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Aggressive Behaviour and Its Relationship with Negative Events of Life Among Portuguese University Students, the Buss–Perry Aggression Questionnaire (AQ)—Reduced and Adapted Portuguese Version (AQ-RAPV)

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Abstract: Aggressive behaviour encompasses a spectrum of emotional responses, ranging from mild irritation to intense anger and fury. The goals of the present research were to develop a reduced and adapted version of the Buss–Perry Aggression Questionnaire (VRA-AQ) for Portuguese college students, to explore its relationship with negative life events as well as to ascertain the importance of self-regulation and resilience in preventing aggressive behaviour among young people from higher education, and to explore the differences between genders, academic year, and socioeconomic status to examine the risk factors of aggressive behaviour. The validation of the reduced and adapted Portuguese version of the VRA-AQ was carried out on a Portuguese university sample (N = 2991). There were three main focuses of data analysis: descriptive statistics, correlations, and factor analyses. Differences between genders and academic year were found in men, and undergraduate students displayed higher averages of physical aggression, negative life events, and the impact of these events, while women and post-graduate students exhibited higher averages of self-regulation and resilience. Regarding SES, youth from low to medium-low socioeconomic backgrounds demonstrated higher averages in overall aggression, physical aggression, anger, hostility, negative life events, and the impact of these life events. Conversely, those from higher socioeconomic backgrounds displayed higher averages in resilience. Therefore, it is essential to prevent aggressive behaviour in students, and several strategies can be implemented based on the findings, namely, gender-specific interventions; academic year targeted support; socioeconomic support programmes; promotion of positive coping mechanisms; creating supportive environments; and education on conflict resolution.

Keywords: aggression; Buss–Perry aggression questionnaire; Portuguese version reduced and adapted

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1. Introduction

Aggressive behaviour encompasses a broad spectrum of emotional responses, ranging from mild irritation to intense anger and fury (American Psychological Association, 2018).

Defined as actions intended to harm or injure another individual (Jhangiani & Tarry, 2022; Martin et al., 2000), aggression can manifest in various forms, including physical and verbal aggression, hostile thoughts, and emotions like anger. While physical and verbal aggression, along with hostility, are associated with outwardly harming others, anger often relates to self-directed harm (Choudhary et al., 2022; Ramírez & Andreu, 2006). These manifestations underscore the multifaceted nature of aggression, influenced by diverse triggers such as pain, provocation, or environmental factors like overcrowding.

Aggression is a behaviour deeply rooted across species, serving as a survival mechanism (Carré & Olmstead, 2015; Waltes et al., 2016). Its expression ranges from verbal confrontations to physical altercations and, in extreme cases, lethal outcomes (Allen & Anderson, 2017). Despite its diverse manifestations, aggression shares a unifying characteristic: the intention to cause harm to a living being who actively seeks to avoid it (Allen & Anderson, 2017; Baron, 2004). This intentionality, rather than the actual outcome, is central to defining aggressive behaviour (Xaydarova, 2023).

Among the psychological dimensions of aggression, anger stands out as a key emotional component. Kassinove (2023) describes anger as a learned emotion expressed in two primary ways: internalized ("anger-in") or externalized ("anger-out"). While internalized anger involves suppressed emotional responses, externalized anger manifests through verbal or behavioural actions (Kassinove & Tafrate, 2002; Kaźmierczak et al., 2023; Consolini et al., 2022). These dynamics highlight the importance of understanding aggression as a multidimensional construct, encompassing emotional, behavioural, and cognitive components.

The Buss–Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) operationalizes aggression as a four-dimensional construct: physical aggression, verbal aggression, anger, and hostility. These dimensions correspond to distinct components: behavioural (physical and verbal aggression), emotional (anger), and cognitive (hostility). The BPAQ has been widely used across linguistic and cultural contexts, demonstrating sufficient reliability and validity (Harris, 1995). However, limitations in its original 29-item structure, such as moderate model fit and challenges in capturing "pure" constructs, led to the development of a shorter version, the BPAQ-SF, which has shown improved psychometric properties and reduced participant burden (Bryant & Smith, 2001; Webster et al., 2014, 2015).

More recent research explores the interplay between aggression and adverse life events, offering insights into how individuals' aggression levels may be influenced by external stressors. Studies indicate that individuals with higher BPAQ scores often exhibit greater reactivity to negative experiences, maladaptive coping strategies, and increased vulnerability to external stressors (Christopher et al., 2024; Gutiérrez-Cobo et al., 2023; Naseem & Munaf, 2020). Furthermore, the moderating roles of resilience, self-regulation, and social support have been highlighted as protective factors, mitigating the impact of negative life events on aggression (Anwar et al., 2024). These findings underscore the need to examine aggression within a broader psychosocial framework.

Building on this background, the present study aims to develop and validate a reduced, culturally adapted version of the BPAQ for Portuguese college students (VRA-AQ). The study also seeks to investigate the relationship between aggression, negative life events, self-regulation, and resilience among university students. By analyzing differences across gender, academic year, and socioeconomic status, the research aims to provide a comprehensive understanding of aggression in this population and identify key factors that may prevent aggressive behaviour in higher education contexts.

2. Methods

2.1. Study Design, Participants, and Procedures

The national HBSC/JUnP study adhered to ethical guidelines throughout its data collection process, ensuring the consent of all participants was obtained. Approval for the study was granted by Ethics Commission of the Medicine Academic Center of Lisbon (Centro Académico de Medicina de Lisboa/ref nº463/15), and it strictly adhered to the established ethical standards for human research. Due to its commitment to anonymity, the study did not require approval from the data protection commission in Portugal. A convenience sampling method was employed, inviting participation from all Portuguese universities, both public and private.

The HBSC/JUnP data base comprises a representative sample of 2991 college students (n = 2203; 73.7% women) with ages from 18 to 35 years old (22.43 $\pm$ 3.83). Regarding the academic year, 62% were pursuing a degree, 95.9% are of Portuguese nationality, and 49% report having low/medium socioeconomic status (see Table 1).

Data collection involved the administration of an online cross-sectional survey via the Limesurvey platform to Portuguese college students using the snowball technique. Participants could access the survey using any electronic device with email capabilities. The survey commenced with a concise overview of the study, succeeded by a comprehensive informed consent process outlining participants' rights, potential risks and benefits, and the confidentiality measures employed by the investigators. Access to the survey was granted only upon participants' agreement to this informed consent. The survey required approximately 25 to 30 min for completion by each participant.

Table 1. Sample description (n = 2991).

	N	**%**	***M***	***DP***	**Range**
Sample					
Gender					
Male	788	26.3			
Female	2203	73.7			
Age	2991	100	22.43	3.83	18–35
Academic Year					
Graduation/Degree	1853	62			
Post-graduation/Degree	1138	38			
Nationality					
Portuguese	2868	95.9			
Other	123	4.1			
Socioeconomic Status (SES)					
Low/Medium-low	1465	49			
Medium	919	30.7			
Medium-high/High	607	20.3			

2.2. Measures

The participants' sociodemographic characteristics included sex, age, academic year, nationality, and socioeconomic status (SES)[1].

The aggression behaviour scale is an instrument that was reduced and adapted from the Buss–Perry aggression scale (Buss & Perry, 1992) and the Portuguese validation of the version of the scale (Cunha & Gonçalves, 2012) was reduced and adapted for young people in higher education by Reis et al. (2024). The reduced and adapted version has 22 items and three subscales—physical aggression (behavioural component—7 items), anger (emotional component—7 items), and hostility (cognitive component—8 items) (see Table 2). The answers to each item are scored on a 5-point Likert scale, ranging from 1 = "totally false" to 5 = "totally true". The totals for the different sub-scales are obtained from the average

of the items that make up each sub-scale, and the total score is obtained from the average of the sum of the 22 items, with the highest value indicating greater physical aggression, more anger, and greater hostility.

Table 2. Factor analysis of reduced and adapted Buss–Perry Aggression Questionnaire.

Factor Analysis	Factors		
	Physical Aggression (Behavioural Component)	**Anger (Emotional Component)**	**Hostility (Cognitive Component)**
Sometimes I can't control the urge to physically assault someone	0.731		
He has threatened people in his social circle	0.707		
If someone provokes me enough, I think I might hit them	0.670		
I fight more than my colleagues	0.652		
I've hit someone in the past because they got on my nerves	0.644		
When people attack me, I respond in the same way	0.643		
I get angry to the point of breaking objects	0.553		
Your friends think you're not calm (you're always under pressure)		0.714	
Sometimes I explode for no reason		0.657	
When I get frustrated, you let out your irritation		0.628	
I find it hard to control myself		0.609	
When they don't agree with me, I tend to get angry		0.584	
I have a temper of my own		0.493	
My friends say that I always try to be right		0.413	
Sometimes you feel like a pressure cooker about to explode			0.576
When people are very nice to me, I wonder what they want			0.748
The others always seem to have a chance to escape			0.661
Doubtful of the intentions of those who appear to be your friends			0.649
Sometimes he thinks I haven't had it too easy in life			0.640
I wonder what makes me unhappy with everything and everyone			0.525
You know that your "friends" say bad things about you behind your back			0.493
Sometimes you're jealous			0.408
Explained variance	34.8%	8.5%	6%

Negative life events (NLE) and their impact were assessed using the Portuguese version (Simões et al., 2015) in which young people were asked about six events, namely "parents started to have less money", "illness or serious accident in the family ", "someone in the family died", "losing a great friend", "ending a relationship with a boyfriend/girlfriend", and "receiving a final evaluation with a bad grade" and whether or not it had a negative impact on their lives.

Self-regulation was assessed using the Portuguese version (Dias et al., 2014) of the Adolescent Self-Regulation Inventory-ASRI (Moilanen, 2007). This is a questionnaire that

comprises two temporal aspects of self-regulation (short and long term) according to the idea that young people self-regulate for longer periods than children and according to their own long-term criteria (Demetriou, 2000). A protective factor for the mental health of young people must be constituted as it helps them to self-regulate the cognitive and emotional aspects of various events in their daily lives (Moilanen, 2007). The ASRI-2 scale consists of 43 items—19 items that assess short-term self-regulation (2, 4, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 25, 29, 31, 36, and 43) and 24 items measuring long-term self-regulation (1, 3, 5, 6, 14, 20, 21, 22, 23, 24, 26, 27, 28, 30, 32, 33, 34, 35, 37, 38, 39, 40, 41, and 42). Items 1, 2, 4, 7, 9, 10, 11, 12, 13, 15, 16, 18, 19, 22, 25, 31, 33, 37, 38, 40, 41, 42, and 43 need to be recoded and, subsequently, three sums can be obtained: the short-term self-regulation subscale, the long-term self-regulation subscale, and the total self-regulation score. Responses to each item are scored on a 5-point scale—Likert type, ranging from 1 = "Not at all true for me" and 5 = "Very true for me". The totals of the different subscales were obtained through the average of the items that make up each subscale, and the total score was obtained from the average of the sum of the 43 items, in the score the highest value corresponds to the highest self-regulation index.

Resilience was assessed using the Portuguese version of Martins (2005, 2007). It is a scale that measures external (RES-ER) and internal resources (RES-IR). External resources evaluate the environment with friends, the academic, family and community environment. Internal resources measure empathy, problem solving, self-efficacy, cooperation/communication, self-awareness, and goals/aspirations. In this study, we only used the RES-IR, the internal resources subscale, since, for the author, the subtotals of each subscale allow a specific analysis of potential areas of intervention, more so than the total of the scale, for the purpose of promoting more resilient resilience skills. The internal resources subscale (RES-IR) consists of 18 items, and the scale varies from 18 to 72 points, with higher values indicating better levels of internal resilience. In this subscale, cooperation/communication, empathy, and problem solving are related to social competence resources; self-efficacy and self-awareness are related to resources of autonomy and sense of self; objectives/aspirations are related to resources of meaning and meaning and purpose (Constantine et al., 1999).

2.3. Data Analysis

Data from Limesurvey was transferred to an electronic data file. All variables were checked for data inaccuracy by running SPSS frequencies, and, afterwards, an analysis on the missing values was conducted. All data were tested for normality prior to any analyses using Kolmogorov–Smirnov tests, as well as Levene's test for the homogeneity of the variance. Both descriptive and inferential statistics were applied. All statistical analyses were completed using the SPSS 29.0 (Statistical Package for Social Sciences) and the significance level was set at $p < 0.05$.

3. Results

3.1. Principal Components Factor Analysis with Varimax Rotation of Reduced and Adapted Buss–Perry Aggression Questionnaire

The items of the reduced and adapted Buss–Perry Aggression Questionnaire were subjected to principal components factor analysis with varimax rotation. The items with communality < 0.40 were suppressed.

The remaining 22 items were again subjected to principal components factor analysis with oblique varimax, which revealed an extraction with three factorial factors (physical aggression—behavioural component; anger—emotional component; and hostility—cognitive component), explaining 49.3% of variance (see Table 2).

The first factor included seven items related to physical aggression (behavioural component) and explained 34.8% of the variance. The second and third factor grouped seven and eight items related to anger (emotional component) and hostility (cognitive component) and explained 8.5% and 6% of variance, respectively.

The internal consistency of the reduced and adapted Buss–Perry Aggression Questionnaire (BPAQ) demonstrated strong psychometric properties. The overall scale achieved a high level of internal consistency ($\alpha = 0.91$), while the physical aggression subscale (behavioural component) and hostility subscale (cognitive component) also exhibited good internal consistency, with $\alpha = 0.84$ and $\alpha = 0.82$, respectively. The anger subscale (emotional component) presented acceptable internal consistency ($\alpha = 0.79$), aligning with standard psychometric benchmarks (see Table 3).

Table 3. Reduced and adapted Buss–Perry Aggression Questionnaire—internal factor consistency.

Factor	Items	*N*	*M*	*SD*	Cronbach
Total Scale	22	2991	48.02	15.50	0.91
Physical aggression (Behavioural component)	7	2991	11.77	5.54	0.84
Anger (Emotional component)	7	2991	15.80	5.72	0.79
Hostility (Cognitive component)	8	2991	20.44	6.80	0.82

3.2. Correlation Between Factors of the Reduced and Adapted Aggression Behaviour Scale (Buss and Perry), Negative Life Events, Impact of Negative Life Events, Self-Regulation, and Resilience

A positive, strong, and statistically significant correlation was obtained between the total aggressive behaviour scale and physical aggression (r = 0.82; $p = 0.001$), the total aggressive behaviour scale and anger (r = 0.87; $p = 0.001$), and the total scale aggressive behaviour and hostility (r = 0.87; $p = 0.001$). A positive, weak, and statistically significant correlation was also obtained between the total aggressive behaviour scale and negative life events (r = 0.13; $p = 0.001$), and the total aggressive behaviour scale and the impact of negative life events (r = 0.15; $p = 0.001$). Finally, a negative, weak, and statistically significant correlation was also obtained between the total aggressive behaviour scale and self-regulation (r = −0.27; $p = 0.001$) and resilience (r = −0.19; $p = 0.001$) (see Table 4).

Table 4. Correlation between factors of the aggression scale (Buss & Perry, 1992), negative life events, impact of negative life events, self-regulation, and resilience (RES-IR).

	Total Scale	Physical Aggression (Behavioural Component)	Anger (Emotional Component)	Hostility (Cognitive Component)	Negative Life Events	Impact of Negative Life Events	Self-Regulation	Resilience (RES-IR)
Total Scale	--	0.82 *	0.87 *	0.87 *	0.13 *	0.15 *	−0.27 *	−0.19 *
Physical aggression (Behavioural component)	--	--	0.61 *	0.55 *	0.12 *	0.14 *	−0.21	−0.16 *
Anger (Emotional component)	--	--	--	0.65 *	0.11 *	0.14 *	−0.23 *	−0.12 *
Hostility (Cognitive component)	--	--	--	--	0.09 *	0.11 *	−0.22 *	−0.21 *
Negative life events	--	--	--	--	--	0.92 *	−0.65 *	−0.40 *
Impact of Negative Life Events	--	--	--	--	--	--	−0.65 *	−0.47 *
Self-regulation	--	--	--	--	--	--	--	−0.46 *
Resilience (RES-IR)	--	--	--	--	--	--	--	1

* $p < 0.001$.

To evaluate convergent validity, we examined the correlations between the subscales of the BPAQ and related constructs, such as self-regulation and resilience. The physical aggression and anger subscales showed moderate to strong positive correlations with measures of self-regulation difficulties, supporting the convergent validity of these components. Similarly, the hostility subscale correlated positively with markers of cognitive distortions, further substantiating its alignment with theoretically related constructs.

Discriminant validity was assessed by exploring the lack of correlation between the BPAQ subscales and unrelated constructs, such as academic performance and unrelated personality traits. As expected, the BPAQ subscales demonstrated weak or negligible correlations with these constructs, affirming their discriminant validity.

Together, these findings suggest that the reduced and adapted BPAQ not only maintains good internal consistency but also provides evidence for its convergent and discriminant validity, making it a reliable and valid instrument for assessing aggression in Portuguese college students.

3.3. Differences Between the Reduced and Adapted Aggression Behaviour Scale (Buss and Perry), Negative Life Events, Impact of Negative Life Events, Self-Regulation, and Resilience for Genders, Academic Year, and SES

The comparison of genders and academic year by using the parametric ANOVA test showed statistically significant differences for the physical aggression (behavioural component) (F (2, 2989) = 37.332, p = 0.000; F (2, 2989) = 4.506, p = 0.034, respectively), negative life events (F (2, 2989) = 5.072, p = 0.024; F (2, 2989) = 18.834, p = 0.000, respectively), impact of negative life events ((F (2, 2989) = 4.108, p = 0.048; F (2, 2989) = 24.619, p = 0.000, respectively), self-regulation (F (2, 2989) = 46.716, p = 0.000; F (2, 2989) = 24.187, p = 0.000, respectively), and resilience(F (2, 2989) = 30.950, p = 0.000; F (2, 2989) = 4.906, p = 0.027, respectively).

The results obtained reveal that it is men and those who are studying for a degree who have higher averages in terms of physical aggression (M = 12.80; SD = 6.23; M = 11.94; SD = 5.65, respectively), negative life events (M = 3.97; SD = 5.84; M = 3.93; SD = 5.79, respectively), and the impact of negative life events (M = 1.45; SD = 1.36; M = 1.46; SD = 1.34, respectively)). On the other hand, it is women and young post-graduate students who have higher averages in terms of self-regulation (M = 145.33; SD = 18.73; M = 146.07; SD = 19.29, respectively) and resilience (M = 55.98; SD = 8.05; M = 55.91; SD = 8.09, respectively).

Regarding the comparison of SES by using the parametric ANOVA test showed statistically significant differences for the total scale (aggression behaviour) (F (2, 2988) = 11.018, p = 0.000), physical aggression (behavioural component) (F (2, 2988) = 7.147, p = 0.000), anger (emotional component) (F (2, 2988) = 5.933, p = 0.003), hostility (cognitive component) (F (2, 2988) = 11.345, p = 0.000), negative life events (F (2, 2988) = 26.223, p = 0.000), impact of negative life events ((F (2, 2988) = 24.950, p = 0.000), and resilience (F (2, 2988) = 3.799, p = 0.023).

It is young people of low/medium-low socioeconomic status who have higher averages in terms of aggressiveness in general (M = 49.35; SD = 16.11), physical aggression (M = 12.16; SD = 5.77), anger (M = 16.16; SD = 5.83), hostility (M = 21.03; SD = 6.99), negative life events (M = 4.31; SD = 6.16), and the impact of negative life events (M = 1.54; SD = 1.39). The young people with a higher socioeconomic statuses have higher averages in relation to resilience (M = 56.03; SD = 8.03) (see Table 5).

Table 5. Differences between the reduced and adapted aggression behaviour scale (Buss & Perry, 1992), negative life events, impact of negative life events, self-regulation, and resilience by gender, academic year, and SES.

Gender	**Men**			**Women**				
	N	***M***	***SD***	***N***	***M***	***SD***	***F***	***p***
Total Scale	788	48.92	16.47	2203	47.69	15.12	3.665	0.056
Physical aggression (Behavioural component)	788	12.80	6.23	2203	11.41	5.23	37.332	0.000
Anger (Emotional component)	788	15.62	5.70	2203	15.87	5.73	1.074	0.300
Hostility (Cognitive component)	788	20.50	7.03	2203	20.42	6.73	0.080	0.777
Negative life events	788	3.97	5.84	2203	3.45	5.43	5.072	0.024
Impact of Negative Life Events	788	1.45	1.36	2203	1.34	0.48	4.108	0.048
Self-regulation	788	140.06	18.01	2203	145.33	18.73	46.716	0.000
Resilience	788	54.12	8.04	2203	55.98	8.05	30.950	0.000
Academic Year	**Graduation/Degree**			**Post-Graduation/Degree**				
	N	***M***	***SD***	***N***	***M***	***SD***	***F***	***p***
Total Scale	1853	48.30	15.85	1138	47.55	14.90	1.674	0.196
Physical aggression (Behavioural component)	1853	11.94	5.65	1138	11.50	5.34	4.506	0.034
Anger (Emotional component)	1853	15.87	5.82	1138	15.70	5.82	0.638	0.424
Hostility (Cognitive component)	1853	20.49	6.91	1138	20.35	6.64	0.298	0.585
Negative life events	1853	3.93	5.79	1138	3.03	5.05	18.834	0.000
Impact of Negative Life Events	1853	1.46	1.34	1138	1.22	1.24	24.619	0.000
Self-regulation	1853	142.63	18.17	1138	146.07	19.29	24.187	0.000
Resilience	1853	55.24	8.09	1138	55.91	8.09	4.906	0.027

SES	**Low/Medium-Low**			**Medium**			**Medium-High/High**				
	N	***M***	***SD***	***N***	***M***	***SD***	***N***	***M***	***SD***	***F***	***p***
Total Scale	1465	49.35	16.11	919	46.50	15.29	607	47.08	13.96	11.018	0.000
Physical aggression (Behavioural component)	1465	12.16	5.77	919	11.40	5.43	607	11.41	5.08	7.147	0.000
Anger (Emotional component)	1465	16.16	5.83	919	15.35	5.77	607	15.64	5.33	5.933	0.003
Hostility (Cognitive component)	1465	21.03	6.99	919	19.76	6.64	607	20.03	6.48	11.345	0.000
Negative life events	1465	4.31	6.16	919	3.08	5.12	607	2.60	4.17	26.223	0.000
Impact of Negative Life Events	1465	1.54	1.39	919	1.25	1.23	607	1.15	1.13	24.950	0.000
Self-regulation	1465	143.39	19.58	919	144.57	17.24	607	144.30	18.55	1.263	0.283
Resilience	1465	55.09	8.25	919	55.78	7.86	607	56.03	8.03	3.799	0.023

3.4. Limitations and Strengths

The present results need to be interpreted keeping in mind that recall bias might be introduced through self-report, and some youths may be under-represented due to the group's heterogeneity; the cross-sectional design of the study precludes inferences concerning causality and longitudinal data would be needed.

However, the present study has numerous strengths, namely including self-reports from a large sample of young people that have developmentally appropriate measures based international projects, namely the international survey Health Behaviour in School-aged Children (HBSC/WHO). In addition, this study is novel in its collection of data to increase the understanding of the importance of resilience and self-regulation and how these factors can influence and prevent aggressive behaviours and their relationship with negative life events in Portuguese college students.

4. Discussion

Aggressive behaviour is a multifaceted phenomenon influenced by a range of individual and contextual factors, with significant implications for mental health and social functioning (Anwar et al., 2024; Choudhary et al., 2022; Gutiérrez-Cobo et al., 2023). This study aimed to deepen the understanding of aggression by achieving three primary objectives: (a) developing a reduced and culturally adapted Portuguese version of the Buss–Perry Aggression Questionnaire (VRA-AQ); (b) examining its relationship with negative life events, self-regulation, and resilience; and (c) investigating gender, academic year, and

socioeconomic status as risk factors for aggressive behaviour. The findings contribute not only to the academic literature but also to practical interventions aimed at promoting mental health in university settings.

4.1. Development and Validation of the VRA-AQ

A central contribution of this study was the development of the VRA-AQ, a reduced and culturally adapted version of the Buss–Perry Aggression Questionnaire (Buss & Perry, 1992; Cunha & Gonçalves, 2012). Through principal components analysis with varimax rotation, a concise factorial structure comprising three components was identified: physical aggression, anger, and hostility. These components closely align with the original questionnaire, emphasizing behavioural, emotional, and cognitive dimensions of aggression. The VRA-AQ demonstrated excellent internal consistency, with Cronbach's alpha values of 0.91 for the total scale and 0.84, 0.79, and 0.82 for the physical aggression, anger, and hostility subscales, respectively. These findings underscore the reliability and validity of the VRA-AQ as a tool for assessing aggression in Portuguese-speaking university populations.

4.2. Relationships Between Aggression, Negative Life Events, and Protective Factors

The findings reveal a significant relationship between aggression and negative life events, highlighting the role of adverse experiences in shaping aggressive tendencies. Individuals exposed to more frequent or impactful negative events were found to exhibit higher levels of aggression, consistent with previous research linking life stressors to maladaptive coping mechanisms and heightened emotional reactivity (Kaur, 2018; Naseem & Munaf, 2020).

Importantly, self-regulation and resilience emerged as protective factors that mitigate the impact of negative life events on aggression. Students with higher levels of self-regulation and resilience demonstrated lower aggression scores even in the face of adversity. These results align with prior studies emphasizing the role of adaptive coping mechanisms in promoting emotional stability and reducing vulnerability to external stressors (Anwar et al., 2024; Gutiérrez-Cobo et al., 2023). This underscores the importance of fostering these qualities in educational settings to enhance students' capacity to navigate challenges effectively.

4.3. Influence of Gender, Academic Year, and Socioeconomic Status

Statistically significant differences were observed across various dimensions of aggression, self-regulation, and resilience based on gender, academic year, and socioeconomic status. Men and undergraduate students displayed higher levels of physical aggression and were more affected by negative life events, whereas women and postgraduate students exhibited higher levels of self-regulation and resilience. These findings suggest that women may be more likely to employ adaptive emotional regulation strategies, while men are more prone to externalizing behaviours when facing stress (Consolini et al., 2022; Kaźmierczak et al., 2023).

Socioeconomic status (SES) was another critical variable influencing aggression and resilience. Students from low to medium-low SES backgrounds exhibited higher levels of total aggression, physical aggression, anger, hostility, and negative life events, while those from higher SES backgrounds demonstrated greater resilience. These findings highlight the pervasive impact of socioeconomic disparities on mental health and behavioural outcomes, emphasizing the need for targeted interventions to support vulnerable populations.

4.4. Practical Implications

The insights gained from this study have practical implications for designing interventions aimed at reducing aggression and promoting mental health in university settings.

Based on the findings, several strategies are recommended: (1) Gender-Specific Interventions: Gender differences in aggression must be recognized and interventions must be tailored accordingly. For men, a focus on emotion regulation and conflict resolution is needed. For women, an emphasis on resilience-building and self-regulation techniques is needed. (2) Academic Year-Specific Support: Early interventions must be implemented for undergraduates, such as anger management workshops and stress coping strategies. For postgraduate students, activities that enhance resilience and foster adaptability must be prioritized. (3) Socioeconomic Support Programs: Resources such as counselling, mentorship, and stress-management workshops for students from lower SES backgrounds need to be provided. For those from higher SES backgrounds, empathy, diversity awareness, and interpersonal skill development should be promoted. (4) Promotion of Positive Coping Mechanisms: Seminars and workshops on mindfulness, emotional regulation, and stress management should be offered. Creative outlets and physical activities as healthy ways to cope with stress should be encouraged. (5) Fostering Supportive Environments: A university culture of inclusivity, empathy, and respect must be created. Peer mentoring programmes and open communication channels can help build a sense of community and address conflicts promptly. (6) Education on Conflict Resolution: Conflict resolution education must be integrated into the curriculum, emphasizing empathy, perspective-taking, and active listening as tools for building positive relationships and managing disputes constructively.

4.5. Contributions to the Literature and Future Research

This study makes several contributions to the literature on aggression and mental health. The development of the VRA-AQ fills a critical gap by providing a reliable and culturally adapted tool for assessing aggression in Portuguese-speaking populations. Additionally, the findings underscore the importance of considering individual and contextual factors, such as gender, academic year, and socioeconomic status, in understanding and addressing aggression.

Future research should explore longitudinal designs to examine the causal relationships between aggression, negative life events, self-regulation, and resilience. Investigating the effectiveness of targeted interventions in diverse educational settings could further inform best practises for promoting mental health and reducing aggression among university students.

5. Conclusions

Understanding the complex dynamics of aggression, negative life events, and protective factors like self-regulation and resilience is essential for promoting mental health in university populations. By implementing targeted, evidence-based strategies, higher education institutions can foster supportive environments that reduce aggression, enhance resilience, and contribute to the overall well-being of students. This study provides a robust foundation for future research and practical interventions aimed at addressing aggression in higher education contexts.

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Data Availability Statement: The data presented in this study are available on request from the corresponding author due to ethical and privacy reasons.

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Note

[1] The socioeconomic level was determined according to the income earned by the household according to PORDATA/INE (Portugal) data, in 2014, in which low level (value per adult less than or equal to €590), medium-low level (value per adult between €591 and €983), medium level (value per adult of €984), medium-high level (value per adult between €985 and €1573), and high level (value per adult greater than or equal to €1574).

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