

Psychometric properties of the long and short forms of the AQ aggression questionnaire in a sample of Spanish inmates

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ABSTRACT

Objectives: The Buss-Perry Aggression Questionnaire (AQ; Buss & Perry, 1992) is a broad measurement tool used with the general public in Spain. There is some debate regarding the interpretation of AQ scores and the usefulness of a shorter version. The aim is to study and compare the psychometric properties of the long and short version of the AQ and check the reliability of the short version in a sample of male prisoners.

Material and method: The sample was composed of 236 incarcerated males (mean age of 40.4 years of age) from Ocaña 1 prison center who volunteered to participate in the study. The sample was selected by using the tiered random sampling technique based on the internal inmate number. A random list of possible substitutes was also included in the event of refusal to be interviewed, with replacement being discontinued in the event of two consecutive refusals. This study is a descriptive cross-sectional design.

Results: The short version of the scale demonstrated better adjustment than the long version, as indicated by the larger CFI and smaller WRMR values. The number of prison sentences was positively associated with physical aggression, verbal aggression, anger, and hostility. The coefficients were slightly higher for the short version of the scale than the long one.

Discussion: The short version of the AQ is a valid instrument for measuring aggressiveness in prison contexts in relation to the long version, and correlates with subscales of aggression more strongly than the long one.

Key words: prisons; assessment; crime; aggression.

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INTRODUCTION

Aggression has psychological, health, social, legal, and judicial implications around the world. The multiple facets of aggression can be expressed differently and “can be reflected in different personality constructs”¹. The lack of clarity in construct definition complicates the task of measuring aggression².

One of the most widely used and well-known instruments in the literature is the Buss-Perry

Aggression Questionnaire (AQ)³. The AQ is based on a robust theoretical model. The questionnaire enables a distinction to be made between observable aggressive behaviour (physical and verbal aggression) and its attitudinal and emotional facets (hostility and anger). The AQ is partly based on the Buss-Durkee Hostility Inventory (BDHI)⁴ and overcomes the shortcomings of the BDHI. The final version of 29 items resulted from a thorough psychometric analysis of some of the 75 BDHI ele-

ments and the inclusion of new items. The enhanced, empirically-derived version of the AQ measures four aggression subtraits: (a) physical aggression (nine items); (b) verbal aggression (five items); (c) anger (seven items), and (d) hostility (eight items), which represent the cognitive component of aggressive behaviour, involving feelings of injustice and negative assessment towards others through misinterpretation of the environment, usually with regard to negative clues.

Later, a short, refined version of the scale with 12 items⁵ was developed. According to the authors, the short form would better reflect the AQ's four dimensions. Nevertheless, the 29-item is still the most widely cited version for assessing aggression. In Spain the questionnaire has been widely used in community samples since aggression does not necessarily imply contact with the criminal justice systems; hence the 29 item version has proved its value with youth samples (pre-adolescents and adolescents) providing factorial validity for this version⁶⁻⁸.

The AQ 12 item version has also proved to be of value in children's samples⁹ and in samples of college students¹⁰. In general, the reduced forms of the AQ tend to demonstrate a better fit than the original 29-item version^{11,12}.

In criminal samples, authors¹³ have tested the psychometric properties of the reduced version of the questionnaire in offenders either in community diversion programs or in prisons, finding support for the use of a 12-item version of the instrument with this population. Nevertheless, when used to assess aggressive individuals, it is usually used for particular clusters of offenders (perpetrators of intimate partner violence or teenage aggressors) while little is known about its utility for more diverse groups of male offenders. There is some debate regarding the interpretation of AQ scores. While it is possible to present an aggression score that summarizes the scale's total score, the data should be interpreted by examining each factor separately to better address the heterogeneity and multidimensionality of aggression¹⁴.

The objective of this study is twofold: on the one hand, validate the Spanish short versions of the AQ Questionnaire in a sample of incarcerated males, since its factors structure for this version has not previously been examined and past studies in Spain have primarily addressed community samples; and on the other hand, test the reliability of the short AQ version for this population.

Finally, the concurrent and predictive validity will be evaluated by examining the four subscales in both

versions and the relationship with other measures theoretically linked to aggression-related constructs.

MATERIAL AND METHODS

Participants

The participants were a sample of 236 incarcerated males from Ocaña 1 prison. The participants' age ranged between 18 and 65 years, with a median age of 40 years ($M = 40.46$; $SD = 10.19$). A total of 40.8% of inmates were in prison for the first time, and the remainder have been sentenced to prison two (24.9%) or more times (34.3%). Just over 70% of the participants were convicted of a violent crime.

The inclusion criteria were:

- Age between 18 and 65 years.
- Adequate reading and writing abilities to answer the self-report instruments.
- Cognitive ability to understand instructions.
- Ability to give informed consent.
- Serving time for violent crimes (e.g., homicide, robbery, and other acts of violence) and/or non-violent (e.g., theft, drug offences, fraud) offences.

The exclusion criteria were:

- The presence of physical or psychiatric problems (severe mental disorder, personality disorder, affective disorders, anxiety disorder, etc.).
- Present active clinical symptomatology at the time of the study.
- The presence of neurological conditions that may interfere with the answers.
- Serving a preventive prison sentence.

The sample was selected by using the tiered random sampling technique based on the internal inmate number. A random list of possible substitutes was also included in the event of a refusal to be interviewed, with replacement being discontinued in the event of two consecutive refusals. This study is a descriptive cross-sectional design. The number of prison sentences ranged from 1 to 11, with a median of two prison convictions. This variable was recoded to distinguish between repeat offenders (i.e., previously imprisoned) and first-time offenders. The type of offence refers to the crimes for which participants were sentenced, hence being divided into the group of violent or non-violent crimes.

Instruments

The Aggression Questionnaire (AQ)

The AQ is a 29-item questionnaire that evaluates four aggressive dimensions (physical aggression,

verbal aggression, hostility, and anger) using 5-point Likert scales ranging from least to most characteristic and reported good psychometric properties. Although interrelated, the scales were analyzed independently as separate factors, demonstrating adequate internal consistency (Cronbach's α for physical aggression = .85; verbal aggression = .72; anger = .83; and hostility = .77). The total α coefficient was .89.

Test-retest (nine weeks) indicators demonstrated good reliability, with all correlation coefficients above .72 (total score = .80; physical aggression = .80; verbal aggression = .76; anger = .72; hostility = .72).

In the current study, the short version AQ 12-items version was administered enabling statistical analysis and subsequent comparison between the two versions (e.g., sometimes I can't control the impulse to hit another person; I have been so angry that I have broken things).

Impulsive/Premeditated Aggression Questionnaire

The Impulsive/Premeditated Aggression Questionnaire (IPAS; Stanford et al., 2003) is a 30-item questionnaire that assesses aggressive acts that occurred in the last six months. Items are scored on 5-point scales ranging from 1 (strongly disagree) to 5 (strongly agree). Initial validation of this study was conducted with 93 aggressive adults recruited from the community. The scale evaluates two factors: premeditated aggression and impulsive aggression. The original study of this scale, conducted with a sample of physically aggressive men¹⁵ indicated that the scales of impulsive aggression and premeditated aggression were reliable (alpha for premeditated aggression = .82; impulsive aggression = .77) and that they were not correlated ($r = -.02$). The construct validity of this scale has been tested in the Spanish adult population by ratifying its dimensional structure¹⁶.

Triarchic Psychopathy Questionnaire

Based on the triarchic model of psychopathy, the Triarchic Psychopathy Questionnaire (TriPM; Patrick & Drislane, 2015) the questionnaire measures the dimensions of disinhibition, boldness, and meanness. The questionnaire consists of 58 items in a 4-point scale (true, somewhat true, somewhat false, false). The ordinal alpha values for the TriPM were: .86 for disinhibition, .61 for boldness, and .80 for meanness¹⁷.

Life History of Aggression

Life History of Aggression (LHA; Coccaro et al., 1997) assesses the frequency of overt aggressive behaviors. It has three factors: aggression, self-directed aggression, and consequences/antisocial behavior.

The scale consists of 11 items, responded on a scale from 0 to 5, where 0 = "has never happened" to 5 = "happened so many times it that cannot be counted". The internal consistency (Cronbach's alpha) of the LHA aggression, self-directed aggression, and consequences/antisocial behavior were .87, .48 and .74, respectively¹⁸.

A sociodemographic questionnaire was used to collect information regarding age and level of education, health information and criminal data (recidivism, prison degree according to severity). The survey was self-administered in small groups and verified with prison files.

Procedure and data analysis

Participants were informed about the overall objectives of the study. The confidentiality of the data was ensured, informing participants that this information would not be used for clinical or judicial decision-making purposes. All data collected was used solely for research purposes, under the data protection law, Organic Law 3/2018, of December 5, On the Protection of Personal Data and Guarantee of Digital Rights. All participants gave written consent. The survey was self-administered, in small groups in the months of January-February 2020. Data collection ranged from 30 to 45 minutes, depending on the response time of the participants. The response rate was 97%. Descriptive statistics were calculated for scale and subscale scores. Given the ordinal nature of the items, the internal consistency of the scales was evaluated using ordinal alpha. Similarly, the mean correlations between items were calculated from the polychoric correlation matrices, rather than the covariance and Pearson correlation matrices of the data. Confirmatory factor analysis (CFA) was performed on the long and short versions of the scale (AQ-FV and AQ-SV, respectively). The four-factor was specified. The models were estimated using the robust weighted least squares estimator (WLSMV) in MPlus 7.4. In these models, all factors were allowed to correlate. In addition to the chi-square statistic, one absolute fit index and one incremental index were used to evaluate model fit, respectively the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA); a minimum cut off of .90 for CFI indicated good fit and RMSEA values ranging from .05 to .08 represent a moderate adjustment, and values between .08 and .10 represent bad adjustment. The Weighted Mean Square Residual (WRMR). and a maximum cut off of 1 for WRMR were considered indicators of a good fit; the WRMR is adequate for data with ordinal fea-

tures. Concurrent validity was examined by evaluating Pearson's correlation coefficients between the two scales and the scores of the following tests: IPAS (impulsive and premeditated aggressiveness), TriPM (psychopathic facets) and LHA (aggression). Criterion validity was assed via Welsh's t-test for two independent groups comparing first time inmates and recidivist inmates. Effect size of 0.2 or below are considered small, between 0.2 and 0.5 are considered to be medium, and effect sizes above 0.8 are considered to be large.

RESULTS

Descriptive statistics and reliability analysis

Table 1 presents descriptive statistics for total scores and subscales of the AQ-Long Version (AQ-FV) and AQ-Short Version (AQ-SV). Internal consistency coefficients for total score and subscales of AQ-FV were found to be acceptable to excellent (ordinal α range from .67 to .92; Table 1). Besides, the interitem correlations were good, ranging from $r = .29$ to $r = .47$. For the total score and subscales of AQ-SV, the internal consistency ranged from almost acceptable to good (ordinal α range from .62 to .87; Table 1). Given the impact of scale length on alpha coefficients, we supplemented alpha values with the average interitem correlation coefficients, which were all satisfactory ($r = .35$ to $r = .48$).

Model fit and factor loads

The fit indices for the long and short versions of the scale are presented in Table 2. The short version of the scale demonstrated better adjustment than the long version, as indicated by the larger CFI and smaller WRMR values. However, RMSEA for AQ-SV fell short at the benchmark of .08, although remaining below 0.10 (simulation studies have shown that RMSEA values tend to be higher with small to medium sample sizes such as the one used in this study).

The standardized factor loads of the two models are shown in Table 3. Based on the conventional cut off of .30 for loadings to be considered salient, it was found that two items in the long version of the scale did not meet this standard (AQ5 and AQ29, both in the physical aggression subscale). All remaining items had salient loadings at their target scales (Table 3). For the AQ-SV, the load of all factors was high and statistically significant ($P < .01$), ranging from .40 to .81.

Between-factors correlations for the two models are presented in the lower and upper diagonal of Table 4. In both versions of the AQ scale, the latent variables (physical aggression, verbal aggression, anger, and hostility) were significantly interrelated (ranging from $r = .39$ to $r = .61$ in the short version, and from $r = .41$ to $r = .68$ in the long version).

Convergent Validity

The AQ-FV and AQ-SV subscales were positively related to the premeditated and impulsive aggres-

Table 1. Internal Consistency (Ordinal α), Scale Homogeneity (Mean Correlation between Items), Mean (Standard Deviations), Skewness and Kurtosis (Standard Errors) for AQ Scales.

4-factor model	Ordinal		M* (SD†)	Skewness	Kurtosis
	α	r			
AQ-FV‡ (29 items)	.92	.30	71.53 (19.06)	0.38	2.68
Physical assault	.89	.47	22.87 (7.56)	0.40	2.65
Verbal aggression	.67	.29	12.05 (3.67)	0.45	2.98
Anger	.78	.33	16.14 (5.70)	0.33	2.39
Hostility	.77	.30	20.47 (6.45)	-0.03	2.38
AQ-SV§ (12 items)	.87	.36	29.75 (9.62)	0.37	2.64
Physical assault	.78	.47	10.22 (4.17)	0.18	2.18
Verbal aggression	.62	.35	6.58 (2.45)	0.73	3.15
Anger	.65	.48	4.43 (2.22)	0.61	2.51
Hostility	.65	.39	8.52 (3.24)	0.04	2.22

Note. The overall scores for the AQ-FV scale and the physical aggression and anger subscales were calculated after reversing two items. A symmetric distribution of such a normal distribution has a skewness of 0 and a kurtosis of 3.

*M: mean; †SD: standard deviation; ‡AQ-FV: long version of the scale; §AQ-SV: short version of the scale.

sion subscales (IPAS). The strongest correlations were found between the physical aggression subscales of the AQ and the premeditated aggression of the IPAS ($r = .50$ for the long version and $r = .49$ for the short version). Regarding psychopathy, the AQ subscales showed positive moderate to large correlations with the meanness and disinhibition subscales of the TriPM (from $r = .29$ to $r = .64$). However, only the hostility subscales of the AQ-FV and AQ-SV were significantly related to the boldness subscale of the TriPM, with the correlations being negative and weak (Table 5). Both the long and short versions of the AQ subscales showed significant positive correlations with LHA scales. As for forensic data, the number of prison sentences was positively associated with physical aggression, verbal aggression, anger, and hostility. The coefficients were slightly higher for the short scale than the long version of the scale.

Criterion validity

Besides correlations with number of sentences, independent sample t-tests revealed that inmates with previous prison sentences scored significantly higher than first-time inmates on the total scores of the short, $t = -3.94$, Welch's $df = 185.70$, $P < .001$, $d = 0.56$, and long AQ versions, $t = -4.15$, Welch's $df = 187.19$, $P < .001$, $d = 0.58$.

Also, individuals convicted of violent crimes were found to have significantly higher scores than those convicted of nonviolent crimes, both in the long, $t = -2.03$, Welch's $df = 145.43$, $P = .044$, $d = 0.27$, and short AQ versions, $t = -2.09$, Welch's $df = 137.87$, $P = .038$, $d = 0.28$.

DISCUSSION

Assessing aggressiveness has always been an essential task in forensic settings, and it is essential to study the psychometric characteristics and the applicability of instruments to measure aggression in such environments. The current study aimed to analyze

basic psychometric indices of the long and short versions of one of the most widely used aggressiveness questionnaires, the AQ, that although tested in Spain, has not to our knowledge been studied in a diverse criminal justice system involving men.

In this study, the results supported the 4-factor structure (physical, verbal, anger and hostility) for the short and long versions. as previously revised¹⁹.

The adjustment of the long version of the scale would benefit from the exclusion of items and the 12-item refined version proved to have a better fit than the 29-item original version of the AQ. These results are in line with data obtained in other studies in which, when comparing the different versions of the AQ, in their 29, 20 and 12-item versions, respectively, they concluded that the adjustment is notably better with the 12-item version in the community population²⁰.

A similar pattern was found in our data with a prison sample. In addition, the current results about the short-form of the scale also are in line with previous findings, demonstrating the shorter version's robustness and good fit in forensic samples²¹.

Thus, our results show that the AQ in its short version is a reliable instrument for measuring aggressiveness in prison contexts. Regarding the correlations among aggressive dimensions, the results are relatively similar for both versions of the questionnaire. The correlations with external variables provided similar results as well, suggesting that both measures offer comparable levels of concurrent validity. It is relevant to consider that the reduced versions did not show a considerable reduction in internal consistency. This question is especially important, since some authors consider that the reduction in the instruments may affect its consistency. In addition, previous studies that also assessed the psychometric properties of the items again supported the adequacy of the reduced 12-item version to measure aggressiveness in a reliable and valid way in different populations due to its discriminant capacity to identify aggressive individuals^{22,23} which has

Table 2. Fit Indices of the Model for the Long and Short Version of the AQ Scales.

Four-factor models	RMSEA*		WRMR§	χ^2	df ¶	P**
	CFI†	[90% IC] ‡				
AQ-FV†† (29 items)	.91	.07 [0.06, 0.07]	1.2	752.73	371	<.01
AQ-SV‡‡ (12 items)	.95	.09 [0.07, 0.11]	.9	136.77	66	<.01

Note. *RMSEA: root mean square of approximation; †CFI: comparative fit index; ‡IC: confidence interval; §WRMR: weighted root mean square residual; || χ^2 : robust chi-square indicator; ¶df: degrees of freedom; **P: p-values; ††AQ-FV: long version of the scale; ‡‡AQ-SV: short version of the scale.

Table 3. Standardised Loadings for Factors on the AQ FV and SV Scales.

Four-factor model	AQ-FV* (29 items)	AQ-SV† (12 items)
Physical aggression		
AQ-8	.67	-
AQ-13	.68	-
AQ-22	.42	.40
AQ-29	.19	-
AQ-2	.67	-
AQ-25	.51	.45
AQ-16	.59	-
AQ-11	.69	.64
AQ-5	-0.16	-
AQ-18	-	.43
Verbal aggression		
AQ-4	.43	-
AQ-21	.71	.72
AQ-14	.43	-
AQ-6	.79	.81
AQ-27	.54	.52
Anger		
AQ-12	.34	-
AQ-19	.32	-
AQ-23	.47	.59
AQ-9	.71	-
AQ-1	.68	-
AQ-28	.59	.79
AQ-18	.48	-
Hostility		
AQ-15	.68	-
AQ-17	.70	.62
AQ-24	.56	.54
AQ-7	.81	.75
AQ-26	.48	-
AQ-10	.65	-
AQ-20	.70	-
AQ-3	.77	-

Note. For the long version, all factor loadings were significant at the $P < .05$ level; for the short version, all factor loadings were significant at the $P < .01$ level.

*AQ-FV: long version of the scale; †AQ-SV: short version of the scale.

reinforced our results for measuring aggressiveness and its components in the prison population, offering a response to the need to use short and valid assessment instruments that are required in prison environments given the characteristics of the system itself and the dynamics of its functioning.

From the current results, we could argue for the adequacy of the AQ's short form to be used in prison settings, with an important evaluative potential as a measure of aggressiveness. It is a reliable tool that shows that the constructs of aggression are related and is also a reliable measurement of recidivism and its relationship to offence typology. Despite the contribution of this research, a number of limitations should be noted. Data from self-reporting measuring tools may be affected by social desirability. This variable is especially relevant in prison environments where there is a code of behavior among prisoners and prison benefits for good behavior such as not having parts or having bis a bis. It would be interesting in future research to construct instruments to assess social desirability with subscales that integrate values of society in general and values of the prison "subculture" and to monitor the levels of social desirability of inmates, observing whether they are maintained over time and their evolution in prison²⁴.

Future studies should also include females in their samples and examine the extent to which the current results hold for both sexes, identifying differentiating variables in the manifestation of aggressiveness. Future research is also needed to further study the temporal stability of the 12-item AQ (test-retest reliability) and to analyze its factorial invariance and diagnostic utility, as well as to further study its relationship with other similar and different assessment instruments and to enable analyses of their relationships to neurobiological and psychiatric variables²⁵.

The main contribution of the current study is the normative data for a heterogeneous sample of incarcerated individuals of both long and short versions of the AQ. This study provided evidence of the predictive value of a self-reported measure of aggressiveness for violence in general (number of prison convictions) and violent offences in particular, allowing for the differentiation between violent and non-violent individuals. The results revealed the relation between the AQ and antisocial and aggressive behaviour. The questionnaire in short versions has proved to be valuable in forensic settings.

The short version of the AQ assessment of appropriate behaviors is inexpensive and easy to administer and score, with the additional advantage of the current

Table 4. Inter-factor Correlations for AQ-FV* (on the Upper Diagonal) and for AQ-SV† (on the Lower Diagonal).

	Physical	Verbal	Anger	Hostility
Physical	1	.53‡	.68‡	.48‡
Verbal	.49‡	1	.55‡	.41‡
Anger	.61‡	.52‡	1	.57‡
Hostility	.48‡	.39‡	.55‡	1

Note. *AQ-FV: long version of the scale; †AQ-SV: short version of the scale; ‡ $P < .001$.

Table 5. Correlations Between the AQ-FV and AQ-SV Subscales and Measures of Associated Constructs.

	AQ-FV*				AQ-SV†			
	Physical	Verbal	Anger	Hostility	Physical	Verbal	Anger	Hostility
IPAS‡								
Premeditated	.50††	.30††	.38††	.28††	.49††	.27††	.36††	.23††
Impulsive	.34††	.26††	.31††	.28††	.32††	.22††	.25††	.24††
TriPM§								
Boldness	.10	.10	-0.07	-0.20**	.03	.06	-0.01	-0.21**
Meanness	.55††	.38††	.46††	.34††	.55††	.40††	.46††	.29††
Disinhibition	.64††	.39††	.62††	.47††	.62††	.38††	.57††	.41††
LHA 								
Aggression	.72††	.50††	.61††	.35††	.68††	.44††	.50††	.35††
Consequences	.66††	.45††	.58††	.41††	.62††	.36††	.49††	.39††
Self-directed	.34††	.19**	.39††	.32††	.29††	.20†	.31††	.33††
Forensic data								
N. of incarcerations	.29††	.16¶	.22**	.20**	.26††	.17¶	.26††	.25††

Note. *AQ-FV: long version of the scale; †AQ-SV: short version of the scale; ‡IPAS: the Impulsive/Premeditated Aggression scale; §TriPM: Triarchic Psychopathy Questionnaire; || LHA: Life History of Aggression.
 ¶ $P < .05$; ** $P < .01$; †† $P < .001$.

data providing reliable information for the use of a short, refined, and robust measurement of aggressiveness as a complementary instrument in the evaluation of aggressive and violent behaviours, treatment planning and monitoring of intervention programs, adjusted to the characteristics of aggression amongst people in prisons.

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CONFLICT OF INTERESTS

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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REFERENCES

1. Ramírez JM, Andreu, JM. Aggression and some related psychological constructions (anger, hostility and impulsivity): some comments from a research project. *Neurosci Biobehav Rev.* 2006;30(3):276-91. <https://doi.org/10.1016/j.neubiorev.2005.04.015>
2. Parrott DJ, Giancola, PR. Addressing “The criterion problem” in the assessment of aggressive behavior: Development of a new taxonomic system. *Aggress Viol Behav.* 2007;12(3):280-99. <https://doi.org/10.1016/j.avb.2006.08.002>
3. Buss AH, Perry M. The aggression questionnaire. *J Pers Soc Psychol.* 1992;63(3): 452-9. <https://doi.org/10.1037/0022-3514.63.3.452>
4. Buss AH, Durkee A. An inventory to assess different types of hostility. *J Consult Psychol.* 1957;21(4):343-9. <https://doi.org/10.1037/h0046900>
5. Bryant FB, Smith BD. Refinement of the architecture of aggression: a measurement model for the Buss-Perry aggression questionnaire. *J Res Per.* 2001;35(2):138-67. <https://doi.org/10.1006/jrpe.2000.2302>
6. Andreu JM, Peña ME, Graña JL. Adaptación psicométrica de la versión española del Cuestionario de Agresión. *Psychothema.* 2002;14(2):476-82.
7. Santisteban C, Alvarado JM, Recio P. Evaluation of a Spanish version of the Buss and Perry aggression questionnaire: Some personal and situational factors related to the aggression scores of young subjects. *Pers Individ Dif.* 2007;42(8):1453-65. <https://doi.org/10.1016/j.paid.2006.10.019>
8. Santisteban C, Alvarado JM. The aggression questionnaire for Spanish preadolescents and adolescents: AQ-PA. *Span J Psychol.* 2009;12(1):320-6. doi: 10.1017/s1138741600001712.
9. Torregrosa MS, Gómez-Núñez MI, Inglés CJ, Ruiz-Esteban C, Sanmartín R, García-Fernández JM. Buss and Perry aggression questionnaire-short form in Spanish Children. *J Psychopathol Behav Assess.* 2020;42:677-92. <https://doi.org/10.1007/s10862-020-09809-4>
10. Gallardo-Pujol D, Kramp U, García-Forero C, Pérez-Ramírez M, Pueyo A. Assessing aggressiveness quickly and efficiently: the Spanish adaptation of the aggression questionnaire-refined version. *Eur Psychiatry.* 2006;21(7):487-94. <https://doi.org/10.1016/j.eurpsy.2006.02.002>
11. Cunha O, Peixoto M, Cruz AR, Gonçalves RA. Buss-Perry Aggression Questionnaire: Factor structure and measurement invariance among Portuguese male perpetrators of intimate partner violence. *Crimi J Behav.* 2021;49(3):451-67. <https://doi.org/10.1177/00938548211050113>
12. Morales-Vives F, Codorniu-Raga MJ, Vigil-Colet A. Psychometric characteristics of reduced versions of the Buss and Perry aggressiveness questionnaire. *Psychothema.* 2005;17(1):96-100. doi: 10.7334/psychothema2016.390
13. Gallagher JM, Ashford JB. Buss-Perry Aggression Questionnaire. *Crim Justice Behav.* 2016;43(11):1639-52. <https://doi.org/10.1177/0093854816643986>
14. Von Collani G, Werner R. Self-related and motivational constructions as determinants of aggression: An analysis and validation of a German version of the Buss-Perry Aggression Questionnaire. *Pers Individ Dif.* 2005;38(7):1631-43. <https://doi.org/10.1016/j.paid.2004.09.027>
15. Stanford MS, Houston RJ, Mathias CW, Villemarette-Pittman NR, Helfritz LE, Conklin SM. Characterizing aggressive behavior. Assessment. 2003;10(2):183-90. <https://doi.org/10.1177/1073191103010002009>
16. López-Rodríguez L. Validación psicométrica de la versión española de la Escala de Agresión Impulsiva y Premeditada (IPAS). [Tesis doctoral]. Madrid: Universidad Complutense de Madrid. 2015.
17. Patrick CJ, Drislane LE. Triarchic model of psychopathy: Origins, operationalizations, and observed linkages with personality and general psychopathology. *J Pers.* 2015;83(6):627-43. <https://doi.org/10.1111/jopy.12119>
18. Coccaro EF, Berman ME, Kavoussi RJ. Assessment of life history of aggression: development and psychometric characteristics. *Psychiatry Res.* 1997;73(3):147-57. [https://doi.org/10.1016/S0165-1781\(97\)00119-4](https://doi.org/10.1016/S0165-1781(97)00119-4)
19. Diamond PM, Wang EW, Buffington-Vollum J. Structure of Factors of the Buss-Perry Aggression Questionnaire (BPAQ) with Mentally III Male Prisoners. *J Crim Behav.* 2005;32(5):546-64. <https://doi.org/10.1177/0093854805278416>
20. García-Fernández JM, Lagos-San Martín N, Díaz Herrero A, Inglés CJ, Torregrosa M. Propiedades psicométricas del “cuestionario de agresividad” en adolescentes chilenos: comparación de diferentes versiones. *Psicol Con-*

- ductual. 2015;23(3):489-505. <https://www.researchgate.net/publication/287371485>
21. Diamond PM, Magaletta PR. The short-form Buss-Perry Aggression Questionnaire (BPAQ-SF): a validation study with federal offenders. *Assessment*. 2006;13(3):227-40. <https://doi.org/10.1177/1073191106287666>
 22. Gallardo-Pujol D, Kramp U, García-Forero C, Pérez Ramírez M, Andrés-Pueyo A. The Spanish adaptation of the Aggression Questionnaire-Refined version: a rapid and effective assessment of aggression. *Eur Psychiatry*. 2007;14(2):73-80. <https://doi.org/10.1017/S1134066500004331>
 23. Suris A, Lind L, Emmett G, Borman PD, Kashner M, Barratt ES. Measures of aggressive behavior: overview of clinical and research instruments. *Aggress Viol Behav*. 2004;9(2):165-227. [https://doi.org/10.1016/S1359-1789\(03\)00012-0](https://doi.org/10.1016/S1359-1789(03)00012-0)
 24. Rosiles FP, Hernández López EM, Padros F. Estudio comparativo de los niveles de deseabilidad social en adolescentes con y sin trastorno disocial. *Revista de Psicopatología y salud mental del niño y del adolescente*. 2014;23:61-6.
 25. Prochazka H, Agren H. Aggression in the general Swedish population, measured with a new self-rating inventory: The Aggression Questionnaire--revised Swedish version (AQ-RSV). *Nord J Psychiatry*. 2001;55(1):17-23. doi: 10.1080/080394801750093661.