

Karate practice: empowering solutions to mitigate school-age bullying Práctica de karate: soluciones empoderadoras para mitigar el acoso escolar en edad escolar

*Hugo Simões, *Pedro Santos, *Beatriz Pereira, **Abel Figueiredo
*Universidade do Minho (Portugal), **Instituto Politécnico de Viseu (Portugal)

Abstract. Karate is a martial art and it is known that its practice promotes cognitive, affective, social, and behavioral benefits, including in children. *Bullying* has been configured in recent years as a public health problem that can seriously affect school-age children and young people. Although the practice of karate is positively associated with the biopsychosocial development of children and adolescents, little is known about its impact on bullying behaviors among school-age peers. The aim of this study is to evaluate the influence of karate practices on the psychosocial responses of children regarding episodes of victimization, aggression, and observation of *bullying* behaviors. A questionnaire was applied to 336 Portuguese children (79 karatekas and 257 non-karate practitioners). The data were examined using the Chi-square test or the Fisher test and the V Cramer test. Concerning the *bullying* phenomenon, our results show that karate practitioners differ from non-practitioners by the lower number of times they are victims of aggression ($p < 0.05$), / showing to be more resilient in the victimization process. Karate practice is recommended for children as a way to assist their psychosocial development.

Key words: karate, martial art, *bullying*, victimization, aggression, proactivity

Resumen. El karate es un arte marcial y se sabe que su práctica promueve beneficios cognitivos, afectivos, sociales y conductuales, incluso en niños. El acoso escolar se ha configurado en los últimos años como un problema de salud pública que puede afectar seriamente a los niños en edad escolar y a los jóvenes. Aunque la práctica del karate está positivamente relacionada con el desarrollo biopsicosocial de los niños y adolescentes, se sabe poco sobre su impacto en los comportamientos de acoso entre compañeros en edad escolar. El objetivo de este estudio es evaluar la influencia de las prácticas de karate en las respuestas psicosociales de los niños con respecto a episodios de victimización, agresión y observación de comportamientos de acoso. Se aplicó un cuestionario a 336 niños portugueses (79 karatekas y 257 no practicantes de karate). Los datos se examinaron utilizando la prueba de Chi-cuadrado o la prueba de Fisher y la prueba V de Cramer. En lo que respecta al fenómeno del acoso escolar, nuestros resultados muestran que los practicantes de karate difieren de los no practicantes por el menor número de veces que son víctimas de agresiones ($p < 0.05$), mostrándose más resistentes en el proceso de victimización. Se recomienda la práctica del karate para los niños como una forma de ayudar en su desarrollo psicosocial.

Palabras clave: karate, arte marcial, acoso escolar, victimización, agresión, proactividad.

Fecha recepción: 19-09-23. Fecha de aceptación: 01-02-24

Hugo Simões

ugosimoes@gmail.com

Introduction

Karate is a martial art and a combat sport assumed as a cultural product that has idiosyncratically accompanied humans, acquiring characteristic meanings in every age, and specific spaces, these being synchronously biological and cultural, not existing without each other (Figueiredo, 1987). Concurrently, karate, as a martial art, emerges within specific cultural contexts, each with its own unique ideologies and worldviews (Xu & Zhang, 2019). In the center of the practice (*dojo*) the teacher (*sensei*) encourages practitioners (karateka) to develop their biopsychosocial condition concomitantly with theoretical and philosophical principles that govern their praxis (Avelar-Rosa et al., 2015; Funakoshi & Teramoto, 2003). This has been associated with cognitive, affective, social, and behavioral benefits, with a positive relationship found between its practice and brain development (Avelar-Rosa et al., 2015; Grzywacz et al., 2016). During childhood, karate helps the child to develop adequate motor coordination and promotes character formation, affective self-regulation, prosocial behavior, and the physical condition of its practitioners (Gubbels et al., 2016; Harwood et al., 2017; Vertonghen & Theeboom, 2010).

In this process, in recent years, karate has been used by some researchers as a pedagogical intervention tool for

cognitive-behavioral or socio-educational reeducation (Fabio & Towey, 2018; Grzywacz et al., 2016; Vertonghen et al., 2014). The scope of these studies focused essentially on the investigation of scientific issues related to physical aggression, verbal aggression, anger, hostility, self-esteem, self-efficacy, creativity, psychosocial behavior, and positive social psychology. However, only a (very) few authors have investigated the specific effects that karate practice has on the phenomenon of *bullying* in children. Here, we highlight the Martial Arts-based Anti-*bullying* Program implemented in primary schools in Canada (CAPSLE) in which positive effects were found in reducing *bullying* behaviors and increasing the proactivity of observers of this phenomenon, particularly boys (Twemlow et al., 2008).

Bullying is characterized as a subtype of school-age violence where aggressive and intimidating behaviors occur repeatedly (B. O. Pereira, 2008) (weeks, months, or years), with the intention of hurting others who, by themselves, are unable to defend themselves due to a strong power asymmetry between peers (Solberg & Olweus, 2003). International conceptual recognition rests on the view centered on the systematic abuse of power (Rigby, 2002) triggered by an aggressor (or more), a victim (or more), and an observer (or more) through an aggressive and intentional continuum (Shaheen et al., 2018). We know that the occurrence of *bullying* increases the risk of emotional

impairment, psychosomatic symptoms, lack of self-confidence, and the emergence of psychosocial and health risk behaviors such as escape from home, alcohol intake, drug abuse, absenteeism, and accidental or purposeful mutilations (Menesini & Salmivalli, 2017). We also know that the effects of these behaviors can extend into adulthood with the victims at an increased risk of psychiatric morbidity and various health problems (Wolke et al., 2013), with considerable variance in the prevalence of victimization in children, which can reach values ranging from 8% to 12% in Australia (Lester et al., 2013), 19.2% in the Nordic countries (Bjereld et al., 2015), 25.7% in China (Cheng et al., 2010), to 44.2% in Jordan (Kazarian & Ammar, 2013). In Portugal, the estimated prevalence of *bullying* episodes in school-age children ranges from 10% to 46% (Carvalhosa et al., 2009). Finally, it should be noted that *bullying* behaviors can take the form of physical, verbal, relational/exclusion, cyber, and sexual/homophobic victimization (Costa et al., 2013, 2015).

While there is a growing recognition of the presence of bullying behaviors in sports, there is limited available data regarding the impact of sports on bullying. Nonetheless, it is acknowledged that such an impact does exist. (Marracho et al., 2021).

This impact is even less known when we examine the practice of karate and its influence on aggressive or intimidating behaviors. Although its effects have been identified in some areas of the psychosocial development of child and youth behavior (Gubbels et al., 2016; Harwood et al., 2017; Vertonghen & Theeboom, 2010), the comparative study of social survival skills between karatekas and non-karate practitioners have not yet been performed.

The present work aims to study the influence that karate practice has on psychosocial responses in relation to episodes of victimization, aggression, and observation of aggressive or intimidating behaviors (*bullying*). Taking as a central approach the comparative study between karatekas and non-karate practitioners, the study intends to explore not only the socio-affective interactions of the aggressive dyad composed by the victim and aggressor but also the actors surrounding the phenomenon, denominated active observers (those who intervene when faced with the observed aggression) or passive observers (those who, observing the aggression, choose not to intervene) (Salmivalli, 2010). The choice of the study theme is associated with the professional practice of the first author of this work (public school teacher and karate coach) and his concern for psychosocial issues of school age associated with karate practice and the phenomenon of bullying.

Methods

Participants

The sample of this study included 336 children, 79 karatekas (24%), and 257 non-karate practitioners (76%), 53.0% of whom are male. Both groups (karatekas and non-karate practitioners) had elements aged between 10 and 15

years (mean 12.4 ± 1.714 years). The average age for the karate group was 12.49 and the non-practitioners of karate was 12.37.

Table 1.

Distribution of sample participants by age

Age	Non-karate practitioners n= 257 (mean 12,4 ± 1.684)	Karatekas N=79 (mean 12,5 ± 1.818)
10 years old	48 – 18,7%	15 – 19,0%
11 years old	47 – 18,3%	16 – 20,3%
12 years old	34 – 13,2%	8 – 10,1%
13 years old	50 – 19,5%	8 – 10,1%
14 years old	46 – 17,9%	19 – 24,1%
15 years old	32 – 12,5%	13 – 16,5%
Total respondents (n=336)		

Regarding gender distribution, the karate group consisted of 31 females (39.2%) and 48 males (60.8%), and from the group of non-practitioners of karate, participated 127 female subjects (49.4%) and 130 males (50.6%). The sample was chosen by convenience and the children's participation was voluntary. Data collection was carried out in central Portugal, in karate practice centers (*dojo*), and in public schools of the 2nd and 3rd cycle of basic education.

The inclusion criteria for the group of non-practitioners of karate were defined by: age between 10 and 15 years; a student enrolled in the public school chosen to carry out the study; being able to read and fill out questionnaires independently; authorization to participate in the study given by the Incharge of Education. All non-karate participants attended a group of schools in the geographical area chosen for this purpose. The karate clubs chosen to participate in the study were not in the same geographical area as the group of schools chosen for the study therefore the karatekas did not attend this group of schools. Near the public schools involved in the study, there are no karate clubs.

Instruments

Two instruments were used to collect data, one on *bullying* and one on karate. The instrument for collecting data on the phenomenon of *bullying* was the questionnaire by Olweus (1989) - "*The aggressiveness among children in the school space in the 2nd and 3rd cycles*", adapted and validated for the Portuguese school population by Beatriz Oliveira and Ana Tomas, UM/CEFOPE, 1994, reviewed by Beatriz Pereira and Fernando Melim in 2010 UM/IE and adapted to the digital format for the present study in 2016. Used by reference researchers in this area of study, it is one of the instruments frequently used in the area of social sciences and psychology with a significant impact on the specialized scientific literature in Portugal (Costa et al., 2015; B. Pereira et al., 2015) it is intended to identify bullying at school age. This instrument enabled evaluation of the levels of *bullying*, composed of closed and semi-open questions, divided into four research intentions: questions of characterization (12 items), victimization (10 items), observation of aggression between peers (two items), and aggression (five items). Some of the questions made it possible to choose more than one option, allowing for a more sensitive study of the categories under analysis. The questions are formulated in a

simple and direct way and are related to the period of one month, such as "During the last month, how many times were you a victim of *bullying*?" Students are required to choose from the following answers "Never", "1 or 2 times", "3 or 4 times", and "5 or more times". All students who did not choose "never" were considered victims of *bullying* since there is no justification to imply this represents sporadic behavior and does not occur with identical regularity in other months. Being a victim 4 times means being a victim every week of the month and the school term. The instrument used to collect data on the practice of martial arts was the questionnaire "*Socio-martial characterization of children*". It is a socio-martial data questionnaire that allows you to collect complementary answers to the data on bullying based on your karate practice. This tool was created, developed, and applied within the doctoral thesis of the main author of the present study and used only in the associated research work. The purpose of this instrument resides in the need to characterize the martial arts practice of its practitioners, as well as to evaluate the social affective perception that its practice has in the behaviors of aggression and or intimidation between peers (practitioners and non-practitioners of karate).

The questionnaire is subdivided into four self-report areas, namely: socio-martial characterization (*Do you have any karate-practicing friends?*); feeling of protection (*Does having friends or friends who practice make you feel more protected and safe? - If you were assaulted in school, would you feel more protected if you had a friend who practiced karate around you? - If you were assaulted outside school, would you feel more protected if you had a friend who practiced karate next to you?*); aggression among peers (*Would you hurt a colleague if you had the help of a karate-practicing friend?*); and general characterization as to the actual practice (*How many times do you train a week? - Do you participate regularly in Competition Events? - How long have you been training karate? - What is your current degree?*).

Both groups completed the questionnaire "*The aggressiveness among children in the school space in the 2nd and 3rd cycles*". The questionnaire "*Socio-martial characterization of children*" was completed only by karate practitioners.

Finally, in the presentation and discussion of the results, all respondents were considered "children" in compliance with the assumptions of the International Convention on the Rights of the Child.

Procedures

First, data was collected from karatekas (in dojos) and, later, the data from non-practitioners of karate (in the group of schools chosen) in a maximum period of 1 month between the first and last moment of collection.

Karate clubs/dojos, are training and learning spaces structured by groups/classes, and the questionnaire was applied in one of those practices. At pre-established times, the instruments were applied collectively, in digital format (computer, mobile phone, or tablet), and after a brief explanation of the procedures for completing the questionnaires (i.e., how to access the digital questionnaire and the importance of submitting it correctly) and what were the

objectives of the study, all respondents were asked to answer the questions with reference to the previous month.

The procedure for collecting data from non-practicing karate participants was also in digital format using a digital form created for this purpose. In the group of schools, non-practitioners of karate digitally filed in the same data collection instrument as karatekas. The forms were answered with the approval of the direction of the school group, in a class ("Information and Communication Technology (ICT)") where they have access to a computer supervised by the teacher of that same class.

At all times of application, a researcher specialized in the area was present to answer any questions from the participants. The time for data collection did not exceed 30 minutes per participant.

Statistical analysis

To study the effect that karate practice has on the phenomenon of *bullying* at school age, it was necessary to cross-check the responses of victims, aggressors, and observers with their involvement (or not) in regular karate training. The data corresponding to the questions in the questionnaire was collected and processed, measuring the number of times the respondent was a victim, aggressor, or observer of aggressive behavior among peers, and the answers about the karate practice were flagged and treated. The data collected through the questionnaire were analyzed using descriptive statistics (mean, standard deviation, and frequency distribution). The chi-square test was used to analyze categorical quantitative data. In situations where the expected value was less than 5, Fisher's test was used. The defined level of significance was 5%. The Phi Coefficient was calculated to determine the practical significance of the difference, in the 2x2 contingency tables, using Cramer's V in contingency tables greater than 2x2, this value being identical to the Phi Coefficient in the 2v2 tables. The thresholds of the effect size values for Cramer's V are as follows: DF = 1 (small effect = .10, medium effect = .30, large effect = .50), DF = 2 (small effect = .07, medium effect = .21, large effect = .35) (Cohen, 1998), where DF represents the degrees of freedom associated with the Pearson Chi-square value. The data were analyzed in SPSS 25 (Chicago, IL). This approach has previously been adopted by other authors (O'Keeffe et al., 2016).

Results

The prevalence data presented in Table 2 indicates that karatekas generally exhibit lower rates of involvement in key bullying roles, such as victims and aggressors, in comparison to non-karate practitioners. Notably, karatekas show a reduced prevalence in the victim category (17.7% vs. 21.4%) and aggressor category (11.4% vs. 18.7%), reflecting differences of 3.7% and 7.3%, respectively. However, the exception to this trend is observed in the "active observers" profile, where karatekas display higher values (59.5%) compared to non-karate practitioners (51.8%),

representing an unexpected difference of -7.7%.

Table 2.

Prevalence of bullying by reference to karate practice (percentage)

Profile	Non-karate practitioners	Karatekas	Difference
Victims	21.4%	17.7%	3.7%
Aggressors	18.7%	11.4%	7.3%
Active observers	51.8%	59.5%	-7.7%
Passive observers	48.2%	40.5%	7.7%
Total respondents (n=336)			

Note: The values presented are inclusive since each respondent can be included in several profiles.

Table 3 reveals that one in five respondents (20.5%) reported having been beaten or bullied ("1 or 2 times", n = 49, 14.6%; "3 or more times", n = 20, 7.8%). There was an association between respondents who are victims and non-victims of aggression and the practice of karate, $\chi^2(2, N = 336) = 6.95, p < 0.05; \varphi_c = 0.144$. The effect size values for Cramer's V were classified as small. Considering the comparisons between the three categories of frequency of victimization episodes, significant differences were found in terms of the comparison between "never" and "victim 3 or more times", $\chi^2(1, N=287) = 6.29, p=0.01; \varphi_c = 0.148$, and between "victim 1 or 2 times" and "victim 3 or more times", $\chi^2(1, N=69) = 6.29, p < 0.01; \varphi_c = 0.322$. The effect size values for Cramer's V were classified as small and medium, respectively. In percentage terms, the karatekas most often answered that they had never been the victim of aggression (82.3%), and when they were, they reported

having been a victim "1 or 2 times" (17.7%), which contrasts with non-practitioners, who mentioned being victims "3 or more times" (7.8%), in addition to "1 or 2 times" (13.6%).

With regard to the frequency of episodes of aggression (table 2), 17% of respondents mentioned having been aggressive ("1 or 2 times", n = 48; 14.3%; "3 or more times", n = 9; 2.7%). There was no association between aggressor and non-aggressor respondents and the practice of karate, $\chi^2(2, N=336) = 2.41, p > 0.05; \varphi_c = 0.09$. The effect size values for Cramer's V were classified as small. In terms of percentages, the group of karatekas included more respondents who reported that they had never been aggressive to others (88.6%, 7.3% more than non-karate practitioners), and with the lowest levels of aggression in each analyzed category, compared to non-practitioners. The item "was aggressive 1 or 2 times" showed a difference of 5.5% between practitioners and non-practitioners of karate, lower in practitioners (10.1% of aggressors practiced karate), and 1.8% in the item "was aggressive 3 or more times". Considering the comparisons between the three categories of the frequency of episodes of aggression, there were no statistically significant differences ($\chi^2, p > 0.05$). The effect size values for Cramer's V at the level of these comparisons were classified as below small (DF=1, $\varphi_c \leq 0.07$).

Table 3.

Frequency of victimation or aggression episodes and karate practice (numbers, percentages in parenthesis) and respective categoric comparisons

	General sample	Non-karate practitioners	Karatekas	Statistical Test
Victimization Levels				
Never	267 (79.5%)	202 (78.6%)	65 (82.3%)	$\$p=0.031$
Victim 1 or 2 times	49 (14.6%)	35 (13.6%)	14 (17.7%)	$\chi^2(2)=6.95^a$
Victim 3 or more times	20 (6.0%)	20 (7.8%)	0 (0.0%)	$\dagger p=0.013$
Total	336 (100%)	257 (100%)	79 (100%)	$\varphi_c = 0.144$
Comparisons:				
"Never" vs "Victim 1 or 2 times" (n=316): $\chi^2(1) = 0.40^b, p=0.530; \varphi_c = 0.035$				
"Never" vs "Victim 3 or more times" (n=287): $\chi^2(1) = 6.29^a, p=0.012; \dagger p = 0.010; \varphi_c = 0.148$				
"Victim 1 or 2 times" vs "Victim 3 or more times" (n=69): $\chi^2(1) = 7.17^a, p=0.007; \dagger p = 0.007; \varphi_c = 0.322$				
Aggression Levels				
Never	279 (83.0%)	209 (81.3%)	70 (88.6%)	$\$p=0.300$
Was aggressive 1 or 2 times	48 (14.3%)	40 (15.6%)	8 (10.1%)	$\chi^2(2)=2.41^a$
Was aggressive 3 or more times	9 (2.7%)	8 (3.1%)	1 (1.3%)	$\dagger p=0.376$
Total	336 (100%)	257 (100%)	79 (100%)	$\varphi_c = 0.085$
Comparisons:				
"Never" vs "Was aggressive 1 or 2 times" (n=327): $\chi^2(1) = 1.60^b, p=0.206; \varphi_c = 0.070$				
"Never" vs "Was aggressive 3 or more times" (n=288): $\chi^2(1) = 0.98, p=0.338; \dagger p = 0.461; \varphi_c = 0.056$				
"Was aggressive 1 or 2 times" vs "Was aggressive 3 or more times" (n=57): $\chi^2(1) = 0.18^a, p=0.675; \dagger p = 1.000; \varphi_c = 0.056$				

Note: a) one cell has an expected value of less than 5; b) zero cells have an expected value of less than 5; § Chi-square test; in the Pearson chi-square value the degrees of freedom appears in brackets (DF); † Fisher's Test; φ_c phi coefficient or Cramer's

Table 4 shows a percentage relative proximity between passive observers and active observers, with a percentage advantage for the latter ("helped", n = 180; 53.6%). There is no association between the practice of karate and the perception that observers of the phenomenon of *bullying* have about episodes of aggression or intimidation, $\chi^2(1, N=336) = 1.46, p > 0.05; \varphi_c = 0.07$. The effect size values for Cramer's V were classified as below small. In both quadrants, the relationship that the majority of respondents

reported with third-party assistance processes was positive (> 50%), with a slight upward percentage in social proactivity in karatekas (59.5%, plus 7.7% non-karate practitioners). Table 3 also shows, in a discriminated way, the circumstances in which the respondent would change their profile from active to passive observer, and vice versa. Considering the type of help from active observers, there was a significant association in the item "If the victim was bleeding or suffering a lot" and the practice of karate, with higher

values of help from karatekas, compared to non-karate practitioners, $\chi^2(1, N=336) = 5.47, p < 0.05; \varphi_c = 0.17$. The effect size values for Cramer's V were classified as "small". With regard to the type of help from passive observers, there was no significant association between the

items analyzed and the practice of karate, $\chi^2(1, N=336), p > 0.05$. The effect size values for Cramer's V in the items "If you don't know the victim" and "If the victim was bleeding or suffering a lot" were classified as "small" ($\varphi_c \geq 0.10$).

Table 4.

Responses on observed actions of aggression between peers and karate practice (numbers, percentages in parenthesis)

		General sample	Non-karate practitioners	Karatekas	Statistical test
What would you do if you saw a classmate/friend being beaten?					
Do nothing (passive observer)		267 (46.4%)	124 (48.2%)	32 (40.5%)	$\$p = 0.228$
Help (active observer)		180 (53.6%)	109 (51.8%)	47 (59.5%)	$\chi^2(1) = 1.46^a$
Total		336 (100%)	257 (100%)	79 (100%)	$\varphi_c = 0.066$
Under what circumstances does the active observer respondent help?					
# If revenge is possible	Not help	31 (17.2%)	24 (18.0%)	7 (14.9%)	$p = 0.623$
	Help	149 (82.8%)	109 (82.0%)	40 (85.1%)	$\chi^2(1) = 0.24^a$ $\varphi_c = 0.037$
# If you can call someone to help	Not call	33 (18.3%)	27 (20.3%)	6 (12.8%)	$p = 0.251$
	Call	147 (81.7%)	106 (79.7%)	41 (87.2%)	$\chi^2(1) = 1.31^a$ $\varphi_c = 0.086$
‡ If it is your close friend	Not help	98 (54.4%)	75 (56.4%)	23 (48.9%)	$p = 0.378$
	Help	82 (45.6%)	58 (43.6%)	24 (51.1%)	$\chi^2(1) = 0.78^a$ $\varphi_c = 0.066$
# If you do not know the victim	Not help	53 (29.4%)	41 (30.8%)	12 (25.5%)	$p = 0.494$
	Help	127 (70.6%)	92 (69.2%)	35 (74.5%)	$\chi^2(1) = 0.47^a$ $\varphi_c = 0.051$
# If the victim was bleeding or suffering a lot	Not help	46 (25.6%)	40 (30.1%)	6 (12.8%)	$p = 0.019$
	Help	134 (74.4%)	93 (69.9%)	41 (87.2%)	$\chi^2(1) = 5.47^a$ $\varphi_c = 0.174$
Under what circumstances does the passive observer help?					
# If revenge is possible	Not help	131 (84.0%)	102 (82.3%)	29 (90.6%)	$p = 0.250$
	Help	25 (16.0%)	22 (17.7%)	3 (9.4%)	$\chi^2(1) = 1.32^a$ $\varphi_c = 0.092$
‡ If you can call someone to help	Not call	17 (10.9%)	14 (11.3%)	3 (9.4%)	$p = 0.757$
	Call	139 (89.1%)	110 (88.7%)	29 (90.6%)	$\chi^2(1) = 0.10^a$ $\varphi_c = 0.025$
# If it is your close friend	Not help	128 (82.1%)	100 (80.6%)	28 (87.5%)	$p = 0.368$
	Help	28 (17.9%)	24 (19.4%)	4 (12.5%)	$\chi^2(1) = 0.81^a$ $\varphi_c = 0.072$
‡ If you do not know the victim	Not help	32 (20.5%)	28 (22.6%)	4 (12.5%)	$p = 0.208$
	Help	124 (79.5%)	96 (77.4%)	28 (87.5%)	$\chi^2(1) = 1.58^a$ $\varphi_c = 0.101^*$
# If the victim was bleeding or suffering a lot	Not help	128 (82.1%)	99 (79.8%)	29 (90.6%)	$p = 0.156$
	Help	28 (17.9%)	25 (20.2%)	3 (9.4%)	$\chi^2(1) = 2.01^a$ $\varphi_c = 0.113^*$

Note: # The initial intention is confirmed; ‡ The initial intention is not confirmed; a) zero cells have an expected value of less than 5; § Chi-square test; in the Pearson chi-square value the degrees of freedom appears in brackets (DF); φ_c phi coefficient or Cramer's V

Discussion

The aim of the current study was to examine the influence that karate practice has on children's psychosocial responses to episodes of victimization, aggression, and observation of aggressive or intimidating behaviors (*bullying*). The results found point to some distinct psychosocial responses between karatekas and non-karatekas regarding the *bullying* phenomenon. In the domain of the prevalence of victimization episodes, the general results reflect the same percentages as national reference studies on *bullying* (Carvalho et al., 2009; Costa et al., 2013; Seixas, 2006), with a value of 21.4% of positive responses in the victimization process. Karatekas, on the other hand, presented a lower percentage value in the victimization process, with statistically significant differences.

The main finding of this research is that karatekas differ from non-practitioners in the lesser number of times they are victims of aggression, particularly with respect to

persistent victimization. In the dynamics of aggression and intimidation, this tendency is revealed between the two groups. Approximately 18.7% of non-karate practitioners reported having adopted behaviors of aggression and/or intimidation towards their peers, with the numbers reported from the karatekas being lower (by 7.3%). The data referring to the profile of the aggressors suggest that the practice of karate may not have a significantly differentiating role in the behavioral actions of aggression among peers. However, it is expected that the group of karatekas tend to be aggressive less and have an apparently greater propensity for non-aggression, although this dissimilarity appears to be narrow compared to non-practitioners. Although karate practice may not significantly improve social skills and self-esteem, minimize deficiencies in the processing of social information, reclassify social position in the peer group, and improve other social adjustment problems (Menesini & Salmivalli, 2017), the positive differential in relation to aggressive and/or

intimidating mechanisms may be associated with the theoretical, practical, and philosophical assumptions that govern its practice (Avelar-Rosa et al., 2015; Funakoshi & Teramoto, 2003), with positive consequences on the ability to adapt a more functional and adaptive behavior associated with the individual benefits that the martial elements propose to develop. These extrapolations require more specific research in the area.

In the dynamics of observing the phenomenon of *bullying*, karatekas also present more positive indicators than non-karate practitioners. The literature recognizes the fundamental role of observers in the phenomenon of *bullying* (Polanin et al., 2012). The proactivity and consequent awareness of the aggression observed have the potential not only to reduce *bullying*, but even eliminate it (Saarento et al., 2015). The aggressive normality present in many contexts of youth interaction conveys the perspective that the observed *bullying* is acceptable and even considered justified in numerous circumstances (Seixas, 2006), therefore, in these cases it is necessary to intervene. The present study suggests that karate practice can have a positive empathic effect on the pro-social behavior of active observers of the phenomenon of *bullying*, namely in changing their perceptions about aggressive behavior and the impact it has on others. Despite the fact that all active observers present favorable values of proactivity when analyzing the values of karatekas we find that these are even more pronounced in the sense of protection and assistance to the victim. This positive percentage difference in proactivity rates is especially evident in situations where the victim shows clear signs of suffering or blood. That is, the data suggest that there is a widespread and empathetic predisposition to protect and help those who are victims of *bullying*, which, in the light of the data in this work, could be further strengthened through regular karate practice. These psychosocial responses find positive support in the scientific literature both from the point of view of defense and support for intimidated victims (Virpi Pöyhönen et al., 2010), and from the point of view of empathy studied in martial arts through the stimulation and development of mirror-neurons responsible for the recognition of fundamental facial emotions in martial actions (Contiero et al., 2018). It should be noted that although the values found in the survey indicate that karatekas tend to be less aggressive and more proactive in helping the victim, than non-karate practitioners, caution is required in the interpretation of these results, which should be further investigated with larger samples. Specifically, this trend was identified when observing the percentage values obtained, successively more favorable to karatekas, despite the absence of statistically significant differences, and effect size values that are not very differentiating (classified as small or below small). As an example, we mention the higher percentage of karatekas who have never acted aggressively (7.3% more), as well as the lower percentage of karatekas who have been aggressive to someone 1 or 2 times (5.5% less) or 3 or more times (1.8%), compared to non-karate practitioners. This favorable tendency of karatekas also

appears when observing the other results of the work, namely in the circumstances of help as active observers. This evidence complements the main finding of this study, making it possible to affirm that the practice of karate is recommended for children as a way to assist in their psychosocial development. In fact, it has been described that the practice of karate generates generally favorable changes in the biopsychosocial lexicon of the children who practice them (Au et al. 2020).

The results, therefore, allow us to put forward three distinct psychosocial conditions between karatekas and non-karate practitioners: (i) karatekas are significantly more resilient in the victimization process, that is, they appear to have an additional capacity to react to traumas and or difficulties without loss of emotional balance; (ii) they may be less likely to attack, and (iii) more proactive in helping the victim. Successively more favorable indicators in all analyzed profiles (victim, aggressor, passive and active observer) indicate a psychosocial response more adjusted to the phenomena of *bullying* by karatekas, compared to non-karate practitioners.

It should be noted that being a victim of *bullying* is often being a victim of serious internalizing problems (anxiety, emotional impairment, increased psychosomatic symptoms, lack of self-confidence, emergence of psychosocial and health risk behaviors), with effective consequences in adult life of the victim (Menesini & Salmivalli, 2017). The progressive decrease in the number of assertive and appropriate responses to their well-being potentiates a regressive spiral of victimization with harmful consequences for the child's day-to-day, with suicide as the ultimate end. The current study presents evidence of a constructive view of psychosocial responses that enhance the positive value of karate practice. It is suggested that karatekas are less subject to offensive practices and develop a level of resilience that may be higher than that of non-practitioners. Karate practice could restrict the occurrence of aggressive behavior, or even inhibit its perpetuation over time. This psychosocial response reinforces the scientific reports published in the specific area of martial arts that suggest that the practice of this activity promotes character formation, affective self-regulation, and the prosocial behavior of its practitioners (Gubbels et al., 2016; Harwood et al., 2017; Vertonghen & Theeboom, 2010).

The present study also revealed that the circumstances in which observers (passive or active) act when faced with acts of *bullying* can occasionally be changed, in a positive way, in some specific scenarios. This condition is particularly noticeable after analyzing the responses given by karatekas under various circumstances, which suggest that karate practice can influence the type of psychosocial response under analysis. In the case of passive observers, the data collected demonstrate that the primary condition of not acting (passive) could only be changed if the observer can call someone who may help. We can assume that they would gain more confidence in the presence of an adult trainer, or perhaps a stronger colleague or a trusted friend, among

others. This intentional posture/alteration is evident both in karatekas (90.6%) and in non-karate practitioners (88.7%). It is possible the circumstance of being a karateka has little relevance, however, their participation in the process of activating the defense mechanisms of the victim(s) when necessary, should not be neglected. In the remaining categories of psychosocial response to aggression, passive observers maintain the initial profile with minor variations. Paradoxically, the circumstance of being a “close friend” does not seem to be an activating factor in itself in helping the victim. In a close reading of the theme, it is common for psychosocial help and intervention behaviors between peers to be associated with dynamics of interpersonal relationships centered on power and the individual capacity to manifest it. As an element external to the aggressive dyad, the observer (active or passive) is an integral element of the aggressive context and, therefore, has much more data than those they observe at the time of the aggression. It will eventually be these data and the “respect” for the recognition of the group that may lead an active observer to choose not to intervene. In other words, in a relational context of trust, being a friend and ideologically affectionate to the values and principles of your tribe, sometimes letting the victim defend themselves alone may be the initial decision. These data go in the opposite direction to those produced by the reference scientific literature and, therefore, require further investigation (Thornberg et al., 2012).

In conclusion and despite the lack of information regarding the multidimensionality underlying the practice of karate, it is possible to affirm its potential to empower *bullying* actors with psychosocial tools that facilitate more proactive, integrated, and appropriate responses. These conclusions point especially to the victims, as they emphasize greater confidence on their part regarding the aggressive or intimidating behaviors directed at them. This is an area subject to multimodal intervention in the cognitive-behavioral domain. In addition, we consider that the manifested positive association between the practice of karate and the phenomena of *bullying* serves as a prompt for its possible inclusion in the school curriculum as a complementary and democratizing strategy for regulating aggressive or intimidating behaviors. For example, physical education classes could be an effective strategy to reduce the number of bullying victims (Galán-Arroyo et al., 2023; Robles et al., 2023), or within the scope of intervention programs that enhance and strengthen interpersonal relationships among students, thereby fostering their social skills and competencies (Aguilar Herrero et al., 2021).

This proposal is in line with the intervention model proposed by Avelar-Rosa and Figueiredo (2015) and from which it would be possible to develop the student's perception of the global sense of martial arts, with a view to developing a coherent teaching-learning process with these practices, considering their greater generalization or specificity depending on the level of education. Although the results express a limited number of significant variables (namely with regards to the number of times being the

victim of aggression and, in one of the circumstances in helping the victim), and the size of the effect, usually small values, the percentages obtained in the various items of the analysis show a clear trend that cannot be ignored. This does not detract from the practice of karate. Future studies should examine the practice time/experience level and age of the practitioner, ensuring the necessary sensitivity to detect possible differences in the analysis associated with their practice. It would also be useful to extend the study to a more diverse sample, in order to verify the trends that are pointed out. Despite the limitations in extrapolating the results, the data found in the present study, in conjunction with those of the work of Greco et al. (2019), allow us to emphasize that practicing karate does not make its practitioners more violent or aggressive, on the contrary.

Limitations

There is an urgent need to identify effective and practical ways to reduce bullying behaviours among peers. This study sought to evaluate the impact that karate practice can have on aggressive or intimidating behaviors at school age. A limitation of this study is that it was impossible to randomly assign the participants to the research, since the target group of analysis (karatekas), being small in number and with such identity characteristics, there was a need to find more karatekas for the study outside the intended geographical area. In this way, we were able to increase the size of the target group in order to obtain greater statistical power. Another limitation is that the results may be influenced by cultural and social factors that are unique to the geographic area determined for this study. Therefore, it is unclear whether the results would be the same in other countries or cultures other than the one in which the study was conducted. Finally, this work focuses on education, where there is a high prevalence of human interactions, which may prevent a more generalist reading of the results in educational environments with less social interaction.

Despite these promising results, it is important to note the limitations of the study, including the small size of the statistical differences. This suggests the need for more research with larger samples and more robust methods to confirm these trends.

Conclusions

This study provides significant preliminary evidence that the practice of karate can have a beneficial impact on children's psychosocial responses to bullying. It has been observed that karate practitioners, or karatekas, have a lower propensity to victimization and tend to adopt less aggressive behaviors compared to their non-practicing peers. These findings suggest that karate can strengthen children's emotional resilience, helping them cope with challenges and trauma more effectively. In addition, the study highlights the greater proactivity and empathy of karatekas as observers of bullying situations, indicating a greater

tendency to intervene in defense of victims.

Acknowledgements

This work was funded by the National Funds through FCT – Foundation for Science and Technology, within the scope of the CIEC (Childhood Studies Research Center at the University of Minho) project with reference UIDB/00317/2020.

References

- Aguilar Herrero, M. D., García Fernández, C. M., & Gil Del Pino, C. (2021). Efectividad de un programa educativo en Educación Física para fomentar las habilidades socioafectivas y prevenir la violencia en educación primaria (Effectiveness of educational program in physical education to promote socio-affective skills and prevent. *Retos*, *41*, 492–501. <https://doi.org/10.47197/retos.v0i41.82683>
- Avelar-Rosa, B., Gomes, M. S. P., Figueiredo, A., & López-Ros, V. (2015). Caracterización y desarrollo del “saber luchar”: Contenidos de un modelo integrado para la enseñanza de las artes marciales y de los deportes de combate. *Revista de Artes Marciales Asiáticas*, *10*(1), 16–33. <https://doi.org/10.18002/rama.v10i1.1501>
- Bjereld, Y., Daneback, K., & Petzold, M. (2015). Differences in prevalence of bullying victimization between native and immigrant children in the Nordic countries: A parent-reported serial cross-sectional study: Bullying among native and immigrant children. *Child: Care, Health and Development*, *41*(4), 593–599. <https://doi.org/10.1111/cch.12184>
- Carvalho, S. F., Moleiro, C., & Sales, C. (2009). A situação do bullying nas escolas portuguesas. *Interações*, vol. 5 n.º 13 (2009): Comportamentos de bullying em contexto escolar: Diálogos interdisciplinares. <https://doi.org/10.25755/INT.400>
- Cheng, Y., Newman, I. M., Qu, M., Mbulo, L., Chai, Y., Chen, Y., & Shell, D. F. (2010). Being bullied and psychosocial adjustment among middle school students in China. *The Journal of School Health*, *80*(4), 193–199. <https://doi.org/10.1111/j.1746-1561.2009.00486.x>
- Cohen, J. (1998). *Statistical Power Analysis for the Behavioral Sciences* (0 ed.). Routledge. <https://doi.org/10.4324/9780203771587>
- Contiero, D., Kosiewicz, J., & Baker, J. S. (2018). Karate: Emotions and Movement Anticipation. *Physical Culture and Sport. Studies and Research*, *79*(1), 62–71. <https://doi.org/10.2478/pcssr-2018-0021>
- Costa, P., Farenzena, R., Simões, H., & Pereira, B. (2013). Adolescentes portugueses e o bullying escolar: Estereótipos e diferenças de género. *Interações*, *9* n.º 25, Género e Violências. <https://doi.org/10.25755/INT.2857>
- Costa, P., Pinto, J., Pereira, H., & Pereira, B. (2015). Generic and Homophobic Bullying in School Context. *Psychology, Community & Health*, *4*(3), 145–155. <https://doi.org/10.5964/pch.v4i3.122>
- Fabio, R. A., & Towey, G. E. (2018). Cognitive and personality factors in the regular practice of martial arts. *The Journal of Sports Medicine and Physical Fitness*, *58*(6), 933–943. <https://doi.org/10.23736/S0022-4707.17.07245-0>
- Figueiredo, A. (1987). O Significado Actual do Karaté—Arte Marcial / Desporto de Combate? *Livros Horizonte*, *IV*(22).
- Funakoshi, G., & Teramoto, J. (2003). *The Twenty Guiding Principles of Karate: The Spiritual Legacy of the Master*. Kodansha International.
- Galán-Arroyo, C., Mayordomo-Pinilla, N., Castillo-Paredes, A., & Rojo-Ramos, J. (2023). Aptitud Física y Bullying en el Aula de Educación Física (Physical Fitness and Bullying in Physical Education Classroom). *Retos*, *50*, 849–857. <https://doi.org/10.47197/retos.v50.100170>
- Greco, G., Fischetti, F., Cataldi, S., & Latino, F. (2019). Effects of Shotokan Karate on resilience to bullying in adolescents. *Journal of Human Sport and Exercise - 2019 - Spring Conferences of Sports Science*. *Journal of Human Sport and Exercise - 2019 - Spring Conferences of Sports Science*. <https://doi.org/10.14198/jhse.2019.14.Proc4.52>
- Grzywacz, R., Przednowek, K., Bąk, R., & Niewczas, M. (2016). *Effect of eastern martial arts on bringing up and behavior of children and adolescents in the opinion of sensei and parents or caregivers*.
- Gubbels, J., van der Stouwe, T., Spruit, A., & Stams, G. J. J. M. (2016). Martial arts participation and externalizing behavior in juveniles: A meta-analytic review. *Aggression and Violent Behavior*, *28*, 73–81. <https://doi.org/10.1016/j.avb.2016.03.011>
- Harwood, A., Lavidor, M., & Rassovsky, Y. (2017). Reducing aggression with martial arts: A meta-analysis of child and youth studies. *Aggression and Violent Behavior*, *34*, 96–101. <https://doi.org/10.1016/j.avb.2017.03.001>
- Kazarian, S. S., & Ammar, J. W. (2013). *School bullying in the arab world: A review*.
- Lester, L., Cross, D., Dooley, J., & Shaw, T. (2013). Bullying victimisation and adolescents: Implications for school-based intervention programs. *Australian Journal of Education*, *57*(2), 107–123. <https://doi.org/10.1177/0004944113485835>
- Marracho, P., Coelho, E. M. R. T. D. C., Nery, M. V. D. G., & Pereira, A. M. A. (2021). Comportamentos de bullying em jovens praticantes de desporto (Bullying behaviours in young athletes). *Retos*, *42*, 861–871. <https://doi.org/10.47197/retos.v42i0.87189>
- Menesini, E., & Salmivalli, C. (2017). Bullying in schools: The state of knowledge and effective interventions. *Psychology, Health & Medicine*, *22*(sup1), 240–253. <https://doi.org/10.1080/13548506.2017.1279740>
- O’Keeffe, D., Turner, N., Foley, S., Lawlor, E., Kinsella,

- A., O'Callaghan, E., & Clarke, M. (2016). The relationship between mental health literacy regarding schizophrenia and psychiatric stigma in the Republic of Ireland. *Journal of Mental Health (Abingdon, England)*, 25(2), 100–108. <https://doi.org/10.3109/09638237.2015.1057327>
- Olweus, D. (1989). Prevalence and Incidence in the Study of Antisocial Behavior: Definitions and Measurements. Em M. W. Klein (Ed.), *Cross-National Research in Self-Reported Crime and Delinquency* (pp. 187–201). Springer Netherlands. https://doi.org/10.1007/978-94-009-1001-0_9
- Pereira, B., Neto, W., Brandão Neto, Waldemar, Zequinão, Marcela, & Silva, I. (2015). Prevenção do bullying no contexto escolar: Implementação e avaliação de um programa de intervenção. *Instituto Politécnico do Porto. Escola Superior de Educação (ESE-IPP)*. <https://hdl.handle.net/1822/37683>
- Pereira, B. O. (2008). *Para uma escola sem violência: Estudo e prevenção das práticas agressivas entre crianças*. Fundação Calouste Gulbenkian.
- Polanin, J. R., Espelage, D. L., & Pigott, T. D. (2012). A Meta-Analysis of School-Based Bullying Prevention Programs' Effects on Bystander Intervention Behavior. *School Psychology Review*, 41(1), 47–65. <https://doi.org/10.1080/02796015.2012.12087375>
- Rigby, K. (2002). *New perspectives on bullying*. J. Kingsley.
- Robles, A., Zapata-Lamana, R., Gutiérrez, M. A., Cigarroa, I., Nazar, G., Salas-Bravo, C., Sánchez-López, M., & Reyes-Molina, D. (2023). Psychological outcomes of classroom-based physical activity interventions in children 6- to 12-year-olds: A scoping review. *Retos*, 48, 388–400. <https://doi.org/10.47197/retos.v48.96211>
- Saarento, S., Boulton, A. J., & Salmivalli, C. (2015). Reducing bullying and victimization: Student- and classroom-level mechanisms of change. *Journal of Abnormal Child Psychology*, 43(1), 61–76. <https://doi.org/10.1007/s10802-013-9841-x>
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior*, 15(2), 112–120. <https://doi.org/10.1016/j.avb.2009.08.007>
- Seixas, S. (2006). *Comportamentos de bullying entre pares— Bem estar e ajustamento escolar*. Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.
- Shaheen, A. M., Hammad, S., Haourani, E. M., & Nassar, O. S. (2018). Factors Affecting Jordanian School Adolescents' Experience of Being Bullied. *Journal of Pediatric Nursing*, 38, e66–e71. <https://doi.org/10.1016/j.pedn.2017.09.003>
- Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior*, 29(3), 239–268. <https://doi.org/10.1002/ab.10047>
- Thornberg, R., Tenenbaum, L., Varjas, K., Meyers, J., Jungert, T., & Vanegas, G. (2012). Bystander Motivation in Bullying Incidents: To Intervene or Not to Intervene? *Western Journal of Emergency Medicine*, 13(3), 247–252. <https://doi.org/10.5811/westjem.2012.3.11792>
- Twemlow, S. W., Biggs, B. K., Nelson, T. D., Vernberg, E. M., Fonagy, P., & Twemlow, S. W. (2008). Effects of participation in a martial arts-based antibullying program in elementary schools. *Psychology in the Schools*, 45(10), 947–959. <https://doi.org/10.1002/pits.20344>
- Vertonghen, J., & Theeboom, M. (2010). The social-psychological outcomes of martial arts practise among youth: A review. *Journal of Sports Science & Medicine*, 9(4), 528–537.
- Vertonghen, J., Theeboom, M., & Pieter, W. (2014). Mediating factors in martial arts and combat sports: An analysis of the type of martial art, characteristics, and social background of young participants. *Perceptual and Motor Skills*, 118(1), 41–61. <https://doi.org/10.2466/06.30.PMS.118k14w3>
- Virpi Pöyhönen, Jaana Juvonen, & Christina Salmivalli. (2010). What Does It Take to Stand Up for the Victim of Bullying?: The Interplay Between Personal and Social Factors. *Merrill-Palmer Quarterly*, 56(2), 143–163. <https://doi.org/10.1353/mpq.0.0046>
- Wolke, D., Copeland, W. E., Angold, A., & Costello, E. J. (2013). Impact of Bullying in Childhood on Adult Health, Wealth, Crime, and Social Outcomes. *Psychological Science*, 24(10), 1958–1970. <https://doi.org/10.1177/0956797613481608>
- Xu, T., & Zhang, G. (2019). Research progress of restraining campus bullying by martial arts training. *Revista de Artes Marciales Asiáticas*, 14(2s), 50–52. <https://doi.org/10.18002/rama.v14i2s.6004>

Datos de los autores:

Hugo Simões	ugosimoes@gmail.com	Autor/a
Pedro Santos	pmosantos@gmail.com	Autor/a
Beatriz Pereira	beatriz@ie.uminho.pt	Autor/a
Abel Figueiredo	abel.figueiredo@esev.ipv.pt	Autor/a
Pedro Miguel Martins	Pmmartins999@gmail.com	Traductor/a