

BRIEF REPORT

French Adaptation and Further Validation of the Word Sentence Association Paradigm to Assess Hostile Attributional Biases

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Hostile attributional biases (HAB) are implicated in several interpersonal and mental health problems. These problems have been shown to be present also in French-speaking areas. However, French-validated assessments of HAB are few and present important limitations that hinder their wide adoption by researchers and health professionals. We therefore developed a French version of the Word Sentence Association Paradigm–Hostility (WSAP-H), which is a short, easy to administer, and relatively implicit measure of HAB. We then conducted a psychometric study in an online community sample of 315 individuals. Replicating previous validation studies, we found the scores of the French WSAP-H to be internally consistent ($\alpha = 0.81$; $\omega = 0.84$), and we provided factorial (one-factor structure), convergent (significant correlations with another HAB measure, as well as with theoretically related constructs of anger and hostility), and discriminant (low or nonsignificant correlations with negative mood) evidence supporting the validity of WSAP-H scores as measures of HAB. Going beyond previous results, we further showed that these HAB scores (a) demonstrate acceptable test–retest reliability ($r = 0.77$) and stability (nonsignificant and small [$d = 0.21$] changes at the group level) at 8 weeks interval, (b) relate to self-reported interpersonal problems, and (c) are distinct from a more general tendency to make negative attributions. The scores of the French WSAP-H thus constitute a reliable and valid measure of HAB, supporting the usefulness of this tool in research and intervention settings.

Public Significance Statement

Hostile attributional biases are tendencies to interpret ambiguous social situations as hostile, which affect relationships and mental health. It is thus crucial for researchers and clinicians to be able to evaluate them. However, French assessment tools are few and present problems that limit their usefulness. We addressed this problem by developing and making publicly accessible a French version of the Word Sentence Association Paradigm–Hostility, which is a short and easy-to-use assessment of hostile attributional biases.

Keywords: hostile attributional bias, French, assessment, aggression, interpersonal problems

Supplemental materials: <https://doi.org/10.1037/cbs0000385.sup>

Hostile attributional biases (HAB) are information-processing distortions leading individuals to interpret others' actions (e.g., someone bumps into you in the street) as being intentional and hostile, despite the lack of supporting evidence (Crick & Dodge, 1994). These biases constitute critical processes in aggression (Crick &

Dodge, 1994) and are linked to its affective (i.e., anger), cognitive (i.e., hostility, namely negative beliefs and attitudes towards others), and behavioural (i.e., aggressive behaviour) components (Dillon et al., 2016; Klein Tunte et al., 2019). HAB further relate to increased loneliness and social isolation levels (Okruszek et al., 2021),

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Arthur Pabst (FRESH grant holder) and Pierre Maurage (senior research associate) are funded by the Belgian Fund for Scientific Research, Fonds De La Recherche Scientifique (FRS-FNRS, Brussels, Belgium). This entity did not exert any editorial influence on the present work. The authors have no conflicts of interest to disclose.

None of the content of the present article (data, analyses,

interpretation) has been disseminated earlier, neither during conferences or meetings nor through posting on a listserv or sharing on a website/academic network.

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highlighting their role in interpersonal problems beyond aggression. In addition, several psychiatric disorders (e.g., Pabst et al., 2020; Smith et al., 2016) are marked by heightened HAB. Interventions targeting HAB have hence been developed in various populations, yielding encouraging outcomes (e.g., Osgood et al., 2021).

Given the wide relevance of HAB for understanding, detecting, and alleviating interpersonal problems and psychopathology, it is essential that researchers and clinicians of all linguistic backgrounds can validly assess this construct. French ranks among the most spoken languages worldwide, and the problems associated with HAB were shown to be also present in French-speaking areas (e.g., aggression in intimate relationships is frequent in France, Lollivier & Soulez, 2015, and Canada, Conroy et al., 2019). Despite this, French HAB assessments are currently few. We are only aware of French versions of the Ambiguous Intentions Hostility Questionnaire (AIHQ; Gourlay et al., 2022; original version: Combs et al., 2007) and the Social Information Processing–Attribution and Emotional Response Questionnaire (SIP-AEQ; Gagnon et al., 2015; original version: Cocco et al., 2009). Although valuable, these instruments have relatively low content coverage of ambiguous situations, where HAB can be meaningfully measured. Moreover, their full versions are lengthy (48 or more ratings/answers). The AIHQ further requires external evaluators to code responses to open questions to compute its main HAB index (i.e., hostility score), which has very low internal consistency. Of note, this limitation does not apply to blame score (see the Method section), which is calculated exclusively based on self-report ratings in the AIHQ and represents a suitable alternative HAB index (Buck et al., 2017). Finally, and centrally, both instruments are explicit measures that directly instruct participants to reflect on others' intentions, which increases the risk of social desirability interference and neglects the largely spontaneous and automatic nature of HAB.

The Word Sentence Association Paradigm–Hostility (WSAP-H; Dillon et al., 2016) is a viable alternative to evaluate HAB. Its completion is rapid (5 min), yet it covers a broad range of 16 situations. It presents ambiguous social sentences in association with hostile or benign words and requires participants to rate the extent to which the sentence–word pairs are related. HAB indices are exclusively derived from participants' ratings, eliminating the need for external evaluators. Furthermore, the instructions do not emphasize the need to think about other individuals' intentions, allowing for a more implicit assessment of HAB. The WSAP-H thus overcomes several limitations of previous assessments, and past studies among undergraduate students provide evidence that HAB scores using this measure have satisfactory psychometric properties (Dillon et al., 2016; Quan et al., 2019). Consequently, we conducted a psychometric study of a French adaptation of the WSAP-H. Based on original and Chinese validations (Dillon et al., 2016; Quan et al., 2019), we investigated the internal consistency, factor structure, and associations of WSAP-H-derived scores with anger, hostility (convergent validity), and negative mood measures (discriminant validity).

We additionally expanded the psychometric study of the WSAP-H by investigating the test–retest reliability and stability (changes in mean scores) of its scores. Such indices are needed to ensure that WSAP-H-derived indices are not altered by random time-fluctuating factors and reflect enduring, trait-like constructs. They are also clinically informative as they indicate whether one-shot scores can meaningfully classify individuals as high/low on a given variable and clarify expected changes without interventions. We further tested whether WSAP-H-derived scores could predict interpersonal

problems beyond aggression, thus broadening the evidence on criterion validity. Finally, we investigated divergent validity in a more stringent way by determining whether the WSAP-H-derived HAB index is distinct from a more general tendency to interpret ambiguous situations as negative.

Method

Translation

We followed a strict measurement adaptation protocol. Two bilingual native French speakers translated items into French, and one bilingual native English speaker and a bilingual person with an excellent command of English back-translated them into English. We held a consensus meeting among the four translators and four external bilingual researchers to resolve inconsistencies between versions. Two French linguists examined the resulting French version for refinements. We altered the original meaning of some benign/hostile interpretation words where literal translations were impossible (see [Supplemental Material 1](#), for the full list of French items).

Recruitment and Participants

Based on sample size recommendations for measurement adaptation and factor analysis (Rouquette & Falissard, 2011), we set the minimal sample size at 300 participants. We first advertised our study on social media (May 13–31, 2022), yielding 110 responses. Of those, we excluded 1 (0.91%) because of insufficient French proficiency and 59 (53.63%) incomplete ones. We then solicited an additional 280 (expecting 10% data loss) participants via the Prolific online recruitment platform (June 16–22, 2022). Participants received 4€ for their participation. Of the 275 records obtained, we excluded six (2.17%) with wrong answers to attention checks and four (1.44%) incomplete ones. The final sample comprised 315 participants [165 (52.38%) women; 144 (45.71%) men; 6 (1.90%) nonbinary], aged 18–75 years old ($M = 33.62$, $SD = 13.44$) and reporting 5–26 successfully completed education years ($M = 15.77$, $SD = 2.63$). Eighty prolific participants completed the WSAP-H again (August 17, 2022, approximately 8 weeks after T1) to assess test–retest reliability and stability.

Main Measure: Word Sentence Association Paradigm–Hostility (WSAP-H; Dillon et al., 2016)

The WSAP-H comprises 16 ambiguous social sentences (e.g., “Someone throws a ball that hits you”) in association with 16 hostile (e.g., “disrespectful”) and 16 benign (e.g., “accidental”) words (32 trials in total). Participants must rate the extent to which the sentence and the word are associated on a scale ranging from 1 = *not at all* to 6 = *extremely*. HAB are indexed by averaging ratings on the 16 trials with a hostile word (score range: 1–6). Higher scores indicate greater HAB.

Additional Measures: Convergent Validity

Ambiguous Intentions Hostility Questionnaire (AIHQ; Combs et al., 2007; Peyroux et al., 2019)—Ambiguous items. This is an explicit measure of HAB in which participants imagine themselves in five ambiguous social situations (e.g., “you walk past a bunch of teenagers at the mall and you hear them start laughing”) and rate the perceived

intentionality of the perpetrator (1–6), how angry they would be in the situation (1–5), and how much they would blame the perpetrator (1–5). We indexed HAB by computing the blame score (Buck et al., 2017), corresponding to the sum of all ratings (score range: 3–80). Higher scores indicate greater HAB. Internal consistency was $\alpha = 0.71$, $\omega = 0.74$.

State–Trait Anger Expression Inventory II (STAXI-II; Borteyrou et al., 2008; Spielberger, 1999)–Trait subscale. This self-report instrument measures trait anger by asking participants to rate 10 statements (e.g., “I get angry easily”) on a 1 = *never* to 4 = *almost always* scale. Trait anger is indexed by summing all ratings (score range: 10–40), higher scores indicate higher trait anger. Internal consistency was $\alpha = 0.85$, $\omega = 0.89$.

Buss–Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992; Masse, 2001)–Hostility subscale. This self-report instrument measures trait hostility by asking participants to rate eight statements (e.g., “I am suspicious of overly friendly strangers”) on a 1 = *extremely uncharacteristic of me* to 5 = *extremely characteristic of me* scale. Trait hostility is indexed by summing all ratings (score range: 8–40), higher scores indicate higher trait hostility. Internal consistency was $\alpha = 0.85$, $\omega = 0.90$.

Additional Measures: Divergent Validity

Thirteen-Item Beck Depression Inventory (BDI; Beck & Steer, 1987; Bourque & Beaudette, 1982). This self-report instrument requires participants to choose among four statements (scored 0–3) reflecting increasing depressive symptomatology in 13 domains (total score range: 0–39). Higher scores indicate higher depressive symptoms. Internal consistency was $\alpha = 0.92$, $\omega = 0.93$.

State–Trait Anxiety Inventory (STAI; Gauthier & Bouchard, 1993; Spielberger & Gorsuch, 1983)–Trait subscale. This self-report instrument assesses trait anxiety by asking participants to rate 20 statements (e.g., “I feel nervous and agitated”) on a 1 = *almost never* to 4 = *almost always* scale (total score range: 20–80). Higher scores indicate higher trait anxiety. Internal consistency was $\alpha = 0.93$, $\omega = 0.95$.

Word Sentence Association Test–Negative (WSAP-N; Ogniewicz et al., 2014). We presented 16 ambiguous sentences (e.g., “There has been a change in my salary”) from the original 120-item pool presented in association with a positive/benign word (e.g., “increase”) and a negative (e.g., “decrease”) word. Participants rated the relatedness of word–sentence pairs on a 1 = *not at all* to 6 = *extremely* scale. This measure indexes negative (*but not socially hostile*) attributional biases by averaging negative word ratings (score range: 1–6). Higher scores indicate greater negative attributional biases. Internal consistency was $\alpha = 0.80$, $\omega = 0.82$.

Additional Measures: Criterion Validity

Inventory of Interpersonal Problems (IIP; Horowitz et al., 2003; Moors, 2020). This 64 items self-report instrument assesses difficulties in social interactions on eight subscales: Cold/Distant ($\alpha = 0.82$, $\omega = 0.85$), Domineering ($\alpha = 0.65$, $\omega = 0.75$), Intrusive/Needy ($\alpha = 0.76$, $\omega = 0.84$), Overly Accommodating ($\alpha = 0.78$, $\omega = 0.86$), Nonassertive ($\alpha = 0.88$, $\omega = 0.91$), Self-Sacrificing ($\alpha = 0.81$, $\omega = 0.86$), Socially Inhibited ($\alpha = 0.88$, $\omega = 0.92$), and Self-Centred ($\alpha = 0.72$, $\omega = 0.81$). Participants rate the personal relevance of each

item on a 0 = *not at all* to 4 = *extremely* scale (score range for each subscale: 0–32). Higher scores indicate more interpersonal problems.

Procedure

Participants completed all measures online starting with the WSAP-H. Sentence repetitions (once with a hostile word, once with a benign one) were separated by at least five trials, and the order of benign/hostile word pairings was counterbalanced. Participants had to respond as spontaneously as possible. All participants provided informed written consent. The ethical committees of the Psychological Sciences Research Institute and the University Hospital (UCLouvain) approved the protocol.

Analysis

We tested whether the hostile item scores followed a one-factor structure via confirmatory factor analysis using the *lavaan* (Rosseel, 2012) package in R (R Core Team, 2019). We fitted the model on polychoric correlations using the diagonally weighted least squared estimator to account for the ordinality of our data (Li, 2016). We evaluated model fit using available guidelines (Hooper et al., 2008): χ^2/df (optimal: <2, acceptable: 2–5), root-mean-square error of approximation, RMSEA (optimal: <0.06, acceptable: <0.08), standardized root-mean-squared residual, SRMR (optimal: <0.05, acceptable: <0.08), comparative fit index, CFI (optimal: >0.95, acceptable: >0.90), and Tucker-Lewis index, TLI (optimal: >0.95, acceptable: >0.80). We investigated internal consistency by computing Chronbach’s α and McDonald’s ω using the *psych* (Revelle, 2023) package and test–retest reliability using Pearson correlations between T1 and T2 measures, with values above 0.70 indicating acceptable reliability (Nunnally, 1994). We used a paired-samples *t* test to determine whether T1 and T2 scores significantly differed and computed Cohen’s *d* to estimate effect size. We computed Pearson correlations to investigate convergent, discriminant, and criterion validity. Finally, we used multiple linear regressions to determine whether the WSAP-H-derived HAB indices’ relationships remained after controlling for negative mood and negative attributional biases, providing further evidence of divergent validity. We also conducted complementary item response theory analyses (see Supplemental Material 2), showing that all items but Item 2 are discriminative at various trait levels and that the test captures information with precision across a broad trait spectrum.¹ Data and code are freely available (Pabst, 2023).

Results

Factor Analysis, Internal Consistency, and Test–Retest Reliability

The fit indices were all acceptable, $\chi^2/df = 2.966$; RMSEA = 0.079; SRMR = 0.076; CFI = 0.942; TLI = 0.933, but suboptimal. Inspection of loadings (see Supplemental Material 3) revealed that Item 2 was well below the recommended threshold of 0.32 (Tabachnick & Fidell, 2019), suggesting it is a poor indicator of the HAB construct presumably represented by the factor. This may be due to this item not necessarily implying human causation (e.g.,

¹ All analyses but test–retest reliability and mean comparisons were performed on data from the T1 sample.

wind may cause a door to slam). Based on these considerations (and on item response theory analyses), we removed this item and conducted all subsequent analyses without it. The fit indices without Item 2 improved slightly and were all acceptable to optimal, $\chi^2/df = 2.834$ RMSEA = 0.076; SRMR = 0.073; CFI = 0.952; TLI = 0.944, and all loadings were above 0.32. We however conducted additional exploratory analyses to investigate alternative data-driven factor structures (Supplemental Material 4). These confirmed our decision to retain a single-factor solution. Internal consistency indices for the HAB scores were $\alpha = 0.82$, $\omega = 0.84$. Test–retest reliability was $r = 0.79$, and the difference in mean scores at T1 (3.73) and T2 (3.65) was small and only close to significant, $t(79) = 1.88$, $p = .064$, $d = 0.21$.

Correlation and Regression Analyses

The correlations between WSAP-H-derived HAB and convergent validity measures were all significant and stronger than the correlations with BDI and STAI divergent validity measures, which were weak or nonsignificant (Table 1). The correlation with WSAP-N-derived negative attributional biases was moderate considering the two measures were structurally identical and weaker than the correlation with AIHQ-derived HAB. There were also significant correlations with the Domineering and Self-Centred (and, to a lesser extent, with Cold/Distant, Socially Inhibited, and Intrusive) subscales of the IIP-64. Finally, AIHQ-derived HAB remained

associated with anger, hostility, and interpersonal problems (Domineering and Self-Centred subscales) after controlling for depression, anxiety, or negative attributional biases (Table 1).

Discussion

We investigated the psychometric properties of the scores of a proposed French adaptation of the WSAP-H and found evidence supporting their reliability and validity as a measure of HAB in a community sample. Specifically, we found that the set of variances in item scores was acceptably represented by a single-factor structure, and our additional exploratory analyses further supported the use of an aggregated HAB score (after excluding Item 2). However, we note that the fit indices were not all optimal, suggesting that future, larger studies may be useful in clarifying the construct's facets and factor structure of the WSAP-H. We also found that the scores were internally consistent. The WSAP-H-derived HAB index was further positively and relatively strongly associated with another HAB measure, as well as with theoretically related measures of anger and hostility, supporting convergent validity. These relationships remained after controlling for negative mood indices, which were not (or weakly) related to HAB, supporting the test's divergent validity. Importantly, the absence of a link with depressive symptoms does not contradict previous results of heightened HAB in clinically depressed individuals (Smith et al., 2016), but rather indicates that HAB are not linearly related to subclinical levels of depression in healthy samples (Marks et al., 2021). This result pattern replicates the one obtained in the original validation study (Dillon et al., 2016) and points to the adequacy of the translation procedure.

Besides replicating the original validation study, we showed that the WSAP-H-derived HAB index exhibited adequate test–retest reliability at 8 weeks interval, indicating that it captures a reasonably stable construct (Dodge et al., 2015). Additionally, differences in group-averaged scores from T1 to T2 were only close to significance and were small in size, suggesting that the WSAP-H-derived HAB index is relatively insensitive to repetition effects at a group level and that moderate-to-large changes in HAB following intervention are unlikely to be explained by such effects alone. Moreover, WSAP-H-derived HAB were positively linked to (a) a tendency to be too domineering and aggressive, consistent with well-established effects (Klein Tuente et al., 2019) and (b) self-centred behaviours, even after controlling for relevant confounds. These associations have both psychometric and conceptual implications. They suggest that WSAP-H scores, as a measure, are able to predict real-life, self-reported interpersonal problems, supporting the criterion validity of the scale. They also reinforce the idea that HAB may impact social functioning not solely through aggression (Okruszek et al., 2021), but also by favouring interpersonal disinvestment and egocentric focus. Finally, we showed that WSAP-H-derived HAB were more strongly correlated with AIHQ-derived HAB than with negative, nonsocial attributional biases, despite the WSAP-N being structurally identical to the WSAP-H, and that most relationships remained significant after controlling for these negative biases. These results support divergent validity (Ziegler, 2020) and confirm that WSAP-H-derived HAB are distinct from other types of biased attributions (Dillon et al., 2016).

Our study relied on a large community sample that was gender-balanced and heterogeneous in terms of age and education. This

Table 1

Correlations Between HAB Scores and Relevant Measures, as Well as Standardized/Unstandardized Regression Coefficients for the Relation Between HAB Scores Convergent and Criterion Validity Variables

Measure	<i>r</i>	<i>b</i> ; $\beta_{\text{WSAP-N}}$	<i>b</i> ; $\beta_{\text{BDI+STAI-Trait}}$
AIHQ	0.57	/	/
STAX I-II-Trait	0.30	1.90; 0.23	1.91; 0.23
BPAQ-Hostility	0.27	1.47; 0.14	1.87; 0.18
BDI	0.10	/	/
STAI-Trait	0.15	/	/
WSAP-N	0.45	/	/
IIP			
Cold/Distant	0.12	0.13; 0.01	0.56; 0.06
Domineering	0.26	1.34; 0.21	1.46; 0.23
Intrusive/Needy	0.16	0.81; 0.10	0.99; 0.12
Overly Accommodating	0.00	/	/
Nonassertive	0.05	/	/
Self-Sacrificing	-0.01	/	/
Socially Inhibited	0.13	0.03; 0.00	0.45; 0.04
Self-Centred	0.29	1.65; 0.21	1.85; 0.24

Note. Correlations (*r*) between WSAP-H-derived HAB scores and relevant measures, as well as unstandardized (*b*) and standardized (β) regression coefficients for the relation between WSAP-H-derived HAB scores convergent and criterion validity variables after controlling for WSAP-N scores or depression and trait anxiety scores. WSAP-H = Word Sentence Association Paradigm–Hostility; HAB = hostile attributional biases; AIHQ = Ambiguous Intentions Hostility Questionnaire–Ambiguous items; STAXI-II-Trait = State–Trait Anger Expression Inventory II–Trait subscale; BPAQ-Hostility = Buss–Perry Aggression Questionnaire–Hostility subscale; IIP = Inventory of Interpersonal Problems; BDI = Beck Depression Inventory; STAI-Trait = State–Trait Anxiety Inventory–Trait subscale; WSAP-N = Word Sentence Association Test–Negative. Bold indicates $p < .05$.

lends confidence in the wide suitability of the WSAP-H to monitor HAB in the general population. Furthermore, it offers a solid basis for future studies to investigate HAB in clinical populations, where they represent a critical process (Pabst et al., 2020; Smith et al., 2016). An important perspective will be to establish the generalizability of the current psychometric properties of WSAP-H scores as indices of HAB in individuals with psychiatric disorders. This is crucial, as our findings indicate that the WSAP-H is useful for identifying individuals with high levels of HAB and for tracking intervention-related changes. In conclusion, we show that the French adaptation of the WSAP-H is an appropriate tool for the assessment of HAB in French-speaking populations. It is efficient, easy to administer, and yields reliable and valid HAB scores. Hence, it can be considered a valuable resource in both research and intervention settings.

Résumé

Les biais d'attribution hostiles (*hostile attributional biases*, HAB) sont impliqués dans plusieurs problèmes interpersonnels et de santé mentale. Il a été démontré que ces problèmes sont également présents dans les régions francophones. Or, les évaluations de HAB validées en français sont peu nombreuses et présentent des limites importantes qui empêchent leur adoption à grande échelle par les chercheurs et les professionnels de la santé. Nous avons donc mis au point une version française du *Word Sentence Association Paradigm-Hostility* (WSAP-H), qui est une mesure courte, facile à administrer et relativement implicite des HAB. Nous avons ensuite mené une étude psychométrique auprès d'un échantillon communautaire en ligne de 315 personnes. En reproduisant les études de validation précédentes, nous avons constaté que les scores du WSAP-H français étaient cohérents à l'interne ($\alpha = 0,81$; $\omega = 0,84$), et nous avons fourni des preuves factorielles (structure à un facteur), convergentes (corrélations significatives avec une autre mesure des HAB, ainsi qu'avec des constructions théoriquement liées à la colère et à l'hostilité) et discriminantes (corrélations faibles ou non significatives avec l'humeur négative) soutenant la validité des scores du WSAP-H en tant que mesures des HAB. Au-delà des résultats précédents, nous avons également montré que ces scores HAB (a) présentent une fiabilité test-retest acceptable ($r = 0,77$) et une stabilité (changements non significatifs et faibles [$d = 0,21$] au niveau du groupe) à un intervalle de 8 semaines, (b) sont liés aux problèmes interpersonnels autodéclarés, et (c) sont distincts d'une tendance plus générale à faire des attributions négatives. Les scores du WSAP-H français constituent donc une mesure fiable et valide des HAB, ce qui confirme l'utilité de cet outil dans le cadre de la recherche et de l'intervention.

Mots-clés : biais d'attribution hostiles, français, évaluation, agression, problèmes interpersonnels

References

- Beck, A. T., & Steer, R. A. (1987). *Manual for the Beck Depression Inventory*. Psychological Corporation; Harcourt Brace Jovanovich.
- Borteyrou, X., Bruchon-Schweitzer, M., & Spielberger, C. D. (2008). Une adaptation française du STAXI-2, inventaire de colère-trait et de colère-état de C.D. Spielberger [The French adaptation of the STAXI-2, C.D. Spielberger's State-trait anger expression inventory]. *L'Encéphale*, 34(3), 249–255. <https://doi.org/10.1016/j.enceph.2007.06.001>
- Bourque, P., & Beaudette, D. (1982). Étude psychométrique du questionnaire de dépression de Beck auprès d'un échantillon d'étudiants universitaires francophones [Psychometric study of the Beck Depression Inventory on a sample of French-speaking university students]. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, 14(3), 211–218. <https://doi.org/10.1037/h0081254>
- Buck, B., Iwanski, C., Healey, K. M., Green, M. F., Horan, W. P., Kern, R. S., Lee, J., Marder, S. R., Reise, S. P., & Penn, D. L. (2017). Improving measurement of attributional style in schizophrenia; A psychometric evaluation of the Ambiguous Intentions Hostility Questionnaire (AIHQ). *Journal of Psychiatric Research*, 89, 48–54. <https://doi.org/10.1016/j.jpsychires.2017.01.004>
- Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, 63(3), 452–459. <https://doi.org/10.1037/0022-3514.63.3.452>
- Coccaro, E. F., Noblett, K. L., & McCloskey, M. S. (2009). Attributional and emotional responses to socially ambiguous cues: Validation of a new assessment of social/emotional information processing in healthy adults and impulsive aggressive patients. *Journal of Psychiatric Research*, 43(10), 915–925. <https://doi.org/10.1016/j.jpsychires.2009.01.012>
- Combs, D. R., Penn, D. L., Wicher, M., & Waldheter, E. (2007). The Ambiguous Intentions Hostility Questionnaire (AIHQ): A new measure for evaluating hostile social-cognitive biases in paranoia. *Cognitive Neuropsychiatry*, 12(2), 128–143. <https://doi.org/10.1080/13546800600787854>
- Conroy, S., Burezycka, M., & Savage, L. (2019). *La violence familiale au Canada: Un profil statistique, 2018* [Family violence in Canada: A statistical profile, 2018]. Statistique Canada. <https://www150.statcan.gc.ca/n1/pub/85-002-x/2021001/article/00001-fra.htm>
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115(1), 74–101. <https://doi.org/10.1037/0033-2909.115.1.74>
- Dillon, K. H., Allan, N. P., Cogle, J. R., & Fincham, F. D. (2016). Measuring hostile interpretation bias: The WSAP-Hostility Scale. *Assessment*, 23(6), 707–719. <https://doi.org/10.1177/1073191115599052>
- Dodge, K. A., Malone, P. S., Lansford, J. E., Sorbring, E., Skinner, A. T., Tapanya, S., Tirado, L. M. U., Zelli, A., Alampay, L. P., Al-Hassan, S. M., Bacchini, D., Bombi, A. S., Bornstein, M. H., Chang, L., Deater-Deckard, K., Di Giunta, L., Oburu, P., & Pastorelli, C. (2015). Hostile attributional bias and aggressive behavior in global context. *Proceedings of the National Academy of Sciences of the United States of America*, 112(30), 9310–9315. <https://doi.org/10.1073/pnas.1418572112>
- Gagnon, J., McDuff, P., Daelman, S., & Fournier, S. (2015). Is hostile attributional bias associated with negative urgency and impulsive behaviors? A social-cognitive conceptualization of impulsivity. *Personality and Individual Differences*, 72, 18–23. <https://doi.org/10.1016/j.paid.2014.08.011>
- Gauthier, J., & Bouchard, S. (1993). Adaptation canadienne-française de la forme révisée du State-Trait Anxiety Inventory de Spielberger [A French-Canadian adaptation of the revised version of Spielberger's State-Trait Anxiety Inventory]. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, 25(4), 559–578. <https://doi.org/10.1037/h0078881>
- Gourlay, C., Collin, P., Caron, P.-O., D'Auteuil, C., & Scherzer, P. B. (2022). Psychometric assessment of social cognitive tasks. *Applied Neuropsychology. Adult*, 29(4), 731–749. <https://doi.org/10.1080/23279095.2020.1807348>
- Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, 6(1), 53–60. <https://academic-publishing.org/index.php/ejbrm/article/view/1224>
- Horowitz, L., Alden, L., Wiggins, J., & Pincus, A. (2003). *Inventory of interpersonal problems manual*. Mind Garden.

- Klein Tuate, S., Bogaerts, S., & Veling, W. (2019). Hostile attribution bias and aggression in adults—A systematic review. *Aggression and Violent Behavior, 46*, 66–81. <https://doi.org/10.1016/j.avb.2019.01.009>
- Li, C.-H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods, 48*(3), 936–949. <https://doi.org/10.3758/s13428-015-0619-7>
- Lollivier, S., & Soulez, C. (2015). *Rapport de l'observatoire national de la délinquance et des réponses pénales* (La criminalité en France) [Report of the national observatory of delinquency and penal responses (criminality in France)]. National Institute for Advanced Security and Justice Studies.
- Marks, C. K., Kraft, J. D., Grant, D. M., & Wells, T. T. (2021). The relationship between hostile interpretation bias and symptoms of depression and social anxiety: A replication across two samples. *Journal of Psychopathology and Behavioral Assessment, 43*(2), 251–258. <https://doi.org/10.1007/s10862-020-09839-y>
- Masse, C. (2001). *The Aggression Questionnaire. Adaptation, validation and implementation of the French version Aggression Questionnaire Buss & Perry* [Unpublished PhD thesis]. Université Joseph Fourier (Grenoble I).
- Moors, F. (2020). *L'émergence de la relation thérapeutique: Un éclairage par le paradigme interpersonnel* [Unpublished doctoral dissertation, UCL—Université Catholique de Louvain]. <https://dial.uclouvain.be/pr/boreal/object/boreal:232930>
- Nunnally, J. C. (1994). *Psychometric theory 3E*. Tata McGraw-hill education.
- Ogniewicz, A. S., Dugas, M. J., Langlois, F., Gosselin, P., & Koerner, N. (2014). An adapted word-sentence association paradigm for generalized anxiety and worry: Assessing interpretation bias. *Journal of Experimental Psychopathology, 5*(4), 3–5. <https://doi.org/10.5127/jep.00>
- Okruszek, Ł., Piejka, A., Krawczyk, M., Schudy, A., Wiśniewska, M., Żurek, K., & Pinkham, A. (2021). Owner of a lonely mind? Social cognitive capacity is associated with objective, but not perceived social isolation in healthy individuals. *Journal of Research in Personality, 93*, Article 104103. <https://doi.org/10.1016/j.jrp.2021.104103>
- Osgood, J. M., Kase, S. E., Zaroukian, E. G., & Quartana, P. J. (2021). Online intervention reduces hostile attribution bias, anger, aggressive driving, and cyber-aggression, results of two randomized trials. *Cognitive Therapy and Research, 45*(2), 310–321. <https://doi.org/10.1007/s10608-020-10147-8>
- Pabst, A. (2023). *French translation of the WSAP-H*. <https://osf.io/4p69k>
- Pabst, A., Peyroux, E., Rolland, B., de Timary, P., & Maurage, P. (2020). Hostile attributional bias in severe alcohol use disorder. *Journal of Psychiatric Research, 129*, 176–180. <https://doi.org/10.1016/j.jpsychires.2020.06.031>
- Peyroux, E., Prost, Z., Danset-Alexandre, C., Brenugat-Herne, L., Carreau-Martin, I., Gaudelus, B., Jantac, C., Attali, D., Amado, I., Graux, J., Houy-Durand, E., Plasse, J., & Franck, N. (2019). From “under” to “over” social cognition in schizophrenia: Is there distinct profiles of impairments according to negative and positive symptoms? *Schizophrenia Research. Cognition, 15*, 21–29. <https://doi.org/10.1016/j.scog.2018.10.001>
- Quan, F., Yang, R., Zhu, W., Wang, Y., Gong, X., Chen, Y., Dong, Y., & Xia, L.-X. (2019). The relationship between hostile attribution bias and aggression and the mediating effect of anger rumination. *Personality and Individual Differences, 139*, 228–234. <https://doi.org/10.1016/j.paid.2018.11.029>
- R Core Team. (2019). *R: A language and environment for statistical computing* (Version 3.6.1) [Computer software]. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Revelle, W. (2023). *psych: Procedures for psychological, psychometric, and personality research*. Northwestern University. R package version 2.3.6. <https://CRAN.R-project.org/package=psych>.
- Rossee, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36. <https://doi.org/10.18637/jss.v048.i02>
- Rouquette, A., & Falissard, B. (2011). Sample size requirements for the internal validation of psychiatric scales. *International Journal of Methods in Psychiatric Research, 20*(4), 235–249. <https://doi.org/10.1002/mpr.352>
- Smith, H. L., Summers, B. J., Dillon, K. H., Macatee, R. J., & Cogle, J. R. (2016). Hostile interpretation bias in depression. *Journal of Affective Disorders, 203*, 9–13. <https://doi.org/10.1016/j.jad.2016.05.070>
- Spielberger, C. D. (1999). *Manual for the State-Trait Anger Expression Inventory-2*. Psychological Assessment Resources (PAR).
- Spielberger, C. D., & Gorsuch, R. L. (1983). *State-Trait Anxiety Inventory for adults: Sampler set: Manual, test, scoring key*. Mind Garden.
- Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson.
- Ziegler, M. (2020). Psychological test adaptation and development—How papers are structured and why. *Psychological Test Adaptation and Development, 1*, 3–11. <https://doi.org/10.1027/2698-1866/a000002>

Received November 9, 2022

Revision received June 24, 2023

Accepted June 28, 2023 ■