

Effects of Karate Self-Defence Program on Leadership Preferences among Women

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DOI: <https://doi.org/10.36348/jaspe.2025.v08i02.002>

| Received: 29.01.2025 | Accepted: 05.03.2025 | Published: 10.03.2025

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Abstract

Karate has gained popularity as an effective self-defence technique, offering numerous physical and psychological benefits for women. While its impacts on these domains are well-documented, there is limited research on its influence in social domains. The present study aimed to explore the leadership preferences of self-defence-trained women. To accomplish the above objectives, the present study included a total of 186 female college students aged 18 to 22 years, comprised of 92 karate-trained and 94 untrained participants. The karate-trained group regularly practice karate, while the untrained group had no martial arts or other training experience. Leadership preferences were evaluated using the Leadership Preference Scale. To observe the effect of karate program on leadership preferences, the karate group was compared by using an Independent t-test with untrained participants of the same characteristics. The results showed that most participants (approximately 80%) preferred moderate to above-average democratic leadership levels. Karate-trained women averagely preferred above-average democratic leadership, while untrained women leaned toward moderate levels. A notable difference emerged between the groups ($p = 0.04$), with karate-trained women showing a greater preference for democratic leadership style. The study concluded that self-defence training significantly impacts women's leadership preferences by promoting the democratic style, which may promote essential social qualities such as mentorship, teamwork, effective group interactions, etc.

Keywords: Self-Defence Training, Martial Arts, Karate, Women, Leadership Preferences.

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INTRODUCTION

Self-defence programs primarily originated from martial arts. It provides a positive learning environment for children, teenagers and adults, especially women. Nowadays, martial arts practice is mostly utilised for acquiring self-defence abilities, fitness routines, sports, improving mental health, and strengthening one's confidence (Hepfer, 2022). Karate has become one of the most popular martial arts for self-defence techniques. Despite significant progress, women continue to face discrimination and violence every day around the world (World Vision Australia, 2022). Therefore, average women have increased investment and opportunities to benefit from self-defence programs, especially karate (Biswas & Chatterjee, 2018).

Numerous studies have been conducted on the effects of martial arts/self-defence programs. Most studies have shown that participating in martial arts can

promote self-defence skills, self-efficacy, confidence, self-esteem, socialisation skills, physical health, stress relief, anxiety reduction, mindfulness, and a healthy lifestyle (Academy of Kempo Martial Arts, 2023; Brecklin, 2008; Hollander, 2014; Jianing *et al.*, 2020; Kash, 2023; Sinclair *et al.*, 2013; Yu, 2020). The training also reduces the fear and incidents of sexual assault, which is crucial for women (Brecklin, 2008; Hollander, 2014). In addition, some studies revealed that martial arts training, especially karate and taekwondo, significantly improves leadership skills along with developing self-defence skills (Joko, 2009; Team Tooke Mixed Martial Arts Academy, 2021).

Therefore, karate is an effective self-defence technique that provides numerous physical and psychological benefits for women. While these advantages are well-documented, research on its social impact remains limited. This study aims to examine the

social benefits of karate training for women, with a specific focus on their leadership preferences.

Leadership is a social process that encourages individuals to work together as a cohesive group to achieve collective results. From childhood, leadership continues as a classroom monitor, sports team captain, or group leader. According to psychologists, to be a good leader, you must first be a good follower. This implies that an individual or group must accept and prefer a specific leadership style. Therefore, leadership preferences refer to the characteristics, styles, and qualities that individuals or groups prefer or value in their leaders. These preferences, whether democratic or autocratic or a combination of both, can vary across individuals and are influenced by a combination of factors such as age, gender, maturity or individual experiences, education level, demographic area or cultural background, environment, organisational context, and individual beliefs and values (Cruz & Kim, 2017; Longkumer & Roy, 2022; Oktavyana, 2021). Also, leadership preferences encompass various aspects, such as traits, behaviours, and approaches to leading others. Understanding leadership preferences enables organisations and leaders to adapt styles that align with followers' needs, emphasising valued qualities to inspire and lead effectively.

Democratic leadership encourages collaboration and innovation, while autocratic leadership ensures quick decision-making and strong control. However, democratic leadership has a more positive impact on mentorship, group interactions, and teamwork (Becker, 2023; E-Soft Skills Online Training Solutions, 2023; Phung & Goldberg, 2021; Vargas, 2019). A balanced approach or combining both styles allows for better adaptation to different situations (Becker, 2023; E-Soft Skills Online Training Solutions, 2023). Additionally, the democratic approach can positively influence their socialisation and personal development.

Previous research studies have explored leadership preferences in different populations, such as post-graduate students (Longkumer & Roy, 2022), adolescent players (Cruz & Kim, 2017), mentally tough athletes (Crust & Azadi, 2009) etc., as well as other areas such as coach gender influences (Cruz & Kim, 2017), coach-athlete relationship, athlete motivation, and athlete satisfaction (Jin *et al.*, 2022) etc. However, no study has been conducted on karate students in terms of leadership preferences. Some studies have been conducted on the development of leadership skills through martial arts training (Bishop, 2015; Bouley, 2008; Joko, 2009; Karate Families, 2020; Kash, 2023; Miller, 2017). The present study aimed to explore the leadership preferences (authoritarian or democratic style) of karate-trained women. It was hypothesised that engaging in karate practice would lead to democratic leadership choices. The objectives of this study were to observe leadership preferences, identify the most

preferred leadership style, and assess differences in preferences between karate-trained and untrained female students.

MATERIAL AND METHODS

Study Design

This study used a cross-sectional design to assess the impact of karate practice on leadership preferences. Over six months, a survey was conducted using the self-reported questionnaire (LPS-BL) at self-defence training centres and colleges in southern West Bengal. Descriptive statistics were used to analyse the data. In addition, the study compared the core group of karate-trained individuals with an untrained group. Written informed consent was obtained from all participants involved in the study.

Study Participants

A total of 186 female college students were purposively included, comprising 92 karate-trained and 94 untrained participants, aged between 18 and 22 years. The study focused on sports karate as a self-defence technique, with training durations ranging from 1 to 9 years. Untrained participants had no previous experience in martial arts or other training but met the same demographic and qualification criteria. Participants were excluded if they did not meet the inclusion criteria, such as age, gender, training status, geographical location, or educational background, or if they had medical conditions. Detailed participant characteristics, including age, height, weight, BMI, and training experience, are provided in Table 2.

Outcome Measures

The study considered age, height, weight, and BMI as personal data, with leadership preferences as the outcome variable. Standard procedures were used to collect the necessary data on both personal information and the outcome variable.

Personal Data

Personal data measurements were conducted using standard and validated instruments. Weight was measured to the precision of 0.1 kg using a portable digital scale and height to the precision of 0.1 cm using a portable stadiometer. Participants were barefoot for both measurements. In addition, Body Mass Index (BMI) was calculated as weight (kg) divided by height squared (m^2).

Leadership Preferences

The "Leadership Preference Scale" by L. I. Bhushan (2011) was used to assess the leadership preferences of the subjects. The original questionnaire's validity (content & construct) and reliability (internal consistency = 0.74, test-retest = 0.79) were confirmed in the manual (Bhushan, 2011). A Bengali version was translated for this study, with its validity established through expert feedback (face and content validity) and concurrent validity confirmed via a correlation

coefficient (Spearman's $\rho = 0.71$, $p = 0.00$). Its reliability was demonstrated with an internal consistency (Cronbach's $\alpha = 0.79$) and test-retest reliability (Spearman's $\rho = 0.92$, $p = 0.00$). Finally, both versions of the questionnaire (English and Bengali) were used as per the requirements of the study.

The questionnaire consisted of 30 items, with 16 positive and 14 negative statements, and was

administered using a five-point Likert scale. Positive items scored 5,4,3,2,1, and negative items scored in reverse. The sum of all statement scores is an individual's total score. A high score indicates a preference for a democratic leadership style, while a low score indicates an authoritarian style. The author Bhusan (2011) developed a grading system as mentioned below (Table 1).

Table 1: Norms for Interpretation of LPS Scores

Sl. No.	Range of Raw Scores	Grade	Level of Leadership Type
1.	129 and above	A	Extremely Democratic
2.	118-128	B	High Democratic
3.	106-117	C	Above Average Democratic
4.	90-105	D	Moderate
5.	77-89	E	Above Average Autocratic
6.	66-76	F	High Autocratic
7.	65 and below	G	Extremely Autocratic

Statistical Analysis

The study's data analysis process comprised three key steps: descriptive statistics, normality assessment, and inferential statistics. Descriptive statistics were calculated to evaluate group characteristics and data variance, including mean, standard deviation, range, and percentiles. The Kolmogorov-Smirnov test was used to assess the normality of the raw score distribution, serving as a prerequisite for further statistical tests. After confirming normality, independent samples t-tests were conducted to evaluate the hypothesis and identify significant

differences between group means. The null hypothesis was tested at a significance level of 0.05, corresponding to a 95% confidence interval. All statistical analyses were performed using IBM SPSS version 26.0 (IBM Corp, 2019).

RESULTS

The study included 186 women, consisting of 92 karate-trained and 94 untrained participants. Table 2 presents the participants' characteristics, including age, height, body weight, BMI, and training duration.

Table 2: Participants Characteristics

Characteristics	Group	Minimum	Maximum	Mean	SD (\pm)
Age (yrs.)	KTW	17.50	22.00	18.80	1.34
	UNW	17.50	22.00	18.98	1.26
Height (cm)	KTW	143.50	165.50	155.33	6.65
	UNW	137.50	170.00	155.38	6.37
Weight (kg)	KTW	42.20	80.80	56.77	11.30
	UNW	38.00	83.00	52.70	8.53
BMI (kg/m ²)	KTW	18.27	30.61	23.42	3.69
	UNW	16.73	32.42	21.83	3.28
Training duration (yrs.)	KTW	1.00	9.00	3.77	2.51
	UNW	-	-	-	-

Note: KTW – karate-trained women, UNW – untrained women.

Table 2 shows that the participants' characteristics in both groups accurately reflect their respective populations. However, both groups exhibited a wide weight range, including some individuals who were overweight or underweight for their age and height.

Despite this variation, the average BMI for both groups falls within the normal weight category (Centers for Disease Control, 2024; World Health Organization, 2010).

Table 3: Leadership Preferences

Leadership Type	Karate-Trained Women		Untrained Women	
	No. of Students	Percentage (%)	No. of Students	Percentage (%)
Extremely Democratic	0	0.00	2	2.13
High Democratic	14	15.22	10	10.64
Above Average Democratic	41	44.57**	29	30.85*

Leadership Type	Karate-Trained Women		Untrained Women	
	No. of Students	Percentage (%)	No. of Students	Percentage (%)
Moderate	34	36.96*	44	46.81**
Above Average Autocratic	3	3.26	9	9.57
High Autocratic	0	0.00	0	0.00
Extremely Autocratic	0	0.00	0	0.00
Total	92	100.00	94	100.00

Note: ** Highest percentage of score, * 2nd highest percentage of score.

Table 3 and Figure 1 show that 81.53% of karate-trained women belong to the major area, with 44.57% exhibiting an above-average democratic level and 36.96% demonstrating a moderate level in the leadership category. In contrast, 77.66% of untrained women belong to the major area, with 46.81% exhibiting a moderate level and 30.85% demonstrating an above-

average democratic level in the leadership category. So, this analysis reveals that the majority of participants (approximately 80%) in both groups prefer moderate to above-average democratic leadership levels. Notably, none of the participants scored within the high or extremely autocratic categories.

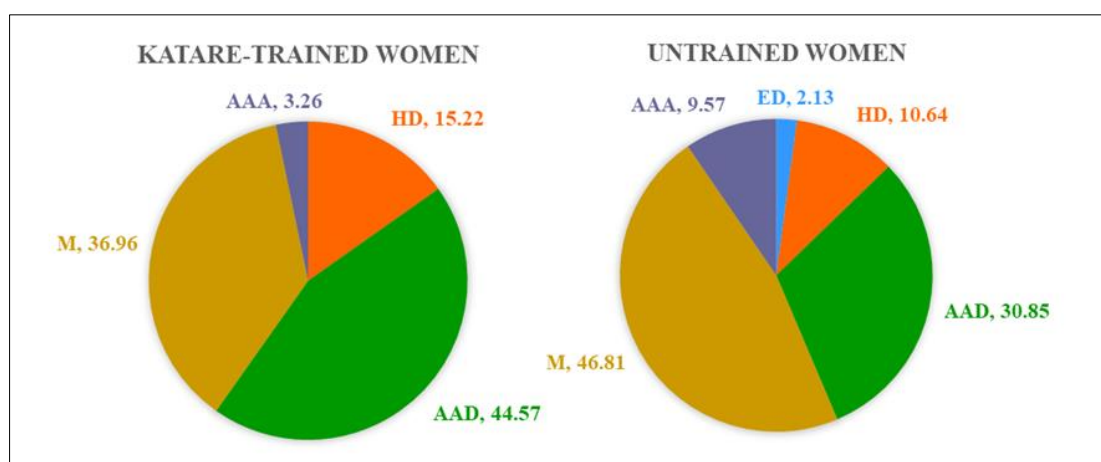


Figure 1: Pie Chart Displays Different Leadership Preferences (%) of KT and UN Women

Note: ED - extremely democratic, HD - high democratic, AAD - above average democratic, M - moderate, AAA - above average autocratic.

Table 4: Descriptive Statistics of Leadership Preferences

Group	Minimum	Maximum	Mean	SD (\pm)
KTW	79.00 ^{aaa}	128.00 ^{hd}	107.22 ^{aad}	9.88
UNW	82.00 ^{aaa}	131.00 ^{ed}	104.02 ^m	11.02

Note: ^{ed} - extremely democratic, ^{hd} - high democratic, ^{aad} - above average democratic, ^m - moderate, ^{aaa} - above average autocratic.

According to the LPS manual standards (Table 1), leadership preference (LP) scores (Table 4) for karate-trained women ranged from above-average autocratic to high democratic levels, whereas untrained women's scores spanned from above-average autocratic to extremely democratic levels. However, karate-trained

women demonstrated a mean LP score in the above-average democratic level, while untrained women scored in the moderate level. These findings highlight differences in leadership preferences between the two groups.

Table 5: Normality Tests

Group	Kolmogorov-Smirnov		
	Statistic	df	Sig. (<i>p</i>)
KTW	0.08	92.00	0.20*
UNW	0.07	94.00	0.20*

Note: * $p > 0.05$ indicates normality of data.

The Kolmogorov-Smirnov test was applied to assess the normality of the raw score distributions (Table

5). The results showed p -values greater than 0.05 for both groups, confirming that the data followed a normal

distribution. With normality validated, parametric statistical analyses were conducted. An independent samples t-test was used to compare the groups and test

the hypothesis. In addition, Levene's test was performed to evaluate the equality of variances between the groups.

Table 6: Independent Samples T-Test

Group	Group Statistics			Levene's Test		T-Test			
	Mean	SD	SEM	F	Sig.	t	df	t crit 0.05	Sig. (2-tailed)
KTW	107.22	9.88	1.03	1.42	0.24	2.08*	184.00	1.97	0.04
UNW	104.02	11.02	1.14						

Note: * $p \leq 0.05$, indicates a statistically significant difference between two mean scores at the 0.05 level.

The group statistics (Table 6) indicate a mean difference in leadership preference (LP) between the karate-trained and untrained groups. Levene's test result ($F = 1.42$, $p = 0.24$) was significant, confirming equal variances assumed in the groups. The obtained t-value of 2.08 exceeded the critical value of 1.97 ($t_{0.05, 184}$), indicating a significant difference between the groups. Additionally, the p -value of 0.04, which is less than the alpha level of 0.05, further supports the presence of

statistically significant differences in LP means between the groups. Notably, the karate-trained group showed a higher mean value than the untrained group, indicating a stronger preference for democratic leadership among karate-trained women. These results highlight a significant trend toward democratic leadership among karate-trained participants compared to untrained participants.

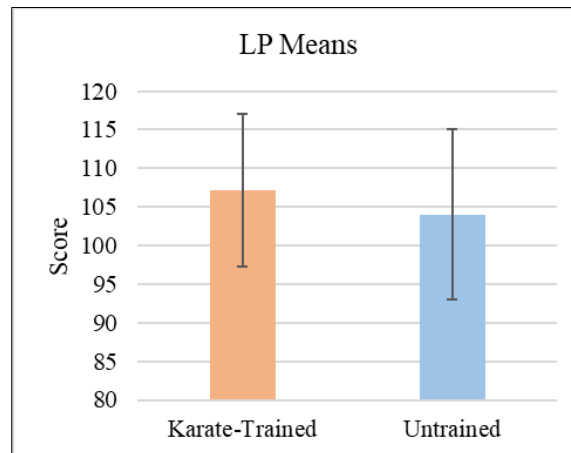


Figure 2: Bar Diagram Displays the Difference in Leadership Preferences between KT and UN Women

DISCUSSION

The present study investigated the impact of karate-trained women's leadership preferences. Among the two primary categories of leadership styles (authoritarian or democratic), the democratic leadership style is highly effective due to its emphasis on participation, teamwork, collaboration, open communication, and equal consideration of all opinions, leading to increased satisfaction (Becker, 2023; E-Soft Skills Online Training Solutions, 2023). Jin et al.'s study emphasised the significant role of leadership styles, particularly democratic leadership, in enhancing athletes' psychological well-being (Jin *et al.*, 2022). Additionally, situational leadership emphasises the importance of customising leadership styles to each situation, considering that no single style is universally effective (Becker, 2023; E-Soft Skills Online Training Solutions, 2023).

The analysis of the study's findings provides valuable insights into the leadership preferences of karate-trained and untrained women. The karate-trained

group was treated as the intervention group, and the untrained group was treated as the initial level of the same population. The results revealed that most participants in both groups (approximately 80%) preferred moderate to above-average democratic leadership levels. The lower range for both groups started from above-average autocratic, but the karate-trained women span to high democratic levels, and the untrained group encompasses extremely democratic levels. However, according to the mean score, karate-trained women's averagely preferred the above-average democratic level, while the untrained women's preferred the moderate level. Notably, a significant disparity was observed between the groups. Specifically, the karate-trained group demonstrated a greater preference for democratic leadership than the untrained group. Overall, the present study analysis indicates that karate practice has a positive impact on leadership preferences among adult women, especially female college students.

The present findings revealed that practicing karate can significantly enhance leadership preferences

towards more democratic rather than authoritarian leadership styles. Moreover, the democratic leadership preferences may be attributed to the discipline's emphasis on self-confidence, self-discipline, collaboration, innovation and teamwork (Becker, 2023; E-Soft Skills Online Training Solutions, 2023). Previous research studies also support that self-defence training significantly influences mentorship (Vargas, 2019) and group interactions (Phung & Goldberg, 2021), which predict social functioning among women over time.

This study suggests that self-defense training such as karate not only enhances physical skills but also promotes personal development in leadership. Thus, karate training promotes democratic acceptance, which positively influences mentorship, group interactions, and teamwork. The preference for moderate to above-average democratic leadership styles may reflect the values and skills gained through karate training, promoting empowerment and holistic well-being across social domains.

Limitations

This study has several limitations. Firstly, the sample size was limited, and the age range of participants was narrow, which may restrict the generalisability of the findings. Secondly, the study focused on only two dimensions of leadership style, which limits the scope of its conclusions. Lastly, gender-based differences in leadership style could not be examined because the study sample included only female students.

Future Recommendations

Future research should address limitations by using a more diverse sample, broader age range, and additional dimensions of the primary variable. Experimental and longitudinal studies are recommended to explore causal and long-term effects. Including factors like leadership ability, social skills, relationships, and community engagement could further uncover potential benefits and improve the findings' generalisability.

CONCLUSION

Based on the analysis of the results and limitations, the study concludes that self-defence training significantly impacts women's leadership preferences, particularly by promoting a preference for the democratic style. This enhanced democratic element of leadership preferences may promote essential social qualities such as mentorship, teamwork, effective group interactions, collaboration, and innovation. Furthermore, self-defence training boosts women's confidence and resilience, which may positively influence their socialisation and personal development.

Conflicts of Interest: There are no conflicts of interest.

Acknowledgements

The authors sincerely thank all the participants, organisations, and research associates for their cooperation and efforts in making this research possible.

Financial Support and Sponsorship: Nil.

Authors' Contribution: A - Study design; B - Data collection; C - Statistical analysis; D - Manuscript preparation; E -Fund collection

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