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PSYCHOLOGICAL RESPONSES TO NATIONAL-LEVEL COMPETITION IN ELITE KARATE ATHLETES: CHANGES IN DEPRESSION, ANXIETY, AND STRESS MEASURED BY DASS-21

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ABSTRACT
Competitive participation in elite karate may be associated with psychological demands that influence athletes' emotional states before and after competition. However, limited research has examined depression, anxiety, and stress simultaneously among elite national-level karate athletes across pre- and post-competition periods. A pre- and post-competition assessment design was employed among elite national-level karate athletes participating in the 2026 New Delhi Senior National Karate Championship. A total of 97 male and female elite national-level karate athletes participated in the study and were included in the analysis. Depression, anxiety, and stress were assessed using the 21-item Depression Anxiety Stress Scales (DASS-21). Pre-competition data were collected within one hour before competition, while post-competition data were collected 30–40 minutes after competition. Descriptive statistics, Shapiro–Wilk tests, paired-samples t-tests, and Wilcoxon signed-rank tests were used for data analysis. The mean depression score decreased from 9.03 ± 3.64 before competition to 7.64 ± 3.58 after competition. Anxiety decreased from 9.31 ± 3.58 to 8.11 ± 3.18, while stress decreased from 9.23 ± 3.71 to 8.03 ± 3.26. Paired-samples t-tests showed significant reductions in depression ($t(96) = 4.10$, $p < .001$), anxiety ($t(96) = 3.53$, $p < .001$), and stress ($t(96) = 3.10$, $p = .003$).Corresponding within-person effect sizes were small to moderate (Cohen's $d_z = 0.42$, 0.36, and 0.31, respectively). Wilcoxon signed-rank tests confirmed significant pre- to post-competition differences for depression ($Z = 3.51$, $p < .001$), anxiety ($Z = 3.17$, $p = .002$), and stress ($Z = 2.96$, $p = .003$). Elite national-level karate athletes reported significantly lower depression, anxiety, and stress scores after competition compared with the pre-competition period. These findings suggest that psychological states may vary across the competition period. However, because the study did not include a non-competing control group, the observed reductions cannot be attributed solely to competition. Future research should incorporate control groups, multiple competitions, additional assessment points, and competition-related factors to better understand psychological changes among elite karate athletes.

KEYWORDS: Karate, elite athletes, competition pressure, depression, anxiety, stress, DASS-21, pre-competition, post-competition

INTRODUCTION

Karate is a combat sport that requires a combination of physical fitness, technical skills, motivation, tactical decision-making, concentration, and psychological readiness. At the national and elite levels, athletes are exposed to considerable competitive demands because performance is evaluated not only on physical and technical abilities but also on their capacity to manage psychological pressure during competition. The competitive environment may generate emotional and psychological responses that can influence an athlete's preparation, concentration, confidence, and overall performance (Terry et al., 1997; Torrenegra Ariza & Estrada Chamorro, 2022). Competitive pressure is particularly relevant in combat sports, where athletes are required to make rapid decisions while simultaneously managing physical exertion and psychological demands. Before competition, athletes may experience concerns related to performance expectations, fear of failure, opponent strength, previous performance, and the possible consequences of winning or losing. Such pressures may contribute to negative psychological states, including symptoms associated with depression, anxiety, and stress. Previous research in karate and other martial arts has examined competitive anxiety, psychological responses during competition, and approaches to managing anxiety among athletes (Terry & Slade, 1995; Harita et al., 2022; Herdiansyah et al., 2022; Ramis et al., 2017; Jannah et al., 2023; Belgacem et al., 2026; Kenshloo et al., 2026). Depression, anxiety, and stress represent important dimensions of negative emotional states. Depression may involve negative mood and reduced motivation, anxiety may include tension and apprehension, while stress reflects difficulty in coping with psychological demands. These dimensions are conceptually related but represent distinct emotional states within the Depression Anxiety Stress Scales framework (Lovibond & Lovibond, 1995; Crawford & Henry, 2003). A popular self-report tool called the Depression Anxiety Stress Scales–21 (DASS-21) is used to measure three related but different negative emotional states: stress, anxiety, and depression. The 21-item version offers a comparatively quick way to evaluate these psychological aspects and is composed of three seven-item subscales. Previous studies have examined the psychometric properties of the Depression Anxiety Stress Scales (DASS) and supported their use for assessing depression, anxiety, and stress in clinical and non-clinical populations (Brown et al., 1997; Antony et al., 1998; Henry & Crawford,

2005). The original DASS framework was developed to distinguish depression, anxiety, and stress as related but separable dimensions of negative emotional experience (Lovibond & Lovibond, 1995).
Despite the growing interest in sports psychology, comparatively limited research has examined depression, anxiety, and stress among elite national-level karate players before and after a major national competition. Previous research on karate and other combat sports has more commonly examined competitive anxiety, psychological responses, and anxiety-management approaches rather than simultaneously assessing depression, anxiety, and stress before and after competition (Terry et al., 1997; Terry & Slade, 1995; Harita et al., 2022; Herdiansyah et al., 2022; Ramis et al., 2017; Jannah et al., 2023; Belgacem et al., 2026; Kenshloo et al., 2026). Therefore, examining depression, anxiety, and stress together at the pre-and post-competition stages may provide additional information about the psychological responses associated with competitive participation. This study aimed to assess the levels of depression, anxiety, and stress using the DASS-21 among elite national-level karate players before and after a national-level karate competition. By comparing the psychological states at the two stages of competition, this study seeks to provide insight into the psychological responses associated with competitive participation among elite karate athletes

Objective of the study
- To assess the level of depression among elite national-level karate players before and after a national-level karate competition.
- To assess the level of anxiety among elite national-level karate players before and after a national-level karate competition.
- To assess the level of stress among elite national-level karate players before and after a national-level karate competition.

2.METHODS AND MATERIALS

2.1 Research Design

This study examined the levels of depression, anxiety and stress among elite national-level karate athletes competing in the 2026 New Delhi Senior National Karate Championship using a pre- and post-competition assessment design. The participants' levels of depression, anxiety, and stress were measured before and after the competition using the Depression Anxiety Stress Scale-21 (DASS-21), which was created by Lovibond and Lovibond (1995).
- Pre-competition data: Data were collected within one hour before the competition.
- Post-competition data: Data were collected 30–40 min after the completion of the competition.

The data obtained from both assessment points were organized and analysed to examine the differences in depression, anxiety, and stress levels among the participating karate athletes.

2.2Selection of Subjects

The study included 97 elite national-level male and female karate players. Subjects were purposively selected from the Senior National Karate Championship 2026 held in New Delhi. Before data collection, all participants were informed about the purpose of the study and consent was obtained by the research scholar. All participants willingly took part in the study.

2.3Selection of Variables

The following psychological variables were selected for the present study:
•Depression
•Anxiety
•Stress
Each variable was assessed at two assessment points:
•Pre-competition (DASS-21)
•Post-competition (DASS-21)

2.4Criterion Measure

The Depression Anxiety Stress Scale-21 (DASS-21), developed by Lovibond and Lovibond (1995), was used as the criterion measure for assessing depression, anxiety, and stress among participating karate athletes.
The DASS-21 is a 21-item self-report instrument consisting of three subscales: Depression, Anxiety, and Stress. Each subscale contained seven items. Participants responded to each item using a four-point response scale ranging from 0 to 3, based on their experiences in the previous week.
The response categories were as follows:
□0 = Did not apply to me at all
□1 = Applied to me to some degree, or some of the time
□2 = Applied to me to a considerable degree, or a good part of time
□3 = Applied to me very much, or most of the time
The scores of the seven items belonging to each subscale were summed separately to obtain the depression, anxiety, and stress scores. The DASS-21 is the short-form version of the original 42-item Depression Anxiety Stress Scales.

2.5 Data Collection Procedure

Data were collected during the 2026 New Delhi Senior National Karate Championship. The DASS-21 questionnaire was administered among participants at two assessment points:

- For the pre-competition assessment, the questionnaire was administered within one hour of the commencement of the competition. For the post-competition assessment, the questionnaire was administered 30–40 min after the completion of the competition.
- The participants completed the questionnaire according to the standard response instructions provided in the DASS-21. The completed questionnaire was collected at both assessment points, and the responses were recorded and organized for subsequent statistical analysis.

3.RESULTS

Statistical Analysis

Descriptive statistics and normality

Table 1. Descriptive statistics (raw scores, range 0–21)

Variable	N	Min	Max	Mean	SD	Median
Depression (Pre)	97	0	19	9.03	3.64	10
Depression (Post)	97	0	17	7.64	3.58	8
Anxiety (Pre)	97	2	17	9.31	3.58	9
Anxiety (Post)	97	1	15	8.11	3.18	9
Stress (Pre)	97	1	21	9.23	3.71	9
Stress (Post)	97	0	16	8.03	3.26	9

Table 1: presents the descriptive statistics of depression, anxiety, and stress scores before and after the competition among the 97 participants. For depression, the pre-competition mean score was 9.03 (SD = 3.64), and the post-competition mean score was 7.64 (SD = 3.58). For anxiety, the pre-competition mean score was 9.31 (SD = 3.58), and the post-competition mean score was 8.11 (SD = 3.18). For stress, the pre-competition mean score was 9.23 (SD = 3.71), and the post-competition mean score was 8.03 (SD = 3.26). The table also presents the minimum, maximum, and median scores for each variable.

Table 2. Normality of pre, post and difference scores

Variable	Skewness	Kurtosis	Shapiro-Wilk W	p	Normal?
Depression (Pre)	-0.37	0.43	0.965	.011	No
Depression (Post)	-0.26	-0.74	0.942	< .001	No
Anxiety (Pre)	-0.17	-0.22	0.967	.015	No
Anxiety (Post)	-0.28	-0.63	0.962	.007	No
Stress (Pre)	0.62	0.97	0.955	.002	No
Stress (Post)	-0.33	-0.38	0.961	.005	No
Depression(Pre−Postdifference)	-	-	0.968	.018	No
Anxiety(Pre−Postdifference)	-	-	0.977	.086	Yes
Stress(Pre−Post difference)	-	-	0.928	< .001	No

Table 2: Normality assessment of pre-competition, post-competition, and pre–post difference scores for depression, anxiety, and stress. The Shapiro–Wilk test showed that all pre- and post-competition scores significantly deviated from normality ($p < .05$). Among the difference scores, depression ($p = .018$) and stress ($p < .001$) were also non-normally distributed, whereas the anxiety difference score did not significantly deviate from normality ($p = .086$). Overall, the results indicate that most of the variables were not normally distributed.

3.1Pre vs Post comparison

3.2Paired-samples t-test

Table 3. Paired Samples Statistics

Pair	Mean	N	SD	Std.Error Mean
Pair 1: Depression Pre	9.03	97	3.64	0.37
Pair 1: Depression Post	7.64	97	3.58	0.36
Pair 2: Anxiety Pre	9.31	97	3.58	0.36
Pair 2: Anxiety Post	8.11	97	3.18	0.32
Pair 3: Stress Pre	9.23	97	3.71	0.38
Pair 3: Stress Post	8.03	97	3.26	0.33

Table 3: Paired-samples statistics for pre- and post-competition Depression, Anxiety, and Stress scores among 97 participants. The mean depression score was 9.03 (SD = 3.64) before the competition and 7.64 (SD = 3.58) after the competition. The mean anxiety score was 9.31 (SD = 3.58) before the competition and 8.11 (SD = 3.18) after the

competition. Similarly, the mean stress score was 9.23 (SD = 3.71) before the competition and 8.03 (SD = 3.26) after the competition.

Table 4. Paired Samples Correlations

Pair	N	Correlation (r)	Sig. (p)
Pair 1: Depression Pre & Post	97	0.571	< .001
Pair 2: Anxiety Pre & Post	97	0.519	< .001
Pair 3: Stress Pre & Post	97	0.412	< .001

Table 4: Correlations between pre- and post-competition scores for Depression, Anxiety, and Stress among 97 participants. The correlation between Depression pre- and post-competition scores was 0.571 ($p < .001$), while the correlation for Anxiety was 0.519 ($p < .001$). For Stress, the correlation between pre- and post-competition scores was 0.412 ($p < .001$). All three correlations were positive and statistically significant.

Table 5. Paired Samples Test (difference = Pre − Post; positive = score decreased)

Pair(Pre −Post)	Mean	SD	SE Mean	95% CI Lower	95% CI Upper	t	df	Sig.(2-tailed)	Cohen's dz
Pair1: Depression	1.39	3.35	0.34	0.72	2.07	4.10	96	< .001	0.42
Pair 2: Anxiety	1.20	3.33	0.34	0.52	1.87	3.53	96	< .001	0.36
Pair 3: Stress	1.20	3.80	0.39	0.43	1.96	3.10	96	.003	0.31

Table 5: The results of the paired-samples t-test comparing pre- and post-competition scores. The mean difference (pre − post) was 1.39 for depression, 1.20 for anxiety, and 1.20 for stress. The differences were statistically significant for depression, $t(96) = 4.10$, $p < .001$, anxiety, $t(96) = 3.53$, $p < .001$, and stress, $t(96) = 3.10$, $p = .003$. The corresponding Cohen's dz values were 0.42, 0.36 and 0.31, respectively.

3.3Wilcoxon signed-rank test

Table 6. Wilcoxon signed-rank test (Post vs Pre)

Subscale	Post < Pre (n)	Post > Pre (n)	Ties (n)	Z	Sig. (2-tailed)	Effect size r
Depression	55	31	11	3.51	< .001	0.36
Anxiety	54	36	7	3.17	.002	0.32
Stress	50	28	19	2.96	.003	0.30

Table 6: Results of the Wilcoxon signed-rank test comparing post- and pre-competition scores. For depression, 55 participants showed lower post-competition scores, 31 showed higher scores, and 11 showed no change, with a statistically significant difference ($Z = 3.51$, $p < .001$, $r = .36$). For anxiety, 54 participants showed lower post-competition scores, 36 showed higher scores, and 7 showed no change ($Z = 3.17$, $p = .002$, $r = .32$). For stress, 50 participants showed lower post-competition scores, 28 showed higher scores, and 19 showed no change ($Z = 2.96$, $p = .003$, $r = .30$). Thus, statistically significant pre-to-post-competition differences were observed for all three DASS-21 subscales.

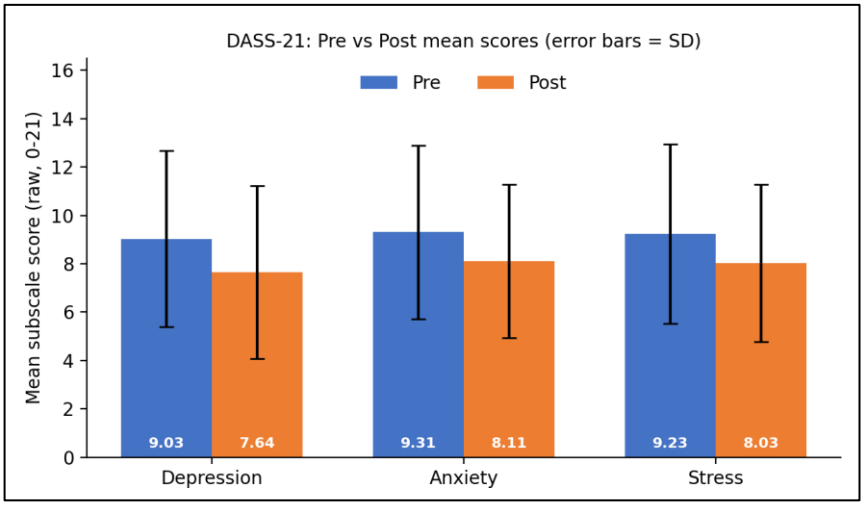


Figure 1. Mean pre and post scores

The blue bars represent the mean pre-competition scores, and the orange bars represent the mean post-competition scores. The vertical black lines extending above and below each bar represent the error bars, indicating the standard deviation of the participants' scores. The error bars show the variability or dispersion of individual questionnaire scores around the respective mean values.

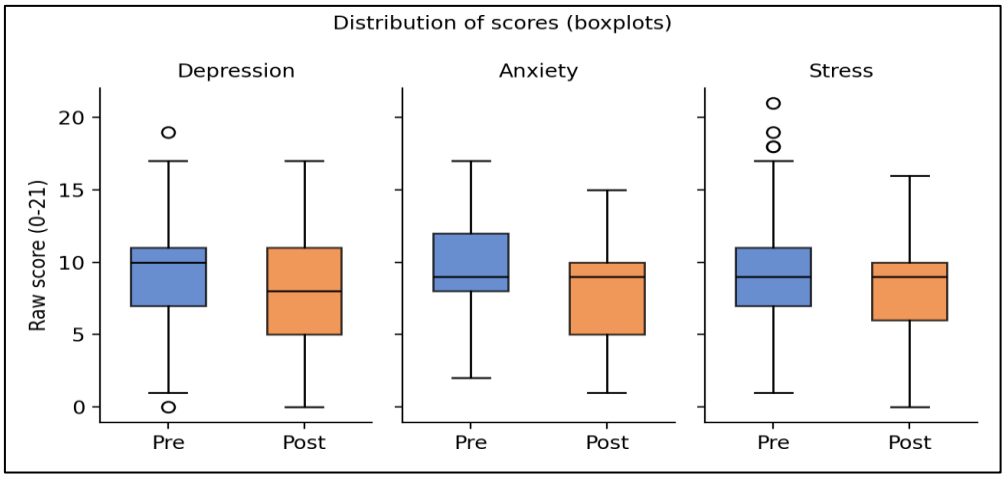


Figure 2. Distribution of pre and post scores

The blue boxes represent pre-competition scores, and the orange boxes represent post-competition scores. The horizontal line within each box represents the median score, and the box represents the interquartile range (IQR), indicating the middle 50% of the participants' scores. The whiskers represent the range of scores within 1.5 times the IQR, and the individual circles indicate the potential outliers. Overall, the boxplots show a lower central tendency of depression, anxiety, and stress scores after the competition compared to before the competition.

3.4Severity levels

Table 7. Severity distribution at pre and post (DASS-21 cut-offs)

Subscale	Severity level	Pre n	Pre %	Post n	Post %
Depression	Normal	11	11.3%	24	24.7%
	Mild	9	9.3%	13	13.4%
	Moderate	45	46.4%	35	36.1%
	Severe	25	25.8%	23	23.7%
	Extremely Severe	7	7.2%	2	2.1%
Anxiety	Normal	9	9.3%	8	8.2%
	Mild	2	2.1%	8	8.2%
	Moderate	12	12.4%	22	22.7%
	Severe	31	32.0%	17	17.5%
	Extremely Severe	43	44.3%	42	43.3%
Stress	Normal	30	30.9%	37	38.1%
	Mild	23	23.7%	22	22.7%
	Moderate	32	33.0%	33	34.0%
	Severe	6	6.2%	5	5.2%
	Extremely Severe	6	6.2%	0	0.0%

Distribution of participants across DASS-21 severity levels before and after competition. For depression, the number of participants in the normal category increased from 11 to 24, while those in the moderate and extremely severe categories decreased from 45 to 35 and from 7 to 2, respectively. For anxiety, the number of participants in the mild and moderate categories increased, while the number in the severe category decreased from 31 to 17. For stress, the number of participants in the normal category increased from 30 to 37, and the extremely severe category decreased from 6 to 0.

Table 8. Change in severity category (Wilcoxon signed-rank on ordinal levels)

Subscale	Moved to lower level	No change	Moved to higher level	Sig. (2-tailed)
Depression	43	33	21	< .001
Anxiety	33	37	27	.124
Stress	32	47	18	.020

Changes in DASS-21 severity categories from pre- to post-competition. Depression showed a statistically significant change ($p < .001$), with 43 participants moving to a lower severity level. Anxiety did not show a statistically significant change ($p = .124$). Stress showed a statistically significant change ($p = .020$), with 32 participants moving to a lower severity level.

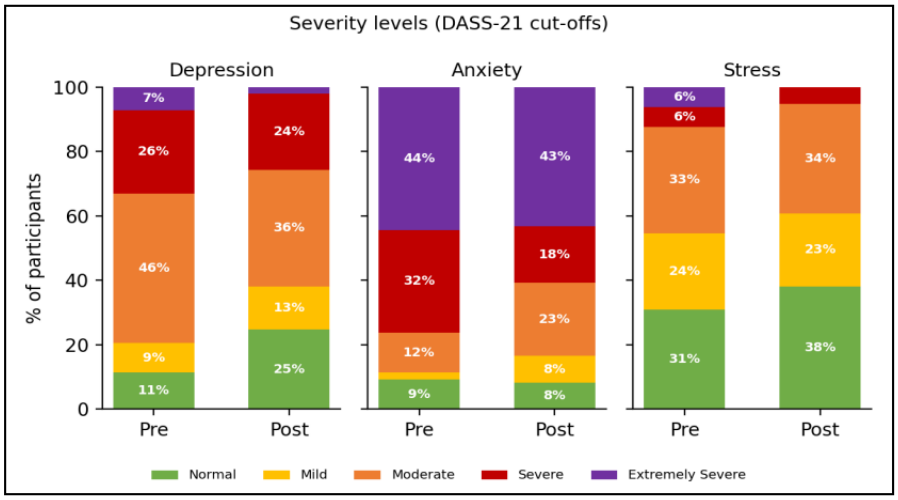


Figure 3. Severity levels before and after

The green segments represent the normal category, the yellow segments mild, the orange segments moderate, the red segments severe, and the purple segments extremely severe, according to the DASS-21 cut-offs. Each stacked bar represents 100% of the participants for the respective pre-competition or post-competition assessment, and the y-axis shows the percentage of participants who answered the question. The numbers inside the segments indicate the percentage of participants in each severity category. The three panels represent depression, anxiety, and stress.

3.5Relationship between subscales

Table 9. Pearson correlations at pre-test

	Depression	Anxiety	Stress
Depression	1	.71***	.57***
Anxiety	.71***	1	.50***
Stress	.57***	.50***	1

At pretest, depression, anxiety, and stress showed positive and statistically significant relationships with each other. The correlations between depression and anxiety, depression and stress, and anxiety and stress were r =.71, r =.57, and r = .50, respectively ($p < .001$ for all correlations).

Table 10. Pearson correlations at post-test

	Depression	Anxiety	Stress
Depression	1	.76***	.73***
Anxiety	.76***	1	.73***
Stress	.73***	.73***	1

At post-test, Depression, Anxiety, and Stress showed strong positive and statistically significant relationships with each other. Depression was positively correlated with anxiety (r = .76) and stress (r = .73), whereas anxiety was also positively correlated with stress (r = .73). All correlations were statistically significant at $p < .001$

4.DISCUSSION

The reductions were statistically significant for depression ($t(96) = 4.10$, $p < .001$, $dz = 0.42$), anxiety ($t(96) = 3.53$, $p < .001$, $dz = 0.36$), and stress ($t(96) = 3.10$, $p = .003$, $dz = 0.31$).

Wilcoxon signed-rank tests confirmed the same pattern for depression ($Z = 3.51$, $p < .001$, $r = .36$), anxiety ($Z = 3.17$, $p = .002$, $r = .32$), and stress ($Z = 2.96$, $p = .003$, $r = .30$). The consistency of both analyses supports the presence of pre-post differences despite some departures from normality.(Henry & Crawford, 2005) The observed reductions may reflect the decrease in immediate competition-related uncertainty and psychological demands after the event. Before competition, athletes may experience concerns regarding performance, opponents, expectations, and outcomes(Nogueira et al., 2025). Previous research in karate and other combat sports has similarly highlighted the psychological demands associated with competitive situations (Mojtahedi et al., 2023). The present study extends this literature by examining depression, anxiety, and stress at both pre- and post-competition time points. The three DASS-21 dimensions were positively correlated. At

pre-competition, depression was correlated with anxiety (r = .71) and stress (r = .57), while anxiety correlated with stress (r = .50; all p < .001). Post-competition correlations were stronger (r = .73–.76), indicating that these psychological dimensions were related rather than independent experiences (Sanfilippo et al., 2023). Severity-category analysis showed a shift toward lower categories for depression and stress, with significant changes for depression (p < .001) and stress (p = .020), but not anxiety (p =.124). Therefore, the anxiety findings are better interpreted using continuous scores. Importantly, DASS-21 severity categories represent symptom severity and should not be interpreted as clinical diagnoses (Evans et al., 2020). The findings should not be interpreted as evidence that competition itself caused improved psychological health because the study had no non-competing control group. Factors such as competition outcome, recovery, social interaction, fatigue, and passage of time may also have influenced the post-competition scores (Liu et al., 2022). Overall, elite national-level karate athletes showed significantly lower depression, anxiety, and stress scores after competition, with small-to-moderate within-person effects. Future research should use larger samples, multiple competitions, additional assessment points, competition outcomes, and appropriate control groups to better identify the factors underlying these psychological changes.

5.CONCLUSION:

The present study examined depression, anxiety, and stress levels before and after competition using the DASS-21 among elite national-level karate athletes. The findings showed statistically significant reductions in depression, anxiety, and stress scores following competition. Depression decreased from 9.03 to 7.64, anxiety from 9.31 to 8.11, and stress from 9.23 to 8.03. These findings were supported by both paired-samples t-tests and Wilcoxon signed-rank tests, with small-to-moderate within-person effect sizes. The results indicate that athletes reported lower levels of negative emotional symptoms after competition compared with the pre-competition period. However, these findings should not be interpreted as evidence that competition itself caused improvements in psychological well-being, as the study did not include a non-competing control group. Other factors, such as competition outcome, recovery, social interaction, fatigue, and the passage of time, may also have contributed to the observed changes. Overall, the findings highlight the importance of monitoring psychological states among elite karate athletes before and after major competitions. Future research should include larger samples, multiple competitions, additional assessment points, competition outcomes, and appropriate control groups to better understand the factors associated with changes in depression, anxiety, and stress.

REFERENCES

1. Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales (DASS) in clinical groups and a community sample. Psychological Assessment, 10(2), 176–181. https://doi.org/10.1037/1040-3590.10.2.176.
2. Belgacem, A., Salem, A., Yildiz, M., Ceylan, H. İ., Ben Hassen, S., & Negra, Y. (2026). Impact of competitive anxiety on mood, sleep, and physical activity levels in young Tunisian karate athletes: A multidimensional prospective observational study. Medicine, 105(18). https://doi.org/10.1097/md.0000000000048435.
3. Brown, T. A., Korotitsch, W., Chorpita, B. F., & Barlow, D. H. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. Behaviour Research and Therapy, 35(1), 79–89. https://doi.org/10.1016/S0005-7967(96)00068-X.
4. Crawford, J. R., & Henry, J. D. (2003). The Depression Anxiety Stress Scales (DASS): Normative data and latent structure in a large non-clinical sample. British Journal of Clinical Psychology, 42(2), 111–131. https://doi.org/10.1348/014466503321903544.
5. Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. British Journal of Clinical Psychology, 44(2), 227–239. https://doi.org/10.1348/014466505X29657.
6. Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour Research and Therapy, 33(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U.
7. Lovibond, S. H., & Lovibond, P. F. (1995). Manual for the Depression Anxiety Stress Scales (2nd ed.). Psychology Foundation of Australia.
8. Terry, P. C., Cox, J. A., Lane, A. M., & Karageorghis, C. I. (1997). Anxiety, self-confidence, and performance in Tae Kwon-Do. Perceptual and Motor Skills, 84(2), 507–512. https://doi.org/10.2466/pms.1997.84.2.507.
9. Terry, P. C., & Slade, A. (1995). Discriminant effectiveness of psychological state measures in predicting performance outcome in karate competition. Perceptual and Motor Skills, 81(1), 275–286. https://doi.org/10.2466/pms.1995.81.1.275
10. Harita, A. N. W., Suryanto, & Ardi, R. (2022). Effect of Mindfulness Sport Performance Enhancement (MSPE) to Reduce competitive state anxiety on Karate Athletes. Jurnal SPORTIF: Jurnal Penelitian Pembelajaran, 8(2), 169–188. https://doi.org/10.29407/js_unpgri.v8i2.17807
11. Herdiansyah, H., Muhtar, T., & Alif, M. N. (2022). Mental Imagery: Competitive Anxiety Control in Karate Kumite Athlete. JUARA: Jurnal Olahraga, 7(3), 833–843. https://doi.org/10.33222/juara.v7i3.2448
12. Kenshloo, M., Golmohammadi, B., Khashani, V., & Mehrsafar, A. H. (2026). Do psychophysiological responses to competitive anxiety predict competition outcomes? A pilot study in elite female karate athletes. JSAMS Plus, 7, 100132. https://doi.org/10.1016/j.jsampl.2025.100132
13. Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2017). The effect of coaches' controlling style on the competitive anxiety of young athletes. Frontiers in Psychology, 8, 572. https://doi.org/10.3389/fpsyg.2017.00572
14. Jannah, M., Widohardhono, R., & Kencana, N. T. (2023). Progressive muscle relaxation: Can it reduce competitive anxiety? Physical Education Theory and Methodology, 23(5), 662–667. https://doi.org/10.17309/tmfv.2023.5.02

15. Evans, L., Haeberlein, K., Chang, A., & Handal, P. (2020). An evaluation of the convergent validity of and preliminary cutoff scores for the DASS-21 Total score as a measure of distress in adolescents. Current Psychology, 41(7), 4283–4290. https://doi.org/10.1007/s12144-020-00937-4
16. Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. British Journal of Clinical Psychology, 44(2), 227–239. https://doi.org/10.1348/014466505x29657
17. Liu, Y., Tu, Y., Yang, H., Gao, J., Xu, Y., & Yang, Q. (2022). Have you "involution" today—Competition psychology scale for college students. Frontiers in Psychology, 13(6), 951931. https://doi.org/10.3389/fpsyg.2022.951931
18. Mojtahedi, D., Dagnall, N., Denovan, A., Clough, P., Dewhurst, S., Hillier, M., Papageorgiou, K., & Perry, J. (2023). Competition Anxiety in Combat Sports and the Importance of Mental Toughness. Behavioral Sciences (Basel, Switzerland), 13(9), 713. https://doi.org/10.3390/bs13090713
19. Nogueira, J. M., Morais, C., Mansell, P., & Gomes, A. R. (2025). Emotional profile of athletes before competition: contributions for perceived stress, cognitive appraisal and coping strategies. Frontiers in Sports and Active Living, 7, 1636826. https://doi.org/10.3389/fspor.2025.1636826
20. Sanfilippo, J. L., Haralsdottir, K., & Watson, A. M. (2023). Anxiety and Depression Prevalence in Incoming Division I Collegiate Athletes From 2017 to 2021. Sports Health, 16(5), 776–782. https://doi.org/10.1177/19417381231198537
21.