

Validation of the Violent Ideations Scale (VIS) in Spain

Abstract

Research has shown that violent ideations (VIs) may play a key role in aggression and violence. However, there is no tool to measure this construct adapted to the Spanish language so far. The current study aims to translate and evaluate the psychometric properties of the Violent Ideation Scale (VIS, Murray et al., 2018). Using a convenience sample of 752 participants between 18- and 75-years old living in Spain (51.13% self-identified as females, 47.26% as males and the rest as "others", $M_{age} = 37.12$, $SD = 12.95$), dimensionality, gender measurement invariance, concurrent validity and reliability of scores were assessed. Results confirmed the unidimensionality of the instrument. Measurement invariance held across females and males and reliabilities were high (Cronbach's $\alpha = .94$, Composite Reliability = .87). We found a statistically significant positive concurrent relationship of $r = 0.32$ between VIS scores and self-reported aggressive behaviors. There was no strong evidence of discriminative ability of VIS with respect to committing aggressive behaviors. The VIS seems suitable for use in non-clinical Spanish speaking samples.

Public Significance Statement

This study explores the adaptation and validation of the Violent Ideation Scale (VIS) to European-Spanish. The VIS is a reliable tool to measure violent ideations in community Spanish-speaking samples.

Keywords: violent ideation, aggression, violence, cognition, validity, reliability, psychometric properties

Introduction

The thoughts or fantasies of inflicting physical or psychological harm to someone have been defined as violent ideations (VIs, Murray et al., 2018). These thoughts and mental images with violent content may be more frequent than one might expect, both in clinical (Brucato et al., 2019) and non-clinical samples (Patel et al., 2013). For example, Brucato et al. (2019) found in their study with people at high-risk for psychosis, that 32.5% reported VIs. In normative samples, Murray et al. (2018) have reported a prevalence of VIs ranging from 0.5% to 37%.

It is not yet clear whether VIs are a cause itself of aggressive behavior or rather a reaction to or a reflection of shared causes with aggressive behavior (Murray et al., 2016) and a review of the literature has revealed that relatively little research has been conducted in the area of violent fantasies and cognitions, particularly on non-sexual violent thoughts and fantasies (Gilbert & Daffern, 2017). Nevertheless, being able to reliably measure VIs may be useful in a broad number of fields. From a clinical perspective, VIs have been recently proposed as a good predictor of conversion to threshold psychosis and violent behaviors (Brucato et al., 2018). VIs have also been linked with serious mental illnesses (Brucato et al., 2018; Roché et al., 2018), and may be considered to some extent a general indicator of mental health difficulties (Murray et al., 2017). Further, addressing VIs as the cognitive component of aggressive behavior within a therapeutic intervention might also be beneficial (Nagtegaal et al., 2006), and some evidence regarding its effectiveness has already been gathered (Akerman, 2008). From a forensic point of view, VIs can be conceived as an indicator of potential risk for interpersonal violent behaviors (Murray et al., 2018), especially in psychiatric patients (Grisso et al., 2000).

In research, VIs perform an essential role in different perspectives and theories entailing the explanation of aggression and violence such as evolutionary theories of violence

(Eisner, 2009) or social cognitive theories of aggression (Anderson & Huesmann, 2003), and metatheories like the general aggression model (GAM, Anderson & Bushman, 2002) or the I3 model (Finkel, 2014).

Evolutionary theories of violence stress the flexibility and (mal)adaptability of human behavior, the evolution process of human psychological mechanisms, as well as how the evolved human psychology makes more it likely that we learn certain beliefs and practices than others (Durrant & Ward, 2011). For instance, regarding homicide, evolutionary explanations conceive the thoughts of killing someone as functional to make credible threats and explore the possibility of homicide. Within this framework, the decision of any course of action would rely on assessing the costs and benefits of actually translating these ideations into real behavior (Duntley & Buss, 2011).

Social cognitive theories explain some of the constructs and processes leading to aggression. These theories posit that aggression is learned and modeled through exposition and direct experience since the development of social behavior is contingent on internal self-regulation processes (Anderson & Huesmann, 2003). As such, aggression-prone individuals have more ingrained aggression-related cognitions. For example, the cognitive neoassociation model of aggression postulates that aversive experiences and aggression-related stimuli tend to activate aggressive reactions automatically, whereas the information/cognitive processing can mediate increasing or mitigating aggressive inclinations (Berkowitz, 2012a). Here, associated thoughts, emotions, and behaviors are stored in the memory and can be generalized across situations as a script, which may be different in individuals who frequently behave violently (Berkowitz, 2012b).

GAM integrates several theories of aggression into one model, and despite some flaws (Ferguson & Dyck, 2012), it recognizes and organizes the role of multiple factors contributing to aggression: biological, cognitive, social, and developmental. GAM comprises

inputs—individual and situational—, routes—present internal states— and outcomes of appraisal and decision-making processes (Allen et al., 2018). In this model, VIs can be understood as a structure of knowledge used as a guide into memory entailing a process of rehearsal, elaboration, and integration; so, aggressive individuals usually retrieve and use these scripts informing how to behave aggressively thorough different situations and contexts (Gilbert et al., 2013). Thus, addressing violent thoughts may be a key step to reduce violent behaviors towards the self or the intimate partner, and even intergroup violence (DeWall, Anderson, et al., 2011).

The I3 model emphasizes the underlying self-regulatory processes. This model identifies three orthogonal processes: instigation, impellance, and inhibition, influencing the likelihood and intensity of a specific behavior such as aggression (Finkel & Hall, 2018). Instigation refers to immediate environmental stimuli that typically triggers an impulse to aggression (e.g., provocation). Impellance alludes to the effects of situational or dispositional factors (e.g., trait aggressiveness) affecting the instigator's impact, which produces a proclivity to aggression. (Dis)inhibition entails situational or dispositional factors that increase or decrease the likelihood of overriding aggressive impulse (e.g., trait self-control). Instigating and impelling risk factors interplay determining the aggressive impulse's strength, while (dis)inhibitory factors resolve whether this impulse results in aggressive behavior or not (Finkel, 2014). Consequently, the highest likelihood of aggression appears when both instigation and impellance are strong, and inhibition is weak. Therefore, VIs may operate in opposition to self-control-based inhibitions regarding aggressive impulses (Murray et al., 2016).

As seen above, VIs can be related to critical aspects of aggressive behavior, both reactive and proactive, immediately prior to the action. However, measuring VIs can be challenging. VIs refer to cognitions, and cognitions cannot be measured directly but are only

accessible through behaviors or other observable indicators (Nosek et al., 2011). Moreover, VIs might also be subject to social desirability bias (Piedmont, 2014). In this sense, a suitable way of addressing this limitation is by using a self-report measurement (Demetriou et al., 2015). This method reports lower social desirability bias than other tools and is a practical economical way of gathering easily interpretable data from a great number of subjects.

Instruments for assessing aggression-related cognition are sparse. There are few self-report instruments currently available to measure VIs. The Firestone Assessment of Violent Thoughts (FAVT, Doucette-Gates et al., 1999) incorporates four types of negative thoughts, namely social mistrust, thoughts of being disregarded, negative critical thoughts, and thoughts/expressions of overt aggression. Indeed, FAVT was designed to assess not only violent ideations but also what the authors define as the "voice". This concept represents an integrated pattern of negative thoughts and angry affect that is proposed as the basis of an individual's behavior. This instrument has been used mainly on small samples, with predominantly male or institutionalized participants, without reporting any of its psychometric properties (Bork, 2014; Howden et al., 2018).

Another instrument is the Schedule of Imagined Violence (SIV, Grisso et al., 2000), consisting of a set of eight structured questions with a range of response categories. Specifically, the questions inquire about the recency, frequency, and chronicity of self-reported violent thoughts, as well as the similarity/diversity in type of harm imagined, whether the target is focused or more generalized, whether the seriousness of harm changes over time, and the proximity of the individual to the target of their violent thoughts. The SIV was initially developed as a part of the MacArthur Violence Risk Assessment to study the pervasiveness of self-reported violent thoughts by hospitalized patients. Good predictive (Monahan et al., 2000) and discriminant validity (Grisso et al., 2000) have been reported. However, this instrument is designed to treat each question separately, which prevents the

possibility of quantifying VIs with a total score. Besides, some studies have found that this measure could underestimate the prevalence of VIs (McKenzie et al., 2018).

Another available instrument to account for VIs is the Violent Ideation Scale (VIS, Murray et al., 2018). The VIS contains 12 items related to ideations of physical violence, humiliation, verbal violence, and bullying, and it is scored on a 5-point Likert scale ranging from never to very often. The victim of the aggression may be a known person or a stranger, and the aggression might be due to perceived provocation or for no reason. In the initial validation study (Murray et al., 2018), the item pool contained a total of 14 items, with two items exploring sexual violent ideations. However, these two items were not included in the final VIS, as they were found not to relate strongly to other items, which led to a final version of the instrument with 12 items. Its original version was designed in the German language, tested in Switzerland, and reported good psychometric properties in terms of test-retest reliability, internal consistency, concurrent, discriminant, and predictive validity (Murray et al., 2018). The English version (McKenzie et al., 2018) also provided satisfactory psychometric indicators, suggesting it could be applied to other populations.

Violent cognitions are conceptualized, both for the forensic population and the general population, as a risk factor for the development of violent behavior, as well as a leading element in the understanding of aggression and its prevention. However, the study of VIs in Spanish-speaking countries has received little attention. Only some research has been focused on the exposure to violent video games and the development of violent behavior in adolescents (Lemos & Espinosa, 2015), and a theoretical review on sexual fantasies and thoughts (Moyano & Sierra, 2014). Also, the Implicit Association Test (IAT, Greenwald et al., 1998) has been explored to assess violent cognitions in university students (Mora, 2019). The preliminary results have shown some promise indirect techniques may be an alternative to address some of the pitfalls of direct and explicit measures of violence-related cognitions.

More research on the topic is still needed, which should also include the impact of the stimulus materials regarding the population studied (Larue et al., 2014).

Considering all the above, and in order to increase the empirical knowledge regarding VIs, the objective of this study was to adapt and validate the VIS in a sample of adults from the general population in Spain. Our study's results may help clinicians and other professionals in their decisions regarding appropriate interventions for clients reporting violent cognitions. They can also be useful for research focused on risk factors for violent behavior.

Methods

Measures

Violent Ideations Scale (Spanish version). The questionnaire included the 14 items from the original VIS validation (Murray et al., 2018). We decided to test all 14 items, including the two items addressing violent sexual ideations, which were excluded from the final Swiss-German VIS. As Murray et al. (2018) noted, the original validation showed ambiguous results in relation to the rejection of these two items, thus we considered it important to analyze whether that pattern held in a different sample.

Participants were asked to respond on a five-point Likert-type scale how often they had experienced the presented violent ideations in the past month. The item description in Spanish and English can be found in Table 1.

TABLE 1 HERE

Aggressive behaviors perpetrated in the past month. In order to study whether violent ideations were related to actual aggressive behaviors, we created an *ad hoc* questionnaire to explore if the participants had committed any aggressive behaviors in the past month. This questionnaire contained 7 items focused on different aggressive behaviors such as physical

violence, insulting, threatening, spreading rumors, stealing, social exclusion and accessing someone else's phone or computer (e.g., I hit, kicked, or pushed someone). We selected items that represent relatively low levels of intentional harm in consideration of the fact that our target group was a general population at low risk of serious physical violence. The respondents had to indicate how often they had engaged in those behaviors in the past month through a five-point Likert-type scale. Cronbach's alpha for this scale was .86.

Procedure

The translation of the VIS items was conducted by researchers of three Spanish universities (i.e., [details omitted for double-anonymized peer review]). The original version was first translated by [details omitted for double-anonymized peer review] and [details omitted for double-anonymized peer review] independently. Both versions were compared, finding no meaningful differences. The authors agreed on a final version, which was back-translated into English by [details omitted for double-anonymized peer review]. The final version was revised and approved by all Spanish speaking authors (Tsang et al., 2017).

The data collection took place online from April to July 2020 due to the COVID-19 pandemic. The questionnaire was administered through the LimeSurvey platform. The survey included socio-demographic questions, the VIS, the questionnaire on committed aggressive behaviors, and two other questionnaires which were included for future analysis. The sample was selected by convenience through a link to the questionnaire that was disseminated through social media and academic channels and could be accessed both from computers and mobile devices. Participants responded to the questionnaires in about 10 minutes.

On the first screen, the participants were informed about the aims of the study, that their answers were anonymous and confidential, and the conditions for participating were described. They were also warned that their collaboration was voluntary and that some

questions could be sensitive due to their content. Before entering the questionnaire, they had to read and agree that they fulfilled the inclusion criteria, that they understood and accepted the data protection policy, following the General Data Protection Regulation. The participants were also provided with a contact email for questions on the study and the handling of their data. This study followed national and international ethical standards, including the Declaration of Helsinki.

Participants

The condition for participating in this research was a) to be of age (≥ 18 years), b) to be Spanish or to live in Spain and c) to have a good understanding of the Spanish language.

Respondents were asked about socio-demographical information and were given the option of not disclosing the information. The sample included 752 participants, of which 383 self-identified as females, 354 as males and 6 as “other”. As for their country of origin, 662 identified as native Spanish, 56 as first-generation immigrants, 7 as second-generation immigrants and 23 as “other”. As for their ethnical origin, 667 participants identified as Spanish, 55 as Latin American, 20 as European (non-Spanish), 2 as Arab, 1 as Oriental Asian, 1 as Sub-Saharan African and 4 as “other ethnicity”. The age of the participants ranged from 18 to 75 years old ($M = 37.12$, $SD = 12.95$).

Analysis strategy

Factor structure. Previous validation studies of VIS showed unidimensionality for the scores of the measure (McKenzie et al., 2018; Murray et al., 2018). Given that VIS has already been validated in German and English, a confirmatory factor analysis (CFA) was performed to test the scale dimensionality with one-factor solutions with the Spanish sample. We calculated

CFA for 14 and 12 items. Considering the ordered-categorical nature of the items, we used Weighted Least Square Mean and Variance Adjusted (WLSMV) estimation for the CFA. A good fit of the model was considered when Tucker Lewis index (TLI) and Comparative Fit Index (CFI) were $>.95$, Root Mean Square Error of Approximation (RMSEA) was $<.08$ and Standardized Root Mean Square Residual (SRMR) was < 0.8 (Beauducel & Wittmann, 2005; Hu & Bentler, 1999).

Internal reliability analysis and average variance extracted. To assess internal reliability, we calculated Cronbach's Alpha using a polychoric correlation matrix that accounts for the data's ordinal nature (Gadermann et al., 2012). Good internal reliability was considered when Alpha > 0.8 (Lance et al., 2006; Nájera, 2019). Composite reliability (CR) was calculated based on the factor loadings in the retained CFA solution. To account for ordinality, we reported the nonlinear SEM reliability coefficient by Green and Yang (Viladrich et al., 2017). A CR of > 0.7 indicated good internal reliability (Hair et al., 2014). We also computed the Average Variance Extracted (AVE), where levels of 0.5 were considered acceptable, whilst values above 0.7 were considered very good (Fornell & Larcker, 1981).

Gender measurement invariance. In order to evaluate if the Spanish VIS scores could be validly compared across genders, we conducted a measurement invariance analysis. When splitting the sample into male and female, some response categories were not selected by one group. The two last response categories, "often" and "very often", were merged into one category to deal with this.

There are some considerations to be taken into account when testing invariance for ordinal data, as the estimator (WLSMV), analysis matrix (polychoric correlation) and parameters (factor loadings, thresholds, and residual variances) are different from the

analogous analysis with continuous data (Bowen & Masa, 2015). We used a four-step approach to work with our ordinal data. First, a baseline model for both groups was identified, then a multi-group analysis was conducted to test for configural invariance. In a third step we fit the model with all factor loadings constrained to test for metric invariance. Finally, the model adding constraints to both loadings and thresholds to test for scalar invariance was fit (Hirschfeld & von Brachel, 2014; Bowen & Masa, 2015). Metric invariance was considered to hold if the addition of loading constraints resulted in a decrease in fit of less than a decrease for 0.010 in CFI, less than 0.015 increase for RMSEA and less than 0.030 increase for SRMR (Chen, 2007). Scalar invariance was considered to hold if the incorporation of threshold constraints resulted in a decrease of fit of less than 0.010 decrease for CFI, less than 0.015 increase for RMSEA and less than 0.010 increase in SRMR (Chen, 2007).

Relationship between VIS and aggressive behaviors. We tested the correlation of the VIS by calculating Spearman's rank correlation coefficient between the total score of the VIS and the sum of the aggressive behaviors reported in the last month. As theories propose that the link between VIs and the actual behavior may be influenced by other important variables, such as the cost-benefit assessment of actually turning these thoughts into acts (Duntley & Buss, 2011) or the ability of the individuals to self-regulate (DeWall, Fisman, et al., 2011), we expect the relationship between VI and the aggressive behavior to be positive, but its magnitude remain an exploratory analysis. We considered Pearson's r coefficient of .30 or above to show a meaningful effect size (Gignac & Szodorai, 2016; Funder & Ozer, 2019). We also provide a scatter plot to contextualize its interpretation.

Discriminative ability. A Receiver Operator Characteristic (ROC) analysis was performed to assess if the VIS could accurately classify the commission of aggressive behaviors, as in the original study (Murray et al., 2021). For this purpose, we used self-

reported aggressive behaviors in the past month. We chose three items related to physical assault, threats, and robbery and tested whether VIS scores were useful to distinguish between those individuals that had committed at least one of these three offenses. The ROC curve is a two-dimensional plot that helps depict the discriminative power of a scale and helps identifying the optimal cut point balancing clinical sensitivity (true positives) and specificity (true negatives) when classifying individuals based on scale scores. To obtain an overall performance value, we calculated the area under the ROC curve (AUC).

The AUC allows calculating the probability of the model ranking a randomly chosen positive occurrence higher than a randomly chosen negative occurrence. AUC ranges from .5 - chance classification - to 1 - perfect classification - (Fawcett, 2006). In order to obtain the appropriate cut-point to classify individuals as to the probability to commit aggressive behaviors in a short time, we used the Youden index (J) following previous studies (Murray et al., 2018), which provides the cut-point c by integrating sensitivity and specificity information when both sensitivity and specificity are given equal weights.

All analysis were conducted using R Statistical Software (version 4.0.3; R Foundation for Statistical Computing, Vienna, Austria)

Results

Descriptive Statistics

Table 2 shows the item descriptive for the initial 14 Spanish VIS items. In all items, but item 9 (humiliating someone weaker), all five response categories were chosen. For all the items, the most frequently selected answer was “never”. However, items 2, 6 and 11 obtained higher response rates for the second to fourth categories in the scale. All these three items represent ideations related to violent payback. The proportion of participants that reported at least one violent ideation in the past month ranged from 4% (item 4 - beating up a

stranger for no particular reason - and item 10 - having sex with someone who is resisting-) to 32% (items 2 and 11 concerning violent payback). These proportions are very similar to those observed during the Swiss German validation (Murray et al., 2018).

TABLE 2 HERE

Factor structure

Two one-factor models were tested: one with 14 items and one with 12 items, excluding both violent sexual ideation items. Factor loadings can be seen in Table 3. The first model with 14 items showed a worse fit (TLI = .939, CFI = .948, RMSEA = .091, SRMR = .090), whilst the one-factor model with 12 items showed an acceptable fit (TLI = .967, CFI = .974, RMSEA = .076, SRMR = .060). The 12-item model was retained due to the better fit, and because it was analogous in structure to the Swiss-German and English VIS versions of the questionnaire.

TABLE 3 HERE

Internal Reliability Analysis and Average Variance Extracted

The Spanish VIS showed good internal reliability with a Cronbach's Alpha of .94 and a composite reliability value of .87. An Average Variance Extracted of .58 was obtained, which is considered acceptable.

Gender measurement invariance

To perform a gender measurement invariance analysis, the two last response categories, "often" and "very often", from the original five-point scale were merged into one category due to low levels of responses in the latter category. We fit a model (M0) with the merged categories and the whole sample again, obtaining almost identical results to the analysis with five categories. The male sample (MM) obtained a better fit than M0 and the model fit for the

female sample (MF) was worse than both for the male and the total sample. Configural variance was supported with TLI .96, CFI .97, RMSEA .069 and SRMR .073. The results showed a slight increase of CFI and decrease of both RMSEA and SRMR from the configural model to the metric model, all representing improvements in fit. We interpreted these results as supporting metric invariance. Finally, the observed Δ CFI, Δ RMSEA and Δ SRMR supported scalar invariance across the Spanish sample's male and female groups. All model fit indices are shown in Table 4.

TABLE 4 HERE

Relationship between VIs and aggressive behaviors

The correlation between the VIS total score and the total score of aggressive behaviors in the past month was $\rho = .29$ ($\alpha = 0.00$). However, in Figure 1 we can appreciate many observations with high VIS scores and low scores when reporting aggressive behaviors.

FIGURE 1 HERE

Discriminative Ability

A ROC analysis was performed (Figure 2), to identify a cutoff point on the VIS sum scores that would indicate risk for actual aggressive behaviors. The AUC was .63. According to the Youden index, the optimal cut-point was 14 and at this cut-point, sensitivity was .77 and specificity was .46. These results suggest that VIS does not have a good discriminative power to classify short-term aggressive behaviors in normative populations.

FIGURE 2 HERE

FIGURE 3 HERE

Discussion

Violent ideations are present and prevalent in the general population and have been found to predict different problem behaviors such as threshold psychosis and violence (Brucato et al., 2018) and mental illness (Brucato et al., 2018; Roché et al., 2018). Nevertheless, the number of studies on VIs is still low, and their relations to different aspects of mental health and interpersonal relationships still need to be explored. This is only possible if reliable and valid measurement instruments are available.

The number of available instruments to measure VIs is scarce. Among them, VIS is an instrument that has shown good psychometric properties and has been validated in Switzerland (Murray et al., 2018) and the UK (McKenzie et al., 2018) previously. Thus, the current study was conducted to analyze the psychometric properties of the Spanish version of VIS. To our knowledge, this is the first validated instrument to measure violent ideations in Spain, and further studies may test their adaptation to other Spanish-speaking countries.

The Spanish version of VIS showed good psychometric properties. As in its original Swiss-German version (Murray et al., 2018), VIS has 12 items focused on different types of violent ideations. A confirmatory factor analysis showed a good fit of the Spanish data to its proposed one-factor structure. Moreover, the current study showed that the VIS can provide scores that are valid and reliable markers of violent ideations in Spain and that can be used for both males and females. Thus, the present findings provided a robust instrument that can be used to measure violent ideations in different settings, including research and practice.

Interestingly, in this Spanish sample, the more frequently endorsed items were those that included provocation or trigger by the victim, e.g., using violence to get back at someone who harmed me. In contrast, in the original version, the items more frequently endorsed were related to verbal violence, which is usually considered less severe (e.g., humiliating someone

I despise). The triggers for violent ideations might be different in one culture or another, so future research aimed to go deeper into these divergences might provide new insights in this regard. Authors such as Cohen and Nisbett (1994) already studied how some cultures might participate of collective representations that justify violent behaviors based on a “culture of honor” and self-protection. Measurement invariance analyses of the VIS across country contexts may also yield insights into violent ideations are understood and expressed across different cultures.

In terms of internal structure, the goodness-of-fit indexes obtained were slightly better than the reported in the original study (Murray et al., 2018) and slightly worse than the English validation (McKenzie et al., 2018). The consistent one-factor solution found across samples suggests unidimensionality, although this should be further replicated in future studies. The fact that items referring to sexual violent ideations had to be removed both in the Swiss-German and the Spanish validations calls for further analyses to understand if this type of ideations should be included in this construct or try to capture them by measuring them independently.

Furthermore, research on antisocial cognitions and aggressive behavior uses terms such as aggressive scripts or violent fantasies describing comparable cognitive processes. These concepts are often based on incomplete or imprecise definitions and are also used interchangeably, and as a result, there is some overlap between both terms hampering comparison between studies and confounding their measures (Gilbert & Daffern, 2017). For this reason, greater conceptual clarity is needed between aggressive scripts and violent fantasies, which can be carried out through an accurate differentiation or a unification of both concepts, but also distinguishing these from angry ruminations, resulting in a better understanding of the phenomenon as well as encouraging more informed interventions.

Regarding reliability, we found excellent internal and very good composite reliability. This was comparable with previous studies (for example, McKenzie et al., 2018), and suggests that this measure could be confidently used in research.

As expected, we found a positive relationship between VIs and aggressive behavior, which is consistent with what previous studies have reported (Brucato et al., 2018). Our results did not confirm a discriminative power of VIS to classify short-term aggressive behaviors. Taken together, the magnitude of the ρ coefficient and the results of our ROC curve could provide evidence that VIs explain only to a limit extend the variance of aggressive behavior. Variables that can complement the explanation of aggressive/violent behavior as proposed in previous work (DeWall, Anderson, et al., 2011; Duntley & Buss, 2011) may be tested in future research including the VI influence. Different types of violent behavior are present and prevalent already in childhood and adolescence (Nasaescu et al., 2020), and discovering if concurrent violent ideations increase actual violent behavior could be a steppingstone for its prevention.

Limitations and future directions

First, regarding the analysis carried out, it should be taken into account that factor analysis techniques are subjective and are based on a process of conceptual decision-making, interpretation, and judgment based on the results (Meehl et al., 1971). Second, the current study included a broad sample of Spanish speaking adults. It used a robust instrument with good psychometric properties in Switzerland and the UK. Nevertheless, it also has some limitations that need to be recognized in the interpretation of these results, such as using a cross-sectional design and convenience sampling selected through social networking sites and academic contacts. Thus, many of the participants were university students and their contacts. It is also important to note that this study was conducted during the COVID-19 pandemic.

The situation at the time might have an impact on the occurrence of both violent ideations and behaviors. Another aspect to consider is that the instrument used to measure aggressive behavior in the past month was based on self-report, created ad-hoc and without testing its psychometric properties beyond its reliability (based on Cronbach's alpha).

Ideally, future studies should confirm our findings using representative samples of the general population and clinical samples. They could also test the power of VIs to explain aggressive/violent behavior as measured with other instruments and in combination with other important variables. Likewise, it would be interesting to study how VIs can contribute to prospective interventions.

Even with these limitations, the current study fills pressing gaps in knowledge by providing a robust instrument that can measure violent ideations, opening up new horizons in research focused on violence with the possibility of conducting cross-national studies comparing countries where VIS has already been validated.

Conclusions

The VIS seems a reliable and valid tool to measure violent ideations in community Spanish-speaking samples, both in females and males. Our analysis adds evidence to the unidimensionality of the VIS and suggest that these thoughts are related to engaging in aggressive behavior in the previous month. We expect that this brief tool will allow gaining new insight into its use and the role of VIs in research, clinical and forensic contexts.

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