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Examining gender differences, wushu competition contents of personality traits and achievement motivation in Chinese professional athletes

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Abstract

The purpose of this study was to find out the differences between male and female Chinese Wushu athletes, in line with Taolu and Sanshou contents due to the correlation of their personality and achievement motivation as the nature of Games. By using the 16-personality factor questionnaire (16PF) and individual difference in achieving tendency questionnaire (IDIAT), the results of this study indicated that the difference between male and female Chinese Wushu athletes on the correlation of personality traits and achievement motivation had a minor gap (in both Sanshou and Taolu). While the difference between Sanshou and Taolu focused on the Reasoning to achieve success in females and the Sensitivity to achieve success in males. Further studies need to clarify the impact of reasoning and sensitivity personality on different groups of participants (i.e., amateur, semi-professional, long-term practitioners). Therefore, it senses better evaluate the effect of achievement-motivation in desired success and limit the failure in Wushu.

Keywords: personality traits, achievement motivation, Taolu & Sanshou, Chinese wushu professional athletes

1. Introduction

Wushu is the most popular national sport in China and is practiced by people of all ages. It was also called a direct-encountered sport, so mental stress is one of the nature of Games. Taolu in Wushu involves martial art patterns and maneuvers, given points under the specific rules, and had many complex movements such as kicks, punches, jumps, sweeps, throws, etc. Wushu Sparring (or Sanshou) is an unstoppable martial art fighting method with bare hands in real-life combat. Previous studies noted that the changes in biological (Lenroot & Giedd, 2010) [1], cognitive (Blakemore *et al.*, 2010) [2], and psychosocial (Rice & Mulkeen, 1995) [3] functioning occur in adolescence, which could affect personality traits and their development in any kinds of sport. In order to win a competition, athletes have not only mastery techniques, good tactics, or high physical fitness, but they also need a good response mentality which has a close relation to their personalities.

Personality refers to individual differences in characteristic patterns, which defines as the set of habitual behaviors, cognitions, and emotional patterns that evolve from biological and environmental factors (Corr & Matthews, 2020) [4]. Moreover, both individuals' needs and motivation have a high effect on the direction of their behavior (Rabideau, 2005) [5]. In the sport psychology aspect, the highest aspiration was called achievement motivation (Cattel & Wallbrown, 1989) [6]. Atkinson [7] indicated that athletes in the competition had two main motivations, i.e., achieving success and avoiding failure. The motive to achieve success was determined as the need to succeed, the person's estimate of the success in performing the particular task, and the incentive for success. While the motive to avoid failure was determined as the same points in achieving the success which turned to failure. Furthermore, reaching the perfect state of motivation and self-motivation needs to be concerned as the strong purpose to win the Games. Therefore, it was an important meaning (in both theoretical and practical ways) to find out the gender difference, Taolu and Sanshou difference in the correlation

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between personality traits and achievement motivation, especially in the case of Chinese Wushu athletes, which was our rationale to conduct this study.

2. Materials and Methods

2.1 Sample

150 Wushu professional athletes (aged 18-25) were selected (at least 3-year training, good mentality, professional athletes) and randomly chosen in the Wushu team at Shanghai Sports Academy. Athletes in Taolu content were 35 females and 45 males (22.08±1.89 years). While athletes in Sanshou were 30 females and 40 males (22.02±1.94 years). They were informed of the test procedures before providing written

consent.

2.2 Instruments

The Sixteen Personality Factor Questionnaire (16PF) was established by Cattell^[8] through a questionnaire study, which was a validity and reliability tool to evaluate personality and human behavior. Sixteen factors in Personalities were independent of each other, and the correlation among them was minor (Catell & Schuerger, 2001)^[9]. Each question had three options to answer (187 items). Table 1 is presented the personality traits, which were measured by the 16PF Questionnaire.

Table 1: Personality traits by 16PF Questionnaire (Catell, 2001)^[8]

Low range	Factors	High range
Reserved, impersonal	Warmth (A)	Warm-hearted, caring
Concrete thinking, lower mental	Reasoning (B)	Bright, higher mental capacity
Changeable, reactive, affected	Emotional Stability (C)	Emotionally stable, adaptive
Deferential, cooperative	Dominance (E)	Dominant, assertive, forceful
Serious, careful, restrained	Liveliness (F)	Animated, enthusiastic
Expedient, non-conforming	Rule-Consciousness (G)	Conscientious, dutiful
Shy, timid, threat-sensitive	Social Boldness (H)	Socially bold, uninhibited
Objective, tough-minded	Sensitivity (I)	Sensitive, tender-minded, aesthetic
Trusting, unsuspecting	Vigilance (L)	Vigilant, suspicious, wary
Grounded, prosaic, solution oriented	Abstractedness (M)	Abstract, imaginative, impractical
Forthright, genuine, artless	Privateness (N)	Private, discreet, polished
Self-assured, confident	Apprehension (O)	Apprehensive, self-doubting
Traditional, conservative	Openness to change (Q1)	Experimental, analytical, critical
Group-oriented, affiliative	Self-reliance (Q2)	Self-reliant, solitary, individualistic
Tolerates disorder, unexacting	Perfectionism (Q3)	Perfectionistic, self-disciplined
Relaxed, placid, patient	Tension (Q4)	Tense, high energy, driven

Individual Differences in the Achieving Tendency Questionnaire (IDIAT) by Mehrabian and Bank^[10], based on the scale of 38 items comprised achieve success and avoid fail^[7], which was a reliable tool to evaluate the personal achievement motivation. Using 9-scale of Likert from “completely agree” to “almost disagree”. Each question had 9 levels of grade. The total achievement motivation in winning (Sum motivation) was the grade of “achieve success” minus the grade of “avoid failure”. The higher points you got in “sum motivation”, the better achievement motivation you were. Because the participants were China athletes, we used to questionnaire from Zhangli (2010)^[11] who translated to Chinese for evaluation with high validity and reliability.

2.3 Statistical analysis

Data collection was performed in four different times as four different kinds of participants (female Taolu, male Taolu,

female Sanshou, and male Sanshou) around a month, which were analyzed using SPSS for Windows (version 20) and Microsoft Excel 2016 software. Descriptive analysis was used to identify the mean, standard deviation, variances of each achievement motivation. The z-score test was used to evaluate the differences between personality traits and achievement motivation in genders, Wushu contents where it was in 95% confidence interval (± 1.96) (Cohen & Holliday, 1996)^[12].

3. Results and Discussions

3.1. The differences between Chinese males and females on the correlation of personality traits and achievement motivation in two categories Wushu competition.

+ **In Sanshou:** Table 2 shows the difference between males and females in Chinese Sanshou athletes on the correlation of personality traits and achievement motivation.

Table 2: Value of z-test in the gender's differences of Chinese Sanshou athletes

Personality traits	Achievement motivation		
	Achieve success	Avoid fail	Total motivation
Warmth	-0.224	-0.507	0.231
Reasoning	0.798	-0.080	0.381
Emotional stability	0.675	-0.460	0.573
Dominance	-0.565	-0.141	-0.266
Liveliness	0.488	-0.043	0.309
Rule-consciousness	0.766	-1.210	1.082
Social boldness	0.779	-0.924	1.028
Sensitivity	-0.147	-0.026	-0.299
Vigilance	-1.148	1.226	-1.449
Abstractedness	0.313	-0.106	0.168
Privateness	-1.087	1.270	-1.509
Apprehension	-0.554	1.638	-1.292
Openness to change	-0.312	-0.827	0.254

Self-reliance	1.134	-0.798	1.321
Perfectionism	0.958	-0.367	0.821
Tension	0.098	0.606	-0.249

Table 2 showed that there were no significant differences between males and females in Chinese Sanshou athletes in the correlation levels of achievement motivation and personality traits. Therefore, we found that males and female Chinese Sanshou athletes in each personality trait and achievement motivation were negligible.

+ In Taolu: Table 3 shows the difference between males and females in Chinese Taolu athletes on the correlation of personality traits and achievement motivation.

Table 3 showed that there were no significant differences between males and females in Chinese Taolu athletes in the correlation levels of achievement motivation and personality traits. Therefore, we found that males and female Chinese Taolu athletes in each personality trait and achievement

motivation were negligible.

Therefore, the tendency of personality traits in male and female Chinese Wushu athletes with the level of achievement motivation had a minor relation, which might be explained as the difference in gender. Training a man was different when compared to training a woman, although they were all professional athletes. Honestly, it is hard to say one is better than the other or that men are stronger than women or that training work-outs for men only and vice versus. Gender differs, training habits, connective tissues, nerve linking ability, behavior, etc. In our study, the difference in the training of genders may explain the none difference between Chinese males and females on the correlation of personality traits and achievement motivation.

Table 3: Value of z-test in the gender's differences of Chinese Taolu athletes

Personality traits	Achievement motivation		
	Achieve success	Avoid fail	Total motivation
Warmth	0.534	-0.199	0.597
Reasoning	-1.028	-0.128	-0.814
Emotional stability	-0.223	-0.021	-0.221
Dominance	0.468	-1.049	1.369
Liveliness	0.250	-0.499	0.624
Rule-consciousness	-1.241	-1.122	0.005
Social boldness	0.317	0.474	-0.214
Sensitivity	1.236	0.248	0.687
Vigilance	-0.328	-1.040	0.729
Abstractedness	-0.518	-0.303	-0.123
Privateness	-0.428	1.300	-1.583
Apprehension	-1.099	0.069	-0.837
Openness to change	0.625	-0.799	1.275
Self-reliance	0.233	1.045	-0.740
Perfectionism	0.520	-0.489	0.829
Tension	-0.076	-0.378	0.269

3.2. The differences between Chinese Sanshou and Taolu athletes on the correlation of personality traits and achievement motivation.

3.2.1 In male athletes: Table 4 shows the difference between male Chinese Sanshou and Taolu athletes on the correlation of personality traits and achievement motivation.

Table 4: Value of z-test between male Chinese Sanshou and Taolu athletes

Personality traits	Achievement motivation		
	Achieve success	Avoid fail	Total motivation
Warmth	0.238	-0.145	0.256
Reasoning	-0.274	-0.053	0.134
Emotional stability	-0.031	-0.079	0.218
Dominance	0.188	1.038	-0.809
Liveliness	0.184	0.041	0.140
Rule-consciousness	0.584	0.451	0.166
Social boldness	-0.286	-0.713	0.388
Sensitivity	-1.961*	0.259	-1.516
Vigilance	0.310	1.311	-0.873
Abstractedness	0.738	0.562	0.185
Privateness	-0.666	0.221	-0.569
Apprehension	1.505	0.801	0.378
Openness to change	-0.848	0.508	-1.155
Self-reliance	1.469	-0.463	1.385
Perfectionism	0.529	-0.116	0.509
Tension	0.439	-0.051	0.355

* Difference was significant at the 0.05 level (2-tails).

Table 4 showed that there was a significant difference between Sanshou and Taolu in male Wushu athletes in "Sensitivity" of personality through the "Achieve success" of

achievement motivation, while the others showed none. It means that the tendency of "Sensitivity in Achieve success" of male Chinese Taolu athletes was higher than in Sanshou.

Male Wushu athletes with low Sensitivity were knowledgeable, practical, and strong in thinking. They could act independently and had high confidence in themselves. Compatible with the requirement of fighting competition of Sanshou, male Wushu athletes can quickly respond to the external stimuli with high precision as the 1vs.1 counterstrike competition. Moreover, athletes with low Sensitivity could continuously practice various types of tactics to cope with the nature of competition in the Game, master using skills, quick

reflexes, improve the ability to control the speed and agility. Such athletes might rely on their practice to raise their expectations, break through, pursue higher and better performance.

3.2.2 In female athletes: Table 4 shows the difference between female Chinese Sanshou and Taolu athletes on the correlation of personality traits and achievement motivation.

Table 5: Value of z-test between female Chinese Sanshou and Taolu athletes.

Personality traits	Achievement motivation		
	Achieve success	Avoid fail	Total motivation
Warmth	0.996	0.162	0.623
Reasoning	-2.099*	-0.101	-1.061
Emotional stability	-0.929	0.359	-0.576
Dominance	1.221	0.131	0.825
Liveliness	-0.053	-0.414	0.455
Rule-consciousness	-1.422	0.539	-0.909
Social boldness	-0.748	0.685	-0.854
Sensitivity	-0.548	0.534	-0.529
Vigilance	1.131	-0.955	1.306
Abstractedness	-0.093	0.365	-0.107
Privateness	-0.005	0.251	-0.643
Apprehension	0.961	-0.768	0.833
Openness to change	0.089	0.536	-0.133
Self-reliance	0.568	1.381	-0.676
Perfectionism	0.091	-0.237	0.519
Tension	0.264	-1.035	0.874

* Difference was significant at the 0.05 level (2-tails).

Table 5 showed that there was a significant difference between Sanshou and Taolu in female Wushu athletes in “Reasoning” of personality through the “Achieve success” of achievement motivation, while the others showed none. It means that the tendency of “Reasoning in Achieve success” of female Chinese Taolu athletes was higher than in Sanshou. Female Wushu athletes with low Reasoning had poor abstract and rational thinking. This result properly represented the characteristics of Chinese Wushu athletes because all of them were at school age; however, they spent much time in training to become professional athletes instead of amateur students. Therefore, their studying process was missing, and lack of knowledge led that result to happen. The nature of combat in Sanshou needs a variety of defensive and offensive abilities, which were all done automatically. This was the behavior of the conditional reaction in daily training without hesitation somehow. In other words, Sanshou athletes with high “Reasoning” personalities might take more time to decide what would happen, which could be losing the Game. Thus, Sanshou athletes with low “Reasoning” personalities might react faster in combat to win the competition. They could achieve victory with high probability, their “achieve success” motivation was therefore higher.

Besides, athletes with high “Reasoning” personalities had higher mental capacity, smart and accurate thinking which was consistent with the characteristic in Taolu competition. Taolu athletes practice intensely for the accuracy of movement, which had to be well pre-programmed, fixed, and invariable. They need to fulfill the regulatory requirements of the standard movement, even to perfection. A person with a higher score in “achieve success” would have a higher “Reasoning” motivation achievement (Spitz & MacKinnon, 1993) [13], fewer false warnings, and higher in determining the critical signals, but it might raise anxiety and stress (Neigel *et al.*, 2017) [14]. From a Wushu technical point of view, it was a

closed motor skill, which was required for Taolu athletes through careful observation, precise memory, and mastery of necessary skills. Contrarily, Taolu athletes with low “Reasoning” personalities would have slow thinking, difficulty understanding the key of post rights, and more difficult completing the mastery of Taolu movements effectively. A study by Kuan and Roy [15] indicated that Taolu Wushu medallists scored higher on their confidence than non-medallists. Athletes with higher confidence might be related to a high “Reasoning” personality in our study. Therefore, the higher the “Reasoning” personality of Chinese females reach, the greater the possibility of “achieving success” might be.

4. Conclusions

It was concluded that the difference between male and female Chinese Wushu athletes on the correlation of personality traits and achievement motivation had a minor gap (in both Sanshou and Taolu). While the difference between Sanshou and Taolu focused on the Reasoning to achieve success in females and the Sensitivity to achieve success in males. Further studies need to clarify the impact of reasoning (in females) and sensitivity (in males) personality on different groups of participants (i.e., amateur, semi-professional, long-term practitioner, etc.). Therefore, it sensed better evaluate the effect of achievement motivation in desired success and limit the failure in Wushu.

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