



Assessing Victim-Blaming Attitudes in Cases of Intimate Partner Violence against Women: Development and Validation of the VB-IPVAW Scale

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ABSTRACT

Intimate partner violence against women (IPVAW) is the most common form of violence suffered by women and constitutes a serious public health problem of global proportions. Public attitudes towards IPVAW are key to understanding the social context in which this type of violence occurs. Victim-blaming attitudes are among those that reflect public tolerance and acceptability of IPVAW and are often used to explain or justify IPVAW. In this study we develop and validate a new instrument to assess victim-blaming attitudes in cases of IPVAW. A sample of 1,800 participants was recruited through social media and a second sample of 50 IPVAW offenders was used for validation purposes. Through a cross-validation approach and by fitting an item response theory model to the data, we found that the latent structure of the instrument was one-dimensional and particularly informative for medium and high levels of victim-blaming attitudes. Differential item functioning analysis showed that item parameters did not differ by gender. We found, in addition, that (a) our measure was strongly related to acceptability and perceived severity of IPVAW, and also to ambivalent sexism, (b) men presented higher levels of victim-blaming attitudes than women, and (c) IPVAW offenders showed higher levels of victim-blaming attitudes than men from the general population. A five-item short version of the scale is also presented for use in studies with limited application time or space. Our findings confirm that this new scale is a reliable and valid measure to assess victim-blaming attitudes in cases of IPVAW.

Evaluación de las actitudes de culpabilización de la víctima en casos de violencia de pareja contra la mujer: desarrollo y validación de la escala VB-IPVAW

RESUMEN

La violencia de género es la forma más común de violencia que sufren las mujeres y constituye un grave problema de salud pública de proporciones globales. Las actitudes públicas hacia la IPVAW son clave para entender el contexto social en el que se produce este tipo de violencia. Las actitudes que culpabilizan a las víctimas son aquellas que reflejan la tolerancia pública y la aceptabilidad de la IPVAW y que con frecuencia se emplean para explicar o justificar ésta. En este estudio desarrollamos y validamos un nuevo instrumento para evaluar las actitudes de culpabilización de la víctima en casos de violencia de género. Se reclutó una muestra de 1,800 participantes a través de las redes sociales y se utilizó una segunda muestra de 50 hombres condenados por violencia de género con fines de validación. Mediante un enfoque de validación cruzada y ajustando un modelo de teoría de respuesta al ítem a los datos, encontramos que la estructura latente del instrumento era unidimensional y particularmente informativa para niveles medios y altos de culpabilización de las víctimas. El análisis del funcionamiento diferencial del ítem mostró que los parámetros del ítem no difirieron por género. Además, encontramos que (a) nuestra medida estaba fuertemente relacionada con la aceptabilidad y percepción de gravedad de la violencia de género, y también con el sexismo ambivalente, (b) los hombres presentaban niveles más altos de culpabilización de la víctima que las mujeres, y (c) los hombres condenados por violencia de género mostraron niveles más altos de culpabilización de la víctima que los hombres de la población general. También se presenta una versión corta de cinco ítems de la escala para su uso en estudios con tiempo de aplicación o espacio limitado. Nuestros resultados confirman que esta nueva escala es una medida fiable y válida para evaluar las actitudes de culpabilización de la víctima en casos de violencia de género.

Palabras clave:

Culpabilización de la víctima
Actitudes
Violencia de pareja
Teoría de respuesta al ítem
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Intimate partner violence against women (IPVAW) is the most common form of violence suffered by women (Devries et al., 2013; Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006; Stockl et al., 2013) and constitutes a serious public health problem of global proportions (Ali & Naylor, 2013; World Health Organization - WHO, 2013) with important consequences for women's physical and psychological well-being (Campbell, 2002; Craparo, Gori, Petrucelli, Cannella, & Simonelli, 2014; Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008). The estimated prevalence of IPVAW in high-income countries is 23.2% (WHO, 2013). According to the European Union Agency for Fundamental Rights' (2014) survey, in the European Union, lifetime prevalence of IPVAW is 22%, ranging from 13% to 32% across countries (Gracia & Merlo, 2016).

Public attitudes towards IPVAW are key to understanding the social context in which this type of violence occurs (Carlson & Worden, 2005; Copp, Giordano, Longmore, & Manning, 2016; Flood & Pease, 2009; Gracia & Lila, 2015; Waltermaurer, 2012). According to Gracia and Lila (2015), IPVAW "is a complex phenomenon that needs to be understood within the wider social context and within the social and cultural norms that permeate it. Public attitudes and responses regarding violence against women reflect these norms and play an important role in shaping the social climate in which the violence occurs" (p. 13). Researchers increasingly acknowledge the importance of paying attention to attitudes towards IPVAW, as they are linked, for example, to IPVAW incidence, victims' help-seeking behavior, or public and law enforcement responses (Browning, 2002; Faramarzi, Esmailzadeh, & Mosavi, 2005; Fernández-González, Calvete, & Orue, 2017; Gracia, García, & Lila, 2011, 2014; Gracia, Herrero, Lila, & Fuente, 2009; López-Ossorio, González-Álvarez, & Andrés-Pueyo, 2016; López-Ossorio, González-Álvarez, Pascual, García, & Buela-Casal, 2017; Rizo & Macy, 2011; West & Wandrei, 2002).

Victim-blaming attitudes are among those that reflect public tolerance and acceptability of IPVAW and are often used to explain or justify IPVAW (Gracia, 2014; Gracia & Tomás, 2014; WHO, 2002). Victim-blaming attitudes influence not only public responses and willingness to intervene in known cases of IPVAW, but also perpetrators and victims' responses. Victim-blaming attitudes held by people surrounding the victims may not only foster and facilitate perpetrators' behaviors, but also make it more difficult for victims to disclose the violence, and to seek and receive help from both informal and formal sources (Ansara & Hindin, 2010; Garrido-Macías, Valor-Segura, & Expósito, 2017; Gracia et al., 2018; Liang, Goodman, Tummala-Narra, & Weintraub, 2005; Valor-Segura, Exposito, & Moya, 2011; Voith, 2017; West & Wandrei, 2002).

The availability of reliable and valid measures of victim-blaming attitudes in cases of IPVAW is essential for research and intervention purposes (Gracia & Lila, 2015; Muehlenhard & Kimes, 1999; Powell & Webster, 2018; Santirso, Martín-Fernández, Lila, Gracia, & Terreros, 2018). Previous research has addressed the measurement of victim-blaming attitudes in cases of IPVAW, although some of these measures have drawbacks and/or limitations. In some cases, these instruments only consider violence as physical assault among married couples and ignore other significant forms such as psychological or emotional violence (Jackson et al., 1994; Petretic-Jackson, Sandberg, & Jackson, 1994). Other measures were validated only in samples of college students and are not easily generalized to large populations (Fox & Cox, 2011; Scott & Strauss, 2007). Some instruments are based only on vignettes describing a single case (Koepeke, Eyssele, & Bohner, 2014; Vidal-Fernández & Megías, 2014; Yamawaki, Ostenson, & Brown, 2009) or are exploratory studies that require further research to establish their psychometric properties in larger and more representative samples (Fox & Cox, 2011; Yun & Vonk, 2011). Some instruments included subscales assessing victim-blaming attitudes in cases of IPVAW, but were designed to be used with male IPVAW offenders (Henning & Holdfold, 2006; Henning, Jones, & Holdfold, 2005; Lila, Gracia, & Herrero, 2012; Lila, Oliver, Catalá-Miñana,

Galiana, & Gracia, 2014). Finally, large population survey data on victim-blaming attitudes in cases of IPVAW are not usually based on measurement instruments with adequate evidence of reliability and validity (Gracia & Lila, 2015). Psychometrically sound measures are clearly still needed to assess victim-blaming attitudes in cases of IPVAW, both in research settings and for large population surveys.

The Present Study

The present study aims to fill this gap in the literature by providing a reliable, valid self-reported measure of victim-blaming attitudes in cases of IPVAW: the VB-IPVAW. To this end, we developed a scale to measure victim-blaming attitudes based on the pool of items identified in Gracia and Lila's (2015) review. We sought to adapt and validate this measure following a cross-validation approach, and subsequently fitting an item response theory (IRT) model. IRT models have been increasingly used for personality and attitudinal measures, since they allow researchers to improve their psychological instruments by studying the quality and suitability of individual items (Glockner-Rist & Hoijtink, 2003). In this regard, IRT models allow researchers to test whether item responses are affected by the respondent's belonging to a certain group (e.g., gender). In addition, a short version of the VB-IPVAW is also prepared for cases in which time and/or space are limited (e.g., large demographical surveys). We will assess the validity of this new measure of victim-blaming attitudes by exploring its relationships with other related constructs that are also linked to IPVAW, such as acceptability of IPVAW, perceived severity of IPVAW, sexist attitudes, and socio-demographical characteristics—i.e., gender and age differences—(Bryant & Spencer, 2003; Capezza & Arriaga, 2008; Gracia & Tomás, 2014; Koepeke et al., 2014; Scott & Strauss, 2007; Taylor & Sorenson, 2005; Yun & Vonk, 2011). In addition, for validity purposes we will compare the scale scores of male respondents from the general Spanish population and a sample of offenders court-mandated to an intervention program for IPVAW batterers. Male offenders are expected to show higher levels of victim-blaming attitudes, which they tend to use to justify their behavior (Lila, Gracia, & Murgui, 2013).

Method

Sample

Data was collected from a sample of participants recruited through social media and e-mail snowballing. Previous studies have shown that these sampling methods are effective and cost-efficient (for systematic reviews see Thornton et al., 2016; Topolovec-Vranic & Natarajan, 2016). We recruited a total pool of 2,698 respondents (67.6% of the respondents were women). To balance the sample by gender, a random sample from the total pool of respondents that maintained a similar ratio of male and female participants was used.

The final sample was composed of 1,800 participants (92.7% with Spanish nationality), aged from 18 to 75 years old ($M_{age} = 34.24$, $SD_{age} = 14.41$) of whom 52.8% were women. We divided the sample into two subsamples of 900 participants with similar ratios of gender, age, nationality, and educational level categories. The socio-demographic information of the sample is displayed in Table 1.

We also recruited a second sample of 50 male IPVAW offenders who had been court-mandated to attend an intervention program. The mean age of the sample was 39.84, and their ages ranged from 21 to 69 years old. Most of the offenders had completed compulsory secondary education (86%).

Table 1. Socio-demographics of the General Sample ($N = 1,800$)

	<i>N</i>	%
Sex		
Women	950	52.8
Men	850	47.2
Age		
18-24	724	40.2
25-54	877	48.7
55+	199	11.1
Nationality		
Spanish	1,665	92.7
Immigrant	135	7.3
Educational level		
Compulsory	276	15.3
Upper Secondary	502	27.9
University: Undergraduate	394	21.9
University: Postgraduate	628	34.9

Instruments

Victim-Blaming Attitudes in cases of IPVAW (VB-IPVAW). A pool of 60 items referring to victim-blaming attitudes was selected from a review of European surveys on violence against women (Gracia & Lila, 2015). These items were translated into English from their original language by European experts in the field of IPVAW who provided the survey data for the review. A panel of six IPVAW experts was asked to assess the relevance of each item in the pool (Lynn, 1986; Polit & Beck, 2006). The experts rated the relevance of the items on a 5-point Likert-type scale (i.e., “Is this item relevant to measure victim-blaming attitudes in cases of IPVAW?”; 1 = *strongly disagree*, 5 = *strongly agree*). We selected those items with an average rating of 4 (i.e., the *agree* category) or above to construct a 13-item measure. The items were translated into Spanish by the authors of the review. Respondents were asked to indicate their level of agreement with the item statements on a 4-point Likert-type scale (1 = *strongly disagree*, 4 = *strongly agree*). The complete VB-IPVAW is shown in Appendix 1.

Acceptability of IPVAW (A-IPVAW; Martín-Fernández et al., 2018). The A-IPVAW scale is composed of 20 items in which respondents rate the acceptability of a set of men's behaviors towards their female partners (e.g., “It is acceptable for a man to hit his partner if she has been unfaithful”). Responses were gathered on a 3-point Likert-type scale (0 = *not acceptable*, 1 = *somewhat acceptable*, 2 = *acceptable*). This instrument was cross-validated in the general Spanish population and showed an adequate internal structure, as well as validity evidence based on its relationship with other variables, such as perceived severity of IPVAW or ambivalent sexism (Martín-Fernández et al., 2018). The A-IPVAW showed a good internal consistency in the general sample (Cronbach's $\alpha = .89$).

Perceived Severity of IPVAW (PS-IPVAW; Gracia, García, & Lila, 2009). The PS-IPVAW scale posits eight IPVAW scenarios (e.g., “A couple is having a quarrel; he insults her and threatens to beat her up”). Respondents were asked to rate the severity of each scenario (ranging from 1 = *not at all severe*, to 10 = *extremely severe*). This scale presents adequate psychometric properties and has been validated in the general Spanish population and also with police officers and IPVAW offenders (Gracia et al., 2011, 2014). The scale has been related not only to attitudes toward IPVAW, such as victim-blaming attitudes and acceptability of IPVAW (Gracia & Tomás, 2014; Martín-Fernández et al., 2018), but also to sexism, personal responsibility, and empathy (Lila, Gracia, & García, 2013; Vargas, Lila, & Catalá-Miñana, 2015). This instrument showed a good internal consistency in the general sample of this study (Cronbach's $\alpha = .89$).

Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996). We used the Spanish version of the ASI (Expósito, Moya, & Glick, 1998). This

instrument includes two subscales, hostile and benevolent sexism, each composed of 11 items. Hostile sexism is conceptualized as attitudes of discrimination and prejudice against women based on the assumption of women's inferiority (e.g., “Women are too easily offended”). Benevolent sexism reflects men's views of women as weak and needing protection (e.g., “Women should be cherished and protected by men”). The ASI has been adapted and validated in more than twenty countries (Glick et al., 2000; Glick, Sakall, Urgurlu, Ferreira, & Aguilar de Souza, 2002) and has also shown to be strongly related to IPVAW responsibility attribution, with attitudes towards intervention in IPVAW cases among police officers, and with acceptability of IPVAW (Gracia, et al., 2014; Lila et al., 2013; Martín-Fernández et al., 2018). The internal consistency of both subscales was good in the general sample (Cronbach's $\alpha = .88$ and $.89$ for hostile and benevolent sexism, respectively).

Procedure

The online survey included the VB-IPVAW scale, the PS-IPVAW scale, and the ASI. The survey remained open for a recruitment period of four weeks in November and December 2016. A message providing information about the study and calling for participation was posted on various social media groups. Informed consent information was provided and was implicit in the agreement to participate in the on-line survey. Participation was anonymous.

Data Analyses

The following analyses were conducted to evaluate the psychometric properties of the VB-IPVAW. Descriptive statistics of the items, corrected item-test correlations, and internal consistency were computed for the whole sample. The latent structure of the scale was assessed following a cross-validation approach by splitting the general sample in two subsamples, each of 900 participants. An exploratory factor analysis (EFA) was carried out to identify a latent variable model for the scale items in the first subsample. This model was then replicated in the second subsample using confirmatory factor analysis (CFA).

Before conducting the EFA, we tested the suitability of the dataset with the Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) statistic. Then a parallel analysis based on minimum rank factor analysis using polychoric correlations was computed (Timmerman & Lorenzo-Seva, 2011). This method has performed well in testing the number of factors to extract for a categorical EFA (Garrido, Abad, & Ponsoda, 2013, 2016). The parallel analysis uses Monte Carlo simulation to generate randomized datasets similar to the empirical dataset. Ranked factor analysis is used to compute the percentage of variance explained by a series of different factorial models (i.e., one-factor model, two-factor model, three-factor model, etc.) in the random datasets; the mean and the 95th percentile are obtained. When the percentage of variance explained by a given factor model in the empirical data is below the percentage expected for that model in the simulated datasets, the model is adding more factors than needed. We therefore looked for the minimum number of factors needed to explain more variance in the empirical data than in the random datasets.

We conducted an EFA using weighted least squares with adjusted means and variances (WLSMV) as the estimation method, since it is more robust for ordinal and categorical data (Asparouhov & Muthén, 2010). Model fit was assessed using a combination of fit indices: the comparative fit index (CFI), the Tucker Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). CFI and TLI values greater than .95 are indicative of good model fit (Hu & Bentler, 1999), whereas SRMR values lower than .08, and RMSEA values lower than .06 are

considered good fitting models (MacCallum, Browne, & Sugawara, 1996).

We replicated the results yielded by the EFA by conducting a CFA. The WLSMV was again used to estimate the CFA model, and model fit was evaluated using the same fit indices and their cut-off values (CFI & TLI \geq .95, RMSEA \leq .06).

After evaluating the latent structure of the scale, we fitted an item response theory (IRT) model for the whole sample. IRT provides improved factor score estimates and does not assume constant measurement precision. These two aspects of IRT allow researchers to identify which levels of the latent trait are better assessed by an instrument (Chernyshenko, Stark, Chan, Drasgow, & Williams, 2001). Given the ordinal nature of the data, the graded response model was selected (Samejima, 1969). The model was estimated using the MHRM algorithm (Cai, 2010) and model fit was assessed with the same combination of fit indices and their aforementioned cut-off values (CFI & TLI \geq .95, RMSEA \leq .06). Maydeu's M_2 statistic for ordinal variables was used to compute these indices instead of other chi-square approximations for ordinal variables, as this statistic was developed specifically to assess the overall fit for IRT models (Maydeu-Olivares & Garcia-Forero, 2010; Maydeu-Olivares & Joe, 2006). The test information function was obtained and the IRT scores (i.e., the person parameters of the model) were used for the validity analyses.

To establish whether the VB-IPVAW is invariant across gender, we conducted a differential item functioning (DIF) analysis for polytomous data using the logistic regression method (Choi, Gibbons, & Crane, 2011; French & Miller 1996). DIF occurs when the probability of endorsement of an item category is not the same for male and female respondents with an equivalent IRT score, meaning that men and women respond differently to the item. If DIF is detected for an item, then the item parameters should be recalibrated for each subgroup in order to obtain a comparable IRT score.

We assessed the VB-IPVAW scale validity for the whole sample. To this end, we first correlated the IRT scores (i.e., estimates of victim-blaming attitudes) with the A-IPVAW scores, the PS-IPVAW scores, and the hostile and benevolent sexism scores from the ASI. We then compared the VB-IPVAW scores between age groups and gender for the general sample, and between men from the general sample and from the male offenders sample.

Finally, we used the automated test assembly (Diao & van der Linden, 2011) procedure to create a shortened version of the scale with the most informative items measuring higher levels of the latent trait. Through this procedure, a minimum number of items that meet criteria established by the researchers are selected for inclusion in the shortened version. We selected the items that most accurately measure higher levels of victim-blaming attitudes.

Descriptive statistics, classical internal consistency, and IRT analyses were computed with the statistical package R (R Core Team, 2017). Specifically, we used the psych (Revelle, 2016), the mirt (Chalmers, 2012), the lordif (Choi et al., 2011), and the lpSolveApi libraries (Konis, 2016). The parallel analysis was conducted with the factor package (Lorenzo-Seva & Ferrando, 2006), whereas the EFA and CFA analyses were carried out with Mplus 7.1 (Muthén & Muthén, 2010).

Results

Descriptive Analyses and Reliability

The mean, standard deviation, range, skew and kurtosis statistics, and item-total corrected correlations are displayed in Table 2. All items present a mean centered in the lower category (i.e., *strongly disagree*), with standard deviations around 0.50, positively skewed and with high values of kurtosis. This implies that most of the

respondents disagree with the statements. Regarding item-total corrected correlations, all items were strongly related with the scale raw scores, except the last item, which was removed from the scale for this reason. The scale showed good internal consistency (Cronbach's $\alpha = .89$).

Table 2. VB-IPVAW Items Descriptive Statistics

	<i>M</i>	<i>SD</i>	Min	Max	Skew	Kurtosis	$r_{\text{item-total}}$
vb-ipvaw1	1.38	0.64	1	4	1.61 (.02)	1.94 (.02)	.60
vb-ipvaw2	1.23	0.49	1	4	2.23 (.01)	5.56 (.01)	.74
vb-ipvaw3	1.22	0.55	1	4	2.80 (.01)	8.32 (.01)	.59
vb-ipvaw4	1.21	0.47	1	4	2.58 (.01)	8.07 (.01)	.71
vb-ipvaw5	1.19	0.45	1	4	2.72 (.01)	8.94 (.01)	.73
vb-ipvaw6	1.21	0.49	1	4	2.63 (.01)	7.97 (.01)	.64
vb-ipvaw7	1.15	0.41	1	4	3.14 (.01)	12.09 (.01)	.69
vb-ipvaw8	1.73	0.77	1	4	0.83 (.02)	0.10 (.02)	.37
vb-ipvaw9	1.25	0.55	1	4	2.45 (.01)	6.41 (.01)	.63
vb-ipvaw10	1.20	0.50	1	4	2.80 (.01)	8.87 (.01)	.68
vb-ipvaw11	1.29	0.55	1	4	2.11 (.01)	5.04 (.01)	.58
vb-ipvaw12	1.12	0.38	1	4	3.64 (.01)	16.10 (.01)	.61
vb-ipvaw13	2.19	1.09	1	4	0.30 (.01)	-1.34 (.01)	.08

Note. *M* = Mean; *SD* = standard deviation; Min = minimum; Max = maximum; $r_{\text{item-total}}$ = item-total corrected correlation. The standard error for the skew and kurtosis statistics are presented in parenthesis. vb-ipvaw = VB-IPVAW item.

Exploratory Factor Analysis

We carried out an EFA with the first subsample. Bartlett's sphericity test was significant ($p < .001$) and the KMO index was acceptable (KMO = .939), indicating that the matrix was suitable to perform a factor analysis. The parallel analysis based on minimum rank factor analysis showed that a one-factor solution accounted for 74.2% of the variance, above the expected 20.8% for the simulated datasets. However, a two-factor solution accounted for only 6.9% of the variance, below the expected 14.5% for the simulated datasets. A one-factor solution was therefore considered for the EFA. We then extracted one factor using the polychoric correlation matrix and the WLSMV estimation method. The model converged normally and the model fitted the data well (CFI = .99, TLI = .98, RMSEA = .051, SRMS = .038).

Confirmatory Factor Analysis

We conducted a CFA with the second subsample. To this end we specified a one-factor model and estimated it using the WLSMV method. As shown in Figure 1, all standardized loadings were greater than .70, with standard estimation errors around .02. The comparative fit indices of the model were good (CFI = .99, TLI = .99), with well-fitted residuals (RMSEA = .051), replicating the EFA results in a different subsample and yielding an overall good fit to the data. We kept the one-factor solution as the latent structure of the VB-IPVAW.

Item Response Theory

Once the dimensionality of the VB-IPVAW had been determined, we used the full sample to fit the IRT graded response model (Samejima, 1969).

Item parameters are displayed in Table 3. The threshold parameters (b_1 , b_2 , and b_3) are in the same metric as the IRT scores (i.e., estimates of victim-blaming attitudes), indicating the point on the latent trait continuum where the probability of endorsement between two

adjacent categories is .50 for any respondent with an IRT score equal to the threshold parameter value. Respondents with IRT scores lower than the b_1 parameter would be more likely to endorse the lowest category (i.e., *strongly disagree*), whereas those respondents with IRT scores higher than the b_3 parameter would tend to endorse the upper category (i.e., *strongly agree*). Respondents with IRT scores between the b_1 and b_2 parameters would be more likely to endorse the second category (i.e., *somewhat disagree*), whereas respondents with IRT scores between the b_2 and b_3 parameters would more likely endorse the third category (i.e., *somewhat agree*). The b_1 threshold parameters were in general moderate (i.e., around 1), whereas the b_2 and b_3 parameters presented high (i.e., above 2) and very high values (i.e., above 3), indicating that the instrument is sampling moderate to high levels of victim-blaming attitudes.

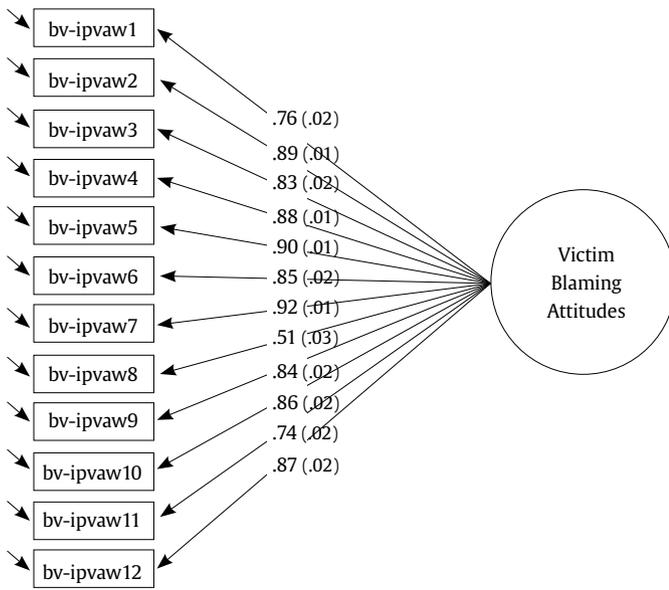


Figure 1. VB-IPVAW One-factor Model.

Table 3. VB-IPVAW Scale IRT Item Parameters

	a	b_1	b_2	b_3
vb-ipvaw1	2.05	0.82	2.07	3.47
vb-ipvaw2	3.68	1.03	2.31	3.00
vb-ipvaw3	2.39	1.34	2.33	2.98
vb-ipvaw4	3.43	1.15	2.46	2.90
vb-ipvaw5	3.72	1.28	2.56	3.03
vb-ipvaw6	2.49	1.24	2.55	3.20
vb-ipvaw7	3.36	1.40	2.64	3.12
vb-ipvaw8	0.95	-0.18	2.22	4.31
vb-ipvaw9	2.49	1.17	2.30	3.04
vb-ipvaw10	3.16	1.25	2.30	2.85
vb-ipvaw11	1.93	1.03	2.67	3.45
vb-ipvaw12	3.05	1.59	2.75	3.29

Note. a = discrimination parameter; b_k = threshold parameters. vb-ipvaw = VB-IPVAW item.

The discrimination parameters (a), in turn, provide information about the accuracy of each item. In particular, the greater this parameter, the less likely a given respondent will endorse a category above or below their IRT score. The discrimination parameters of the VB-IPVAW were high, with values above 2 for almost all the items, with the exception of item 8, which presented a moderate a value.

To assess differential item functioning (DIF), we conducted a series of logistic regression models (e.g., Choi et al., 2011). These models tested for any effect of belonging to each group (i.e., men or women) on the latent trait continuum (i.e., estimates of victim-blaming attitudes), and whether this effect is constant (uniform) or varies across the continuum (non-uniform). These models were compared using a χ^2 test. Nagelkerke's pseudo- R^2 was also computed to assess the size of the DIF effect. This pseudo- R^2 indicates the improvement from the base model (i.e., non-DIF model) to the fitted model (i.e., uniform or non-uniform DIF model). We found uniform DIF for items 1, 2, and 8 ($p < .001$, $R^2_{\text{Nagelkerke}} = .010, .007$, and $.018$, respectively), and non-uniform DIF for item 3 ($p = .002$, $R^2_{\text{Nagelkerke}} = .010$), all with small Nagelkerke's pseudo- R^2 values. This implies that adding the DIF effect to the model improved the fit of the model by less than 2%, which could be considered a negligible effect size for this statistic (Choi et al., 2011; Cohen, 1988).

Figure 2 shows the test information function and the standard error of estimation (SE) for men and women when the flagged items are taken into account. The VB-IPVAW scale was especially informative for moderate, high, and very high levels of the latent trait continuum (i.e., estimates of victim-blaming attitudes), especially among men. In the same line, the SE showed the precision of the scale for the latent trait levels; the lower the SE result, the higher the accuracy of the scale for a given latent trait level. In particular, SE values below 0.3 are equivalent to a Cronbach's α of .91 or higher, and SE values between 0.5 and 0.3 are equivalent to an α around .75 and .90 for their respective IRT score. The test information function was very similar for men and women.

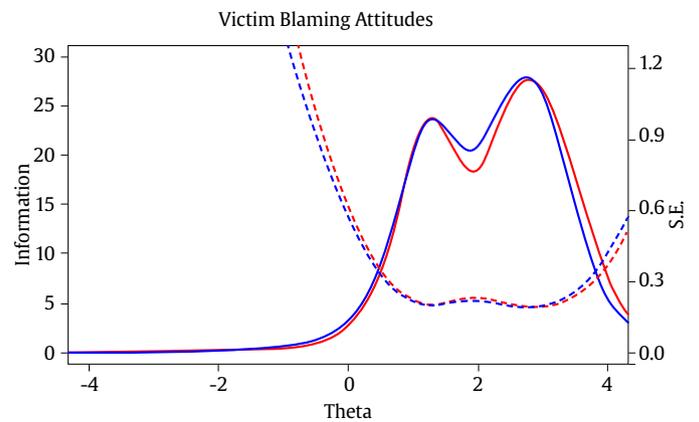


Figure 2. Test Information Function.

Note. Theta = IRT scores of the scale (i.e., victim-blaming attitudes estimates); information = accuracy of the measure across the latent trait continuum (i.e., theta); SE = standard error of estimation. The red and blue solid and broken lines represent the test information function and SE for women and men, respectively.

The overall fit of the model was tested using the ordinal version of the M_2 statistic. This statistic can be used to compute an approximation of the most common fit indices from the factor analysis (CFI, TLI, and RMSEA). The model showed a good fit to the data when the DIF was taken into account, $M_2(92) = 373.50$, $p < .001$, CFI = .98, TLI = .98, RMSEA = .04.

Validity Analyses

We used the IRT scores (i.e., estimates of victim-blaming attitudes) for validity analyses, since the items of the scale are not tau-equivalent (i.e., equally discriminative). IRT scores were on logistic metric, with an expected mean value of 0 and a standard deviation of 1 (Chalmers, 2012).

The correlations between the VB-IPVAW and the variables measuring related constructs were in the expected direction (see

Table 4). Estimates of victim-blaming attitudes were positively related to the A-IPVAW scores, and to both subscales of the ASI, particularly the hostile sexism subscale, and negatively related to PS-IPVAW scores. Therefore, those participants scoring higher on the VB-IPVAW tended to score higher on acceptability of IPVAW, hostile and benevolent sexism, and were more likely to perceive the cases described in the PS-IPVAW as less severe.

Table 4. VB-IPVAW Scale Correlation with Other Relevant IPVAW Variables

	A-IPVAW	Hostile sexism	Benevolent sexism	PS-IPVAW
VB-IPVAW	.41**	.45***	.38***	-.36***
A-IPVAW		.44***	.34***	-.47***
Hostile sexism			.81***	-.39***
Benevolent sexism				-.30***

Note. VB-IPVAW = victim-blaming attitudes in cases of intimate partner violence against women; A-IPVAW = acceptability of intimate partner violence against women scale; PS-IPVAW = perceived severity of intimate partner violence against women scale.

** $p < .001$.

We then compared the VB-IPVAW scores by gender and age. We found significant differences between men ($M = 0.23$, $SD = 0.94$) and women ($M = -0.09$, $SD = 0.83$), $t(1711.9) = 7.63$, $p < .001$, $d = 0.36$, with a moderate effect size. We also found significant differences between male respondents from the general sample and those from the offenders sample ($M = 0.70$, $SD = 1.35$), $t(52.48) = -3.31$, $p = .002$, $d = 0.44$, with a moderate effect size. There were significant differences between age groups, $F(2) = 5.48$, $p = .004$, $\eta^2 = .006$; however, the effect of age on the VB-IPVAW scores could be considered negligible, since the size effect was below the low cut-off value of .01 for the partial eta-squared (Miles & Shevlin, 2001).

Short Version

To build the short version of the scale we computed an automatic test assembly algorithm. Two criteria were used: finding which items were more informative to assess moderate and high levels of the IRT scores for men and women (i.e., ≥ 0), and using the minimum number of items to ensure that those levels were measured accurately (i.e., $SE \leq 0.5$). The items 1, 2, 6, 9, and 11 were selected (see Appendix 1).

The internal consistency of the resulting short version was good (Cronbach's $\alpha = .77$), and the correlation between the full and the short version was strong ($r = .95$). The correlations between the short version and the validity measures were in the same direction as the full VB-IPVAW ($r = .46$ with acceptability of IPVAW, $r = -.36$ with perceived severity of IPVAW, $r = .36$ with hostile sexism, and $r = .33$ with benevolent sexism).

Discussion

In this paper we set out to develop and validate a new tool to assess victim-blaming attitudes towards IPVAW. Taken together, our findings provide strong evidence for the reliability and validity of the VB-IPVAW and its short version. In accordance with standards for psychological testing, our measure showed validity evidence based on test content, internal structure, and relations to other variables (American Psychological Association, American Educational Research Association, & National Council on Measurement in Education, 2014). Content validity of the VB-IPVAW was evaluated through the careful selection of items from European surveys (Gracia & Lila, 2015) and by a panel of experts who assessed the relevance of the items to capture the key aspects of the construct. The internal structure of the scale is

supported by the study's findings that a single dimension is sufficient to account for the variability of respondents' victim-blaming attitudes in cases of IPVAW, presenting a good fit to the data and high internal consistency in two different samples.

Using item response theory (IRT) to study the psychometric properties of the VB-IPVAW is one of the main strengths of this paper, since to the best of our knowledge this is the first time this approach has been used to assess victim-blaming attitudes in cases of IPVAW. One of the main advantages of IRT is that it provides improved factor scores that can be used to evaluate which levels on the latent trait continuum (i.e., victim-blaming estimates) are better measured through the test information function. Unlike Cronbach's α , which assumes that the internal consistency of an instrument is constant for the entire latent trait, the information function provides a dynamic approach that can be used to evaluate the precision of the scale across the levels of the latent trait continuum. Our measure is particularly informative for moderately high and very high levels of victim-blaming attitudes. The VB-IPVAW can detect respondents with high levels of victim-blaming attitudes and discriminate among them with high accuracy. On the other hand, the precision of the scale is lower for respondents with low and very low levels of victim-blaming attitudes.

Differential item functioning (DIF) was also assessed to establish whether any of the items of the VB-IPVAW was a potential indicator of item bias (Sireci & Ríos, 2013). We found four items that showed DIF between male and female respondents, although the effect size of these discrepancies could be considered negligible and these results should be interpreted with caution. Given the low improvement of the models considering the DIF compared with the non-DIF model, we recommend computing the IRT scores of the VB-IPVAW using the same set of parameters for both male and female respondents. To this end, in Appendix 2 we provide an R code to compute the IRT scores, in both the full and short versions of the scale.

Regarding the validity evidence based on the relation of the VB-IPVAW to other variables, we found that victim-blaming attitudes in cases of IPVAW are strongly related to the acceptability of IPVAW, and strongly and negatively related to the perceived severity of IPVAW. These relationships are consistent with previous research (Taylor & Sorenson, 2005; Witte, Schroeder, & Lohr, 2006). We also found a strong relationship between victim-blaming attitudes and both hostile and benevolent sexism. In this line, previous studies have also found that individuals showing sexist attitudes are more likely to blame victims for IPVAW (Capezza & Arriaga, 2008; De Giudibus & McCabe, 2001; Gracia et al., 2014; Scott & Strauss 2007; Valor-Segura et al., 2011; Vidal-Fernández & Megías, 2014).

With regard to gender differences, our findings show that female respondents tend to present lower victim-blaming attitudes towards IPVAW than males, which is in line with previous research (Bryant & Spencer, 2003; Flood & Pease, 2009; Gracia et al., 2015; Langhinrichsen-Rohling, Shlien-Dellinger, Huss, & Kramer, 2004; Scott & Strauss, 2007; Vidal-Fernández & Megías, 2014). In addition, we also found that male IPVAW offenders tend to show higher levels of victim-blaming attitudes than men from the general sample (Gracia, Rodríguez, & Lila, 2015; Lila et al., 2013). This result suggests that the VB-IPVAW is especially informative for those respondents with higher levels of victim-blaming attitudes in cases of IPVAW. Our measure can thus be used to evaluate attitudinal changes during and after interventions with IPVAW offenders, as well as a screening tool to detect and discriminate among individuals that are more prone to blame victims for IPVAW (Carbajosa, Catalá-Miñana, Lila, & Gracia, 2017; Ferrer-Perez, Ferreiro-Basurto, Navarro-Guzmán, & Bosch-Fiol, 2016; Lila, Gracia, & Catalá-Miñana, 2018).

In this study we also developed a short 5-item version of the VB-IPVAW that can be useful when space and/or time limitations are an issue (e.g., large demographical surveys). Large scale surveys tend to use single items or a limited set of items evaluating IPVAW attitudes with unknown reliability or validity (Gracia &

Lila, 2015). Short versions, on the other hand, may have limited reliability and validity, which makes it particularly important to ensure that short versions of questionnaires maintain adequate psychometric properties (Smith, McCarthy, & Anderson, 2000; Stanton, Sinar, Balzer, & Smith, 2002). Our results showed that the short version of the VB-IPVAW has high internal consistency and adequate validity (i.e., it is strongly related to acceptability, perceived severity of IPVAW, and ambivalent sexism in the same direction as in the full version). Although further research should be undertaken with different samples to ensure its validity (Goetz et al., 2013), initial analyses with the short version of VB-IPVAW are promising and suggest that it is as an adequate tool to assess victim-blaming attitudes with a limited set of informative items. We recommend, however, using the long version of the scale whenever possible.

This study is not without limitations. The VB-IPVAW was developed in the Spanish cultural setting, and further studies are needed to adapt and generalize our findings to other cultures (Boira, Carbajosa, & Mendez, 2016; Gracia & Lila, 2015; Ivert, Merlo, & Gracia, 2018). The sampling method is another limitation, since online sampling has some tradeoffs that may limit the generalizability of this study (Thornton et al., 2016; Topolovec-Vranic & Natarajan, 2016). Although this method is effective and cost-efficient, allowing researchers to obtain large sample sizes, self-selection bias could be an issue, as more motivated participants may be more willing to participate in the study. In addition, the socio-demographic information provided by the respondents cannot easily be verified. The socio-demographic variables of the sample, nonetheless, are consistent with other internet-based demographic studies conducted in Spain (Acebes Arribas, 2016). In addition, further research is needed to address the gender invariance of the VB-IPVAW through both IRT and factorial invariance methods, as DIF is only an initial step to assess item bias (Gómez-Benito, Sireci, Padilla, Hidalgo, & Benítez, 2018).

The development of the VB-IPVAW is a step forward in the study of attitudes towards IPVAW, allowing researchers to extend knowledge about their conceptualization, measurement, prevalence, and the social factors that may influence these attitudes in order to improve prevention and intervention strategies (Powell & Webster, 2018). Addressing attitudes towards IPVAW is becoming a central issue in research and population surveys and, in this regard, both versions of the VB-IPVAW provide psychometrically sound instruments to fill this need.

Conflict of Interest

The authors of this article declare no conflict of interest.

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Appendix 1. Victim-blaming Attitudes in Cases of Intimate Partner Violence against Women Scale

vb-ipvaw1*	Men are violent towards their partners because they make them jealous
vb-ipvaw2*	Men are violent towards their partners because women provoke them
vb-ipvaw3	Men are violent towards their partners because women need to be controlled
vb-ipvaw4	Men are violent towards their partners because women are difficult to understand
vb-ipvaw5	Men are violent towards their partners because women are not patient enough with them
vb-ipvaw6*	Men are violent towards their partners because it makes them attractive to women
vb-ipvaw7	Men are violent towards their partners because women like it
vb-ipvaw8	Women file false complaints to obtain economic benefits and hurt their partners
vb-ipvaw9*	Men would change their violent behavior towards their partners if they were more obedient
vb-ipvaw10	Women could avoid violence from their male partners if they knew when to stop talking
vb-ipvaw11*	If a woman is mistreated by her partner and does not leave him, that means she is not unhappy with the situation.
vb-ipvaw12	A man is justified in beating his partner if she decides to leave him

*VB-IPVAW short form.

VB-IPVAW Scale Scores: Computing Victim-Blaming Attitude Estimates

Instead of using the raw sum of the items to compute the VB-IPVAW scale scores, we recommend generating the victim-blaming attitude estimates by following one of these two methods:

(1) Factor Scores: for small sample sizes ($N < 100$), calculate the weighted sum of the items using the factor loadings presented in [Figure 1](#). In this way, the factor loading of each item is multiplied by the score for each item before it is summed. Alternatively, for larger sample sizes, conduct a new factor analysis replicating the one-factor model and compute the factor scores for the whole sample.

(2) IRT Scores: to obtain the person parameter estimates (i.e., θ) for each respondent, estimate an IRT model by either fixing the item parameters to the values presented in [Table 3](#) (for small sample sizes), or re-estimating the item parameters for the new sample (for larger sample sizes). To this end, we provide an R script with the code to compute the VB-IPVAW scale IRT scores using the *mirt* library.

Appendix 2

```
#####
#### AIPVAW IRT Scores Script ####
#####
```

```
library(mirt)
```

```
VBIPVAW_data <- read.table("data path and format")
# insert path and extension of the data (e.g., "C:/Users/Documents/R/VB-IPVAW/my_data.dat")
# my_data must be a matrix or data.frame with respondents on the rows and items on the columns
```

```
# IRT model with fixed items parameters (small sample sizes):
```

```
a_VBIPVAW <- c(2.05, 3.68, 2.39, 3.43, 3.72, 2.49,
3.36, 0.95, 2.49, 3.16, 1.93, 3.05)
d1_VBIPVAW <- c(-1.69, -3.81, -3.21, -3.94, -4.77, -3.09,
-4.71, 0.17, -2.90, -3.93, -2.00, -4.86)
d2_VBIPVAW <- c(-4.26, -8.50, -5.57, -8.45, -9.54, -6.36,
-8.85, -2.10, -5.72, -7.26, -5.17, -8.38)
d3_VBIPVAW <- c(-7.12, -11.06, -7.12, -9.97, -11.25, -7.97,
-10.47, -4.18, -7.55, -8.98, -6.68, -10.03)
```

```
VBIPVAW_param <- mirt(VBIPVAW_data, 1, itemtype = "graded", pars = "values")
VBIPVAW_param$est <- FALSE
VBIPVAW_param$value[VBIPVAW_param$name=="a1"] <- a_VBIPVAW
VBIPVAW_param$value[VBIPVAW_param$name=="d1"] <- d1_VBIPVAW
VBIPVAW_param$value[VBIPVAW_param$name=="d2"] <- d2_VBIPVAW
VBIPVAW_param$value[VBIPVAW_param$name=="d3"] <- d3_VBIPVAW
```

```
VBIPVAW_IRT <- mirt(VBIPVAW_data, 1, itemtype = "graded", method = "MHRM", pars = VBIPVAW_param)
IRTScores <- fscores(VBIPVAW_IRT, method = "EAP", full.scores = T)
```

```
write.table(IRTScores, "IRTScores.dat", col.names = FALSE, row.names = FALSE)
# return a .dat file with the IRT Scores for each respondent
```

```
# IRT graded model with free parameters (large sample sizes):
```

```
VBIPVAW_IRT <- mirt(VBIPVAW_data, 1, itemtype = "graded", method = "MHRM")
IRTScores <- fscores(VBIPVAW_IRT, method = "EAP", full.scores = T)
write.table(IRTScores, "IRTScores.dat", col.names = FALSE, row.names = FALSE)
```