



## Psychometric parameters of an abbreviated vengeance scale across two countries



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### ABSTRACT

We propose a short and ultrashort version of the vengeance scale (Stuckless & Goranson, 1992). Across three samples, good psychometric properties and convergent validity for the new scales were found. Study 1 found in a Brazilian sample that the original 20 items can be reduced to both a 10 and 5 item version (VS-10 and VS-5), without losing psychometric quality. In Study 2, the one-factorial structure was confirmed in a Brazilian and a British sample. Also, (partial) measurement invariance was established across gender and countries for the VS-10, but not for the VS-5. Across both samples, the short-versions correlated as expected with the Big-5, Big-6, and Dark Triad. Overall, the 10- and 5-item versions of the vengeance scale exhibited comparable reliabilities and validities to the full version.

*“Haste me to know 't, that I, with wings as swift  
As meditation or the thoughts of love,  
May sweep to my revenge.”*

W. Shakespeare, Hamlet

### 1. Introduction

Extreme hurts, such as suffering a betrayal, assault, or slander, can elicit strong emotional reactions. Some people are willing to forgive those who hurt them, whereas others prefer to “get even” by seeking revenge against the transgressor. Numerous studies have examined the latter propensity to seek vengeance (e.g., Cota-McKinley, Woody, & Bell, 2001; Schumann & Ross, 2010). Vengeance can be defined as “the infliction of harm in return to perceived wrong” (Stuckless & Goranson, 1992, p. 25). The act of vengeance can vary in magnitude, according to the seriousness of the first attack, the transgressor's intentionality, and the proximity to the victim (Gollwitzer & Denzler, 2009; Schumann & Ross, 2010).

McCullough, Bellah, Kilpatrick, and Johnson (2001) suggest that three main goals underpin vengeance. First, *vengeance as balancing the scales*, where the individual sees the act as truly moral, restoring the

equilibrium with the aggressor or “getting even”. Second, *vengeance as moral instruction*, where the act works as a moral-educative reaction, to show the offender that a particular type of behavior is not acceptable in society. Finally, *vengeance as saving face*, as an attempt to show the aggressor the victim's value or self-worth and that he or she needs respect and dignity.

To the revenger, the act of vengeance can promote the idea of justice, especially when the transgressor knows that vengeance is a reaction to a previous behavior (Gollwitzer & Denzler, 2009; Gollwitzer, Meder, & Schmitt, 2011). Besides the direct message to the transgressor, vengeance can also be interpreted as a message to those with similar characteristics, proximity and connection to the transgressor, advising others not to mess with the victim (Sjöström & Gollwitzer, 2015). Thus, even when considered an immature and unethical reaction, vengeance can present adaptive functions by keeping the victim away from potential transgressors (Grobbink, Derksen, & Marle, 2014; McCullough, 2008).

Because of its relevance to everyday life, researchers have aimed to get a better understanding of the antecedents and correlates of vengeance behavior. The scale used most often was developed by Stuckless and Goranson (1992). Their 20-item vengeance scale measures

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attitudes toward revenge. In the development process of the scale, 600 individuals participated across three studies. The factor analysis performed across the studies showed a multidimensional distribution of the items. However, the first factor explained > 40% of the variance, while the other factors explained < 9% of the variance. Thus, the Stuckless and Goranson argued that it is best to assume a one-dimensional structure. Also, the studies provided evidence for the measure's validity, internal consistency ( $\alpha = 0.92$ ), and high test-retest reliability over five weeks ( $r = 0.90$ ,  $p < 0.001$ ). The convergent validity was demonstrated by correlations with different measures such as empathy ( $r = -0.33$ ,  $p < 0.001$ ) and anger ( $r = 0.42$ ,  $p < 0.001$ ).

The scale has been used in numerous studies on diverse topics, including perceptions of violence following a betrayal by a romantic partner (Forbes, Jobe, White, Bloesch, & Adams-Curtis, 2005), human values (McKee & Feather, 2008), religious orientation (Greer, Berman, Varan, Bobrycki, & Watson, 2005), reappraisal and aggressive behavior (Barlett & Anderson, 2011), and subjective happiness and forgiveness (Uysal & Satici, 2014). The scale also exhibits good psychometric properties in different cultures and languages, including Italian (Ruggi, Gilli, Stuckless, & Oasi, 2012), Turkish (Satici, Can, & Akin, 2015), and Japanese (Sawada & Hayama, 2012).

Other studies have focused on relations between attitudes toward vengeance and personality. As Ruggi et al. (2012) emphasize, “a dispositional and trait-based interpretation of personality would define vengeance as an individual phenomenon that is quite stable and dependent on the individual's psychic and experimented features” (p. 366), which points to a close relation between those constructs. For example, these authors found significant correlations between vengeance and energy ( $r = 0.19$ ,  $p < 0.001$ ), friendliness ( $r = -0.48$ ,  $p < 0.001$ ), conscientiousness ( $r = -0.14$ ,  $p < 0.001$ ) and emotional stability ( $r = -0.26$ ,  $p < 0.001$ ). In another study, Sheppard and Boon (2012) found significant correlations between vengeance and honesty-humility ( $r = -0.40$ ,  $p < 0.001$ ) and agreeableness ( $r = -0.42$ ,  $p < 0.001$ ).

Although the vengeance scale provides consistent results and important findings across the world, its length can be a potential issue, especially in research environments relying on quick assessments (e.g., online or field studies) or that require steps to minimize participant fatigue, inattentiveness, or boredom (e.g., due to multiple additional measures, arduous tasks). These pressures raise the need for a shorter scale. Short-form “may substantially increase both the Type 1 and Type 2 error rates” (Credé, Harms, Niehorster, & Gaye-Valentine, 2012, p. 874), because of possible failures when assessing their reliability and validity (Rammstedt & Beierlein, 2014). Nonetheless, researchers have attempted to address these issues while rigorously developing and testing a number of short scales in recent years (Gosling, Rentfrow, & Swann, 2003; Rammstedt & John, 2007; Widaman, Little, Preacher, & Sawalani, 2011; Yarkoni, 2010). In the present research, we sought to balance the concerns about short-form scales with their utility by rigorously developing and evaluating both a short and an ultrashort version of the vengeance scale, which contain 10 and 5 items, respectively.

## 2. The present research

The current studies developed a short and ultrashort version of the vengeance scale. We tested the psychometric properties through different techniques (e.g., Item Response Theory, exploratory factor analysis, confirmatory factor analysis), and we examined its convergent validity with personality traits. To achieve these aims, we conducted two studies with three samples: two Brazilian samples (Study 1 and 2) and one British sample (Study 2). This design allowed us to test for measurement invariance (equivalence) of the shortened versions of the scale across countries. This type of analysis was not performed in previous validations, leaving unaddressed whether the measure differs regarding people's culture or gender, for example.

In Study 1, an exploratory factor analysis was performed, with the best items selected through Item Response Theory in the Brazilian sample. In Study 2, we conducted confirmatory factor analysis and factorial invariance tests to confirm the proposed structure in samples from Brazil and United Kingdom. The datasets for all three samples can be found on [https://osf.io/f87gm/?view\\_only=535394772041474b8f8722418eaf76cc](https://osf.io/f87gm/?view_only=535394772041474b8f8722418eaf76cc).

## 3. Study 1

### 3.1. Method

#### 3.1.1. Participants

Participants were 202 individuals, with a mean age of 25.60 ( $SD = 7.78$ ), 56.4% female.

#### 3.1.2. Material and procedure

Data was collected through an online questionnaire. Participants were recruited through social media (e.g., Facebook), where the link was made available. The online questionnaire provided information about how to proceed with the study and contact details of the researchers. Participants completed the following scales.

**3.1.2.1. Vengeance scale (Stuckless & Goranson, 1992).** It was developed as a measure of attitudes toward revenge and consists of 20 items. Example items include “I don't just get mad, I get even” and “I try to even the score with anyone who hurts me”. Participants are asked to what extent they agree with these sentences, answering on a seven-point scale (1 = *Disagree Strongly*; 7 = *Agree Strongly*).

**3.1.2.2. A Ten-Item Personality Inventory (TIPI; Gosling et al., 2003).** This scale was developed to measure the Big Five personality factors (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experiences). Participants answer the inventory using a seven-point scale (1 = *Disagree Strongly*; 7 = *Agree Strongly*) and examples of characteristics include “Critical, quarrelsome” and “Anxious, easily upset”.

#### 3.1.3. Data analysis

The data was analyzed using the software Factor 10.3.01 (Lorenzo-Seva & Ferrando, 2013) and R (R Development Core Team, 2015). Factor 10.3.01 was used to evaluate the factorial structure of the vengeance scale, using Exploratory Maximum Likelihood (ML) method. R was used to calculate the individual parameters of the items, using the MIRT (Multidimensional Item Response Theory; Chalmers, 2012), package to assess the threshold, discrimination, and informative curve of each item. Due to the polytomous nature of the measure, the Graded Response Model (Samejima, 1968) was used.

### 3.2. Results

Both the Kaiser-Meyer-Olkin (0.93) and Bartlett's Test of Sphericity [ $2551.9(190)$ ,  $p < 0.001$ ] showed a good fit to the data, allowing us to perform an exploratory factor analysis (Field, 2013). An exploratory factor analysis, using ML, resulted in a two-factor solution with eigenvalues > 1 (9.67 and 1.82). However, the Hull Method, which is considered one of the most efficient in determining the exact number of factors (Lorenzo-Seva, Timmerman, & Kiers, 2011), showed a one-factor solution, explaining 48% of the total variance.

As it can be seen in Table 1, all items loaded above 0.40, varying from 0.47 (item 19. “To have a desire for vengeance would make me feel ashamed”) to 0.88 (item 2. “It is important for me to get back at people who have hurt me”), except item 8 (“I find it easy to forgive those who have hurt me”), which provided a poor loading. Next, we performed an IRT to further evaluate the vengeance scale. Specifically, we tested the capacity of the items to discriminate between people and

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