ORIGINAL ARTICLE

The structural relationship among perceived positive and negative parenting attitude, sport life skills, and transfer of Chinese student-athletes

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A Study Design
B Data Collection
C Statistical Analysis
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Abstract

Background and Study Aim: Parenting attitude is regarded as a very important factor influencing the positive development of student-athletes. However, there are a lack of research on parenting attitude in sport positive youth development (PYD) area in China. This study aimed to understand the relationships among the parenting attitudes, sport life skills, and transfer of Chinese student-athletes.

Material and Methods: Participants were 257 Chinese student-athletes (171 male, 86 female; mean age 15.70, ±1.44 years) in soccer (n = 73), basketball (n = 68), taekwondo (n = 62), track and field (n = 54). Parents as Social Context Questionnaire for adolescents (PSCQ-A), Life Skills Scale for Sport (LSSS), and Life Skills Transfer Survey (LSTS) were used to assess the perceived parenting attitude, life skills development, and transfer of life skills of student-athletes. Data were analysed by using descriptive statistics, correlations, and Structural Equation Modelling (SEM). In the SEM, two models, a positive parenting attitude (model 1) and a negative parenting attitude (model 2), were tested.

Results: SEM analysis showed that parenting attitude was significantly related to life skills development and transfer of Chinese student-athletes. A positive parenting attitude had a positive effect on sport life skills and transfer, while a negative parenting attitude had a negative effect. Furthermore, positive and negative parenting attitudes indirectly affected life skills transfer by mediating life skills development.

Conclusions: The findings of this study show that the role of parents determines the possibility of life skills development and transfer of life skills of Chinese student-athletes. Therefore, it is desirable for parents to show affectionate and supportive parenting attitudes to promote the development and transfer of life skills of student-athletes.

Key words: parental involvement • positive youth development • psychosocial development • youth sport

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INTRODUCTION

In China, the student-athlete system has been implemented to primarily foster elite sport. It has been reported that approximately 460,000 student-athletes are solely dedicated to sport [1]. Based on the support from the Chinese government has established a strong foundation for China to obtain a high number of medals in various world competitions, especially the Summer and Winter Olympics [2]. However, as a result of pure focus on elite sport performance numerous issues have developed. In particular, the win-at-all-cost philosophy in sport has hindered the balanced development of body, emotion, and psychology of student-athletes [3]. This unbalanced physical education system has affected the lives of student-athletes adversely after their retirement from performing at an elite level. For instance, world gymnastics champion Zhang Shang Wu was arrested by the police after trying to steal due to the hardships of life after his retirement [2]. This incident highlighted the issues in the sport world in China. Therefore, recently there is an increased a demand for support for student-athletes to achieve a more balanced physical and psychological development through sport participation.

Representatively, various studies have been conducted in the field of sport psychology based on the positive youth development (PYD) through sport [4]. This view sees the youth with the potential and competence to create a righteous society, and a method to solve associated developmental problems [4]. Competence in this context is used as inner assets that influence the youth to grow positively. Among them, "life skills" are the most representative internal asset that PYD researchers have paid attention to. Holt et al. [5], Cronin Allen [6] argued that life skills could be used as a practical strategy to help alleviate some of the negative effects of participation in elite sports. Through life-skills training student-athletes can develop their social, psychological, and emotion through sport, and as a result, have more balanced development and sport values can be transferred to their lives [7].

Life skills are defined as "skills that help the person adapt and cope successfully in a variety of environments such as a school, home, and community" [8]. Specifically, they include psychological, emotional, and behavioural skills such as goal setting, emotion control, problem-solving, positive thinking, and communication [9]. Ultimately, they pursue transfer, which refers to the ability to internalize life skills learned in sport and generalize them to life outside sport [10]. Transfer aims to help the youth to be happier and life more rewording lives by developing life skills through sport [11]. Unfortunately, Shek et al. [12] reported that 72.2% (n = 409) of teachers in China felt that youth have inadequate knowledge of life skills and this was partly due to the lack of education currently in the formal school curriculum. Moreover, the level of their life skills decreased as their grade was higher because school education only focused on grades and outcomes.

Early life skill research supported the implicit approach that life skills could be developed and transferred sufficiently just by participating in sport [13]. However, recent studies support the explicit approach that it is more effective when significant others (e.g., coach, parents, peers, etc.) deliberately mediate and provide appropriate interventions [14]. Gould and Carson [15] argued that coaches and parents act as key facilitators for student-athletes in the process of developing and transferring life skills. Pierce et al. [10] also emphasized the role of parents and coaches and included them as key factors in the life skills transfer model. In fact, Cronin and Allen [16] reported that the autonomy support (climate) formed by the coach directly affected the life skills development, self-esteem, positive affect, and satisfaction with life of student-athletes.

However, as pointed out by Harwood and Knight [17], there are fewer studies on parental involvement compared to studies on coaches on the effect of life skills transfer. Holt et al. [14] conducted a meta-analysis using 63 studies on PYD and the results showed that there were 19 studies on coaches, but only 9 studies were the parents influence of life skills. From a PYD research, parents are key elements in external assets [18, 14]. This is because parents tend to have the closest relationship with their children (student-athletes) biologically, socially, and psychologically. Furthermore, parenting attitude is a very important factor influencing the positive development of student-athletes [19]. In general, parenting attitude can be divided into two dimensions: positive or negative [20]. The positive parenting attitude is composed of warmth, autonomy support, and structure, while warmth indicates child-centred, affectionate, and reward-using attitudes, autonomy support means letting children make their own decisions and

Parenting attitude – is divided into two dimensions: positive or negative. The positive parenting attitude is composed of warmth, autonomy support, and structure, while warmth indicates child-centred, affectionate, and reward-using attitudes, autonomy support means letting children make their own decisions and emphasizes responsibility for them, and structure is to provide clear expectations and consistency for mature behaviours. The negative parenting attitude can be classified into rejection, coercion, and chaos, where rejection indicates behaviours accusing and showing hostility to children, coercion behaviours excessively interfere with children without explaining how and why things are done, and chaos means unpredictable or ambiguous behaviours.

Life skills – are defined as skills that are deemed necessary or desirable for full participant in everyday life, such as meeting and greeting, self-awareness, finding dream and goal setting, positive thinking, managing emotion, enhancing confidence, self-management, appreciating diversity, communication, interpersonal relationship, and helping each other.

emphasizes responsibility for them, and structure is to provide clear expectations and consistency for mature behaviours [18]. On the other hand, negative parenting attitude can be classified into rejection, coercion, and chaos, where rejection indicates behaviours accusing and showing hostility to children, coercion behaviours excessively interfere with children without explaining how and why things are done, and chaos means unpredictable or ambiguous behaviours [21].

Dorsch et al. [22] reported that positive parental support and attitude helped student-athletes build good relationships with others and develop life skills. For example, parents can give important lessons to their children for helping them learn life skills by interacting with them behaviourally and emotionally through sport [22]. Moreover, praise and understanding behaviours of parents perceived by the youth positively affect the development of life skills such as teamwork, goal setting, and leadership [23]. Furthermore, interactions between parents and sport coaches promote the development and transfer of life skills for the youth participating in sport programs [24]. These studies [22-24] suggest that the positive parenting attitude directly or indirectly influences athletes to develop and transfer life skills more effectively.

Whereas on the other hand, parenting attitudes can have a negative impact on the development of the youth. For example, Sánchez-Miguel et al. [25] evaluated youth participating in elite sport to find out the relationships among parenting attitude, a motivation, and enjoyment. The results showed that youth who perceived parenting attitude as coercion had a high level of a motivation and a low level of enjoyment. Dorsch et al. [26] also examined student-athletes participating in team sport (i.e., American football, soccer, volleyball, etc.), and revealed that coercion and directive behaviours were positively correlated with conflict, negative affect, and ego motivation, which had a negative impact on the life skills development. In other words, negative parenting attitudes such as coercion, inconsistency, and rejection are expected to have a negative impact on the advancement of student-athletes, especially the development and transfer of life skills [19].

However, negative parenting attitudes do not always affect student-athletes adversely. Mossman and Cronin [23] studied student soccer players. The results showed that coercive and directive behaviours, commonly known as negative parenting attitudes, positively affected life skills. Newman et al. [24] argued that life skills could be developed and transferred soundly when parenting attitudes were positive. However, some studies [23] did not support it. O'Rourke et al. [27] interpreted the inconsistent relationship between parenting attitude and life skills. For example, parenting attitudes such as coercion and instruction, which were perceived negatively by student-athletes, could be accepted or applied differently depending on the situation, environment, and experience. They indicated that there was no doubt that parenting attitude was an important antecedent for student-athletes life skills and transfer, but a more rational interpretation would be possible when more studies reflecting the characteristics of various environments, cultures, and sport would be accumulated. Mossman and Cronin [23] also pointed out that more studies on positive or negative parenting attitudes would be needed because there were still not enough studies that statistically evaluated the relationship between parenting attitudes and life skills.

This study aimed to understand the relationships among the parenting attitudes, sport life skills, and transfer of life skills of Chinese student-athletes.

MATERIAL AND METHODS

Participants

This study recruited 270 student-athletes attending in Zhejiang, Guangdong, Jiangxi, Henan, and Shandong Provinces in China as study participants. The data of 257 participants (171 male and 86 female) analysed after excluding the data of 13 participants, which were determined unreliable and or erroneous. Their mean age was 15.70 ±1.44 years and the student-athletes participated in soccer (n=73), basketball (n = 68), taekwondo (n = 62) and track and field (n = 54).

Tools

The research questions of this study were (a) "How does the positive parenting attitude of parents relate to sport life skills and transfer (model 1; paths A1, A2, & A3)?", (b) "How does the negative parenting attitude relate to sport life skills and transfer (model 2; paths B1, B2, & B3)?", and (c) "Do sport life skills mediate the relationship between positive/negative parenting attitude and life skills transfer (paths A2' & B2')?" (Figure 1).

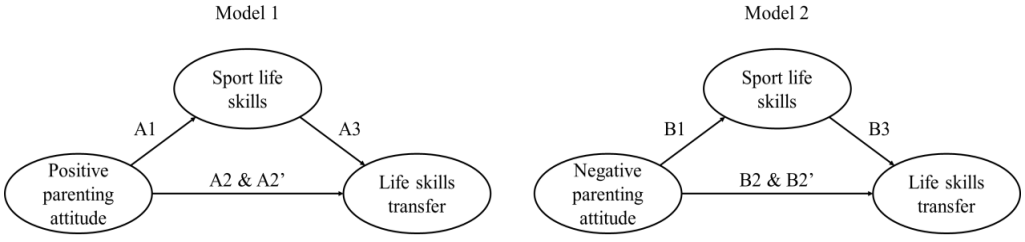

Figure 1. Research model and hypothesizes.

Note: path A2′ and B2′ are mediation effect of sport life skills between the relationship of positive/negative parenting attitude and life skills transfer

Measures

Parenting attitude

This study used a translated version of the Parents as Social Context Questionnaire for adolescents (PSCQ-A) developed by Skinner et al. [20] to measure the parenting attitude perceived by student-athletes. The theoretical framework of this scale is the autonomy, competence, and relatedness of the theory of basic psychological needs [20]. The parenting attitude of each need can be classified according to the bipolar model. In other words, autonomy is divided into autonomy support and coercion, competence is divided into structure and chaos, and relatedness is divided into warmth and rejection. Therefore, it is composed of 24 items: four items for three positive parenting attitude factors and three negative parenting attitude factors. Items were checked using a 5-point Likert scale.

Sport life skills

Life skills were measured by using the Life Skills Scale for Sport (LSSS) [6], which was verified by Lim et al. [28] for student-athletes in Asian culture. The questionnaire measures the life skills obtained by student-athletes in a sport environment. The KLSSS consists of 18 items, including five factors (i.e., goal setting, teamwork, interpersonal and social skills, time management, and leadership). Items were graded using a 5-point Likert scale.

Life skills transfer

Life skill transfer was measured by the Life Skills Transfer Survey (LSTS) [11] validated by Lim et al. [9] in Asian culture. This survey measures whether life skills learned in a sport environment are transferred and are used in a non-sport environment. The survey consists of 38 items with 8 factors: helping each other, making healthy choices, appreciating diversity, meeting and greeting, goal setting, resolving conflict with friends, resolving conflict with siblings, and managing emotion. Items were graded using a 5-point Likert scale.

Translation of surveys

The surveys were translated from English and Korean to Chinese. The translation procedure was as follows. Firstly, the first draft was translated by a group of experts (one professor of sport psychology, two doctors in sport psychology, and one doctor in contemporary Chinese literature). The professor of sport psychology and two doctors in sport psychology reviewed the contents of the Original versions to see the applicability to Chinese culture, and a bilingual speaker (the doctor in contemporary Chinese literature) who is fluent in English, Chinese and Korean translated it.

Secondly, the items translated into Chinese were consulted with a Chinese expert with experience in developing items and parts that were difficult to understand or inappropriate parts were modified. For example, the direct translation of "I can get along with children from multicultural families" was revised to "I can get along well with children from ethnic minority families" to reflect Chinese culture. Chinese nation consists of 56 ethnic groups, thus Chinese have many opportunities to meet peoples from many ethnic minority families.

The revised items were reviewed again by two additional bilingual speakers. They tested content validity through the translation-backtranslation process that translated the items translated into Chinese back to English or Korean and compared it with the original version. In this process, the parts that were considerably different from

the original in meaning were revised through consultation with bilingual experts. For example, "Ask a question to a person you meet for the first time comfortably" among life skill transfer items was back translated from Chinese into English or Korean and it was presented as "Ask a question to a person you meet for the first time." This can be understood that you should ask a question to someone you never met before, contrary to the intention of the original item (i.e., you can talk to a stranger comfortably). Therefore, this item was re-translated as "I can talk with someone I meet for the first time comfortably." After completing this process, the validity and reliability of the finally translated items were analysed.

Validity and reliability of measures

Confirmatory Factor Analysis (CFA) and reliability analysis (Cronbach' α) were conducted to verify the validity and reliability of the translated measurement tool. Q (χ^2/df), CFI, TLI, RMSEA, and SRMR values were used for calculating the fit of the model [29]. It was determined as "very good fit" when a Q value was 3 or less, CFI and TLI were 0.9 or more, and RMSEA and SRMR were 0.08 or less [29].

In addition, the statistical significance of the regression coefficient was examined to secure validity. The CFA model of parenting attitudes (Q = 2.38; CFI = 0.93; TLI = 0.92; RMSEA = 0.07 (90% CI = 0.07, 0.08); SRMR = 0.06) and life skills (Q = 2.14; CFI = 0.95; TLI = 0.94; RMSEA = 0.07 (90% CI = 0.06, 0.08); SRMR = 0.04) showed that all fit indices were above the criterion. In the case of life skill transfer (Q = 2.47; CFI = 0.89; TLI = 0.88; RMSEA = 0.08 (90% CI = 0.07, 0.08); SRMR = 0.05), although CFI and TLI values did not meet the criterion, they were interpreted as an "acceptable fit" because they were approximate values and the remaining three fit indices satisfied the criterion [29]. Moreover, the Cronbach' α of each sub-factor was between 0.79 and 0.94.

Procedure

This study received research ethics approval from the Institutional Review Board (IRB). The researcher contacted the officials of Chinese physical education middle and high schools in advance for seeking cooperation to select study participants. The researcher also sent materials including the research participant recruitment announcement and consent form via e-mail to athletes and their parents through these officials. A link containing an online questionnaire was also attached at the same time. In this communication it was emphasized that participation could not be forced by coaches or team officials if athletes and parents did not want to participate in the study. In addition, the anonymity and intended use of the collected data were clearly explained. Online data collection was conducted from December 2020 to January 2021. The collected data were automatically coded, and the researcher downloaded the coded data online.

Data analysis

This study used SPSS version 25 and AMOS version 25, statistical packages, to analyse the data. The analysis methods are as follows. First, among the collected data, data judged to be unreliable or erroneous were excluded in a data cleaning process. Second, this study conducted descriptive statistics to grasp the general trend of the data and to test normality. Mean, standard deviation (±), skewness, and kurtosis were calculated for descriptive statistics. For skewness and kurtosis, the criterion of skewness was an absolute value of 3 or less, and that of kurtosis was an absolute value of 8 or less, which were standard values implying a normal distribution [29]. Third, Pearson's r was used to examine the correlation between the sub-factors constituting these three variables. Fourth, to evaluate the study questions, the structural model was tested using AMOS. Q (χ^2/df), CFI, TLI, RMSEA, and SRMR were used as fit indices as suggested by [29].

After that, the path coefficient was examined, and bootstrapping was used to test mediating (indirect) effects. The number of sampling with replacement for bootstrapping was set to 2,000 and significance was determined using the two-tailed significance at 95% bias-corrected confidence interval. If 0 was not included in the derived confidence interval, the null hypothesis was rejected and the mediating effect was determined significant [29]. All statistical significance was determined with a p-value less than 0.05.

RESULTS

Descriptive statistics and correlations

The results of this study showed that the mean ranged between 2.10 and 3.85, and the standard deviation ranged between 0.68 and to 0.89. Skewness ranged from −0.39 to 0.88, and kurtosis ranged from −0.63 to 0.85.

It was confirmed that all sub-factors of the three variables were significantly correlated. In particular, the three factors (warmth, autonomy, and structure) included in the positive parenting attitude were positively correlated with all life skill and transfer factors, while the negative parenting attitude factors (rejection, coercion, and chaos) were negatively correlated with them (Table 1).

Structural equation model analysis

Model 1: Relationship among positive parenting attitude, life skills, and transfer

The fit indices of the model 1 were Q = 2.65, CFI = 0.95, TLI = 0.94, RMSEA = 0.08 (90% CI = 0.07, 0.09), and SRMR = 0.04. Since all values met the criteria of "very good fit". First, a positive parenting attitude positively affected sport life skills (β = 0.61, p<0.001). Second, a positive parenting attitude positively influenced life skill transfer (β = 0.27, p<0.001). Third, sport life skills had a positive effect on life skill transfer (β = 0.68, p<0.001) (Table 2).

Model 2: Relationship among negative parenting attitude, life skills, and transfer.

The fit indices of the model 2 were Q = 2.40, CFI = 0.96, TLI = 0.95, RMSEA = 0.07 (90% CI =0.06, 0.09), and SRMR = 0.04. Since all values satisfied the criteria of "very good fit". First, a negative parenting attitude had a negative impact on sport life skills (β = −0.30, p<0.001). Second, a negative parenting attitude affected life skill transfer (β = −0.15, p<0.01). Third, sport life skills influenced life skill transfer negatively (β = 0.81, p<0.001) (Table 3).

Testing mediation effect

The lower bound of positive parenting attitude's confidence intervals was 0.28 and the upper bound of it was 0.55. Based on these values,

Table 1. Descriptive statistics and correlations of all factors.

Factor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. warmth	1																		
2. autonomy	.68**	1																	
3. structure	.59**	.69**	1																
4. rejection	−.32**	−.48**	−.33**	1															
5. coercion	−.35**	−.50**	−.43**	.61**	1														
6. chaos	−.31**	−.43**	−.37**	.56**	.70**	1													
7. TW	.45**	.32**	.37**	−.18**	−.18**	−.26**	1												
8. GS	.48**	.40**	.43**	−.17**	−.18**	−.20**	.65**	1											
9. TM	.46**	.41**	.42**	−.16**	−.22**	−.28**	.54**	.76**	1										
10. SS	.42**	.35**	.36**	−.19**	−.14*	−.21**	.60**	.59**	.53**	1									
11. LD	.42**	.43**	.44**	−.13*	−.22**	−.21**	.65**	.69**	.64**	.73**	1								
12. MG	.43**	.43**	.43**	−.18**	−.16*	−.23**	.53**	.47**	.43**	.65**	.62**	1							
13. ME	.41**	.42**	.44**	−.26**	−.25**	−.32**	.53**	.47**	.42**	.54**	.52**	.68**	1						
14. GS_T	.47**	.50**	.54**	−.22**	−.28**	−.36**	.57**	.63**	.60**	.53**	.63**	.63**	.71**	1					
15. RF	.46**	.50**	.56**	−.22**	−.21**	−.32**	.59**	.55**	.54**	.60**	.63**	.69**	.68**	.75**	1				
16. RS	.47**	.47**	.56**	−.23**	−.27**	−.33**	.53**	.52**	.55**	.53**	.60**	.61**	.63**	.71**	.82**	1			
17. MH	.50**	.50**	.50**	−.22**	−.27**	−.34**	.56**	.64**	.61**	.56**	.58**	.63**	.61**	.70**	.74**	.71**	1		
18. AD	.44**	.35**	.33**	−.27**	−.16*	−24**	.59**	.54**	.49**	.58**	.51**	.62**	.69**	.68**	.68**	.62**	.65**	1	
19. HE	.50**	.43**	.50**	−.24**	−.23**	−.31**	.57**	.57**	.51**	.63**	.54**	.64**	.63**	.68**	.74**	.65**	.71**	.69**	1
M	**3.63**	**3.83**	**3.64**	**2.10**	**2.58**	**2.60**	**3.71**	**3.66**	**3.37**	**3.54**	**3.19**	**3.49**	**3.75**	**3.66**	**3.71**	**3.71**	**3.66**	**3.85**	**3.82**
SD	**.83**	**.83**	**.86**	**.84**	**.89**	**.77**	**.70**	**.68**	**.80**	**.77**	**.83**	**.79**	**.73**	**.72**	**.72**	**.72**	**.70**	**.75**	**.69**

*p<0.05, **p<0.01

Note: **TW** teamwork, **GS** goal setting, **TM** time management, **SS** social skill, **LD** leadership, **MG** Meeting and Greeting, **ME** Managing Emotion, **GS_T** Goal Setting of Transfer, **RF** Resolving Conflict with Friends, **RS** Resolving Conflict with Sibling, **MH** Managing Healthy Choice, **AD** Appreciating Diversity, **HE** Helping Each

Table 2. Relationship among positive parenting attitude, sport life skills, and transfer.

Path	*B*	*β*	*S.E.*	*t*
A1. Positive parenting attitude ⟶ sport life skills	0.51	0.61	0.06	8.23***
A2. Positive parenting attitude ⟶ transfer	0.26	0.27	0.06	4.66***
A3. Sport life skills ⟶ transfer	0.77	0.68	0.08	9.35***

***$p<0.001$

Table 3. Relationship among negative parenting attitude, sport life skills, and transfer.

Path	*B*	*β*	*S.E.*	*t*
B1. Negative parenting attitude ⟶ sport life skills	−0.27	−0.30	0.07	−4.03***
B2. Negative parenting attitude ⟶ transfer	−0.16	−0.15	0.05	−3.12**
B3. Sport life skills ⟶ transfer	0.91	0.81	0.08	11.15***

***$p<0.001$

the mediating effect was determined significant. Therefore, it was concluded that the positive parenting attitude perceived by student-athletes affected the transfer of life skills positively through sport life skills (β = 0.42, $p<0.001$). On the other hand, the lower bound of negative parenting attitude's confidence intervals was −0.44 and the upper bound of it was −0.08. It was judged to be significant based on these values. Therefore, it was concluded that the negative parenting attitude perceived by student-athletes influenced the transfer negatively through sport life skills (β = −0.24, $p<0.01$). The results of the model 1 and 2 are presented in Figure 2.

DISCUSSION

Model 1: Relationship among positive parenting attitude, life skills, and transfer

Model 1 showed that positive parenting attitudes positively affected life skills and transfer. Life skills also affected transfer positively. The results indicated that if parents supported autonomy, provided a coherent structure, and showed affectionate attitudes, it could help student-athletes develop and transfer life skills. These results agreed with the results of various previous studies [15, 14] that claimed the relationship between positive parenting behaviours and life skills. Yun et al. [30], who reported that parenting attitudes influenced the character and morality of athletes, and Mossman and Cronin [23], who argued that positive parenting attitudes affected the life skills and enjoyment of student-athletes.

Hodge et al. [8] proposed the LDI (life development intervention)/BNT (basic psychological needs theory) life skills model. This model explains the relationship between parenting attitudes and the life skills of student-athletes in connection with basic psychological needs. This model argues that the basic psychological needs and supportive climate formed under the influence of significant others play a critical role in the development and transfer of life skills for the youth participating in sport. In other words, student-athletes satisfy their basic psychological

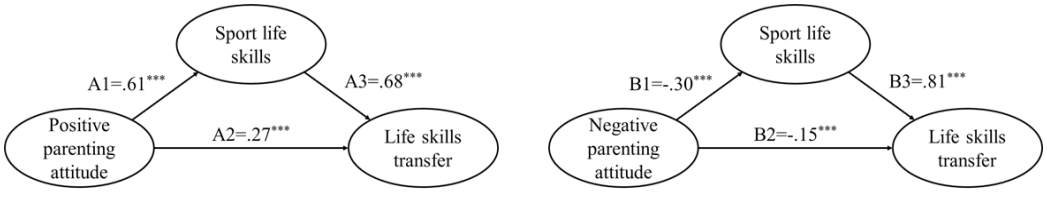

Figure 2. Research of model 1 and 2.
(***$p<0.001$)

needs by perceiving positive parenting attitudes, and they learn higher self-initiative and learning motivation through this. Moreover, a high level of intrinsic motivation helps them positively interact with other sport participants [31]. In fact, Johnston et al. [32] quantitatively proved that student-athletes with high participation motivation were more advantageous in developing life skills such as goal setting, time management, and problem-solving. Therefore, the positive attitude of parents rearing them is important for student-athletes to develop life skills in sport and use them in their lives.

Several studies reported intervention programs improved parenting attitudes. For example, Juffer et al. [33] studied the promotion of parenting attitudes and reported that the Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD) increased sensitive caregiving, improved parental self-efficacy, and provided more favorable attitudes toward caregiving and limit setting. Spencer et al. [34] meta-analysed 28 studies and reported that online education programs for parents helped the promotion of positive parenting attitudes.

However, as indicated earlier, even though interest in significant others and the development of life skills for the youth have been increasing in the sport PYD field, still relatively little interest has been given to the role of parents. In fact, some researchers [35, 36] have evaluated PYD online education for coaches, and highlighted that there are no contents for parent education. As shown by the results of this study, a positive parenting attitude, indicating the active support and encouragement of parents, is most important for PYD. Therefore, we recommend the development of an intervention means for parents of children who participate in sport.

Model 2: Relationship among negative parenting attitude, life skills, and transfer

Model 2 shows that negative parenting attitudes affected sport life skills and transfer negatively. These results agreed with many researchers [15, 14] that the development of the youth participating in sport could vary depending on the parenting attitudes of parents toward their children. Danioni et al. [37] reported that parental pressure reduces positive psychological and emotional variables (e.g., competence, self-esteem, and pleasure of the youth) that could be experienced in sport. It was also supported by the argument of Skinner et al. [20] that the rejecting attitude of parents weakened the relatedness of children, inconsistency hindered the formation of children's competence experience, and coercion interfered with the psychological autonomy development of children.

One cause of this result could be the collectivism atmosphere in China. Chinese parents have a higher level of interest and involvement because they emphasize the college admission of their children more than the parents in the western culture (individualism) [38]. It is because Chinese parents have a strong tendency to consider their children's success as a family glory. Yoshikawa et al. [39] analysed the Chinese parents and found that parents' anxiety about their children's academic performance increased as their children advanced through school. Moreover, studies show parents who feel anxious about their children are more likely to show rejection, coercion, and inconsistent negative parenting attitudes toward their young children (14-18 years old) [39]. In other words, parents of student-athletes would encourage and remind their children to win in games so that they can enter into higher ranked colleges. This negative parenting attitude results in the negative developmental outcomes of student-athletes such as aggression, antisocial behaviours, stress, and negative emotions [26].

On the other hand, it is necessary to understand that the cultural background of China is rooted in Confucianism. In oriental cultures, vertical relationships according to age and position are implicitly applied and can be also found in the parent-child relationship. Parents who raise children based on Confucian values tend to demand their children to behave as they want while keeping a certain distance from their children because they believe that they should show prestige as parents [40]. In this home environment, student-athletes are more likely to do actions (e.g., excessive social comparison, and anti-social behaviour) that impede their positive development without hesitation to receive attention and recognition from their parents.

In general, negative parenting attitudes tend to make student-athletes self-goal-oriented and intoxicated with the win-at-all-cost philosophy [41]. Under this win-at-all-cost atmosphere, student-athletes are more likely to experience negative development, as opposed to PYD, in

order to improve their match performance or to meet their parents' needs or expectations. In particular, negative parenting attitudes adversely affect children's mental health such as depression as well as cause the negative development of children [42]. Christofferson et al. [43] argued that it is necessary for parents to (a) understand the philosophical values and structure of sport, (b) prevent misunderstanding with referees and coaches by clearly understanding the rules of sport, (c) create a conflict-free environment by understanding sport person ship, and (d) know how to present positive behaviours by recognizing and regulating their emotions in order to reduce their negative parenting attitude.

Testing mediation effects

Parenting attitudes can have both positive and negative impacts on life skill transfer, respectively, through sport life skills. The results showed that parenting attitudes affected the transfer of life skills indirectly as well as directly. The result of this study concurred with the results of previous studies [24] revealing that the role of parents was important for promoting the positive development of the youth. Pierce et al. [10] did not view that the transfer of life skills always produced positive results. For example, attacking the opponent's weaknesses is a good strategy for victory in various sport such as soccer and taekwondo, but it is not always true in daily life. In the long run, it is rather likely to be socially criticized to achieve success by taking advantage of the other person's weakness in life. Therefore, it should be remembered that knowing the true meaning and use of life skills in a sport environment and put them into practice can be positive or negative depending on the role of their parents.

It is commonly accepted that the behaviour and language of parents are key variables greatly influencing the development of children [44, 23]. In particular, modelling presented by the social learning theory specifically explains how parental behaviour can affect the transfer of student-athletes' life skills [45, 46]. According to this theory, student-athletes imitate what they see and feel consciously or unconsciously. For example, student-athletes who see the inconsistent behaviour of their parents (e.g., not keeping promises, not complying with rules, and changing behaviour depending on their mood) are more likely to show a similar tendency. On the other hand, children of parents who set and implement clear rules and plans can learn elements (e.g., time management and goal setting) that help them develop life skills. In other words, the successful transfer of student-athletes' life skills are directly or indirectly influenced by various parenting behaviours that are provided by their parents in daily life, such as opportunities to use the skills, support, rewards, and detailed explanations.

The relationship between positive/negative parenting attitudes and the development and transfer of student-athletes' life skills can also be found in neuroscience. In particular, the mirror neuron system theory suggests that parents can be the behaviour mirror of their children [47]. This is supported by the fact that the brain part used while acting and that activated when observing or imagining something are identical [48]. For instance, when student-athletes observe their parents' behaviour, the same brain part activated while acting is stimulated. As this stimulus accumulates, the possibility of a behaviour increases. However, as their brains are not yet able to determine whether the behaviour of their parents is right or wrong. Regardless of the value of the observed parental behaviour, the brain operates upon a command. Therefore, parents always need to mindful and examine their own actions and the consequences of them.

CONCLUSIONS

The following conclusions were drawn. First, positive parenting attitude affects the development and transfer of student-athletes' life skills positively. Second, a negative parenting attitude negatively influences the development and transfer of student-athletes' life skills. Third, positive parenting attitude has a positive and indirect effect on transfer through sport life skills. On the other hand, a negative parenting attitude has a negative and indirect impact on transfer through sport life skills. In conclusion, a positive parenting attitude helps student-athletes develop life skills, and transfer life skills to their lives positively. On the other hand, a negative parenting attitude hinders the development of student athletes' life skills and transfer. Moreover, life skills act positively or negatively between parenting attitudes and transfer.

FUTURE DIRECTION

First, although this study focused on the role of parents, the influence of coaches cannot be ignored in the sport environment [10, 49]. In

particular, it is necessary to pay attention to the interaction effect of the two groups rather than the individual influence of parents or coaches. As Newman et al. [24] pointed out, parents and coaches influence the development and transfer of student-athletes' (or youths participating in sport) life skills separately, but the level of outcomes can vary depending on how the two groups interact. For example, the development and transfer of life skills of a student-athlete who has a democratic coach and coercive parents can be different from those of a student-athlete who has a democratic coach and affectionate parents. Therefore, future studies need to evaluate the roles of parents and coaches comprehensively rather than examining a parent group and a coach group separately.

Second, it is necessary to develop a questionnaire that can measure whether parents teach life skills in order to more specifically test the influence of parents on the development and transfer of student-athletes' life skills. Recently, a questionnaire was developed to evaluate the life-skill coaching level of coaches who are the significant others in the sport field [50]. Researchers can evaluate the effects of the life-skill coaching level of coaches on the development and transfer of student-athletes' life skills by using this questionnaire. This questionnaire supports the explicit approach that the largest effect can be acquired when teaching life skills intentionally [51]. However, there is no scale for measuring the life-skill coaching of parents. Therefore, future studies are needed to develop measuring tools that can evaluate whether parents intentionally teach life skills to their children.

Third, it should be noted that student-athletes and parents interact. Interaction means that two parties affect each other. It is highly likely that student-athletes and their parents are more likely to interact with each other while developing and transferring life skills. The Actor-Partner Independence Model (APIM) can be used to statistically test this. APIM is a statistical technique commonly used to examine the relationship between variables that interact between a husband and a wife or between parents and a child. Therefore, future studies may employ different methodological approaches such as APIM to objectively evaluate the interaction between student-athletes and parents.

HIGHLIGHTS

Parents play an important role for positive development of Chinese student-athletes. Positive parenting attitude helps foster life skills development and transfer. Negative parenting attitude decreases life skills development and transfer.

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