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Sport commitment in Taiwanese para-athletes

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Abstract: While the Sport Commitment Model (SCM) has been widely used in research, recent studies suggest increasing scholarly interest in exploring additional antecedents to this model. Bandura's Social Cognitive Theory (SCT), with its emphasis on factors influencing motivation, may provide a framework for exploring supplemental constructs to better understand the sport commitment of para-athletes with disabilities. This study examined the relationship among four potential SCT factors (i.e., sport enjoyment, perceived competence, sport friendship quality, external rewards) in predicting two dimensions of sport commitment: enthusiastic commitment and constrained commitment in Taiwanese para-athletes. A total of 149 para-athletes completed a 41-item questionnaire. Using multiple hierarchical regression analysis, all variables, except for external rewards, showed significant and positive correlations with enthusiastic commitment. Athletes who experienced higher enjoyment and had good friendship quality (R^2 = 67%) displayed a stronger desire and determination to participate in sports. Sport enjoyment significantly predicted enthusiastic commitment but not constrained commitment with external rewards significantly predicting 20% of the variance of constrained commitment. The findings highlight the importance of emphasizing sport enjoyment and external rewards to enhance athletes' sport commitment. Guidance for practitioners working with this population is provided.

Keywords: parasport, sports participation, external rewards, sport friendship quality

Introduction

Sport commitment, or one's desire and resolve to continue sport participation over time (Scanlan et al., 1993; 2016), has been linked to numerous physical, psychological, and social benefits for para-athletes (i.e., athletes with a disability). These benefits include reduced cardiovascular disease and secondary health conditions, the development of motor skills, fitness, social competence, and friendships, improved health-related quality of life, and enhanced self-esteem and psychological well-being (Piercy et al., 2018; Shapiro & Martin, 2010; 2014; Yao et al., 2016). To foster the well-being of citizens with disabilities and promote equity and social awareness in Taiwanese society, the Taiwanese government has allocated substantial resources (i.e., improving barrier-free sport and exercise facilities, recruiting young and new para-athletes) to support parasport initiatives (Pan et al., 2025). According to public data published by the Taiwanese government in 2023, there are more than 2,000 active athletes with disabilities who participate in the National Sports Games for Athletes with Disabilities annually. However, concerns have been raised by Yao et al. (2016) about the limited research focused on the long-term sport motivation of Taiwanese athletes with disabilities in response to findings that many younger athletes with disabilities lack motivation to continue participating in sports. Given that sport participation is an avenue to

develop physical and psychological health, well-being, and social inclusion, a decrease in physical activity or a subsequent increase in sedentary behaviour among Taiwanese youth as they age may have a significant impact on public health for individuals with a disability in Taiwan (Chou & Chou, 2022; Pan & Huang, 2020). The Taiwanese government faces challenges in devising comprehensive strategies to attract younger individuals to engage in parasports in Taiwan. Therefore, it is important to investigate and understand variables that contribute to sustained sport participation of current Taiwanese athletes with disabilities that can serve as a guide for enhancing sport commitment among Taiwanese youth.

Sport Commitment Model and Social Cognitive Theory

The Sport Commitment Model (SCM) provides a theoretical framework aimed at elucidating and predicting an individual's level of commitment to sports or physical activity. The SCM identified five key determinants of sport commitment: sport enjoyment, personal investment, involvement opportunities, involvement alternatives, and social constraints (Scanlan et al., 1993; 2016). In more recent revisions, the names of selected determinants were changed (i.e., involvement opportunities was changed to valuable opportunities, and involvement alternatives was changed to other priorities) and two new antecedents (i.e., social support, desire to excel) were introduced (Scanlan et al., 2016). In addition, sport commitment was further conceptualized, distinguishing between enthusiastic commitment which comprised the original five sources of commitment representing the desire and resolve to persist in a sport over time and the addition of constrained commitment reflecting perceptions of obligation to persist in a sport over time (Ryan & Deci, 2000; Scanlan et al., 2016; Wilson et al., 2004). Distinguishing between these types of sport commitment may help identify the underlying motivations that drive individuals, predict persistence and performance outcomes, and tailor intervention strategies. This nuanced approach could enhance our ability to create supportive environments and communication strategies that cater to diverse commitment types, ultimately fostering more meaningful and sustainable engagement in activities.

While the SCM has been psychometrically tested and used in research since 1993 (Shapiro & Martin, 2014; Weiss & Halupnik, 2013), recent research indicates a growing interest among scholars in investigating additional antecedents of sport commitment (Martin, 2006; Scanlan et al., 2016; Shapiro & Martin, 2014). Bandura's Social Cognitive Theory (SCT, 1986) offers an additional perspective for investigating potential antecedents of sport commitment. The SCT is founded on the notion that individuals acquire and evolve by observing, imitating, and engaging with others within their social environment. The SCT places significant emphasis on the role of cognition (thought processes), behaviour, and the environment in shaping human behaviour and personality. SCT's emphasis on motivation can be integrated with SCM's focus on motivation as a determinant of sport commitment. For example, personal investments in a sport, such as time, money, and effort (SCM), could be directly linked to the self-regulation processes highlighted in SCT, where athletes set goals and monitor their progress. This self-regulation, driven by the anticipation of positive outcomes, aligns with the concept of outcome expectancies in SCT. As athletes expect that their dedication and resources will lead to improved skills, personal growth, and success, these positive expectations reinforce their sport commitment (Bandura, 1991; Scanlan et al., 1993). This study, therefore, integrates SCT to explore how these cognitive and behavioural factors serve as antecedents to sport commitment.

Antecedents of Sport Commitment in Taiwanese Athletes with Disabilities

While Scanlan et al. (2016) identified seven major antecedents (i.e., sport enjoyment, valuable opportunities, other priorities, personal investment, social constraints, social

support, desire to excel) of sport commitment, we focused exclusively on enjoyment, perceived competence, sport friendship quality, and external rewards, which could be identified as potential determinants of sport commitment in Taiwanese society. The following discussion provides a brief summary of these four variables and their relationships with sport commitment, and reasons why they were selected for this study.

Enjoyment

Sport enjoyment, defined as one's positive affective response to the sport experience that reflects feelings of pleasure, liking, and fun (Scanlan et al., 1993; 2016), has been identified as a critical variable influencing motivation for sport and exercise participation and has a strong correlation with sport commitment (Chu & Wang, 2012; Scanlan et al., 2016; Weiss & Halupnik, 2013). Sport enjoyment in the context of the SCT is closely tied to an athlete's self-efficacy beliefs, their observations of others' enjoyment and success in the sport, and positive outcome expectations (Weinberg & Gould, 2019; Woo et al., 2024). When individuals believe in their ability to perform well, witness others enjoying the sport and anticipate positive outcomes, it contributes to their own sense of enjoyment, motivation, and commitment to that sport.

There were two reasons for selecting sport enjoyment in this current study. First, sport enjoyment in the SCM has consistently demonstrated the most significant predictive power over other antecedents of the SCM (Yao & Shapiro, 2024; Scanlan et al., 2016; Weiss & Halupnik, 2013). To explore potential antecedents for the SCM, sport enjoyment was considered a control variable, making it easier to identify the predictive power of selected potential antecedents in this current study. Secondly, limited research has been conducted in Taiwan to examine the effectiveness of sport enjoyment in relation to the sport commitment of athletes with disabilities. It was essential to verify and reaffirm its significance within the cultural context of Taiwan and this specific population. By examining the main effect of sport enjoyment and using it as a control variable, it may be possible to identify other potential antecedents of sport commitment.

Perceived competence

Perceived competence refers to an individual's subjective assessment of their own ability or skill level in a specific domain, such as sports or physical activity (Hsu & Chi, 2009). According to SCT, individuals' beliefs in their ability to perform specific tasks, known as self-efficacy, helps in shaping their behaviour, motivation, and learning. Based on Bandura's SCT, self-efficacy is conceptualized as an individual's perception of their competence in specific tasks. In the realm of sports, athletes with high perceived competence tend to be more likely to set ambitious goals, persist in their efforts, and maintain strong motivation in sustained sport participation (Gardner et al., 2017).

While perceived competence has not yet been integrated into the SCM, it has consistently exhibited a strong correlation with sport commitment and holds the potential to be a meaningful antecedent of sport commitment (Babic et al., 2014; Zhang et al., 2012). Despite limited research on Taiwanese para-athletes regarding the relationship between perceived competence and sport commitment, a Taiwanese study has indicated a significant correlation between perceived competence and sustained sport participation (Hsu & Chi, 2009). Given its well-established correlation in the literature regarding sport commitment (Babic et al., 2014; Gardner et al., 2017; Hsu & Chi, 2009; Zhang et al., 2012), perceived competence was selected as a potential antecedent of sport commitment in this study.

Sport friendship quality

In this study, we emphasized the focus on sport friendship quality, which encompasses attributes and positive facets of friendships such as trust, interaction, support,

communication, and enjoyment. Friendship quality relates to SCT by influencing observational learning, self-efficacy, outcome expectations, and social reinforcement. These factors can collectively contribute to an individual's motivation, behaviour, and commitment in various domains, including sports (Yao et al., 2016). Significant others, particularly teammates, have a profound influence on individuals' behaviours and cognitive processes (Scanlan et al., 2016). Research has shown that support from significant others, like teammates, significantly affects sport commitment (Herbison et al., 2016). Positive and supportive friendships within the sporting context can enhance the overall experience, making participation more enjoyable, creating a deeper emotional bond with the sport, and ultimately fostering long-term commitment.

The emphasis on sport friendship quality is based on two key explanations. First, athletes with disabilities tend to be adults who spend a significant amount of their time practicing and socializing with teammates (Mira et al., 2023). This makes the influence of high-quality interactions with teammates on their continued participation in sports highly significant. Second, studies have consistently shown that one of the primary motivations for individuals with disabilities to engage in sports is to foster increased social interaction and gain social support from their teammates (Shapiro & Martin, 2014; Yao et al., 2016). When para-athletes believe in their ability to establish and maintain positive relationships, observe healthy friendships as role models, and anticipate positive outcomes from these friendships, they tend to experience higher-quality social connections within the sports context (Shapiro & Martin, 2014). This phenomenon may also help explain their motivation to continue their involvement in sport.

External rewards

Individuals with disabilities in Taiwan often face low socioeconomic status (Chi et al., 2014) and are seen as less capable, which may lead them to seek approval from other athletes with disabilities, significant others, government, and society. Mead's (1934) theory of self, which serves as the foundation for the SCT, suggested that individuals are aware of common expectations from others that may influence their actions and thoughts within a particular society. In the context of sports, para-athletes share the common expectation of winning and delivering good performances, which strengthen their identity as athletes and enhance their sense of belonging (Hu et al., 2021). In Taiwan, local and federal governments may offer monetary incentives and performance awards as external rewards to recognize the achievements of para-athletes and to encourage their long-term commitment to sport participation (Pan et al., 2025). According to outcome expectations and self-efficacy within the SCT, external rewards can validate athletes' achievements and fulfil these expectations. Para-athletes may perceive these rewards as proof of their value and membership in Taiwanese culture. Additionally, external rewards may act as incentives, aligning with the concept of reinforcement in SCT, thereby motivating para-athletes to persist in sport participation. For these reasons, we identified external rewards as an antecedent of sport commitment in para-athletes.

Purpose and research questions

The central aim of this study was to examine the determinants of both enthusiastic and constrained sport commitment among para-athletes in Taiwan. To achieve this objective, we assessed the significance of perceived competence, friendship quality, and external rewards as predictors of sport commitment within the specific context of Taiwanese para-athletes. This examination was conducted while carefully controlling the variable of sport enjoyment. Given the distinct characteristics of the four chosen antecedents and the two distinct types of sport commitment, we formulated the following hypotheses. First, we posited that sport

enjoyment, perceived competence, and the quality of sport friendships would have a positive and statistically significant influence on enthusiastic commitment. Conversely, our second hypothesis suggested that external rewards would positively and significantly predict 'constrained' commitment.

Materials and Methods

Participants

A total of 149 adult athletes, consisting of 95 males and 54 females, with physical disabilities participated in the study. Athletes were selected based on their attendance and eligibility to compete in the Taiwan National Sports Games for Athletes with Disabilities and having attended the National Sport Games over the past three consecutive years. Information on the disability of para-athletes and athletic classification were not ascertained in this study. However, participants in previous games included but were not exclusively athletes with cerebral palsy, spinal cord injuries and amputations. Participants were recruited from various regions in Taiwan, including the northern, central, and southern regions, specifically Taipei (n = 67), Taichung (n = 41), Changhua (n = 6), and Kaohsiung (n = 35). The mean age of the para-athletes was 38.34 years (SD = 12.60), with ages ranging from 21 to 62 years.

Participants were recruited from a diverse range of sports. The eight sports included in the study were wheelchair basketball (n = 17), shooting (n = 9), swimming (n = 26), table tennis (n = 37), track and field (n = 26), tenpin bowling (n = 17), powerlifting (n = 6), and tennis (n = 11). On average, participants had been playing their respective sports for 9.6 years (SD = 0.67), and they engaged in weekly training sessions an average of 2.03 times (SD = 0.61).

Measures

Participants completed a questionnaire providing basic information, including age, sex, major sport, and participation details (years of participation and frequency of practice).

Sport commitment

Sport commitment was assessed using the Chinese version of the Sport Commitment Scale (Lu et al., 2012) adopted from the study by Wilson et al. in 2004. The validity and reliability of the Chinese version of the sport commitment scale showed acceptable evidence of internal consistency reliability (constrained commitment, Cronbach's α = .88; enthusiastic commitment, Cronbach's α = .76) (Lu et al., 2012) and factor structure using both exploratory and confirmatory factor analysis (Lu et al., 2012; Chu & Wang, 2012). This Chinese version of the scale was used to assess both constrained commitment (3 items) and enthusiastic commitment (3 items) among participants in this study. Each question was rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Examples of items related to constrained commitment include "I feel that sport participation is an obligation". An example item reflecting enthusiastic commitment is "I have made a decision to continue participating in sports". The scale provides a reliable and valid measure to capture the different dimensions of commitment to sport among the athletes in this study (Cheng, 2005).

Sport enjoyment

The sport enjoyment scale from the sport commitment questionnaire by Scanlan et al. (1993) was used in this study. The scale consisted of 4 items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), with higher scores indicating higher enjoyment of sport participation among para-athletes. An example question was, “Playing this sport is

fun?". The Chinese version of the scale was validated by Hsu (2008) and found to have strong reliability (Cronbach's α = .94).

Perceived competence

The Perceived Competence Scale used in this study was the Chinese version developed and validated by Chen and Chi (2009). It consisted of four items that assessed an individuals' perceived competence level in their sport. Participants rated each item on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The items included statements such as "I consider myself one of the best athletes on my team", "I believe my sport skills are excellent", "I see myself as one of the worst athletes on my team", and "I think my sport skills are poor". The scale demonstrated good internal consistency, with a Cronbach's α coefficient of .86.

Sport friendship quality

Participants completed a 24-item Chinese version of the Sport Friendship Quality Scale (Hsu & Lu, 2002), originally developed by Weiss and Smith in 1999. Hsu and Lu's factor analysis for the Chinese version of the Sport Friendship Quality Scale revealed a consistent multidimensional structure similar to that of Weiss and Smith's. The scale measured seven dimensions of sport friendship quality, including self-esteem enhancement and supportiveness (n = 6), shared interests (n = 3), conflict (n = 3), conflict resolution (n = 3), intimacy (n = 3), emotional support (n = 3), and mutual help and guidance (n = 3) and Cronbach's α across all dimensions ranged from .56 to .71 (Hsu & Lu, 2002). Participants provided responses on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). An example question from the scale was, "My teammates and I would praise each other for doing sports well". The scores for each item were summed and divided by 24, providing a composite measure of sport friendship quality for each participant (Martin, 2006).

External rewards

A three-item questionnaire was developed to assess external rewards. The questionnaire utilized a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), for participants to indicate their agreement with each statement. To ensure the validity and appropriateness of the questionnaire, a panel of four individuals, including two sport psychologists, were invited to establish face and content validity. Their expertise and insights were valuable in refining the items to align with the study's objectives. Additionally, two athletes with disabilities were involved in pilot testing the questionnaire to ensure clarity and comprehension of the items. Exploratory Factor Analysis (EFA) revealed a 1-factor structure, explaining 65.88% of the variance. The three items in the questionnaire included statements such as "I participate in my sport to win medals and trophies (factor loading .75)", "I participate in my sport to make money to improve my life and living environment (factor loading .45)", and "I participate in my sport to win money (factor loading .92)".

Procedures

Before reaching out to potential participants, the institutional review board (IRB) approved informed consent, study purpose, instruction for questionnaire completion, demographic information, and measurements corresponding to the purpose of the study. Due to sport teams being scattered across different regions within Taiwan, the first author obtained permission from the Chinese Taipei Paralympic Committee to access coaches and participants. Coaches and program directors were contacted via email and phone, where the first author explained the study's purpose and obtained permission to conduct this study with their athletes.

We used two approaches to recruit participants. First, for teams that were near the primary investigator's location, the first author visited the training sites in person. The first author read aloud a pre-written script to the participants. The questionnaires and consent forms were distributed and completed during the rest period in the training. There was no time limitation, participants took as long as they needed to complete the questionnaire. Any questions raised by the participants were promptly addressed by the first author.

Second, for teams that were geographically inaccessible, paper questionnaires were mailed to coaches, team leaders, and program directors, with the quantity of questionnaires corresponding to the number of athletes on each team. A pre-written script was also provided to the coaches, team leaders, and program directors to read to the athletes, explaining the nature of the study. Coaches, team leaders, or program directors then followed the same procedure that the first author used for the in-person visits having coaches distribute and athletes complete the questionnaires and consent form at a convenient time during practice. Every 2 weeks, the authors followed up with the coaches, team leaders, and program directors to provide a reminder and request to encourage athletes to complete the questionnaires and to remind coaches to return completed questionnaires to the first author.

A counterbalancing method was adopted to prevent order or sequence effects in this study. The order of the questionnaires was arranged in two versions. The first set of questionnaires started with sport commitment, sport enjoyment, perceived competence, sport friendship quality, and external rewards. The second set was sequenced in the following order: sport commitment, sport friendship quality, external rewards, sport enjoyment, and perceived competence. Both versions of the questionnaires were randomly distributed to participants. The questionnaires were pre-collated to ensure participants completed them in the order in which they were received. It took participants approximately 20 to 30 minutes to complete all the questions. Overall, the entire participant recruitment process spanned a duration of 8 weeks, encompassing communication with coaches and program directors, distribution of questionnaires, reminders, and in-person visits to training sites.

Data analysis

To achieve sufficient statistical power (≥ .80), a minimum of 84 participants was necessary for the regression analysis, considering four predictors, a significance level of .05, and a medium effect size of 0.39, as recommended by Cohen (1988). Descriptive statistics and Pearson's correlation coefficient were calculated for each variable. Two multi-hierarchical regression analyses examined the effects of sport enjoyment, perceived competence, sport friendship quality, and external rewards on enthusiastic commitment and constrained commitment. Sport enjoyment entered as a control variable, was included at level 1, followed by perceived competence, sport friendship quality, and external rewards at level 2 to determine the increase in explained variance (R^2 change). This analytical procedure was repeated separately for enthusiastic commitment and constrained commitment. A significance level of $p < .05$ was established to determine the statistical significance of the findings. Survey data were analysed using SPSS software (version 28.0; IBM SPSS Statistics, Armonk, NY).

Results

Descriptive results and correlations analyses

Multiple imputation technique was adopted to fill in estimates for 24 missing values (Allison, 2000). The mean scores across all variables ranged from the lowest at 2.93 (external rewards) to the highest at 4.48 (sport enjoyment) (see Table 1). Cronbach's alpha

of all the instruments was between .74 and .89 indicating high internal consistency (Table 1). The skewness and kurtosis of all variables (e.g., sport enjoyment, perceived competence, sport friendship quality, external reward, enthusiastic commitment, constrained commitment) were within acceptable range (skewness = -1.86 - 0.13, kurtosis = -0.52 - 4.51) (Kline, 2011). A test for multicollinearity indicated that values (variance inflation factor; VIF = 1.32 – 1.68; tolerance = 0.59 – 0.76) were also in the acceptable range (Tabachnick & Fidell, 2007).

Table 1. Means, standard deviations, internal reliability estimates, and correlations for all variables

	M	SD	1. SE		2. PC		3. SFQ		4. ER		5. EC		Cronbach
			r	p	r	p	r	p	r	p	r	p	α
1	4.48	0.70											.89
2	3.55	0.77	.47	< .001									.81
3	3.34	0.50	.54	< .001	.39	< .001							.88
4	2.93	0.97	-.06	.44	.17	.04	.15	.06					.74
5	4.25	0.78	.80	< .001	.46	< .001	.53	< .001	-.03	.73			.82
6	3.28	0.80	.16	.06	.17	.04	.27	< .001	.44	< .001	.28	< .001	.88

Note. SE = Sport enjoyment; PC = Perceived competence; SFQ = Sport friendship quality; ER = External rewards; EC = Enthusiastic commitment; 6 = Constrained commitment

All statistically significant correlations met the theoretical assumptions. Correlations between variables can be found in Table 1. All variables (i.e., sport enjoyment, perceived competence, sport friendship quality) had moderate to strong significant and positive correlations with enthusiastic commitment (r = .46 - .80) except external rewards. Perceived competence, sport friendship quality, and external rewards had weak to moderate significant and positive correlations with constrained commitment.

Multi-hierarchical regression analysis

The regression results with 2 predictor variables (enthusiastic commitment and constrained commitment) are presented in Table 2. Enthusiastic commitment (F(2, 146) = 139.21) was significantly predicted (65%) by sport enjoyment at step 1. This relationship exhibited a large effect size (Cohen's f^2 = 1.39) (Cohen, 1988). While sport friendship quality at step 2 accounted for an additional 2% of variance. Sport enjoyment failed to predict constrained commitment (F(2, 146) = 2.80) at step 1, but the external rewards variable significantly predicted 24% of the variance in constrained commitment (F(4, 144) = 11.24) at step 2 and a large effect size was observed (Cohen's f^2 = 0.50) (Cohen, 1988).

Discussion

The purpose of this study was to examine the impact of four variables (sport enjoyment, perceived competence, sport friendship quality, and external rewards) on enthusiastic commitment and constrained commitment of Taiwanese para-athletes. The current findings partially supported our hypotheses, indicating that sport enjoyment and friendship quality strongly predicted enthusiastic commitment, while external rewards had a significant association with constrained commitment.

Table 2. Summary of multi-hierarchical regression analysis for predicting sport commitment

Independent Variable	R^2	ΔR^2	β	*t*	*p*
Enthusiastic Commitment					
Step 1:	.65				
Sport enjoyment			.80	13.69	< .001
Step 2:	.67	.02			
Sport enjoyment			.69	11.08	< .001
Perceived competence			.10	1.69	.46
Sport friendship quality			.12	2.02	.04
External rewards			-.02	-0.36	.72
Constrained commitment					
Step 1:	.03				
Sport enjoyment			.16	1.13	.06
Step 2:	.24	.21			
Sport enjoyment			.11	1.13	.26
Perceived competence			-.01	-0.09	.92
Sport friendship quality			.15	1.66	.10
External rewards			.42	5.51	< .001

Sport enjoyment, perceived competence, friendship quality, and external rewards are positively related to athletes' commitment to their sports. Para-athletes who experienced greater enjoyment, perceived competence, good-quality friendships, and external rewards were more likely to have a desire and determination to participate in sports. These results align with previous research that emphasizes the role of positive emotions, and social support in promoting sport commitment (e.g., Scanlan et al., 2016). However, it is important to note that external rewards show a negative correlation with enthusiastic commitment, although it is not statistically significant. The negative correlation between external rewards and enthusiastic commitment occurred because external rewards are more closely associated with extrinsic motivation rather than intrinsic motivation (Ryan & Deci, 2000). While external rewards may not directly enhance enthusiasm, it is possible that they may influence athletes' commitment indirectly through other mechanisms.

Sport enjoyment appears to play a significant role in influencing athletes' commitment to continued sport participation, supporting the notion that positive emotions and enjoyment are powerful motivators for athletes, particularly those with disabilities who may face additional challenges in sports participation (Yao et al., 2016). Within SCT, when athletes with disabilities enjoy their time participating in sports and/or experience positive emotions from witnessing others' successes, it can lead to positive outcome expectations. Ultimately, this may result in a stronger commitment to the sport (Weinberg & Gould, 2019; Zhu et al., 2021). This is consistent with research highlighting the importance of intrinsic motivation and enjoyment in promoting sustained engagement in sports (Ryan & Deci, 2000; Scanlan et al., 1993; 2016). Coaches and trainers should focus on creating diverse and engaging training programs that foster enjoyment and help athletes with disabilities internalize positive emotions.

Surprisingly, the influence of perceived competence had no contribution to predicting sport commitment. This inconsistency suggests that Taiwanese athletes with disabilities may prioritize friendship quality over their sporting abilities when engaging in long-term sport participation. The needs and focus of para-athletes for sustained sport involvement may differ from those of athletes without disabilities. While some research supports the importance of perceived competence in sport commitment within the context of para-athletes (Martin, 2006; 2010), there is evidence in the literature suggesting that the impact of perceived competence on sport commitment can be attenuated or influenced by other variables, such as friendship or social interactions among athletes with disabilities. Shapiro

& Martin (2014) investigated the relationship between social variables and sport commitment in individuals with physical disabilities. They found that social support and social connectedness, including friendship quality, were significant predictors of sport commitment, and that these social variables partially mediated the relationship between perceived competence and commitment. This suggests that friendship quality may act as a mediator, influencing the relationship between perceived competence and sport commitment. Due to inconsistent findings, more examination between perceived competence and friendship quality on sport commitment in Taiwanese para-athletes is needed.

Friendship quality, although significantly predicting enthusiastic commitment, explains only a small portion of the variance in sport commitment. This may be attributed to the persistent stigma associated with disability, as Taiwanese para-athletes may still face stereotypes and societal biases that may affect their sense of belonging and group identification. Research on the experiences of individuals with disabilities in sports has highlighted the challenges they face in establishing and maintaining meaningful social connections (e.g., Cursiol & Barreira, 2021; Herbison et al., 2016). As stated in SCT, becoming a part of society is a learned process through modelling, reciprocal social interaction, and observation. While the Taiwanese government is making efforts to build a disability-friendly environment (Pan et al., 2025), this study, focusing on sport friendship quality, identified a small amount of explained variance in sport commitment. Coaches and administrators should still be aware of these challenges and work towards creating a supportive and stigma-free environment by educating teammates and personnel about proper etiquette and inclusion. Furthermore, interventions aimed at enhancing social support networks and fostering inclusive team dynamics may contribute to stronger friendship quality and ultimately greater sport commitment among athletes with disabilities.

The analysis also reveals the importance of external rewards in predicting constrained commitment. Taiwanese para-athletes may view external rewards as a validation of their abilities and inclusion in sports. The recognition of external rewards can serve as a strong reinforcement, shape outcome expectations, and enhance self-efficacy within the SCT. This, in turn, reinforces an athlete's identity and may motivate continued participation in sports. The monetary reward system in Taiwan appears to play a role in encouraging para-athletes to sustain their sport participation. However, it may be necessary to strike a balance to ensure the emphasis on external rewards does not undermine intrinsic motivation and enjoyment for the sport. Coaches and administrators can implement reward systems that enhance athletes' sense of belonging and affirm their athletic identity.

Limitations

It is important to acknowledge the limitations of this study. The cross-sectional design prevents us from establishing causal relationships between variables. Future research should employ longitudinal datasets to better understand the causal paths between sport enjoyment, friendship quality, external rewards, and sport commitment. Additionally, self-report surveys introduce the possibility of response bias. Caution should be exercised in interpreting the study's findings, and further research is needed to validate the relationship between these predictors and sport commitment. Lastly, athletes possessing Paralympic classification cards were recruited based on their eligibility for competing in sports for those with physical disabilities. Consequently, we did not collect demographic information about the type or severity of physical disability of our participants. Future researchers should consider these demographic variables to better assist in the generalization of research findings and in understanding any potential differences in sport commitment among

different demographic groups of para-athletes. In addition, since this study is a preliminary exploration of the antecedents of sport commitment among Taiwanese para-athletes, we encourage Taiwanese scholars to examine a comprehensive model of sport commitment alongside the current findings. This could provide a better understanding of the major determinants of sport commitment.

Conclusions

This study provides insights into the influence of selected SCT variables on the sport commitment of para-athletes. Sport enjoyment, friendship quality, and external rewards all contribute to para-athletes' commitment to their sports. Coaches and trainers should focus on promoting enjoyment, creating supportive environments, and implementing reward systems to develop, enhance and maintain sport commitment of para-athletes. By understanding and addressing the unique challenges faced by para-athletes, we may be able to foster a more inclusive and empowering sports culture in Taiwan. Future research should continue to explore the complex interplay between psychological, social, and environmental variables in shaping sport commitment among Taiwanese para-athletes.

Perspectives

In the context of adapted physical activity and the significance of sustained sport participation for individuals with disabilities, this study sheds light on key factors influencing commitment among Taiwanese para-athletes. The findings underscore the crucial role of sport enjoyment, perceived competence, sport friendship quality, and external rewards in shaping athletes' commitment to their sports. Notably, sport enjoyment emerged as a robust predictor of enthusiastic commitment, highlighting the importance of fostering positive emotional experiences in sports participation. Additionally, the study revealed the significant association between friendship quality and 'enthusiastic' commitment, emphasizing the role of supportive social networks in promoting sustained engagement. Moreover, the analysis underscored the impact of external rewards on constrained commitment, indicating that recognition and incentives may serve as motivators for athletes, particularly in the face of societal challenges and stigma associated with disabilities. By elucidating these dynamics, the study provides valuable insights for policymakers, coaches, and practitioners seeking to enhance sport commitment among Taiwanese para-athletes. Moving forward, continued research efforts should explore the nuanced interplay between psychological, social, and environmental factors to further support the well-being and inclusion of individuals with disabilities in sports.

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