions and by adjusting themselves to the situation that they were facing could maintain their mental well-being. Although most of the Macao elite athletes were semi-professional athletes, they may have strong desire to continue their career as athletes. Limited opportunities to participate in high level international games as well as non-competitive financial support make being an athlete not a remunerative job; some of them are forced to retire and need to find another job due to financial issues (Wylleman, 2019; Wylleman et al., 2004), particularly during the period of the pandemic (Mehrsafar et al., 2020). As a result, it requires high adaptability to adapt to such a tedious situation in order to maintain their mental well-being.

#### SOCIAL SUPPORT TO ELITE ATHLETES AND MENTAL WELL-BEING

This results suggested that all four types of social support are positively related to the elite athletes' mental well-being. Interestingly, emotional support was found to be the only significant predictor of mental well-being in this research, suggesting that emotional support is the most important support that the elite athletes needed. In Macao, the community may pay attention mainly to the elite athletes' achievement and has less concern for athletes' mental well-being; this result highlighted that emotional support must be provided to the athletes in order to promote mental well-being. This finding is not only applied in Macao but can also be applied to the elite athletes in other countries/regions when they encounter an unfavourable environment. Due to the outbreak of COVID-19, for many international games it was announced that their tournaments were to be postponed, and most elite athletes and their coaches were facing a lot of challenges (Andreato et al., 2020). For elite athletes, they can do nothing to control the situation of COVID-19 and have to accept the arrangement; thus providing the athletes a sense of love, empathy (emotional support) as well as optimism is much more powerful than providing support in recognition of the athletes' ability (esteem support), teaching proper techniques (informational support), and training schedule (tangible support) to maintain their mental well-being (Berg & Warner, 2019; Rees & Hardy, 2004) because they are also critical of the elite athletes due to the postponement of the tournaments and the policy of staying at home while the elite athletes are more frustrated as what they have been preparing towards their dream for

years is blocked but it is difficult for them to balance their emotions as the relevant authorities declared force majeure on their arrangements. Thus, social support from significant others helps to promote the athletes to evaluate such obstacles from an objective viewpoint, rather than focusing on the negative emotion, which can promote well-being (Bishop et al., 2004; Neff, 2003). Emotional support to the elite athletes is crucial to boost their mental health related interventions, i.e., to assist them to seek professional help for retaining mental well-being (see Schinke et al., 2018).

#### ELITE ATHLETES' MENTAL WELL-BEING AND LIFE SATISFACTION

The results showed that mental well-being was a powerful and positive predictor of life satisfaction and it was concluded that athletes who have positive mental well-being could help to become more satisfied with their life. Research showed that positive emotions, rather than negative emotions, have an effect on life satisfaction (Bao et al., 2013). People who are aware of having psychiatric disorder have a high risk of developing depression and an increased suicide rate and thus mental well-being becomes very important for life satisfaction (Schapir et al., 2016). The comorbidity caused by psychiatric disorders was also found to lower life satisfaction (Meyer et al., 2004). As athletes are under too much expectation (tremendous pressure to win) and stresses (high training loads), they have a high risk of not maintaining positive mental well-being and their life satisfaction is decreased. Therefore, it is critical to promote mental well-being in the field of sport.

#### CONCLUSIONS AND RECOMMENDATIONS

Although all four factors of elite athletes' resilience and their social support received were found to have positive relationships with their mental well-being, one of the biggest findings in this study was that elite athletes' adaptability of resilience and their emotional support are significant predictors of their mental well-being. This suggests that the best ways to maintain elite athletes' mental well-being could be to focus more on improving athletes' ability to be flexible to deal with unfavourable environments and adjust oneself to fit into the changing conditions, and people around them should provide comfort, giving concern and empathy to the athletes, then they can generate a sense of security and being loved. Therefore, elite athletes' training, aside from technical skills, should include a program of how to

build up their mental ability to deal with aversive situations and flexibility to adjust themselves both psychologically and physically in an unfavourable environment, that is, elite athletes can be trained to practice under different types of scenarios that their coaches assigned spontaneously (see Schinke et al., 2004). On the other hand, for the people who work with the elite athletes, including coaches, the other elite athletes in the same team (if any), physical and psychological therapists, as well as their family members, should focus mainly on providing emotional support to the athletes themselves and value their contribution (as athletes are human) instead of focusing on support about tactics, opponents and the value of the medal and prize of winning the competition (not mechanical). In return, they are able to maintain their mental well-being; once their mental well-being improves, their life satisfaction increases as well.

#### LIMITATIONS AND FUTURE STUDIES

One limitation of this study was the relatively low number of elite athletes who participated, but it was the constraint of this study; there were limited elite athletes in Macao, which is an unrecognised National Olympic Committee. Therefore, further studies can also address other types of athletes, e.g., student athletes. Moreover, athletes' perceptions of the sources of stress can also be investigated as an antecedent of their well-being in future studies.

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