Global Journal of Education and Allied Research (GJEAR)

Volume.15, Number 8; August-2024; ISSN: 2837-3707 | Impact Factor: 7.80

https://zapjournals.com/Journals/index.php/gjear Published By: Zendo Academic Publishing

MINDFULNESS AND CONCENTRATION AMONG WUSHU SPECIALTY STUDENTS USING TAI CHI PREPARATION TECHNIQUES

¹Yang Jiannan

Article Info

Keywords: Tai Chi, mindfulness, concentration, Tai Chi proficiency

DOI

10.5281/zenodo.13600142

Abstract

The study explored Tai Chi as a preparatory technique in Chinese Wushu (kung fu or martial arts) and its correlation with students' mindfulness levels and concentration levels. One hundred four students were selected and qualified based on a nonrandomized selection, with the majority falling within the age range of 18–21 years, of which 58.65% were males and 41.35% were females. The descriptive analyses revealed a moderate level of mindfulness among the participants. Who also demonstrated good concentration abilities with moderate variability in scores.

The Tai Chi proficiency scores revealed that most students performed well in Tai Chi, with many achieving outstanding or good proficiency levels. Additionally, correlational analyses revealed significant associations between mindfulness and concentration, concentration and Tai Chi proficiency, and mindfulness and Tai Chi proficiency of Wushu specialty students.

These findings underscore the importance of boosting mindfulness programs, developing strategies, and interventions aimed at improving concentration skills among student athletes, and implementing specialized training sessions and workshops focused on refining Tai Chi techniques and enhancing proficiency levels among Wushu students. Moreover, longitudinal or quasi-experimental studies should be conducted to further investigate the effects of mindfulness training, concentration enhancement strategies, and other related variables on Wushu specialty students.

1. Introduction

Aichi, a subset of the traditional Wushu, combines Chinese martial arts and meditative movements that promote balance and the healing of the mind and body. This involves a series of slowly performed dance-like postures that flow into one another. Studies have revealed that Tai Chi offers physiological and psychosocial benefits across a spectrum of individuals, including athletes and adults with or without medical conditions. As a mindfulness—body

¹ Adamson University Graduate School,

practice, Tai Chi integrates mental concentration, physical balance, muscle relaxation, and relaxed breathing. On a side note, it is commonly included in modern Wushu schools' curricula.

Cognitive and psychological aspects play significant roles in Tai Chi practitioners, and the practice of Tai Chi can affect these aspects. However, few studies have explored mental concentration in relation to practitioners' performance. In addition, the relationship between mental concentration and mindfulness, a crucial variable in Tai Chi, remains relatively less explored, especially within the context of students. In sum, the aforementioned contexts have foregrounded the significance of Tai Chi, mindfulness, and concentration. There are also considerable gaps in the existing research that require further investigation into the relationship between these variables and extending the spectrum of existing participants among students majoring in Chinese Wushu with a focus on Tai Chi. This study addresses the gaps in these areas.

1.1. Background of the study

For centuries, the Chinese have enjoyed many benefits and advantages associated with Tai Chi. People of all ages and backgrounds from around the world are discovering what the Chinese have known for centuries: that the long-term sustained practice of Tai Chi leads to positive changes in physical and mental well-being (Guo et al., 2013). For hundreds of years, the Chinese have enjoyed many benefits that Tai Chi is believed to offer. Today, people of all ages and backgrounds from around the world are discovering what the Chinese have known for centuries: that the long-term sustained practice of Tai Chi leads to positive changes in physical and mental well-being (Guo et al., 2013). Furthermore, as mentioned by Sani et al. (2023), Tai Chi is a mindfulness—body practice that has physiological and psychosocial benefits and can be integrated into the prevention and rehabilitation of various medical conditions.

Historically, mindfulness, a concept central to Buddhist teachings, has been linked with the practice of meditation, which aims to foster a nonjudgmental awareness of one's present moment-to-moment experiences (Kabat-Zinn, 2003, as cited in Nedeljkovic et al., 2012). Current interest in mindfulness within sport psychology also continues to grow, with researchers working on different issues related to mindfulness (Garland et al., 2015). Research supports the notion that mindfulness enhances sport performance, although some caution is needed about potential inadequacies in certain studies (Kee, 2019). By and large, mindfulness is considered a viable alternative approach to preparing athletes for optimal athletic performance, according to Harita et al. (2022).

Concentration, on the other hand, refers to the ability to focus on relevant environmental cues (Weinberg and Gould, 2015, as cited in Dereceli, 2018). Some authors and researchers use attention and concentration interchangeably (e.g., Sindik & Fiskus, 2015). In sport psychology, concentration refers to the focus on sensory or mental events coupled with mental effort. Therefore, it relates primarily to the selective attention dimension, in which individuals selectively process some sources of information while ignoring others (Jackson, 2014). For Sindik and Diskus, attention (concentration) is a concept studied in cognitive psychology that refers to how we actively process specific information in our environment. It allows one to "filter out" information, sensations, and perceptions that are not relevant at the moment and instead focus on important information.

Simply put, concentration in sports requires mental effort. It is where athletes direct their attention (Sterling Sport Mindset, 2023). However, it is intriguing to observe that while the literature frequently asserts that experienced athletes have better attention and concentration skills (Canterbury Strength, 2023), there is a scarcity of articles and studies addressing the topic of concentration, particularly its association with Tai Chi and the martial arts.

1.2. Statement of the problem

This research investigates mindfulness and concentration in Wushu (Chinese martial arts) specialty students by employing Tai Chi preparation techniques. Specifically, it aims to answer the following questions:

- 1. What is the level of mindfulness among Wushu specialty students using Tai Chi preparation techniques?
- 2. What is the level of concentration among Wushu specialty students using Tai Chi preparation techniques?
- 3. How proficient are Wushu specialty students' Tai Chi performance?
- 4. Is there a significant relationship between concentration and proficiency in tai chi among Wushu specialty students?
- 5. Is there a significant relationship between mindfulness and Tai Chi proficiency among Wushu specialty students?
- 6. Is there a significant relationship between mindfulness and concentration among Wushu specialty students who utilize Tai Chi preparation techniques?

1.3. Significance of the study

This research is expected to have benefits and implications:

Students and practitioners. This study can deepen students' understanding of how mindfulness and concentration are related to Wushu performance. The study is expected to provide insights into how these variables can impact students' proficiency in Tai Chi and overall Wushu performance. In addition, this study can foster a broader awareness of the importance and benefits of Tai Chi, thereby promoting healthier lifestyles and sports participation.

Wushu instructors, coaches, and trainers. This study will provide valuable insights that instructors can incorporate into their teaching methodologies, using them to innovate their pedagogy and enrich their curricula on Wushu, specifically on Tai Chi preparation techniques. Coaches and trainers can also benefit from the findings of this study, offering them a springboard to craft training programs that are more attuned to their students' needs. Academic institutions and future researchers: This study will contribute to the preservation and understanding of Wushu and Tai Chi as a part of Chinese culture and tradition. Academic institutions offering Wushu programs can enrich their curricula by integrating the importance and practice of mindfulness among their students. Other academic institutions can also draw inspiration from the findings of this study and incorporate Tai Chi into their wellness programs.

1.4. Scope and delimitation

This study focused on Tai Chi as a preparatory technique in Chinese Wushu (kung fu or martial arts) and how students' proficiency in this technique relates to mindfulness and concentration. This involved university students in China who specialized in Wushu with a focus on Tai Chi. The participants were selected based on the following inclusion/exclusion criteria: (1) presently enrolled in the university during the data gathering; (2) majoring in Wushu with a focus on Tai Chi; and (3) no prevailing health conditions.

Data collected during the first semester of AY 2023-2024. Self-reported measures of mindfulness were collected through a survey questionnaire, which could have introduced biases and subjective perspectives among the students. Moreover, the proficiency of students in Tai Chi was evaluated through direct observation and scoring using a teacher-made assessment tool, which could involve the observer's subjectivity.

1.5. Theoretical framework

The philosophical and theoretical bases underpinning the study on mindfulness, concentration, and performance among Wushu specialty students using Tai Chi as a preparatory technique.

The fundamental concept in Buddhist philosophy is that altering one's thoughts can transform one's reality. The earliest teachings of Buddhism assert with conviction that the "Mind precedes all mental states. Mind is their chief; they are all creatures of thought. If with an impure mind a person speaks or acts, suffering follows—like the wheel that follows the foot of the ox. If with a pure mind a person speaks or acts, happiness follows him—

like his never-departing shadow." Buddhism also espouses mindfulness as one of the eightfold paths, a technique that emerged from yogic meditation encompassing the ability to focus one's attention on the present moment" (van der Walt, 2020). Interestingly, in Chinese philosophy, Confucianism also taught that one had to take eight steps to self-cultivation and social harmony. among these eight steps, the third step "rectification of the mind" also closely resembles the concept of mindfulness.

Indeed, mindfulness has been theoretically and empirically associated with psychological well-being—the development of which has been integrated into various mindfulness-centered approaches. These approaches include interventions that claim that mindfulness plays an important role in mental health, mindfulness-based stress reduction, and mindfulness-based cognitive therapy (Williams et al., 2023).

Another foreground that found consonance with the variables in the study is The Theory of Attentional and Personal Style (TAIS), which was pioneered by Robert Nideffer in the field of sport psychology (Nideffer, 1976, as cited in Wikidot, 2023). TAIS has its primary application in the analysis and training of athletic behavior, specifically attentional focus and concentration. According to Oxford Reference (2023), this theory proposes that attentional style exists along two dimensions: width and direction. The width ranges from broad to narrow. Those with broad attention can focus on a large range of stimuli, whereas those with narrow attention tend to focus on a limited range of stimuli. The direction of attentional style varies on a continuum from internal to external focus. Particularly noteworthy, attention and concentration are two closely related but different concepts. In sports psychology, concentration refers to the focus on sensory or mental events coupled with mental effort. It relates primarily to selective attention, where individuals selectively process sources of information while ignoring or disregarding others (Jackson, 2014). The researcher asserts that concentration is an important aspect not only in Wushu but also in mindfulness, an important element in Tai Chi proficiency; hence, it is an interesting variable to examine.

2. Methodology

This chapter presents the research method used in this study.

2.1. Research locale

The study involved Hunan Normal University (HNU) students in China who specialize in Wushu with a focus on Tai Chi. It was founded in 1938 and is located in the historical and cultural city of Changsha, China. The university covers an area of nearly 3,000 acres, with a building area of 1.31 million square meters. The main campus is surrounded by Lu Mountain in the west and Xiangjiang River in the east, with beautiful scenery. It is one of the "400 best" greening units in China.

The study was conducted at Hunan Normal University in China because it was accessible to the researcher. Additionally, the university provided support and resources to facilitate the smooth execution of this research.

2.2. Sample and sampling technique

The researcher specifically considered students pursuing a Bachelor of Education majoring in Chinese Wushu with an emphasis on Tai Chi in their curriculum to be participants in the study. These Wushu specialty students were first- to fourth-year students who belonged to the Chinese Wushu program at the Physical Education College of HNU, the researcher's home university. Fourth-year Wushu majors had an internship, during which they taught Chinese Wushu to fellow students in their later years. Note that eligibility for enrollment in this specialized program relied heavily on the student's notable performance in Wushu competitions. To qualify, a student must have been within the top 3 ranks in Wushu competitions and secured the title of a Wushu National Level 2 Athlete.

The researcher was handling 18 Chinese martial arts classes, with 6 classes focusing on Tai Chi. The estimated class sizes ranged from 15 to 19 students per class. The participants in this study were selected using a non-probability convenient sampling technique based on the inclusion and exclusion criteria.

To qualify, a potential participant had to meet the following requirements: (1) be presently enrolled in the university during the data gathering; (2) be enrolled in the Bachelor of Education program majoring in Chinese Wushu with an emphasis on Tai Chi; and (3) have no prevailing health conditions. Participation in the study was voluntary, with no financial compensation offered.

2.3. Data gathering procedure

This research was scheduled for implementation during the first semester of the academic year 2023-2024. Initially, ethical clearance was obtained from the Adamson University board ethics committee and formally requested permission from Hunan Normal University to conduct the study. Upon receiving approval, the researcher personally and directly contacted potential participants to inform them about their anticipated involvement in the data collection process. The researcher then communicated to potential participants the purpose and procedure of the assessments, including details about the FFMQ, SLCT, and TCAC.

Following this, potential participants underwent a screening procedure to confirm if they met the following eligibility criteria: a student must (1) be presently enrolled in the university during the data gathering; (2) be under the Wushu program with a focus on Tai Chi; and (3) have no prevailing health conditions. The researcher obtained written informed consent from eligible Tai Chi students. The schedule for the three assessments was accordingly arranged. The FFMQ will be transformed into an electronic version using the Questionnaire Star or Google Forms platform. The researcher will then administer the FFMQ to the students. On another schedule, students complete the SLCT within a specified time (i.e., 90 seconds).

A designated performance day or multiple days, depending on student count and availability, was arranged to evaluate their Tai Chi performance. Students were informed about the criteria for evaluating their performance and were provided with a copy of TCAC as much as possible. With the use of TCAC, two to three observers evaluated each participant's Tai Chi performance. The participants' final Tai Chi proficiency scores were calculated as the average of the scores given by the observers.

All data collected from the three assessments were coded and organized to ensure that all data points were documented correctly. Then, the data were aggregated, analyzed, and interpreted for the final output.

2.4. Statistical analysis

SPSS was used to conduct descriptive analysis to examine the distribution, central tendency, and variability of the variables. Additionally, the researcher calculated correlation coefficients to assess the relationships among mindfulness, concentration, and tai chi proficiency and explore any potential patterns or trends in the data. Using a .05 level of significance, the analysis of the hypotheses was carried out and the findings were interpreted in light of the research questions and objectives.

To summarize, the researcher employed the following statistical tools and treatments based on the research questions:

RQ 1: Level of Mindfulness	Mean and standard deviation
RQ 2: Concentration Level	Mean and standard deviation
RQ 3: Tai Chi Proficiency Score	Mean and standard deviation
RQ 4: Relationship between	Pearson r
Mindfulness and Tai Chi Proficiency	
RQ 5: Relationship between	Pearson r

Concentration and Tai Chi Proficiency	
RQ 6: Relationship between	Pearson r
Mindfulness and Concentration	

3. Results and analysis

This section presents the relevant findings of the investigation and their analysis.

Students' Level of Mindfulness

The students' level of mindfulness was assessed and scored using the Five Facet Mindfulness Questionnaire (FFMQ), a 39-item self-assessment tool that measures five aspects of mindfulness: observation, description, aware actions, nonjudgmental inner experience, and nonreactivity. The FFMQ was transformed into an electronic version using the Google Forms platform. Subsequently, the researcher administered the FFMQ to eligible participants. Descriptive and correlation analyses were then performed.

Table 1 shows that the students' mindfulness level ranged from a minimum of 2.44 to a maximum of 4.21, with a mean score of 3.1691 and a standard deviation of 0.31174. This suggests that, on average, students exhibit a moderate level of mindfulness, with some variability in individual scores.

*Table 1.*Descriptive Statistics on Students' Mindfulness

	N	Minimum	Maximum	Mean	Std. Deviation
Students' Mindfulness levels	104	2.44	4.21	3.17	0.31
Valid N (listwise)	104				

The students' overall level of mindfulness was assessed by computing the mean scores across five aspects: Observing, Describing, Acting with Awareness, Nonjudging of Inner Experience, and Nonreactivity to Inner Experience. Table 2 provides the mean scores, standard deviations, and qualitative descriptions for each aspect. *Table 2*.

Students' Mean Scores for Overall Level of Mindfulness

Aspect	Mean Score	Standard	Qualitative	Rank
110000	1,10011 20010	Deviation	Description	
Observing	3.39	1.05	sometimes true	1
Describing	3.35	0.97	sometimes true	2
Acting with Awareness	3.27	1.06	sometimes true	3
Nonpurging one's inner experience	2.70	1.02	sometimes true	5
Nonreactivity to Inner Experience	3.13	1.01	sometimes true	4
Overall Mean	3.17	1.02	sometimes true	

Legend: 1.00–1.50 never or very rarely true; 1.51–2.50 rarely true; 2.51–3.50 sometimes true; 3.51–4.50 often true; 4.51–5.50 very often or always true

The composite mean score for overall mindfulness was 3.17, with a standard deviation of 1.02, indicating a moderate level of mindfulness among the participants. The qualitative description suggests that mindfulness behaviors are "sometimes true" on average across all aspects. Although all the subscales received a response of "sometimes true" from the students, it is evident that students believe they have higher skill in observation, as indicated by their highest mean score. They also have high-level abilities in describing and acting with awareness,

followed by nonreactivity to inner experience. On the other hand, their ability to judge inner experience received the lowest mean score.

Upon examining individual aspects, it is evident that students demonstrate varying levels of mindfulness across different dimensions. Observing (M = 3.39), Describing (M = 3.35), and Nonreactivity to Inner Experience (M = 3.13) scores were relatively higher, indicating a slightly stronger tendency toward these aspects of mindfulness. Acting with Awareness (M = 3.27) and Nonjudging of Inner Experience (M = 2.70) received slightly lower mean scores, suggesting a moderate level of proficiency in these areas. The standard deviations across aspects remained relatively consistent, indicating uniformity in participants' responses for each aspect. However, there is variability in the extent to which students exhibit mindfulness behaviors across different dimensions, as indicated by the mean scores.

In summary, the analysis suggests that students possess a moderate level of mindfulness overall, with some variability in their proficiency across different aspects.

Students' concentration levels

The students' level of concentration was assessed using the six-letter cancelation task (SLCT), a sheet of 22 rows \times 14 columns of randomly arranged letters of the letter. The top of each sheet lists the six target letters. Subjects are given the choice of two possible strategies to cancel target letters (i) all six letters at once or (ii) selecting a single target letter at a time. It is also suggested that students follow horizontal, vertical, or random paths on the test sheet according to their own choices. They are told to cancel as many target letters as possible within a test time of 90 seconds. Scoring for SLCT included the total cancelations attempted, and the number of wrong cancelations. The net score was obtained by subtracting the incorrectly attempted score from the total attempted score. Table 9 shows the results of administering SLCT.

Table 3. Descriptive Statistics of Students' Concentrations

	N	Minimum	Maximum	Mean	Std. Deviation
Students' Concentration Scores	104	40.00	60.00	50.51	4.43
Valid N (listwise)	104				

The concentration scores ranged from a minimum of 40.00 to a maximum of 60.00, with a mean score of 50.5096 and a standard deviation of 4.42630. These results indicate that, on average, students demonstrate good concentration abilities, with moderate variability in scores across the sample.

Pradhan and Nagendra (2008) examined the normative data for the letter cancelation task in school children and proposed the following model equation: SLCT score = $-4.307 + 2.545 \times \text{Age} - 4.25 \times \text{Sex}$. This suggests that with each additional year of age, the SLCT scores increase by an average of 2.545 points and decrease by 4.25 points based on sex (female is 1 and male is 0). These coefficients enable the calculation of correction scores for individual subjects to account for the effects of age and sex. The results found higher scores with an increase in the age of both sexes; females had higher scores than males in the cancelation task performance. For instance, using the model equation, a 20-year-old male is expected to have an SLCT score of approximately 47 points, whereas a female of the same height is expected to have 55 points. The result of this study, in which the mean score was approximately 51, confirms the validity of the established normative data.

Tai Chi Proficiency Level of Students

The students' Tai Chi performance was evaluated by the researcher using the researcher's assessment criteria. The *Tai Chi Assessment Criteria* is a teacher-made assessment tool that outlines the standard levels and their

corresponding criteria for Tai Chi. This category includes five distinct levels: outstanding (90 points or above), good (80-89), medium (65–79), passing (60–64), and failed (below 60 points). These levels are associated with specific criteria that emphasize essential elements while performing Tai Chi like movement, technique, strength, rhythm, style, and coordination. This assessment tool was used by the researcher to evaluate the proficiency of each student in Tai Chi. Table 10 shows the results of evaluating students' Tai Chi performance.

*Table 4.*Descriptive Statistics of Students' Tai Chi Proficiency

	N	Minimum	Maximum	Mean	Std. Deviation
Tai Chi Proficiency Scores of	104	75.00	96.00	83.96	4.15
Students					
Valid N (listwise)	104				

The Tai Chi proficiency scores ranged from a minimum of 75.00 to a maximum of 96.00, with a mean score of 83.9615 and a standard deviation of 4.14758. This suggests that, on average, students have a "good" level of proficiency in Tai Chi, with relatively low variability in scores across the sample. Overall, based on the distribution of scores and defined proficiency levels, it seems that most students performed well in Tai Chi, with many achieving outstanding or good proficiency levels. The assessment criteria effectively differentiate between various levels of performance based on essential elements like movement, technique, strength, rhythm, style, and coordination.

Relationship between Mindfulness and Concentration

Table 5 shows the results of the correlation analysis conducted between the pair of variables: students' level of mindfulness and students' concentration scores.

*Table 5.*Correlation between Students' Mindfulness Level and Concentration

	Students'	Students'	Interpretation	Decision
	Mindfulness	Concentration		H_0
	Level	Scores		
Pearson	1	.718*	Significant	Reject
Correlation				
Sig. (2-tailed)		.000		
N	104	104		
Pearson	.718*	1	Significant	Reject
Correlation				
Sig. (2-tailed)	.000			
N	104	104		
	Correlation Sig. (2-tailed) N Pearson Correlation Sig. (2-tailed)	Mindfulness Level Pearson Correlation Sig. (2-tailed) N 104 Pearson Correlation Sig. (2-tailed) 000	Mindfulness Concentration Level Scores Pearson 1 .718* Correlation .000 N 104 104 Pearson .718* 1 Correlation Sig. (2-tailed) .000	Mindfulness Concentration Scores

As shown in Table 5, the correlation analysis between students' mindfulness levels and concentration scores revealed a strong positive correlation coefficient of r = 0.718 (p < 0.05, two-tailed). The null hypothesis was

rejected at a significance level of 5%. Hence, there is enough evidence to conclude that there is a significant and positive relationship between students' mindfulness levels and concentration scores. In other words, as students' mindfulness levels increase, their concentration scores also tend to increase, and vice versa.

The correlation coefficient of 0.718 suggests a strong association between these two variables. This implies that mindfulness practices can contribute to improved concentration abilities among students, and vice versa. However, correlation does not imply causation, and further research is needed to establish causal relationships between mindfulness and concentration. This finding underscores the potential benefits of incorporating mindfulness training into educational settings to enhance students' concentration skills, which could positively impact their academic performance and overall well-being.

Relationship between Concentration and Tai Chi Proficiency

Table 6 shows the results of the correlation analysis conducted between the pair of variables: students' concentration scores and students' Tai Chi proficiency scores.

Table 6.Correlation between Concentration and Tai Chi Proficiency

Variables		Students'	Tai	Chi	Interpretation	Decision H ₀
		Concentration	Proficiency			
		Scores	Scores	of		
			Students			
Students'	Pearson	1	.748*		Significant	Reject
concentration	Correlation					
scores	Sig. (2-tailed)		.000			
	N	104	104			
Tai Chi	Pearson	.748*	1		Significant	Reject
Proficiency Scores	Correlation					
of Students	Sig. (2-tailed)	.000				
	N	104	104			
* Correlation was significant at the 0.05 level (2-tailed).						

As shown in Table 6, the correlation analysis between students' concentration scores and Tai Chi proficiency scores revealed a strong positive correlation coefficient of r = 0.748 (p < .05, two-tailed). The null hypothesis was rejected at a significance level of 5%. Hence, there is enough evidence to conclude that there is a significant and positive relationship between students' concentration scores and their Tai Chi proficiency scores. In other words, as students' concentration score increases, their Tai Chi proficiency scores also tend to increase and vice versa. The correlation coefficient of .748 suggests a strong association between these two variables. This implies that engagement in tai chi practice may contribute to improved concentration abilities among students, and vice versa. However, it is essential to note that correlation does not imply causation, and further research is needed to establish causal relationships between tai chi practice and concentration.

This finding highlights the potential benefits of integrating Tai Chi training into educational programs to enhance students' concentration skills, which could potentially lead to improved academic performance and overall well-being.

Relationship between Tai Chi Proficiency and Mindfulness

Table 7 shows the results of the correlation analysis conducted between the pair of variables: students' level of mindfulness and students' Tai Chi proficiency scores.

*Table 7.*Correlation between Students' Mindfulness and Tai Chi Proficiency

	Stadelite Ivilliaia		Tai	Chi				
		Students'		CIII				
Variables		Mindfulness Level	Proficiency		Interpretation	Decision H ₀		
, arabics	v arrabics		Scores	of	interpretation	Decision 110		
			Students					
Students'	Pearson	1	.849*		Significant	Reject		
Mindfulness levels	Correlation							
	Sig. (2-tailed)		.000					
	N	104	104					
Tai Chi Proficiency	Pearson	.849*	1		Significant	Reject		
Scores of Students	Correlation							
	Sig. (2-tailed)	.000						
	N	104	104					
*. The correlation is	*. The correlation is significant at the 0.01 level (2-tailed).							

As shown in Table 7, the correlation analysis between students' mindfulness levels and Tai Chi proficiency scores revealed a strong positive correlation coefficient (r = 0.849 (p < 0.05, two-tailed). The null hypothesis was rejected at a significance level of 5%. Hence, there is enough evidence to conclude that there is a highly significant and positive relationship between students' mindfulness levels and their Tai Chi proficiency scores. In other words, as students' mindfulness levels increase, their Tai Chi proficiency scores also tend to increase, and vice versa. The correlation coefficient of 0.849 suggests an exceptionally strong association between these two variables.

The correlation coefficient of 0.849 suggests an exceptionally strong association between these two variables. This implies that engagement in mindfulness practices can contribute to improved Tai Chi proficiency among students, and vice versa. However, it is essential to note that correlation does not imply causation, and further research is necessary to establish causal relationships between mindfulness and Tai Chi proficiency. This finding underscores the potential synergistic benefits of combining mindfulness training and Tai Chi practice in educational settings, which could enhance overall well-being and student performance.

Based on the results of the study, the researcher concluded the following:

- 1. The students had a moderate level of mindfulness, suggesting that mindfulness behaviors are "sometimes true" on average across all aspects. Students can exhibit moderate abilities in observing sensory experiences and in describing and articulating their thoughts, feelings, and experiences. Moreover, they can manifest moderate abilities in acting with awareness and attentiveness, observing their thoughts and emotions without reacting impulsively, and accepting their thoughts and emotions without judgment.
- 2. Students demonstrate good concentration ability. As Wushu specialty students, they can perform with a clear and present focus on the demands of their tasks.
- 3. Most students perform well in Tai Chi, with many achieving outstanding or good proficiency levels. They can exhibit good performance in Tai Chi based on essential elements like movement, technique, strength, rhythm, style, and coordination.
- 4. There is a significant, strong, positive correlation between mindfulness and concentration. Mindfulness practices may improve concentration abilities among Wushu specialty students, and vice versa.
- 5. There is a significant, strong, positive correlation between concentration and Tai Chi proficiency. Wushu specialty students with higher concentration scores tend to exhibit better Tai Chi proficiency scores, and vice versa.

6. There is a significant, strong, positive correlation between mindfulness and Tai Chi proficiency. Wushu specialty students with higher levels of mindfulness tend to exhibit better proficiency in Tai Chi

REFERENCES

- Alomari, H. (2023). Mindfulness and its relationship to academic achievement among university students. Front. Educ. 8:1179584. doi: 10.3389/feduc.2023.1179584
- Baer, R. ____. Five Facet Mindfulness Questionnaire (FFMQ). *University of Kentucky*.
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., and Toney, L. (2006). *Using self-report assessment methods to explore the facets of mindfulness*. Assessment, 13(1), 27-45.
- Balaram Pradhan, Nagendra H R. (2009). Normative data for the letter-cancelation task in school children. International Journal of Yoga, Vol. 1:2, Jul-Dec 2008.
- Bastug, G. (2018). Examination of Body Composition, Flexibility, Balance, and Concentration Related to Dance Exercise. *Asian Journal of Education and Training*, Vol. 4, No. 3, 210-215, 2018 ISSN(E) 2519-5387. DOI: 10.20448/journal.522.2018.43.210.215
- Bhuyan, B., & Mishra, P. (2013). Effects of yoga on performance in a letter-cancelation task under academic examination stress. *IOSR Journal of Research and Methods in Education (IOSR-JRME)*. Volume 2, Issue 5 (Jul. –Aug. 2013), PP 34-37.
- Burke, D., et al. (2007). Martial arts as sport and therapy. Journal of Sports Medicine and Physical Fitness
- Călin, M., & Ginara, D. (2023). The effects of mindfulness practices on well-being. *Technium Social Sciences Journal*. <u>Available online: https://techniumscience.com/index.php/socialsciences/index</u>
- Chen, M., & Cheung, R.Y.M. (2021). Testing Interdependent Self-Construal as a Moderator between Mindfulness, Emotional Regulation, and Psychological Health among Emerging Adults. *Int. J. Environ. Res. Public Health* 2021, 18, 444. https://doi.org/10.3390/ijerph18020444
- Das, A., Srivastavai, A., Arya, Y., Chauhani, H., Pandey, S., & Thakur, Y. (2023). Positive-negative affectivity and decision making among mindfulness mediators and non-meditators. *Mind and Society* Vol. 12, No. 2, June 2023, 35-43. https://doi.org/10.56011/mind-mri-122-20234
- Dereceli, C. (2018). Examination of Concentration and Mental Toughness in Professional Basketball Players. *Journal of Education and Training Studies* Vol. 7, No. 1; January 2019. https://doi.org/10.11114/jets.v7i1.3841
- Garland, E. L., B. Froeliger, and M. O. (2014). Effects of Mindfulness-Oriented Recovery Enhancement on reward responsiveness and opioid cue reactivity. *Psychopharmacology*, 231(16), 3229–3238. http://doi.org/10.1007/s00213-014-3504-7

- Garland, E. L., Gaylord, S. A., Boettiger, C. A., & Howard, M. O. (2010). Mindfulness training modifies cognitive, affective, and physiological mechanisms implicated in alcohol dependence: Results of a randomized controlled pilot trial. *Journal of Psychoactive Drugs*, 42, 177–192.
- Garland, E., Farb, N., Goldin, P., & Fredrickson, B. (2014). Mindfulness-to-Meaning Theory: Extensions, Applications, and Challenges at the Attention-Appraisal-Emotion Interface
- Greher, M. (2000). Measuring Attention: An Evaluation of the Search and Cancelation of Ascending Numbers (Scan) and Short Form of Test of Attentional and Interpersonal Style (TAIS).
- Guo, Y., Qiu, P., & Liu, T. (2014). Tai Ji Quan: An overview of its history, health benefits, and cultural value. *Journal of Sport and Health Science* 3 (2014) 3e8. http://dx.doi.org/10.1016/j.jshs.2013.10.004
- Hallit, S., Bitar, Z., Rogoza, R., & Obeid, S. (2022). Validation of the Arabic Version of the Freiburg Mindfulness Inventory (FMI-Ar). *Among a Sample of Lebanese University Students*. https://doi.org/10.21203/rs.3.rs-1255958/v1
- Harita, A., & Suryanto, A. (2022). Effect of mindfulness sports performance enhancement (MSPE) to reduce competitive state anxiety on karate athletes. Jurnal Speeding: *Jurnal Penelitian Pembelajaran* Vol. 8 No. 2, August 2022, pp. 169–188. https://doi.org/10.29407/js_unpgri.v8i2.17807
- Harmer, P. (2014). So much research, so little application: Barriers to dissemination and practical implementation of Tai Ji Quan. *Journal of Sport and Health Science* 3 (2014) 16e20. http://dx.doi.org/10.1016/j.jshs.2013.10.005
- Herren, A., annoy, S., Rousement, C., Hebete, Y., Verschureni, A., Blanchard, A., ChakrounBaggioni, Philippe, P., and Gorski, F. (2021). A network-based approach to the five-facet model of mindfulness. *Scientific Reports*. https://doi.org/10.1038/s41598-021-94151-2
- Jackson, R. C. (2014). Concentration. In R. C. Eklund and G. Tenenbaum (Eds.). Encyclopedia of sport and exercise psychology. *Sage Publications*.
- Kee, Y. (2019). Looking East for Mindfulness: A Glimpse of Shaolin Martial Arts Practices and Related Practices to advanced Sport Psychology. *Psych.* 2019, 1, 76–91; doi: 10.3390/psych1010006
- Keng, S., Smoski M, Robins C. Effects of Mindfulness on Psychological Health: A Review of Empirical Studies. *Clin Psychol* Rev. 2011 August; 31(6): 1041–1056. doi:10.1016/j.cpr.2011.04.006
- Kovarova, L. and Kovar, K. (2010). Concentration of Attention as a Predisposition to Performance in Junior Categories in Endurance Sports. *Acta Univ. Palacki. Olomuc., Gymn.* 2010, Vol. 40, no. 1.
- Li, F. (2013). Transforming traditional Tai Ji Quan techniques into integrative movement therapy Tai Ji Quan: Moving for Better Balance. Journal *of Sport and Health Science* 3 (2014) 9e15. http://dx.doi.org/10.1016/j.jshs.2013.11.002
- Moran, A. (2004). Attention and Concentration Training in Sport. Encyclopedia of Applied Psychology

- Navarrete J, Fontana-McNally M, Colomer-Carbonell A, Sanabria-Mazo JP, Pinazo D, Silvestre-López A-J, Lau M, Tanay G, García-Campayo J, Demarzo M, Soler J, Cebolla A, Feliu-Soler A, Luciano JV. (2023). *The Toronto Mindfulness Scale and the State Mindfulness Scale: psychometric properties of the Spanish versions*. Front. Psychol. 14:1212036. doi: 10.3389/fpsyg.2023.1212036
- Naves-Bittencourt W., Mendonça-de-Sousa, A., Stults-Kolehmainen, M., Fontes, E., Córdova, C., Demarzo M, Boullosa D. Martial Arts: Mindful Exercises to Combat Stress. *European Journal of Human Movement*, 2015: 34, 34-51
- Nedeljkovic, M., Wirtz, P., & Ausfeld-Hafter, B. (2012). Effects of Taiji Practice on Mindfulness and Self-Compassion in Healthy Participants—A Randomized Controlled Trial. *Springer Science+Business Media, LLC*, 2012. DOI: 10.1007/s12671-012-0092-7
- Olmos, et al. (2023). Social and Individual Factors Associated with Eating Disorders in Young Athletes: Effects on Concentration and Fatigue. *Sports* 2023, 11: 122.
- Poonacha, N., and Babu, K. (2023). Mindfulness in Young Adults and Their Relation to Personal Growth. *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, ISSN: 2321-9653; IC Value: 45.98. https://doi.org/10.22214/ijraset.2023.51776
- Pradhan, B. and Nagendra, H. (2008). Normative data for the letter-cancelation task in school children. Int J Yoga. 2008 Jul-Dec; 1(2): 72–75. doi: 10.4103/0973-6131.43544
- Sani, N., Yusoff, S., Norhayati M. & Zainudin, A. (2023). Tai Chi Exercises for Mental and Physical Well-Being in Patients with Depressive Symptoms: A Systematic Review and Meta-Analysis. *Int J Environ Res Public Health.* 2023 Feb; 20(4): 2828. doi: 10.3390/ijerph20042828
- Sani, N., Yusoff, S., Norhayati, M., & Zainudin, A. (2023). Tai Chi Exercises for Mental and Physical Well-Being in Patients with Depressive Symptoms: A Systematic Review and Meta-Analysis. *International Journal of Environmental Research and Public Health*. https://doi.org/10.3390/ijerph20042828
- Sawal, M. (2023). Mindfulness and Life Satisfaction in Workplace among Employees. *International Journal for Research in Applied Science & Engineering Technology (IJRASET)* ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538 Volume 11 Issue V May 2023. https://doi.org/10.22214/ijraset.2023.51608
- Sindik, J. (2015). Preliminary psychometric validation of the Multidimensional inventory of sport excellence: attention scale scores and mental energy. *Monten. J. Sports Sci. Med.* 4 (2015) 2: 17–28
- Solloway MR, Taylor SL, Shekelle PG, Miake-Lye IM, Beroes JM, Shanman RM, Hempel S. (2016). Evidence map of the effects of tai chi on health outcomes. *Syst Rev.* 2016 Jul 27;5(1):126. doi: 10.1186/s13643-016-0300-y. PMID: 27460789; PMCID: PMC4962385.
- Sun, Y., Zhang, B., Ji, A., & Sun, W. (2022). Impact of Wushu Sports Health on College Students' Mental Health. *Hindawi Journal of Environmental and Public Health*. Volume 2022, Article ID 5841017, 9 pages. DOI: 10.1155/2022/5841017

- Tang, Y.-Y., Hölzel, B. K., & Posner, M. I. (2015). neuroscience of mindfulness meditation. *Nature Reviews Neuroscience*. 16(4), 213–225.
- Wang F, Lee EK, Wu T, Benson H, Fricchione G, Wang W, Yeung AS. (2014). The effects of tai chi on depression, anxiety, and psychological well-being: a systematic review and meta-analysis. Int J Behav Med. 2014 Aug;21(4):605-17. doi: 10.1007/s12529-013-9351-9. PMID: 24078491.
- Wang, Y., Lei, S., & Wu, C. (2023). Effect of Mindfulness Intervention on Psychological Skills and Shooting Performances in Male Collegiate Basketball Athletes in Macau: A Quasi-Experimental Study. *Int. J. Environ. Res. Public Health* 2023, 20, 2339. https://doi.org/10.3390/ijerph20032339.
- Williams, M., Dalglish, T., Karl, A. (2017). Examining the factor structures of the five-faceted mindfulness questionnaires and the self-compassion scale. *ORE Open Research Exeter*. http://hdl.handle.net/10871/26528
- Wu, A. (2016). Exploring the relationship between mindfulness and the abilities of mixed martial art fighters: A cognitive approach.
- Yao, Y., Ge, L., Yu, Q., Du, X., Zhang, X., Taylor-Piliae, R., & Wei, G. (2021). The Effect of Tai Chi Chuan on Emotional Health: Potential Mechanisms and Prefrontal Cortex Hypothesis. Evidence-Based Complementary and Alternative Medicine. Volume 2021, Article ID 5549006, 12 pages. DOI: 10.1155/2021/5549006
- Yin, J., Yue, C., Song, Z., Sun, X., & Wen, X. (2023). The comparative effects of Tai chi versus non-mindful exercise on measures of anxiety, depression, and general mental health: A systematic review and meta-analysis. *J Affect Disord*. 2023 Sep 15:337:202-214. doi: 10.1016/j.jad.2023.05.037.
- Zhang, J., Qin, S., Zhou, Y., Meng, L., Su, H., & Zhao, S. (2018). A randomized controlled trial of mindfulness-based Tai Chi Chuan for subthreshold depression adolescents. *Neuropsychiatric Disease and Treatment*. http://dx.doi.org/10.2147/NDT.S173255