ARTICLE

Eating Disorders Risk and Intuitive Eating Behavior Among Brazilian Military College Students

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ABSTRACT

This study analyzed the attitudes related to eating and determine the prevalence of risk of developing eating disorders (ED) among military students. A secondary objective was to compare prevalence between demographic data and establish the effect of intuitive eating and exercise practice on ED risk. A sample of 256 male military undergraduate and graduate students at the School of Physical Education of the Army answered the Eating Attitudes Test (EAT-26) and Intuitive Eating Scale 2 (IES-2) questionnaires, as well questions regarding age, marital status, the military branch in the Brazilian Army, self-reported body mass and stature, and level of physical activity (Kasari Fit Index). A Kruskal-Wallis test was used to assess factor scores of EAT- 26 and IES-2 total scores among the intensity of self-reported physical activity. A multiple linear regression analysis (forward method) was performed to investigate the extent to which the intuitive eating factors impacted eating disorders risk. Results showed that 4.9% of military students were at risk of developing an ED. Significant difference was found for frequency of exercise practice for EAT total score (U=4375.5, p=0.04, r=0.14) and at UPE (U=3988.5, p=0.005, r=0.19). No significant differences were observed within EAT-26 scores among demographic data. Intuitive eating factors (UPE, BFCC and EPR) showed a significant influence on ED attitudes (F(3, 228)=39.78, p< 0.001; R2adjusted=0.27). In conclusion these findings pointed to a high prevalence of ED risk in military students, and that intuitive eating had a protective impact; however, the practice of exercise does not seem to influence it.

Keywords: Intuitive eating. Eating behavior. Physical activity practice. Exercise. Food.

RESUMO

Este estudo analisou as atitudes relacionadas à alimentação e a prevalência de risco de desenvolvimento de transtornos alimentares (TA) entre estudantes militares. Um objetivo secundário foi comparar a prevalência dos dados demográficos e estabelecer o efeito da alimentação intuitiva e da prática de exercícios no risco de TA. Uma amostra de 256 estudantes militares do sexo masculino da Escola de Educação Física do Exército respondeu aos questionários Eating Attitudes Test (EAT-26) e Intuitive Eating Scale 2 (IES-2), além de questões sobre idade, estado civil, arma militar no Exército Brasileiro, massa corporal e estatura autorreferidas e nível de atividade física (Índice Kasari Fit). Aplicou-se Kruskal-Wallis para avaliar os escores fatoriais totais do EAT-26 e IES-2 entre intensidades de atividade física autorreferidas. Uma análise de regressão linear múltipla (método forward) foi realizada para investigar o impacto dos fatores alimentares intuitivos nos transtornos alimentares. Os resultados mostraram que 4,9% dos estudantes militares corriam o risco de desenvolver TA. Foi encontrada diferença significativa na frequência de prática de exercício físico para o escore total do EAT (U=4375,5, p=0,04, r=0,14) e na UPE (U=3988,5, p=0,005, r=0,19). Não foram observadas diferenças significativas nas pontuações do EAT-26 de acordo com os dados demográficos. Fatores da alimentação intuitiva (UPE, BFCC e EPR) mostraram influência significativa nas atitudes de TA (F(3, 228)=39,78, p< 0,001; R2ajustado=0,27). Em conclusão, estes resultados apontaram para uma elevada prevalência de risco de TA em estudantes militares, e que a alimentação intuitiva teve um impacto protetor; contudo, a prática de exercício físico não parece influenciar.

Palavras-chave: Alimentação intuitiva. Comportamento alimentar. Prática de atividade física. Exercício. Comida

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1 Introduction

Attitudes and behaviors related to food choices concern public health since maintaining a good dietary intake is a fundamental component of a healthy lifestyle (Pasold *et al*., 2014). Equivocated eating attitudes can implicate eating disorders (ED), a set of mental disorders characterized by an eating behavior that negatively affects an individual's psychiatric and somatic health (American Psychiatric Association, 2013).

Typically, ED behaviors are more prevalent in certain groups of individuals, such as women, especially during adolescence and young adulthood (Schmidt *et al*., 2016). Recent systematic literature reported a point prevalence of 4.6% in America, 3.5% in Asia, and 2.2% in Europe. Moreover, an increase in ED prevalence over the years was observed, from 3.5% in the early 2000s to 7.8% for the 2013-2018 period, with an augment in sex ratio (male: female) prevalence for anorexia nervosa and bulimia nervosa (Galmiche *et al*., 2016). Among people with a higher risk for ED, there is concern about college athletes because they are frequently under high pressure to succeed, and the military personnel must follow rigorous physical readiness standards. Because of this requirement, the military is called a "tactical athlete" (Sefton *et al*., 2016). In all these cases, these individuals have strict physical fitness requirements that generally involve a reduction in body mass and fat and may impact their awareness of eating.

Prevalence and associated variables to ED in military personnel remained less explored. (Beekley *et al*., 2009) examined the incidence, prevalence, and risk of ED behaviors in US Military Academy cadets. Authors applied the EAT-26 questionnaire to 5,587 males over seven years and observed that 2% demonstrated significant symptoms or concerns of ED, being considered "at-risk." In a systematic literature review, Bartlett *et al*. (Bartlett & Mitchell, 2015) identified high rates of ED among military samples through an analysis of 33 articles, which pointed out that the development of risk factors for these disorders can occur in response to a strict fitness and weight standards by the military.

On the other hand, intuitive eating is positive adaptive eating behavior. It refers to unconditional permission to eat based on physiological hunger and satiety cues, not from external ones, neither emotional fluctuation nor distress. It reflects the value of the inner experiences and honors the body's needs, making social acceptance a core variable to establish the reliance on internal cues of hunger and satiety (Avalos & Tylka, 2006). Research on this construct was facilitated by creating the Intuitive Eating Scale (IES) and the last revision, which originated the intuitive eating scale 2 (IES-2).

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Previous research showed that individuals who trusted their internal physiological hunger and satiety signals to determine eating behavior had lower body mass and probability of chronic and binge eating than those who did not (van Dyke & Drinkwater, 2014). In a recent meta-analysis, Linardon *et al*. (2021) have also shown that intuitive eating was inversely associated with indices of eating pathology and body image disturbances and directly associated with positive psychological constructs, such as positive body image, self-esteem, and wellbeing.

Regarding the Army, Cole *et al*. (2016) found that militaries with adequate weight scored higher on the reliance on internal cues of hunger and satiety, and normal-weight men, specifically, scored higher on eating for physical need (not emotional). In continuity, Cole *et al*. (2019) tested the effectiveness of an eating program based on intuitive eating within a sample of the military, observing a decrease in body mass index (BMI) and higher levels of intuitive eating. To the best of our knowledge, no nutritional or health education program incorporates the concepts of intuitive eating within the Brazilian Army, and neither eating disorders attitudes were evaluated.

In Brazil, the School of Physical Education of the Army (EsEFEx) annually offers an academic program to commissioned and non-commissioned officers to graduate physical education professionals who will work within the Army. It is a sports and health-oriented course that requires students' full-time physical and mental dedication. Thus, these students are considered both athletes and in the military.

Given the arguments previously mentioned, it is pertinent to explore whether military student-athletes in academic programs are more prone to developing unfavorable eating behaviors. The primary aim of this study was to investigate attitudes toward eating and ascertain the prevalence of eating disorders among military students at the School of Physical Education of the Army. A secondary objective was to compare prevalence based on weight status, education level, and marital status and to understand the influence of intuitive eating and exercise on the risk of developing eating disorders.

2 Materials and methods

Participants

Participants were 256 healthy military male undergraduate and graduate students at EsEFEx physical education programs from 2018 to 2021. All of them were active duty service members, experienced with, and engaged in exercise training. All volunteers received a detailed verbal explanation of the study procedures and signed informed consent. The study was approved by the São Judas Tadeu University Ethical Review Board and registered under #2.737.6740.

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Individual characteristics

The volunteers filled in questions regarding age, marital status, the military branch in the Brazilian Army, self-reported body mass and stature, and level of physical activity. The latter was obtained using the Kasari Fit Index questionnaire (Kasari, 1976).

Eating behavior questionnaires

The Eating Attitudes Test (EAT-26) and Intuitive Eating Scale 2 (IES-2) tests were distributed in the classroom at the beginning of each academic year for the four years examined. Students were asked to identify the answered questionnaires using numbers previously designated to ensure anonymity.

The EAT-26 was developed to evaluate symptoms and concerns related to eating disorders. Is consists of 26 items and a three-factorial structure: dieting (items 1, 6, 7, 10-12, 14, 16, 17, 22-24, and 26), bulimia and food preoccupation (items 3, 4, 9, 18, 21, and 25) and oral control (2, 5, 8, 13, 15, 19, and 20). The score can also be interpreted for all items as a unit, being a measure of ED risk. Individuals who score ≥ 20 are considered to manifest risk for ED. The answers are arranged on a Likert scale (always = 3; usually = 2; often = 1; sometimes, rarely, never= 0). Item 26 has a reversed score (Garner & Garfinkel, 1979). In this study, only the score from the sum of all items was considered. The Brazilian version of EAT-26 retained all items and the same cut-off points for the male reference sample (Fortes *et al*., 2016). For the present sample, ω = 0,70.

The IES-2 is a measure designed to evaluate the personal tendency to follow the physiological signs of hunger and satiety to choose what, when and how much to eat. It is composed of 23 items with five possible answers, each on a Likert-type scale and with scores ranging from 1 to 5, where one means “I totally disagree” and five means “I totally agree”. Items 1, 2, 4, 5, 9, 10, and 11 are reversed (Tylka & van Diest, 2013). The Brazilian version of IES-2 (Da Silva *et al*., 2020) kept the original structural version of IES-2, excluding items 1, 13, and 15. Hence, the items are subdivided into four subscales: Unconditional Permission to Eat (UPE) composed of items 3, 4, 9, 16, and 17; Eating for Physical Rather than Emotional Reasons (EPR) comprising items 2, 5, 10 to 12 and 14; Reliance on Hunger and Satiety Cues (RHSC) composed of items 6 to 8 and 21 to 23 and Body-Food Choice Congruence (B-FCC) composed of items 18 to 20. if the final score in which higher it is, the greater the degree of intuitive eating of an individual (Tylka & van Diest, 2013). For the present sample, McDonald´s Omega was calculated as internal consistency evidence, being ω = 0,71 for UPE; ω = 0,85 for EPRER; ω = 0,84 for RHSC and ω = 0,75 for B-FCC.

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Hypotheses

A total of five hypotheses were tested in this study:

H1: the total score of EAT-26 (the level of ED risk) and each factor score of EIS-26 will vary according to physical exercise characteristics (intensity, weekly frequency, and length). For a person with ED, physical exercise can be used to control body shape and weight; hence, being ritualistic practiced: most of the day, far from the low intensity and with considerable duration (Zeulner *et al*., 2016). On the other hand, intuitive eating seems not to have a strong relationship with a higher level of physical exercise and could be practiced in a more balanced way (van Dyke & Drinkwater, 2014; Calogero *et al*., 2019).

H2: There will be a difference in the total EAT-26 (the level of ED risk) and each factor score of IES-2 between single and married persons. For women, the romantic partner tends to diminish the autonomous eating behavior [20], but for men, it is unclear.

H3: There will be a difference between eutrophic (18,5 > BMI < 25 kg/m2) and overweight persons (25 ≥ BMI < 30 kg/m2) for EAT-26 total score and each factor score of IES-26 since restrictive eating practices have been associated with a higher body mass index (Calogero *et al*., 2019).

H4: among women, non-commissioned officers' ED tend to be more prevalent than among commissioned officers (McNulty, 2001; Antczak & Brininger (2008), but for men, as far as our knowledge goes, no evidence was generated, as well for intuitive eating.

H5: Intuitive eating will be a protective factor against eating disorders, decreasing its score since it promotes a kind of embodiment, leading to a connection to the body's feeling and functioning, favoring its acceptance and self-care (Calogero *et al*., 2019). Because of its weight-control use, physical exercise may also impact it, increasing ED manifestation (Zeulner *et al*., 2016).

Statistical analysis

After being collected, data were stored in a spreadsheet (Excel 16.0 for Mac, Microsoft, WA, USA) and exported to a commercially available statistical software package (IBM SPSS Statistics for Mac, Version 25.0. Armonk, NY: IBM Corp.). For all analyses, an alpha level at $p < 0.05$ was set.

The Kolmogorov-Smirnov test was applied to verify the normality of the data, which did not adhere to the normal distribution. A Mann-Whitney test was used to compare the total scores between the IES-2 factor scores and EAT-26 total score among career (commissionaire officers; non-commissionaire officers), duration of exercise (>30 minutes; 20-30 minutes), weekly frequency of exercise (≥ 6 times a week; 3 -5 times a week), marital status (single; married); BMI (normal;

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overweight). R effect size was calculated and interpreted as 0,10 – 0,23 small; 0,24 – 0,36 medium; >0,37 large.

A Kruskal-Wallis test was used to assess factor scores of IES-2 and EAT- 26 total score among the intensity of self-reported physical activity. For the Kruskal-Wallis test was applied for the same purpose. For significant differences, the Connover post hoc was used. The □2 effect size was calculated and interpreted as 0,01 - 0,06 small; 0,06 - 0,14 medium; > 0,14 large.

A multiple linear regression analysis (forward method) was performed to investigate the extent to which the intuitive eating factors (UPE, EPR, RHSC, and B-FCC) impacted eating disorders risk. The Durbin-Watson (1,5 < DW <2,5) test and variance inflation factor (VIF <3.3) were used to investigate multicollinearity, the Q-Q plot to investigate adherence to normal distribution, and the predicted vs. observed plot to investigate homoscedasticity among the residuals.

3 Results

Two hundred fifty-six military students from the EsEFEx participated in the research from 2018 to 2021. Demographic data are shown in Table 1. Of the two applied questionnaires, ten students did not correctly answer IES-2, and eight did not fill in the EAT-26. Thus, a final sample was 246 respondents for the IES-2 questionnaire and 248 for the EAT-26.

Table 1: Demographic data of military students

Variable	Mean and standard deviation or proportion
Age (years)	27.1 (2.8)
Body mass (kg)	78.6 (9.4)
Stature (m)	1.72 (0.05)
Body mass index – BMI (kg/m^2)	24.1 (9.4)
Army branch (%)	
Field infantry and Armor	48.1%
Artillery, Engineers, and Signal	24.3%
Others	27.6%

Source: the authors

Analyzing EAT-26 results overall, 4.9 % of military students were classified at risk for developing an eating disorder (EAT-26 score > 20).

The most frequent eating disturbed behaviors are usually being on a diet (37,6% frequently always do it), avoiding sugared food (38,6% frequently always do it), and thinking about burning calories while doing exercise (39,6% frequently always do it).

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Table 2 presents the descriptive statistics for the variables related to the investigated hypotheses.

Table 2: Scores for Intuitive Eating Scale (IES-2) and Eating Attitudes test-26 (EAT-26) of military students (median, minimum, and maximum values)

Variable	%	IES-2				EAT26
		UPE	EPR	RHSC	B-FCC	
Total sample	100%	3.6 (1.2-5.0)	4 (1.0-5.0)	3.2 (1.0-5.0)	4 (1.7 – 5)	6 (0-30)
Education level (%)						
Undergraduate	48%	3.6 (1.2-5.0)	4.2 (1.7-5.0)*	3.3 (1.0-5.0)	4 (2.7-5.0)	6 (0-28)*
Graduate	52%	3.6 (1.2-5)	4 (1.5-5.0) *	3.2 (1.3-5.0)	4 (1.7-5.0)	7 (0-30)*
BMI categories (%)						
Normal	54.7%	3.8 (1.6-5.0)	4 (1.7-5.0)	3.3 (1.7-5.0)	4 (2.7-5.0)	6 (2-.025)
Overweight	45.2%	3.6 (1.2-4.8)	4 (2.0-5.0)	3.2 (1.0-4.7.0)	4 (3.0-5.0)	7 (0-30)
Marital status (%)[ɤ]						
Single	44.9%	3.6 (1.2-5.0)	4 (2.0-5.0)	3.2 (1.0- 5.0)	4 (1.7-5.0)	7 (0-28)
Married	54.2%	3.6 (1.2-5.0)	4 (1.5-5.0)	3.2 (1.3-5.0)	4 (2.7-5.0)	6 (0-30)
Divorced	0.8%	3.4 (3.4-3.4)	2.9 (2.0 -3.8)	2.8 (3.7-3.0)	4 (4.0-4.0)	5.5 (4.0-7.0)
PA Intensity[£]						
High	24.7%	3.6 (1.6-5.0)	4 (2.3-5.0)	3.3 (1.7-5.0)	4 (3.0-5.0)	7 (0-21)
Moderately high	35%	3.4 (1.2-5.0)	4 (1.5-5.0)	3.2 (1.0-5.0)	4 (1.7-5.0)	7 (0-30)
Moderate	32.5%	3.6 (1.2-5.0)	4 (1.7-5.0)	3.2 (1.8-4.3)	4 (3.0-5.0)	5 (0-23)
Moderate to light	7.4%	3.8 (1.8-4.8)	4.2 (2.-5.0)	3.3 (1.3-4.3)	4 (3.05.0)	8 (1-22)
Light	0,4	4.6 (4.6-4.6)	4.3(4.3-4.3)	3.8 (3.8-3.8)	3.3 (3.3-3.3)	15 (15-15)
PA Duration[ɤ]						
>30 minutes	78.2%	3.6 (1.2-5.0)	4 (1.5-5.0)	3.2 (1.0-5.0)	4 (1.7-5.0)	6 (0-30)
20 – 30 minutes	19.7%	3.7 (1.6-4.8)	4 (1.7-5.0)	3.2 (1.7-4.7)	4 (2.7-5.0)	6 (0-20)
<20 minutes	2.0%	4 (3.8-4.8)	4.5 (2.3-4.8)	3.2 (2.2-5.0)	4.7 (3.3-4.7)	6 (1-16)
PA Frequency[ɤ]						
6-7 times/week	27.4%	3.4 (1.2-5.0)	4 (1.5-5.0)*	3.2 (1 .0-5.0)	4 (1.7-5.0)	8 (0-28)*
3-5 times/week	69.3%	3.8 (1.2-5.0)	4 (1.7-5.0)*	3.2 (1.7-5.0)	4 (2.7-5.0)	6 (0-30)*
< 2 times/week	2.4%	3.9 (3.2-4.8)	3.9 (2.04.8)	3 (2.5-5.0)	3.8 (3.0-4.0)	7 (1-11)

IES-2: Intuitive Eating Scale-2; UPE: Unconditional Permission to Eat; EPR: Eating for Physical Rather than Emotional Reasons; RHSC: Reliance on Hunger and Satiety Cues (RHSC); B-FCC: Body-Food Choice Congruence; EAT-26: Eating Attitudes teste-26; ED: eating disorder; PA: physical activity; Normal BMI: (≤24.9 kg/m^2); Overweight BMI: (>24.9 kg/m^2); * P < 0.01 for the Mann-Whitney test. [ɤ] Due to the tiny number of participants included in the last group, only the two first variable groups were used in the Mann-Whitney test. [£] Due to the tiny number of participants included in the last group, only the four first groups of the variable were used at Kruskal-Walis test.

Source: the authors

For hypothesis H_1, significant difference was found only for weekly frequency of exercise practice, for EAT total score at EAT-26 total score, U = 4375.5, p = 0.04, r = 0.14 (small) and at UPE, U = 3988.5, p = 0.005, r = 0.19 (small). In both cases, those who exercise 7 to 6 time a week had higher scores than those who exercise 3 to 5 times a week.

For hypotheses H_2 and H_3, no significant differences emerged according to body mass index (BMI) and marital status (all p >0.05). About H_4, a significant difference emerged at EAT-26 score, U = 6336, p = 0.04, r = 0.13 (small) and at EPPER, U = 6436, p = 0.03, r = 0.14 (small). The

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undergraduate group had a higher score on EAT-26 and a low score on EPRER compared to the graduate group (Table 2).

Finally, H_5 was tested. A multiple linear regression analysis (forward method) was performed to investigate the extent to which intuitive eating (UPE, ERPER, RHSC, and B-FCC) and exercise practice (intensity, duration, and frequency) impacted levels of disordered eating attitudes. The results showed a significant influence of intuitive eating factors (UPE, BFCC and ERPER) on disordered eating attitudes, $F(3, 228) = 39.78$, $p < 0.001$; $R_{2adjusted} = 0.27$. Table 3 presents the coefficients for all significant predictors.

Table 3. Predictors of disordered eating attitudes

Predictor	Standardized Coefficients *Beta*	*t*	Sig.	R^2_{adj}	ΔR^2_{adj}
(Constant)	-	5.49	<0.001	-	-
UPE	-0.45	- 7.77	<0.001	0,25	-
B-FCC	0.14	2.44	0.02	0,26	0.01
EPR	-0.12	- 2.06	0.04	0,27	0.01

Source: the authors

As can be seen, the variable that most strongly impacted levels of disordered eating attitudes were UPE, explaining 25% of the outcome, with a negative impact on it (β = -0.45, t = -7.77, P < 0.001). The other variables, in turn, were related to only 0.2% of the disordered eating attitudes variance, with B-FCC increasing levels of disordered eating attitudes (β = 0.14, t = 2.44, P = 0.02) and EPR with a negative impact (β = - 0.12, t = -2.06, P = 0.04). RHSC had no significant impact (β = -0.09, t = -1.46, P = 0.15), as well intensity (β = -0.09, t = -1,46, P = 0.15), duration (β = -0.01, t = -0.11, P = 0.91), and weekly frequency of physical exercise (β = -0.01, t = -0.11, P = 0.91).

4 Discussion

This study aimed to analyze the attitudes related to eating behavior and determine the prevalence of risk of developing eating disorders among military students at the School of Physical Education of the Army. We tested five hypotheses based on previous evidence from the literature. As far as we know, this is the first study about eating disorder and intuitive eating in the Brazilian Army in a sample of well physically conditioned individuals.

Regarding the risk of eating disorder prevalence in this sample, considering that only males were analyzed, the results inspire care and attention. No final ED diagnosis was given to this sample. However, the risk points to a higher prevalence compared with what MacNulty (2001) and Beekley *et al*. (2009) found in the US military for a sample of males and females, and is similar to what Bodell

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et al. (2014) observed regarding ED risk in male US military. The militaries in our sample carry a twofold pressure regarding their bodies and physical performance: on one side, they are submitted to sports performance evaluation as a grade to their physical education course, and on the other side, they start to receive the expectancy regarding their physical appearance and their quarterly military physical evaluation results since they will be a model to the troops as a physical education military officer. In the Army, body fat is seen as a lack of personal discipline, and is already showed that the expectancy for fitness test performance increases eating disorders symptoms (Bodell *et al*., 2014). The need for control under some of the variables that interfere may arise; hence, what they eat and the exercise they practice are under their scrutiny and control. In some cases (i.e., the 4,9% at risk of ED), the control over eating and feeding is moving towards an unhealthy pattern.

On the other hand, the unconditional permission to eat (UPE) factor score was also higher among those who exercise daily to 6 days a week, with a small effect size. This UPE may be a protective factor against ED but also a reflection of thinking that eating is not a problem if exercise is done since calories were already burned that day. Future studies should investigate this cognitive association to find if the eating behavior is healthy or merely a permission to eat since they already spent energy.

No difference was observed among single and married military men for ED risk and intuitive eating behavior, adding evidence in this regard to military men to the literature. We also found no difference in intuitive eating behaviors among military normal and overweight, as shown previously (Cole *et al*., 2016).

A piece of new evidence was found regarding enlisted and military officers for EAT-26 score (with officers scoring higher) and EPR factor score (with officers scoring lower). In this sample, officers tend to eat for more emotional reasons and have more disturbed eating behaviors than enlisted military. No difference was found in emotional eating among male enlisted and officers in the US (Cole *et al*., 2016), but among female non-commissioned officers, ED is more prevalent (McNulty, 2001; Antczak & Brininger, 2008). Future research should investigate if this difference observed in our sample replicates on other samples since the effect size was small.

Regarding the effect of physical exercise practice and intuitive eating on ED, our results showed that exercise did not influence ED. Intuitive eating, more specifically UPE and EPR, had a protective impact on it, potentially decreasing ED risk levels. Babbot *et al*. (2002) showed a large effect size for intuitive eating on outcomes such as quality of life, positive body image, and body image dissatisfaction. As for ED, the latter is part of the illness psychopathology, and intuitive eating could have, in fact, a positive impact on ED risk in longitudinal interventions. This evidence showed the potential use of an intuitive eating program to prevent ED in the military.

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The unexpected results were B-FCC with a slight but positive impact on ED. This factor has items regarding eating appropriate food, which is needed to reach physiological requirements and helps the body function properly. The first two items resemble the logic and arguments that persons with ED give to choose what they eat (Lindeman & Stark, 2000), which may explain our findings. It is a warning to IES-2 as a measure of intuitive eating since some eating behavior may not be "good" or "bad" *per se* but should be seen in a context. A future revision of this measure might take this evidence into consideration.

This study dealt with a representative and homogeneous sample of military students. All volunteers were of the same age group and followed the same rigorous physical readiness standards. Despite this, some limitations should be considered. Firstly, our sample was selected in a non-probabilistic approach, limiting how our results can be generalized to the more comprehensive Brazilian Army. Secondly, it concerned participants' self-reported weight and height, which were used to calculate BMI. Using objectively measured indices of height and weight may help advance the present research. Even better would be using the percentage of body fat and muscle mass since the military tends to be physically well conditioned, and BMI does not identify body composition. A future study should improve this point.

5 Conclusions

In conclusion, our findings showed a moderately high prevalence of military students at risk for eating disorders, especially officers, who scored higher than enlisted military. Furthermore, intuitive eating, more specifically both factors Unconditional Permission to Eat and Eating for Physical Rather than Emotional Reasons, had a protective impact on ED risk. The evidence from this study is intended to provide a better understanding of eating attitudes. It may help provide knowledge about modifiable risk factors for nutritional health to base future interventions regarding operational readiness and the physical health of the Brazilian military personnel.

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References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. DSM- 5º edition. Washington, DC: American Psychiatric Publishing

ANTCZAK, A.; BRININGER, T. Diagnosed eating disorders in the US Military: a nine-year review. **Eating Disorders**, v. 16, p. 363–377, 2008. https://doi.org/doi:10.1080/10640260802370523 .

AVALOS, L.; TYLKA, L. Exploring a model of intuitive eating with college women. **Journal of Counseling Psychology**, v. 53, n. 4, p. 486-497, 2006. https://doi.org/10.1037/0022-0167.53.4.486.

BABBOTT, K.; CAVADINO, A.; BRENTON-PETERS, J.; CONSEDINE, N.; ROBERTS, M. Outcomes of intuitive eating interventions: a systematic review and meta-analysis. **Eating Disorders**, p. 1-31, 2022. https://doi.org/10.1080/10640266.2022.2030124.

BARTLETT, B.; MITCHELL, K. Eating disorders in military and veteran men and women: a systematic review. **International Journal of Eating Disorders**, v. 48, p. 1057-1069, 2015. https://doi.org/10.1002/eat.22454.

BEEKLEY. M.; BYRNE, R.; YAVOREK, T.; KIDD, K.; WOLFF, J.; JOHNSON, M. Incidence, prevalence, and risk of eating disorder behaviors in military academy cadets. **Military Medicine**, v. 174, n. 6, p. 637-641, 2009. https://doi.org/10.7205/milmed-d-02-1008.

BODELL, L.; FORNEY, K.; KEEL, P.; GUTIERREZ, P.; JOINER, T. Consequences of making weight: A review of eating disorder symptoms and diagnoses in the United States military. **Clinical Psychology**, v. 21, p. 398-409, 2014. https://doi.org/10.1111/cpsp.12082.

CALOGERO, R.; TYLKA, T.; BETHHARTM, B.; PEDROTTY-STUMP, K. Attunement with exercise (AWE). In: TYLKA, T.; PIRAN, N. (Eds) **Handbook of positive body image and embodiment**. Oxford: Oxford University Press, 2019, 80-90.

CARBONNEAU, N.; CARBONNEAU, E.; CANTIN, M.; GAGNON-GIROUARD, M. Examining women's perceptions of their mother's and romantic partner's interpersonal styles for a better understanding of their eating regulation and intuitive eating. **Appetite**, v. 92, p. 156-166, 2015. https://doi.org/10.1016/j.appet.2015.05.020.

COLE, R.; CLARK, H.; HEILESON, J.; DeMAY, J.; SMITH, M. Normal weight status in military service members was associated with intuitive eating characteristic. **Military Medicine**, v. 181, p. 589-595, 2016. https://doi.org/10.7205/MILMED-D-15-00250.

COLE, R. *et al*. The My Body Knows When program increased intuitive eating characteristics in a military population. **Military Medicine**, v. 184, e200-e206, 2019. https://doi.org/10.1093/milmed/usy403.

da SILVA, W.; NEVES, A.; FERREIRA, L.; CAMPOS, J.; SWAMI, V. A psychometric investigation of Brazilian Portuguese versions of the caregiver eating messages scale and intuitive eating scale-2. **Eating and Weight Disorders**, v. 25, n. 1, p. 221-230. http://doi.org/10.1007/s40519-018-0557-3.

FORTES, L.; AMARAL, A.; ALMEIDA, S.; CONTI, M.; FERREIRA, M. Qualidades psicométricas do eating attitudes test (eat-26) para adolescentes brasileiros do sexo masculino. **Psicologia: Teoria e Pesquisa**, v. 32, p. 1-7, 2016. http://dx.doi.org/10.1590/0102-3772e323220.

GALMICHE, M.; DÉCHELOTTE, P.; LAMBERT, G.; TAVOLACC, M. Prevalence of eating disorders over the 2000–2018 period: a systematic literature review. **American Journal of Clinical Nutrition**, v. 109, n. 5, 1402-1413, 2019. https://doi.org/10.1093/ajcn/nqy342.

GARNER, D.; GARFINKEL, P. The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. **Psychology Medicine,** v. 9, p. 273-279, 1979. https://doi.org/10.1017/s0033291700030762.

KASARI, D. **Effects of exercise and fitness on serum lipids in college women**. 1976, 124 p. Unpublished Master's Dissertation, University of Montana, USA, 1976

LINARDON, J.; TYLKA, T.; FULLER-TYSZKIEWICZ, M. (2021). Intuitive eating and its psychological correlates: A meta-analysis. **International Journal of Eating Disorders**, v. 54, n. 7, p. p. 1073-1098. https://doi.org/10.1002/eat.23509.

LINDEMAN, M.; STARK, K. Loss of pleasure, ideological food choice reasons and eating pathology. **Appetite**, v. 35, p. 263-268, 2000. https://doi.org/10.1006/appe.2000.0357.

McNULTY, A. Prevalence and contributing factors of eating disorder behaviors in active duty service women in the Army, Navy, Air Force, and Marines. **Military Medicine**, v. 166, p. 53-58, 2001.

PASOLD, T.; McCRACKEN, A.; WARD-BEGNOCHE, W. (2014). Binge eating in obese adolescents: emotional and behavioral characteristics and impact on health-related quality of life. **Clinical Child Psychology and Psychiatry**, v. 19, p. 299-312, 2014. https://doi.org/10.1177/1359104513488605.

SCHMIDT, U. *et al*. (2016). Eating disorders: the big issue. **Lancet Psychology**, v. 3, 313-315, 2016. https://doi.org/10.1016/S2215-0366(16)00081-X.

SEFTON, J.; BURKHARDT, T. Introduction to the tactical athlete special issue. **Journal of Athletic Training**, 51(11), 845, 2016. https://doi.org/10.4085/1062-6050-51.12.16.

TYLKA, T.; van DIEST, A. The Intuitive Eating Scale-2: item refinement and psychometric evaluation with college women and men. **Journal of Counseling Psychology**, v. 60, p. 137-153, 2013. https://doi.org/10.1037/a0030893.

van DYKE, N.; DRINKWATER, E. Review article relationships between intuitive eating and health indicators: literature review. **Public Health Nutrition**, v. 17, n. 8, p. 1757-1766, 2014. https://doi.org/10.1017/S1368980013002139.

van STRIEN; T., HERMAN, C.; VERHEIJDEN, M. Dietary restraint and body mass change. A 3-year follow up study in a representative Dutch sample. **Appetite**, v. 76, v. 44:49, 2014. https://doi.org/10.1016/j.appet.2014.01.015.

ZEULNER, B.; ZIEMAINZ, H.; BEYER, C.; HAMMON, M.; JANKA, R. Disordered eating and exercise dependence in endurance athletes. **Advances in Physical Education**, v. 6, p. 76-87, 2016. https://doi.org/10.4236/ape.2016.62009.