

# The Impact of Taekwondo Training on Psychological Health and Anti-Frustration Ability of College Students

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## ABSTRACT

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Taekwondo, a traditional Korean martial art, has gained popularity worldwide and is recognized for its physical and mental benefits. This study investigates the influence of Taekwondo training on the psychological health and anti-frustration ability of college students. The primary aim is to examine how participation in Taekwondo classes affects the psychological well-being and anti-frustration ability of college students. This study utilized a pre-post intervention design, employing the General Health Questionnaire (GHQ-20) and the Connor Davidson Resilience Scale (CD-RISC) to assess participants' psychological health and resilience before and after Taekwondo training. Participants completed pre-training assessments, underwent a structured Taekwondo training program, and completed post-training assessments. Quantitative analysis compared pre- and



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post-training scores to determine any significant differences. Initial findings reveal a significant correlation between Taekwondo training and improved psychological health indicators, such as reduced anxiety and increased self-esteem. Moreover, participants demonstrate enhanced resilience in coping with academic and personal challenges. Taekwondo training emerges as a promising intervention for enhancing college students' psychological health and anti-frustration ability. By promoting physical fitness, self-discipline, and stress management techniques, Taekwondo fosters a holistic approach to well-being.

## INTRODUCTION

The global prevalence of mental health issues among college students underscores the importance of investigating interventions that promote psychological well-being. Research from diverse continents highlights the significance of addressing this concern. Studies from North America, including those conducted in the United States and Canada, emphasize the escalating rates of depression, anxiety, and stress among university students (Auerbach et al., 2018; Eisenberg et al., 2007). Similarly, European literature highlights the growing concern for mental well-being on campuses, with research from countries like the United Kingdom and Germany revealing high levels of psychological distress among students (Evans et al., 2018; Stallman, 2010). In Australia and New Zealand, investigations into student mental health illuminate the complex interplay of academic pressure, social factors, and mental well-being (Stallman, 2010; Thorley, 2017). Moreover, studies from Asian countries such as Japan, South Korea, and China underscore the increasing recognition of mental health challenges faced by college students, reflecting a global need for effective interventions and support systems (Mok et al., 2010; Sun et al., 2014).

In the ASEAN region, literature from countries such as Malaysia, Thailand, and Vietnam provides insights into the unique challenges and perspectives regarding college students' psychological health and resilience. For instance, a study conducted in Malaysia highlighted the impact of cultural factors on mental health stigma and help-seeking behavior among university students (Ahmed et al., 2017). Similarly, research from Thailand explored the role of family support and social networks in mitigating stress and promoting psychological well-being among college students (Peltzer & Pengpid, 2018). Additionally, studies from Vietnam have examined the prevalence of depression and anxiety symptoms among university students, emphasizing the need for targeted interventions and campus-based support services (Tran et al., 2019).

Despite the growing body of research on college students' psychological health

and resilience, there remains to be a notable gap in the literature regarding the effectiveness of specific interventions, such as Taekwondo training, in enhancing students' well-being and coping abilities. While previous studies have investigated various factors contributing to psychological distress among college students, few have examined the potential of Taekwondo training to improve psychological health and anti-frustration ability. Therefore, this study aims to address this gap by evaluating the impact of Taekwondo training on college students' psychological well-being and resilience in the ASEAN region. By focusing on this innovative approach, the study seeks to contribute novel insights to the existing literature and inform the development of evidence-based interventions tailored to the needs of college students in the region.

The decision to investigate the influence of Taekwondo training on college students' psychological health and anti-frustration ability arises from the pressing need to explore holistic approaches to promoting well-being. Taekwondo, renowned as a traditional Korean martial art, has garnered global recognition for its multifaceted benefits, encompassing physical and mental aspects. By delving into how Taekwondo training impacts college students' psychological well-being and resilience, this research sheds light on the potential advantages of Taekwondo in bolstering mental health and fortitude among this demographic. Drawing on empirical evidence and theoretical frameworks, the study aims to uncover the underlying mechanisms through which Taekwondo training may cultivate psychological strength and resilience.

The researchers' extensive experience as a senior Taekwondo teacher and international referee lends credibility to the exploration of Taekwondo's effects on students' psychological states and coping mechanisms. By addressing gaps in the existing literature, this study seeks to furnish empirical evidence and theoretical insights into the transformative potential of Taekwondo training on college students' psychological health and resilience. Ultimately, the findings of this research endeavor to inform university education practices and student development initiatives, facilitating the enhancement of holistic well-being among college students.

## FRAMEWORK

Ginsburg's (1988) theory of frustration resistance outlines seven key elements: competence, confidence, connection, character, contribution, coping, and control, providing a comprehensive framework for understanding individuals' responses to challenges. Theoretical studies on frustration propose various views, including the Instinct Theory by McDougall (Ye, 2011), "Frustration-

Violation” Theory by Dollard et al. (1939), Behavioral Theory by Ellis’ (1955) “ABC Theory.” Scholars emphasize behavioral processes and the importance of internal resistance to frustration, aligning with dynamic resilience models. Numerous studies have explored the resilience of college students to setbacks and its correlation with various factors. According to Maslow’s definition, mental health includes an individual’s self-actualization in various influencing factors.

Development Status of Taekwondo Training in Colleges and Universities  
Taekwondo projects in China have significantly developed, attracting college students’ enthusiasm and establishing a comprehensive teaching system (Meng, 2022). Taekwondo practice enhances physical flexibility and lower limb strength, improving explosiveness (Ye & Shi, 2020; Huang, 2020). Taekwondo also promotes moral education and fosters positive emotional experiences (Zou, 2022).

Physical Exercise and Resistance to Frustration  
College students demonstrate their psychological health development through frustration tolerance and adaptability (Guo et al., 2018). Regular physical activity contributes to improved mental health, enhancing resilience to stress and anxiety (Demir & Barut, 2020). While research on Taekwondo’s impact on psychological resilience is limited, it holds significant importance for college students’ development. This study aims to investigate Taekwondo’s influence on psychological health and resilience to frustration, enriching an understanding of its psychological functions.

Based on the related research results, the research results of physical exercise on anti-frustration ability are relatively abundant. The psychological function of Taekwondo training is mainly concentrated in the field of psychological health, but there is little empirical research on the psychological quality or characteristics of Taekwondo training on anti-frustration ability, and this psychological quality has extremely important significance for the growth and development of college students. Therefore, this research takes college students as the research object, examines the influence of Taekwondo training on college students’ psychological health and anti-frustration ability, and enriches the related theories of Taekwondo training’s psychological function.

Resilience to frustration encompasses various elements, including competence, confidence, connection, character, contribution, coping, and control. Concurrently, the theory of anti-frustration ability is comprehensive, covering multiple facets of an individual’s response to setbacks and challenges. The amalgamation of these theories is anticipated to offer valuable insights into how individuals, particularly college students, effectively navigate and cope with adversity.

In the context of taekwondo training, the researcher will delve into how the

specific components of these theories interact and contribute to the enhancement of psychological health and anti-frustration ability. For instance, the acquisition of competence through Taekwondo skills, the boost in confidence from overcoming physical challenges, the strengthening of connections through group training, and the cultivation of character traits like perseverance and tenacity are all aspects that may play a crucial role.

This exploration aims to provide a nuanced understanding of the transformative process individuals undergo during taekwondo training, shedding light on the interplay between psychological health and anti-frustration ability. By adhering to the chosen theoretical framework, the researcher endeavors to contribute substantively to the existing body of knowledge on the psychological impacts of physical training and resilience-building practices.

## OBJECTIVES OF THE STUDY

This research aimed to comprehensively assess the impact of Taekwondo training on university students. Firstly, through an eight-week training program, the study sought to measure the influence of Taekwondo training on the psychological health of students, specifically examining changes in stress levels, emotional well-being, and overall psychological health before and after the intervention. Secondly, the research aimed to evaluate the effects of Taekwondo training on students' anti-frustration abilities, encompassing changes in coping mechanisms, resilience, and frustration tolerance in response to challenges. The investigation into these two aspects provided an in-depth exploration of the holistic impact of Taekwondo training on the psychological health and anti-frustration ability of university students.

## METHODOLOGY

### Research Design

The researcher utilized the quantitative method, particularly the Quasi-experimental design, by introducing one experimental group to assess the impact of some interventions like the Taekwondo training program. Compared with pure experimental design, quasi-experimental design has some limitations on random distribution. Usually, the experiment in a quasi-experimental design is selected according to the researchers' wishes or conditions rather than achieving the same baseline through random allocation. The advantage is that it requires flexible conditions and has wide application when it cannot control all irrelevant variables that may affect the experimental results; that is, the external validity is relatively high.

In a quasi-experimental study, the researcher set up a formal procedure to manipulate and compare one variable to a better conclusion than another. After comparing the evaluations, the researchers will carefully evaluate the evaluation part of the paper to evaluate the value of the study. Quasi-experimental research design can more accurately explain and predict the causal relationship between variables, providing more valuable evidence for future research.

### **Research Site**

The study was conducted among the college students at Chengdu University in Sichuan Province.

Founded in 1978, Chengdu University is one of the first batch of full-time general undergraduate institutions sponsored by local cities after the reform and opening up.

In the 2022 Times Higher Education World University Rankings, the school entered the top 100 universities in China for the first time, ranking 77th domestically and 1001-1200 among global universities; in the 2022 Times Higher Education Asian University Rankings, it ranked No. 1 among universities in mainland China, 86-92, 351-400 in Asia.

More than 25,000 full-time students (including more than 1,700 graduate students) exist. There are three national-level first-class courses, 26 provincial-level first-class courses, 16 provincial-level “Course Ideology and Politics” demonstration courses, seven provincial-level innovation and entrepreneurship education demonstration courses, nine provincial-level applied demonstration courses, and provincial-level excellent courses 38 courses, approved as the first batch of “Stanford Innovation and Entrepreneurship Course Experimental Center” in the country.

### **Sampling Technique**

Using a purposive sampling technique, the researcher selected sixty students from Chengdu University to participate in the experimental group, where they underwent an eight-week Taekwondo training program. The selection criteria were based on students’ voluntary enrollment in the Taekwondo elective course, which is open to students from various colleges and departments within the university. Participants had to meet the following criteria: (1) being students of Chengdu University; (2) voluntarily choosing to enroll in the Taekwondo elective course, representing students from different academic disciplines within the university. The purposive sampling method ensured that the selected students were not only interested in learning Taekwondo but also represented a cross-section of the university’s academic community.

## **Instrumentation**

The purpose of this study was to investigate the impact of Taekwondo training on the psychological health and anti-frustration ability of college students. In order to collect information related to participants' psychological health and resilience, two established measurement instruments were used: The General Health Questionnaire GHQ-20 and the Connor-Davidson Resilience Scale (CD-RISC). This section describes the background, structure, and use of these two scales.

The General Health Questionnaire GHQ-20 was originally developed by Goldberg and later revised by Dr. Li Hong and others from the Institute of Education at Tsinghua University. There was a total of 20 items, including 3 subscales: GHQ Self affirmation (9 items), GHQ Depression Scale (6 items), and GHQ Anxiety Scale (5 items). According to the test results, the clone Bach of the GHQ-20 scale  $\alpha$  coefficient is 0.884, which includes 20 items, indicating that the scale has high internal consistency and reliably measures overall health status. The KMO measure value is 0.725, indicating good sample suitability and suitability for factor analysis.

The Conner-Davidson Resilience Scale (CD-RISC) is a scale that measures an individual's resilience and adaptability to setbacks. The scale dimensions are categorized as strength, resilience, and optimism. Based on the findings of the Connor-Davidson Resilience Inventory (CD-RISC), the alpha coefficient stands at an impressive 0.973, encompassing twenty-five items that collectively demonstrate the scale's exceptional internal consistency, thereby signifying a high degree of reliability in measuring comprehensive anti-frustration ability. Based on the findings of the Connor-Davidson, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.818, indicating satisfactory sample adequacy for conducting factor analysis.

## **Research Ethics Protocol**

The researcher adhered to comprehensive ethical guidelines throughout the data collection process. Measures were taken to ensure informed consent, privacy, and confidentiality of participants. Risks associated with Taekwondo training were carefully assessed and addressed, with physical, psychological, social, and economic risk provisions. Participants were offered benefits, including personal development opportunities and a token of appreciation for their involvement. No financial incentives were provided to prioritize voluntary participation and academic integrity. Community considerations were also considered to minimize potential negative impacts on Chengdu University and associated communities. Overall, the study was conducted with utmost respect for participant autonomy,

dignity, and confidentiality.

### Statistical Treatment

After gathering data and asking permission from the different offices, the gathered data will be subjected to statistical treatment of data. Data were meticulously organized and cleaned to eliminate any outliers or missing values. Scores from the psychological health and anti-frustration ability scales were computed.

**Frequency and Percentage.** Frequency and percentage distributions of scores for each item on the scales were calculated particularly the profiles of the respondents.

**Mean.** The average scores for psychological health and anti-frustration ability were calculated, providing an overview of the overall performance of the student group.

4	3.51 - 4.0	Very frequent
3	2.51 - 3.50	Regular
2	1.51 - 2.50	Occasional
1	1 - 1.50	Very rare

**Standard Deviation.** Standard deviation of the scores for psychological health and anti-frustration ability was computed. This measure indicates the extent of variation in scores, offering insights into the data's dispersion.

**T-test** were conducted to compare the initial levels of the experimental group's psychological health and anti-frustration ability with the post-intervention levels. The p-value from the t-test were calculated to determine the statistical significance of any observed differences.

By employing these statistical analyses, a comprehensive understanding of the impact of the Taekwondo training intervention on students' psychological health and anti-frustration ability was derived.

## RESULTS AND DISCUSSION

Table 1 presents the profile of the respondents in terms of sex, age, and grade level.

**Table 1**  
*Respondent's Profile*

Project	Profile	Frequency	Percent
Sex	Male	19	31.70%
	Female	41	68.30%
Age	18-19	40	66.70%
	20-21	20	33.30%
	22 and above	0	0.00%
Grade Level	Level 1	38	63.30%
	Level 2	22	36.70%

**Sex.** Table 1 shows that nineteen, or about 31.7%, of the respondents are male, while 41, or about 68.3%, are female. This shows that the majority of the respondents are female.

**Age.** Table 1 shows that forty, or about 66.7%, of the respondents are 18-19 years old, twenty or about 33.3% are 20-21 years old, and there are no respondents aged 22 or above. This shows that most respondents are 18-19 years old.

**Grade Level.** Table 1 shows that thirty-eight, or about 63.3%, of the respondents are Grade Level 1, and 22, or about 36.7%, are Grade Level 2. This shows that the majority of the respondents are Grade Level 1.

### Respondents Level of Psychological Health

**Table 2**  
*Self-Affirmation Dimensions of Respondents Before and After Participating In Taekwondo Training*

Statements	Before training				After training			
	Mean	Standard Deviation	Interpretation	Rank	Mean	Standard Deviation	Interpretation	Rank
1. Generally speaking, everything is quite happy.	2.37	0.61	occasional	3	2.97	0.486	Regular	2

2. I am able to concentrate on everything I do.	2.15	0.577	occasional	7	2.87	0.536	Regular	4
3. I am very satisfied with the way I do things.	2.22	0.613	occasional	5	2.85	0.577	Regular	5
4. I have been busy lately and make full use of my time.	2.17	0.668	occasional	6	2.78	0.524	Regular	7
5. I am handling daily affairs is as good as others.	2.23	0.593	occasional	4	2.75	0.6	Regular	8
6. I feel like I can help or provide some advice on many things.	2.15	0.659	occasional	7	2.8	0.514	Regular	6
7. I feel very unhappy.	3.02	0.567	Regular	1	3.72	0.454	Very frequent	1
8. I am able to live my normal life happily.	2.42	0.645	occasional	2	2.95	0.502	Regular	3
9. I am easy to get along with others.	2.42	0.619	occasional	2	2.87	0.503	Regular	4
Overall Mean	2.23	0.407	occasional	-	2.68	0.366	Regular	-

*Legend: 3.51-4.0 Very frequent; 2.51- 3.50 Regular; 1.51-2.50 occasional; 1-1.50 Very rare.*

The self-affirmation data from Table 2 highlights that participants displayed varying levels of positive attitudes towards different aspects of self-affirmation before Taekwondo training, with occasional fluctuations. However, post-training, there was a significant positive shift, with participants reporting notably higher levels of positivity across various dimensions. This included a decrease in feelings of unhappiness (Mean = 3.72), increased happiness (Mean = 2.97), improved ability to concentrate (Mean = 2.87), and enhanced confidence in handling daily tasks (Mean = 2.75), among others. These findings suggest that Taekwondo training positively influences individuals' mental health, promoting emotional stability and self-affirmation. Supporting this, Zhang (2019) underscores Taekwondo as conducive to personal development and improved interpersonal relationships, while Huang and Li (2018) emphasize the refinement of willpower and bolstering of self-confidence through practice. Additionally, Yan (2011) emphasizes the importance of etiquette in fostering mutual respect and communication skills

among participants. Overall, Taekwondo training promotes physical and mental balance, self-discipline, spiritual influences, and social support, enhancing individuals' sense of self-affirmation and mental well-being.

**Table 3**

*Depression Dimensions of Respondents Before and After Participating In Taekwondo Training*

Statements	Before training				After training			
	Mean	Standard Deviation	Interpretation	Rank	Mean	Standard Deviation	Interpretation	Rank
1. I feel that there is still hope for my future.	2.53	0.596	Regula	1	2.98	0.469	Regular	1
2. I don't think being a good person is meaningful.	1.8	0.732	occasional	4	1.22	0.454	Very rare	4
3. I lose confidence in myself.	1.87	0.596	occasional	3	1.27	0.482	Very rare	3
4. I feel that life has no hope at all.	1.58	0.619	occasional	6	1.12	0.324	Very rare	6
5. I feel like a useless person.	1.7	0.646	occasional	5	1.17	0.376	Very rare	5
6. I always feel like life is like a battlefield.	2	0.664	occasional	2	1.43	0.533	Very rare	2
Overall Mean	1.91	0.387	occasional	—	1.29	0.185	Very rare	—

*Legend: 3.51-4.0 Very frequent; 2.51- 3.50 Regular; 1.51-2.50 Occasional; 1-1.50 Very rare.*

Before engaging in Taekwondo training, respondents reported experiencing occasional depressive symptoms, with feelings of hope for the future (Mean = 2.53) but also occasional doubts about self-confidence (Mean = 1.87) and meaningfulness in life (Mean = 1.8). However, after participating in Taekwondo, there was a significant positive shift, with depressive symptoms decreasing notably, reflected in an average mean score of 1.29, categorized as very rare occurrences. Specifically, there was a notable increase in hope for the future (Mean = 2.98),

while feelings of hopelessness (Mean = 1.12) and doubts about self-worth (Mean = 1.17) were also categorized as very rare. These results indicate that Taekwondo training positively impacted individuals' mental health, reducing depressive symptoms significantly. Supporting this, Taekwondo's emphasis on physical and mental coordination, positive mindset development, and social support were found to contribute to this improvement (Huang & Li, 2018; Yan, 2021). Overall, Taekwondo training promotes emotional stability and positive attitudes, facilitating better coping with psychological difficulties.

**Table 4**

*Anxiety Symptoms Dimensions of Respondents Before and After Participating In Taekwondo Training*

Statements	Before training				After training			
	Mean	Standard Deviation	Interpretation	Rank	Mean	Standard Deviation	Interpretation	Rank
1. I worry too much that I can't sleep.	2	0.803	occasional	2	1.35	0.515	Very rare	2
2. I feel irritable and do not sleep well.	2.02	0.792	occasional	1	1.32	0.469	Very rare	3
3. I feel restless and nervous all day long.	1.82	0.651	occasional	5	1.25	0.474	Very rare	5
4. I feel mentally stressed all day.	1.95	0.649	occasional	3	1.27	0.482	Very rare	4
5. I feel like sometimes I can't do anything because I am nervous.	1.92	0.619	occasional	4	1.37	0.52	Very rare	1
Overall Mean	1.94	0.618	occasional	—	1.31	0.419	Very rare	—

*Legend: 3.51-4.0 Very frequent; 2.51- 3.50 Regular; 1.51-2.50 Occasional; 1-1.50 Very rare.*

Before Taekwondo training, respondents experienced occasional anxiety symptoms, with an overall mean score of 1.94, indicating periodic occurrences of irritability, poor sleep quality, worries affecting sleep, persistent mental stress, feelings of incapacity due to nervousness, and restlessness. However, after participating in Taekwondo, there was a significant positive shift, with anxiety symptoms notably decreasing, reflected in an average mean score of

1.31, categorized as very rare occurrences. Specifically, worry affecting sleep, irritability, restlessness, persistent mental stress, and feelings of incapacity due to nervousness all significantly decreased. These results suggest that Taekwondo training effectively reduced anxiety symptoms among respondents, contributing to overall mental well-being improvement. Supporting this, Liu (2020) highlights Taekwondo's role in enhancing students' mental health by emphasizing the development of physical and mental qualities, while Huang (2019) emphasizes Taekwondo's spiritual aspects in overcoming challenges and self-improvement.

In addition, Wang (2019) found that the development of emotion is to enable students to have resilience under various environmental stimuli, and to be able to face correctly in the case of external stimuli, which requires students to have better physiological and psychological function regulation and control. The relaxation session in Taekwondo practice can promote students' function regulation to overcome their opponents through Taekwondo technical practice. Taekwondo training focuses on self-discipline and self-control, cultivates students' self-confidence and self-awareness, enables them to cope with setbacks and difficulties, and enhances their mental toughness. At the same time, the concepts of respect, perseverance, and fighting spirit represented by Taekwondo subconsciously influence students' mental health, enabling them to face life's challenges positively and grow and develop from them. In conclusion, Taekwondo training has multiple positive effects on reducing anxiety symptoms in students.

### **Difference on the extent of influence of Taekwondo training program on the psychological health of the student-respondents when their profile is taken as test factors.**

**Table 5**  
*Based on Sex*

Variable	Sex	Before the training program				After the training program			
		Mean	t	sig.	Interpretation	Mean	t	sig.	Interpretation
Self-affirmation	male	21.21	1.619	0.114	Not significant	25.26	1.874	0.974	Not significant
	female	19.59	1.426			23.59	1.811		
Depression	male	10.11	-3.601	0.16	Not significant	7.68	-0.309	0.025	Significant
	female	12.12	-3.124			7.78	-0.369		

Anxiety symptoms	male	8.68	-1.765	0.012	Significant	6.47	-0.191	0.637	Not significant
	female	10.17	-1.532			6.59	-0.189		
Overall	male	58.68	3.102	0.023	Significant	68.58	1.829	0.554	Not significant
	female	53.32	2.732			65.95	1.825		

The analysis of Table 5 reveals gender differences in self-affirmation, depression, and anxiety symptoms before and after Taekwondo training. Before training, males had higher mean self-affirmation scores (21.21) compared to females (19.59), while depression scores were lower for males (10.11) than females (12.12). Similarly, males had lower anxiety symptom scores (8.68) than females (10.17). After training, both genders showed improvements in self-affirmation, depression, and anxiety symptoms, with decreased mean scores. However, only the change in depression and anxiety symptoms for males reached statistical significance. These findings highlight the positive impact of Taekwondo training on mental health, with reductions in depression and anxiety symptoms for both genders. Despite initial differences, participation in Taekwondo training led to similar positive effects on mental health for males and females, as indicated by the narrowed gender gap in mental health outcomes. This underscores the potential of Taekwondo training to benefit students' mental well-being regardless of gender.

For the analysis of gender differences, the study by Zhang et al. (2019) suggests that snow and ice sports education can help college students face setbacks with an optimistic attitude, thereby enhancing their resilience. Additionally, Wang (2018) highlights that graduate students are prone to develop negative psychological responses when encountering setbacks. However, specialized educational courses and activities offered by schools and families can assist them in coping with setbacks and thereby enhance their resilience.

**Table 6**

*Based on Age*

Variable	Age	Before the training program				After the training program			
		Mean	t	sig.	Interpretation	Mean	t	sig.	Interpretation
Self-affirmation	18-19	20.15	0.148	0.091	No significant	23.68	-1.484	0.434	No significant
	20 up	20	0.172			25	-1.346		
Depression	18-19	11.4	-0.41	0.3	No significant	7.73	-0.244	0.104	No significant
	20 up	11.65	-0.389			7.8	-0.263		

Anxiety symptoms	18-19	9.6	-0.352	0.04	Significant	6.6	0.259	0.288	No significant
	20 up	9.9	-0.421			6.45	0.271		
Overall	18-19	52.3288	0.41	0.276	Significant	62.6063	-1.583	0.445	Significant
	20 up	51.605	0.43			64.7825	-1.457		

Table 6 presents the statistical findings regarding self-affirmation, depression, and anxiety symptoms among students of varying age groups before and after Taekwondo training. For the 18-19 age group, the mean self-affirmation score increased from 20.15 to 23.68 after training, and similarly, depression scores decreased from 11.4 to 7.73, and anxiety symptom scores decreased from 9.6 to 6.6. In the 20 and older age group, comparable changes were observed, with self-affirmation scores increasing from 20 to 25, depression scores decreasing from 11.65 to 7.8, and anxiety symptom scores decreasing from 9.9 to 6.45. However, none of these changes reached statistical significance. This suggests that while there were observed trends in mental health indicators following Taekwondo training across different age groups, these changes were not statistically significant. Further research is warranted to comprehensively assess the impact of Taekwondo training on mental health outcomes among students of different ages, considering potential individual differences and methodological limitations. However, further research is needed to assess its impact, considering individual differences and methodological limitations. Li et al. (2017) highlight the increasing challenges and pressures faced by university students due to social changes, emphasizing the need for educational institutions to enhance resilience education systems and psychological counseling services. Similarly, Gao (2019) underscores the significant influence of interpersonal relationships, academic pressure, and employment stress on university students' resilience, proposing effective measures to bolster their resilience.

**Table 7**  
*Based on Grade level*

Variable	Grade level	Before the training program				After the training program			
		Mean	t	sig.	Interpretation	Mean	t	sig.	Interpretation
Self-affirmation	level 1	20.13	0.087	0.031	Significant	23.68	-1.346	0.39	No significant
	level 2	20.05	0.1			24.86	-1.254		
Depression	level 1	11.34	-0.646	0.183	No significant	7.76	0.119	0.092	No significant
	level 2	11.73	-0.616			7.73	0.128		

Anxiety symptoms	level 1	9.71	0.034	0.085	No significant	6.68	0.649	0.15	No significant
	level 2	9.68	0.039			6.32	0.678		
Overall	level 1	52.23	0.227	0.4	No significant	62.47	-1.756	0.586	No significant
	level 2	51.84	0.236			64.82	-1.661		

In Table 7 presents the statistical findings regarding self-affirmation, depression, and anxiety symptoms before and after Taekwondo training for students at different grade levels (Level 1 and Level 2). For Level 1 students, the mean self-affirmation scores increased from 20.13 to 23.68 after training, while for Level 2 students, they increased from 20.05 to 24.86. Similarly, depression scores decreased from 11.34 to 7.76 for Level 1 students and 11.73 to 7.73 for Level 2 students after training. Additionally, anxiety symptom scores decreased 9.71 to 6.68 for Level 1 students and from 9.68 to 6.32 for Level 2 students post-training. However, these changes were not statistically significant. Despite observed trends in self-affirmation, depression, and anxiety symptoms, Taekwondo training did not yield statistically significant changes among students at different grade levels. Further research may be necessary to explore the potential impact of Taekwondo training on mental health outcomes across different grade levels.

In examining grade levels, Guo Rongchun's study provided insights into the variations among university students of different grades regarding the causes, psychological effects, and manifestations of setbacks, emphasizing the importance of school education and family guidance in bolstering university students' resilience against setbacks (Guo, 2019). Similarly, Zhang Min's (2018) research elucidated the factors influencing university students' resilience in interpersonal communication setbacks and proposes methods such as psychological counseling to enhance their resilience against setbacks.

Although there seems to be some indication that Taekwondo training benefits students' mental health, these effects are not evident in the statistics. Possible reasons for this include insufficient sample size, insufficient duration of training, or other factors not taken into account. It is worth noting that although trend improvements were observed in some dimensions, we cannot be sure whether these changes were due to random or other external factors alone because they were not significant. Therefore, further research is needed to gain a deeper

understanding of the impact of Taekwondo training on students' mental health and the factors that influence this impact. This may include expanding the sample size, extending the period of the study, and taking into account individual differences and aspects such as the specific content and mode of training in order to more fully assess the potential impact of taekwondo training on Psychological health.

**Table 8**

*Respondents' Strength Dimensions Before and After Participating In Taekwondo Training*

Statements	Before training				After training			
	Mean	Standard Deviation	Interpretation	Rank	Mean	Standard Deviation	Interpretation	Rank
1. I am able to adapt when changes occur.	2.28	0.64	occasional	5	3.08	0.671	Regular	2
2. Past successes give me confidence in dealing with new challenges and difficulties.	2.3	0.646	occasional	4	3.02	0.651	Regular	3
3. Having to cope with stress can make me stronger.	2.13	0.596	occasional	8	2.77	0.722	Regular	7
4. I tend to bounce back after illness, injury, or other hardships.	2.23	0.593	occasional	7	2.83	0.668	Regular	6
5. Good or bad, I believe that most things happen for a reason.	2.27	0.634	occasional	6	2.93	0.71	Regular	5
6. I give my best effort no matter the outcome.	2.42	0.645	occasional	1	3.1	0.602	Regular	1
7. I work to attain my goals no matter what roadblocks I encounter.	2.37	0.663	Regular	2	3	0.759	Regular	4

8. I take pride in my achievements.	2.33	0.655	occasional	3	3.08	0.809	Regular	2
Overall Mean	1.7	0.36	occasional		2.98	0.538	Regular	

*Legend: 3.51-4.0 Very frequent; 2.51- 3.50 Regular; 1.51-2.50 Occasional; 1-1.50 Very rare.*

Before Taekwondo training, respondents exhibited occasional strength-related attributes, with an overall mean score of 1.70. However, after training, their level of anti-frustration ability significantly improved, with an overall mean score of 2.98. Specifically, attributes such as giving their best effort regardless of outcomes, adapting to changes, and taking pride in achievements showed notable enhancement. These findings suggest that Taekwondo training contributed to a significant improvement in respondents' strength-related attributes, leading to a more regular occurrence of such characteristics (Mean = 2.98). These results suggest that respondents possessed occasional strength-related attributes before engaging in Taekwondo training, with an overall mean score reflecting an occasional occurrence of such characteristics. These results suggest that respondents possessed occasional strength-related attributes before engaging in Taekwondo training, with an overall mean score reflecting an occasional occurrence of such characteristics. Research has shown that exercise can transform the brain, and physical behavior can affect psychology (Xie, 2021). Enhancing physical exercise among university students can lead to improved coping strategies and mental health, thereby increasing resilience, although challenges such as insufficient exercise volume and weak motivation, particularly among female students, remain significant (Wei, 2022).

**Table 9**

*Respondents' Optimism Dimensions Before and After Participating In Taekwondo Training*

Statements	Before training				After training			
	Mean	Standard Deviation	Interpretation	Rank	Mean	Standard Deviation	Interpretation	Rank
1. I have at least one close and secure relationship that helps me when I am stressed.	2.27	0.756	occasional	1	3.03	0.758	Regula	1

2. When there are no clear solutions to my problems, sometimes fate or God can help.	1.93	0.733	occasional	4	2.45	0.891	occasional	4
3. I can deal with whatever comes my way.	2.23	0.621	occasional	2	2.8	0.732	Regula	3
4. I try to see the humorous side of things when facing problems.	2.2	0.632	occasional	3	2.98	0.624	Regula	2
Overall Mean	2.16	0.502	occasional	-	2.82	0.602	Regula	-

*Legend: 3.51-4.0 Very frequent; 2.51- 3.50 Regular; 1.51-2.50 Occasional; 1-1.50 Very rare.*

Before Taekwondo training, respondents exhibited occasional optimism-related attributes, with an overall mean score of 2.16. However, after training, their level of optimism significantly improved, with an overall mean score of 2.82. Specifically, attributes such as relying on close relationships for support during stress and finding humor in challenging situations showed notable enhancement. These findings suggest that Taekwondo training significantly improved respondents’ optimism-related attributes, leading to a more regular occurrence of such characteristics (Mean = 2.82). These results indicate that participating in Taekwondo training led to a significant improvement in respondents’ optimism-related attributes, with an overall mean score reflecting a more regular occurrence of such characteristics. Optimism significantly impacts individuals’ cognition and mental health. Some researchers suggested a negative correlation between optimism and negative cognitive biases, while other research found that optimists tend to engage more in positive cognitive processing and behavioral activities (Yin, Zhu, & Liu, 2018). Self-determination theory posits that individuals may experience negative emotions such as anxiety and sadness if their optimistic and positive basic needs are not met (Zuo et al., 2023). Optimistic attribution style refers to individuals’ stable tendency to attribute positive events. Studies have shown a close relationship between optimism levels and psychological health among college students (Chen, 2018).

**Table 10**  
*Respondents’ Resilience Dimensions Before and After Participating In Taekwondo Training*

Statements	Before training				After training			
	Mean	Standard Deviation	Interpretation	Rank	Mean	Standard Deviation	Interpretation	Rank
1. I believe I can achieve my goals, even if there are obstacles.	2.23	0.533	occasional	7	2.93	0.686	Regular	6
2. Even when things look hopeless, I don't give up.	2.27	0.634	occasional	5	3.02	0.651	Regular	2
3. During stress/ crisis, I know where to turn for help.	2.15	0.659	occasional	8	2.75	0.836	Regular	10
4. Under pressure, I stay focused and think clearly.	2.25	0.628	occasional	6	2.95	0.79	Regular	5
5. I prefer to take the lead in solving problems rather than letting others make all the decisions.	2.15	0.685	occasional	8	2.77	0.789	Regular	9
6. I am not easily discouraged by failure.	2.3	0.671	occasional	3	3.03	0.712	Regular	1
7. I think of myself as a strong person when dealing with life's challenges and difficulties.	2.33	0.705	occasional	1	2.97	0.758	Regular	4
8. I can make unpopular or difficult decisions that affect other people if it is necessary.	2.25	0.654	occasional	6	2.87	0.747	Regular	7

9. I am able to handle unpleasant or painful feelings like sadness, fear, and anger.	2.28	0.64	occasional	4	2.98	0.748	Regular	3
10. In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	2.3	0.619	occasional	3	2.62	0.846	Regular	11
11. I have a strong sense of purpose in life.	2.32	0.651	occasional	2	2.85	0.732	Regular	8
12. I feel in control of my life.	2.3	0.646	occasional	3	3.02	0.725	Regular	2
13. I like challenges.	2.28	0.613	occasional	4	2.95	0.746	Regular	5
Overall Mean	2.26	0.524	occasional	-	2.90	0.567	Regular	-

*Legend: 3.51-4.0 Very frequent; 2.51- 3.50 Regular; 1.51-2.50 Occasional; 1-1.50 Very rare*

Before Taekwondo training, respondents exhibited occasional resilience-related attributes, with an overall mean score of 2.26. However, after training, their level of resilience significantly improved, with an overall mean score of 2.90. Specifically, attributes such as resilience against failure (Mean = 3.03), persistence in challenging situations (Mean = 3.02), and feeling in control of their lives (Mean = 3.02) showed notable enhancement. These findings suggest that Taekwondo training contributed to a significant improvement in respondents' resilience-related attributes, leading to a more regular occurrence of such characteristics (Mean = 2.90).

These results indicate that participating in Taekwondo training led to a significant improvement in respondents' resilience, confidence, and ability to cope with life's challenges, with an overall mean score reflecting a more regular occurrence of such characteristics. In addition, it is worth noting that Wan and Liu (2021) and others conducted an experimental study on students' ability to resist setbacks using positive physical education teaching methods and found that the ability to resist setbacks is interfered with by exercise, achieving better results.

### **Difference on the Extent of Influence of Taekwondo Training Program on the Anti-Frustration Ability of the Student-Respondents When Their Profile**

## Is Taken As Test Factors

**Table 11**  
*Based on Sex*

Variable	Sex	Before the training program				After the training program			
		Mean	t	sig.	Interpretation	Mean	t	sig.	Interpretation
Resilience	male	31.68	1.787	0.143	No significant	37.05	-0.459	0.418	No significant
	female	28.37	1.634			38	-0.477		
Strength	male	14.74	2.075	0.001	Significant	24.68	1.065	0.299	No significant
	female	13.12	1.65			23.41	1.119		
Optimism	male	9.47	2.284	0.008	Significant	11.95	1.507	0.191	No significant
	female	8.24	1.926			10.95	1.609		
Overall	male	61	2.093	0.018	Significant	73.68	0.352	0.391	No significant
	female	54.24	1.795			72.37	0.365		

Table 11 examined the impact of Taekwondo training on students' frustration resilience, considering gender differences. Before training, males scored higher than females in resilience (31.68 vs. 28.37), strength (14.74 vs. 13.12), and optimism (9.47 vs. 8.24). After training, both genders showed improvements, with males scoring 37.05 in resilience, 24.68 in strength, and 11.95 in optimism, compared to females scoring 38, 23.41, and 10.95, respectively. Overall, males consistently scored higher than females in frustration resistance before and after training, but the differences became insignificant post-training. This suggests that Taekwondo training may have positively influenced psychological characteristics and abilities, narrowing gender gaps (mean overall frustration resistance: pre-training - males 61, females 54.24; post-training - males 73.68, females 72.37). The results of this data may reflect gender differences in psychological characteristics and abilities under the influence of taekwondo training. First, in terms of toughness, the differences between males and females before training may partly stem from individual physiological and psychological differences, but after training, it may be due to the increased self-challenging and adaptive abilities brought about by taekwondo training, which made the gender differences diminish. Second, males may have a physiological advantage in terms of strength and optimism, which may have led to higher scores for males before training. Post-training taekwondo training may have improved the levels of strength

and optimism of all respondents, but the improvement in these areas was more pronounced for males due to their own physiological advantages. Therefore, although differences between genders remained after training, these differences were no longer significant, possibly because Taekwondo training positively impacted the psychological characteristics and abilities of both male and female students, thereby narrowing gender differences. Female are often perceived as a vulnerable group in society, receiving frequent protection and care. Maimaiti (2022) found that there was no significant difference between male and female students in overall psychological adaptability scores and scores on each subscale.

**Table 12**  
*Based on Age*

Variable	Age	Before the training program				After the training program			
		Mean	t	sig.	Interpretation	Mean	t	sig.	Interpretation
Resilience	18-19	28.9	-0.829	0.573	No significant	37.28	-0.626	0.385	No significant
	20 up	30.45	-0.798			38.55	-0.605		
Strength	18-19	13.68	0.157	0.728	No significant	23.38	-1.128	0.912	No significant
	20 up	13.55	0.149			24.7	-1.124		
Optimism	18-19	8.55	-0.451	0.307	No significant	11	-1.219	0.582	No significant
	20 up	8.8	-0.405			11.8	-1.191		
Overall	18-19	55.85	-0.485	0.576	No significant	71.65	-0.925	0.507	No significant
	20 up	57.45	-0.458			75.05	-0.897		

Table 12 examined the psychological characteristics of students across different age groups before and after Taekwondo training, focusing on resilience, strength, and optimism dimensions. Results showed that in both age groups (18-19 years and 20 years and above), there were no significant changes in resilience, strength, or optimism scores after training. For resilience, mean scores before training were 28.9 and 37.28 for the younger group and 30.45 and 38.55 for the older group. Similarly, for strength, mean scores before training were 13.68 and 23.38 for the younger group and 13.55 and 24.7 for the older group. Additionally, for optimism, mean scores before training were 8.55 and 11 for the younger group and 8.8 and 11.8 for the older group. These findings suggest that Taekwondo training had little impact on students' psychological characteristics across different age groups, indicating minimal changes in resilience, strength, and optimism. Zhang and Tang (2018) found a significant relationship between college students' career attitudes and resilience, with age differences being particularly noteworthy.

**Table 13**  
*Based on Grade level*

Variable	Grade level	Before the training program				After the training program			
		Mean	t	sig.	Interpretation	Mean	t	sig.	Interpretation
Resilience	level 1	28.95	-0.698	0.884	No significant	37.26	-0.598	0.16	No significant
	level 2	30.23	-0.69			38.45	-0.571		
Strength	level 1	13.71	0.271	0.972	No significant	23.42	-0.936	0.962	No significant
	level 2	13.5	0.264			24.5	-0.936		
Optimism	level 1	8.53	-0.539	0.394	No significant	11	-1.131	0.815	No significant
	level 2	8.82	-0.501			11.73	-1.128		
Overall	level 1	55.87	-0.435	0.779	No significant	71.68	-0.833	0.83	No significant
	level 2	57.27	-0.422			74.68	-0.808		

In Table 13, students at different grade levels (Level 1 and Level 2) showed significant changes in resilience, strength, and optimism before and after Taekwondo training. Before training, Level 1 students had mean scores of 28.95 for resilience, 13.71 for strength, and 8.53 for optimism, while Level 2 students had slightly higher scores. After training, both levels showed substantial improvements across all dimensions, with Level 2 students demonstrating more significant growth. Overall scores for Level 1 increased from 55.87 to 71.68, and for Level 2, 57.27 to 74.68. These findings suggest that Taekwondo training positively impacted students' resilience, strength, and optimism levels, possibly due to its physical and mental conditioning components. Thus, Liu (2023) found that although freshmen and sophomores scored lower in internal emotional resilience than seniors, they scored higher in external behavioral resilience. However, there were no significant differences in resilience among students of different grades. This suggests that regardless of grade level, students are still in the transitional stage to adulthood. These findings provide valuable insights for implementing resilience education among college students.

## Correlation Analysis between Psychological Health and Anti-Frustration Ability to Setbacks

**Table 14**  
*Correlations*

	Anti-frustration ability	Interpretation	Decision
	Correlation Coefficient	0.422**	
Psychological health	Sig. (2-tailed)	0	Significant
	N	60	Accept

\*\* Correlation is significant at the 0.05 level (2-tailed).

In Table 14, contrary to the hypothesis, a significant positive correlation ( $r=0.422$ ,  $p<0.05$ ) was found between students' mental health and frustration resistance after Taekwondo training. This correlation may stem from several factors. Firstly, Taekwondo training emphasizes physical exercise and mental fitness, providing positive psychological guidance and resilience-building experiences. Secondly, increased resilience may lead to improved mental health, as individuals with greater resilience can maintain a positive attitude and lower stress levels. Additionally, factors like social support and coping skills fostered within the training environment contribute to mental health and resilience enhancement. Overall, this correlation underscores the bidirectional influence between mental health and resilience, emphasizing the importance of interventions that promote both aspects. Students who lack appropriate learning motivation, struggle to cope with academic pressure, or have difficulty adapting to course content often exhibit lower levels of positive psychological qualities. These findings underscore the close relationship between mental well-being and resilience, emphasizing the significance of positive psychological attributes in navigating academic setbacks (Chen et al., 2020). The predictive effect of the psychological resilience of college students on resilience to setbacks is achieved through the mediating variable of positive emotions (Bao, 2019). Overall, the positive correlation between mental health and resilience reflects a complex bidirectional process influenced by intrinsic psychological traits, environmental factors, and individual responses to challenges. This highlights the importance of addressing mental health and implementing interventions to bolster resilience for overall well-being. Additionally, Taekwondo training, as a form of physical activity, may further enhance students' psychological health and resilience by fostering integrated development of physical and mental well-being.

## CONCLUSION

Based on the comprehensive analysis and findings presented, it can be concluded that Taekwondo training significantly positively impacts the psychological health and anti-frustration ability of college students. The study addressed several key questions, providing insights into the profile of student respondents, the influence of Taekwondo training on psychological health, the differences based on demographic factors, and the correlation between mental health and frustration resistance following the training program.

**Influence of Taekwondo Training on Psychological Health:** Taekwondo training led to substantial improvements in various dimensions of psychological health, including self-affirmation, depression, and anxiety symptoms. Participants reported increased positivity, reduced depressive and anxiety symptoms, and enhanced well-being following the training program.

**Differences Based on Demographic Factors:** While initial gender differences existed, Taekwondo training contributed to narrowing these gaps, with both male and female students showing improvements in psychological health. Age and grade level did not significantly influence the impact of Taekwondo training on mental health indicators, indicating consistent benefits across different demographic groups.

**Anti-Frustration Ability Before and After Training:** Significant improvements were observed in resilience, strength, and optimism among student-respondents following Taekwondo training. These enhancements suggest that Taekwondo training fosters resilience, adaptability, and optimism, which are crucial for coping with challenges and setbacks.

**Correlation between Mental Health and Frustration Resistance:** Contrary to the hypothesis, there was a significant positive correlation between mental health and frustration resistance following Taekwondo training. This indicates that participation in Taekwondo training is associated with improved mental health and resilience among students.

In conclusion, Taekwondo training emerges as a promising intervention for enhancing the psychological health and anti-frustration ability of college students. The findings underscore the importance of integrating physical and mental health development approaches in wellness programs. Further research is warranted to explore the long-term effects and mechanisms underlying these positive outcomes, paving the way for tailored interventions and holistic wellness programs in educational settings.

## TRANSLATIONAL RESEARCH

Translational research plays a pivotal role in bridging the gap between scientific inquiry and practical application in our study on the influence of Taekwondo training on the psychological health and Anti-Frustration Ability of college students. By translating our research findings into actionable strategies, we can effectively implement interventions to enhance student psychological health and Anti-Frustration Ability. This involves developing gender-sensitive and age-appropriate interventions tailored to the diverse needs of students. Moreover, translational research facilitates collaboration among researchers, educators, psychological health professionals, and policymakers to integrate evidence-based practices into educational programs and campus support services. Through translational research, we can empower individuals and institutions to promote student well-being and foster a resilient campus community.

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