Development of a Questionnaire on Intentions to Engage in Dating Violence Among Puerto Rican Residents

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Abstract

This mixed-methods paper describes the development and preliminary validation of the Behavioral Intentions Questionnaire (BIQ), a multi-scale questionnaire developed to assess determinants influencing Puerto Rican adolescents' intentions to engage in abusive behaviors in dating relationships. Items were developed qualitatively, and face and content validity were established by expert and target population judges via semi-structured interviews ($n=48$), discussions, and four focus groups ($n=6$ each). The questionnaire was pilot tested twice. An initial pilot test was conducted with students aged 13 to 17 from a private alternative education program in San Juan, Puerto Rico ($n=32$). A second pilot test was conducted with a sample of students from the same site ($n=22$), in addition to students in the same age range from a private school ($n=88$) in San Juan. Confirmatory and Exploratory factor analysis was used to determine construct validity and Cronbach's coefficient alpha determined the subscales internal consistency reliability. Correlations between subscales were examined. Thematic content analysis was used to analyze qualitative data. Qualitative data suggested the need to revise or eliminate items and instructions and incorporate a social desirability measure. Factor analyses yielded a unidimensional structure for each subscale and each subscale demonstrated high internal consistency. Preliminary analysis on the factor structure, internal reliability, and validity of the BIQ were encouraging. However, further psychometric testing is needed before this measure can be considered a useful tool for measuring intentions to engage in abusive behaviors in dating relationships.

Keywords Dating violence · Behavioral intention · Latinos/as · Adolescent attitudes · Psychometrics · Test construction · Factor analysis · Mixed methods research

Introduction

Violence in dating relationships is a public health problem that affects millions of young people worldwide each year (McNaughton Reyes et al., 2021). Dating violence (DV) among adolescents has been defined as a type of intimate partner violence (IPV) that occurs between two people in a close relationship and includes physical abuse, sexual abuse, psychological abuse, and stalking (Centers for Disease

Control (CDC), 2019). Globally, DV in adolescence may lead to negative health outcomes (i.e., depression, substance use, and sexual risk behaviors) (Alemann et al., 2017; Mendoza Gutiérrez et al., 2019; Taquette & Monteiro, 2019) and intimate partner homicide (i.e., femicide) (Adhia et al., 2019; World Health Organization, 2012).

Puerto Rico (PR), an unincorporated territory of the United States, is in the Caribbean region and is considered part of Latin America. IPV is a serious and long-standing problem in PR, as in much of Latin America (Bott et al., 2019), which is fueled by a deficient public response from the state (Morales Díaz & Rodríguez del Toro, 2012; Observatorio de Equidad de Género, 2020; Silva-Martínez & Vázquez-Pagán, 2019). However, it has worsened since 2017 after crises such as Hurricane Maria and the coronavirus pandemic (EFE News, 2020; González-Ramírez, 2021).

Women, particularly young adult women between the ages of 20 and 34, are the primary victims of IPV in PR, and physical and psychological abuse are the most common

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forms of violence (Oficina de la Procuradora de la Mujeres, 2014). Recent evidence from police records shows that 105,454 cases of violence against women were reported between the years 2010 and 2018. PR also has alarming rates of femicides at 3.3. per 100,000 women, only surpassed in Latin America by Honduras (6.2) (U.N. ECLAC, 2019; Observatorio de Equidad de Género, 2020). In January 2021, the governor of PR declared a state of emergency over violence against women and announced an executive order aimed at preventing and protecting violence against women through several programs (Kaur & Dominguez, 2021).

There are limited data on the prevalence of DV among adolescents in PR, but recent studies have shown that the prevalence of physical (i.e., kicking, hitting, punching, etc.) and psychological (i.e., calling names, belittling, screaming, etc.) victimization and perpetration in older adolescents (i.e., college-level students) is high (physical victimization: 30%, perpetration: 36%; psychological victimization: 48%, perpetration: 50%; Villafañe et al., 2019). According to national data from the Youth Risk Behavior Surveillance System, 6.4% of high school students residing in PR reported experiencing physical DV, and 4.7% reported experiencing sexual dating violence (CDC, 2019). The pervasiveness of IPV in PR should concern researchers and the investigation of DV in adolescence requires more attention, since romantic relationships initiate during this developmental period (Collins et al., 2009).

While the past two decades have witnessed an increase in DV awareness and scholarship (Morales Díaz & Rodríguez del Toro, 2012; Villafañe-Santiago et al., 2012, 2019), research examining risk and protective factors, and outcomes of DV perpetration among adolescents remains undeveloped. To our knowledge, in the last decade, only one study has explored perpetration (Villafañe-Santiago et al., 2019). A current challenge to the collection of perpetration data in Puerto Rican adolescents, is the lack of culturally appropriate measures (Rodríguez Francos et al., 2012). Most of the measures used to assess DV in Latin American and the Caribbean have been developed in other parts of the U.S. or in other Western countries, and do not consider the impact of culture and the unique meanings Puerto Rican adolescents assign to DV (Muñoz-Rivas et al., 2007; Wolfe & Temple, 2018). Additionally, while some of the measures used have been developed in Spanish-speaking countries, these have not been adapted and/or validated for Puerto Rican adolescents, assuming cultural invariance and equivalence. An exception is a study conducted by Villafañe-Santiago et al. (2012) to describe the process of developing and validating the Experiences of Violence in Couple and Family Relationships in University Students Questionnaire (CEV-RPF). While the CEV-RPF is an important contribution to the measurement development literature, as it considers contextual and cultural variations (Canino & Bravo,

1994), it has several limitations. The questionnaire assesses experiences of violence, but not intentions and behaviors, content validity was established, but factorial analyses were not conducted, the sample were college-level students, and the size of the sample was small. Other measures assessing aspects of romantic relationships, including violence, have been developed in PR, but these have been developed and validated with adults and the constructs measured did not target intentions (López-Figueroa & González-Rivera, 2019; Toro-Alfonso and Rodríguez-Madera, 2004; Rodríguez-Polo et al., 2015). Some of the limitations observed for these measures are similar to the ones identified for the CEV-RPF.

Perpetration and victimization of DV increases with age (Cuevas et al., 2014; Hokoda et al., 2012; Orpinas et al., 2012), requiring interventions in earlier stages of adolescence to prevent the use of abusive behaviors in future relationships. From a prevention standpoint, addressing intentions to engage in abusive behaviors among adolescents is imperative, as their cognitions, emotions, and social skills are still developing and they are in the process of learning and acquiring new ideas, skills, and interests that shape behaviors (McCormick & Telzer, 2017). A meta-analytic review of 185 studies found that, on average, 27% of the variance in behavior was explained by behavioral intentions (Webb & Sheeran, 2006). However, to the best of the authors knowledge there are no formal instruments measuring intentions in regard to DV. To this end, this study developed and preliminarily validated the Behavioral Intentions Questionnaire (BIQ).

The Unified Theory of Behavior (UTB) informed the selection of the behavioral intention determinants assessed in the BIQ. According to the UTB a person's behavior is influenced by his or her intention or decision to perform the behavior (Jaccard & Levitz, 2015). Behavioral intentions are defined in this study as “self-instructions to perform particular behaviors or to obtain certain outcomes” (Webb & Sheeran, 2006, p. 249) and are intended to represent the motives behind our behaviors (Fishbein & Ajzen, 2010). The UTB proposes there are many factors that influence the extent to which a behavioral intention translates into a behavior. This comprehensive and multivariate framework identifies five classes of proximal constructs that determine a person's intention to engage in a specific behavior: *behavioral beliefs*, *social norms*, *social images*, *emotions*, and *self-efficacy*. The constructs in this theory have a strong empirical basis in the social sciences and have been shown to account for considerable portions of variation in the decisions young people make (Jaccard & Levitz, 2015). Applying the UTB framework will facilitate the identification of underlying processes and behaviors regarding adolescents' intentions to use abusive behaviors, will lead us to target adequate factors in interventions developed to prevent or reduce future abusive behaviors in relationships.

Current Study

The aims of the current study are two-fold. First, the study aimed to develop a questionnaire—the BIQ—to measure Puerto Rican adolescents residing in Puerto Rico intentions to engage in physical and psychological abusive behaviors in dating relationships developed by the first author (See Supplements for a full version of the English and Spanish versions of the BIQ). Second, the study aimed to undertake a preliminary investigation of the questionnaire psychometric properties. This study used a two-phase sequential mixed method design for instrument development, which has been widely discussed in the literature over the past two decades (Zhou, 2019).

Phase 1: Creation and Pilot of Instrument

Scale Construction

Following established guidelines by Creswell et al. (2011), an initial pool of items was generated based on a previous qualitative study, and then the items were theoretically refined by experts in the field of DV and IPV and by the target population. The content of the questionnaire was based on a qualitative pilot study using in-depth semi-structured interviews with 48 participants between the ages of 13 and 21 (Medina, 2017), which examined the determinants influencing urban Puerto Rican adolescents' intentions to use physical and psychological abusive behaviors in dating relationships using the UTB. Findings revealed that behavioral beliefs, social norms, emotions, and social images emerged as salient constructs influencing adolescents' intentions. Based on these salient constructs, a measure with four scales was then developed. Each scale represents a UTB construct, and via content analysis, the most common statements for each construct were included in the scales. All scales contained subscales to assess different dimensions (i.e., type of abuse, gender). The questionnaire was developed in Spanish and was informed by guidelines from Boateng et al. (2018) for the development and validation of instruments. The initial questionnaire had a total of 129 items, with the number of items per each of the questionnaire scales and subscales widely varying. The questionnaire was translated to English by the first author and an independent researcher in the field of Latino IPV.

After constructing the initial questionnaire, face and content validity were assessed by expert and target population judges (Boateng et al., 2018). A native Spanish speaker independent researcher in the field of Latino IPV,

an independent methodologist and statistician, and the first and second authors, also experts on DV and IPV, met on several occasions to discuss the structure and content of the questionnaire, including assessing the items, instructions, and scales for construction problems and cultural appropriateness and determining the format and the length of the questionnaire, thus ensuring face and content validity (Connell et al., 2018). After disagreements were resolved, the first author proceeded to revise and pilot test the questionnaire, which included qualitative questions to assess usability and understandability of instructions, items, and response scales.

Pilot

Using convenience sampling, a sample of 40 urban adolescents between the ages of 13 and 17 in a private alternative education program in the municipality of San Juan, Puerto Rico were recruited to pilot the instrument via an online survey. The mean age of the sample was 14.62 years ($SD = 1.39$, range = 13–17 years), and 47% ($n = 15$) of participants were female and 3% ($n = 1$) of participants were other gender. The minority of individuals indicated that they were in some type of romantic relationship (19%, $n = 6$). Sexual orientation was 4% ($n = 1$) bisexual, and 96% heterosexual. Analyses were conducted with 25 participants. Descriptive statistics of the items for each of the questionnaire scales were performed. First, frequencies were calculated for missing item values. Second, frequencies were calculated to determine each item measures of central tendency, dispersion, and skewness. Items with significant missing values, items which were too skewed, or items which 80% or more of the responses were within a single response category were further explored and considered for removal from the questionnaire in Phase 2. Due to the small sample size, no items were eliminated at this stage until further data was obtained. However, problematic items were further assessed in the second phase via qualitative focus groups and subsequent quantitative analyses. None of the participants responded to the open-ended questions assessing usability and understandability of instructions, items, and response scales.

Phase 2: Testing and Refinement of Instrument

After the initial pilot test, the group of experts along with the study site liaison discussed the findings regarding item response patterns in each of the scales and subscales. The experts met several times to modify the format and structure of the questionnaire to improve survey response. A second test of the questionnaire was conducted to assess initial psychometric properties. To get further information on

usability and readability, focus groups were also conducted. The quantitative analyses conducted in Phase 1 informed the questions to be explored in the qualitative interviews. Upon completion of phase 2, a revised measure was created which integrated the findings of both phases, existing literature, and the authors' and other professionals' input.

Participants

A very similar sampling and recruitment procedure to the one used in phase 1 was conducted in phase 2. A sample of 135 participants were recruited from the alternative education program which served as a data collection site in phase 1 ($n=35$) and from a private school, also in San Juan ($n=100$). Participants for the focus groups were recruited from the private school site. Due to missing or incomplete data, analyses were conducted with 87 to 95 participants depending on the type of analysis. We lack statistical power according to the N:q rule to detect small to medium individual effects. However, power analysis also pertains to effects at the overall model level (Hancock & Freeman, 2001; Kline, 2015; MacCallum et al., 1996). Statistical power tests in this context largely depend on the model degrees of freedom (df). In particular, the close-fit hypothesis ($RMSEA \leq 0.05$) can be tested by specifying N, alpha, model df and a suitable value of RMSEA under the alternative hypothesis. The large number of items in our survey in turn yields many degrees of freedom relative to the sample size so that impact of the relatively small N on statistical power is somewhat mitigated for overall tests of model fit. For example, using our sample size of 135, an alpha of 0.05, an RMSEA under the null hypothesis (close fit) of less than or equal to 0.05, and an RMSEA under the alternative hypotheses of 0.08, we would have 80% statistical power if the model has 80 degrees of freedom.

The mean age of this second sample was 15.82 years ($SD=1.26$, range = 13–17 years), and 59% ($n=56$) of participants were male and 1% ($n=1$) of participants were other gender. A minority of individuals indicated that they were in some type of romantic relationship (34.7%, $n=33$), 71% were from 10th grade and above. Regarding sexual orientation, 87.1% of the sample identified as heterosexual and 4.3% identified as gay, lesbian, or bisexual.

Procedure

Participants were invited to complete an online survey to assess the questionnaire, in addition to participating in a series of focus groups. Four focus groups ($n=6$ per group), divided by development stage and gender, were conducted by the first author and the data collection site liaison. Questions regarding the measurements were asked, including readability of items, clarity of instructions, and social

desirability (i.e., perceptions/attitudes of how peers and parents would respond to survey). Assessing social desirability was deemed important considering the sensitive nature of some of the questions, gender and development considerations, and the literature which has found that reports of IPV perpetration and victimization appear to be prone to the influence of social desirability (Visschers et al., 2017). Study procedures were approved by a university institutional review board.

Data Analysis Strategy

Quantitative Data

An Exploratory Factor Analysis (EFA) using a one-factor solution and the criterion of a minimum factor loading of 0.40 (Matsunaga, 2010) for the retention of items was used as a method of estimation and a reliability test for the BIQ original scales. Due to the low number of participants compared to the number of BIQ items, the EFA and Confirmatory Factor Analysis (CFA) were made only at the subscale-level and not at the scale or questionnaire-level. Based on the results of the factor loading, items which did not load on a given factor (factor loading > 0.40) were removed. After reducing items, the Cronbach's Alpha of the revised version of the BIQ subscales was calculated. To test convergent validity of the BIQ, Pearson correlations were conducted between subscales. All these analyses were carried out using the statistical package SPSS v25.

Finally, based on the qualitative results, additional revisions were made on the BIQ scales (i.e., dividing items in one subscale based on its theoretical and empirical [based on initial qualitative study conducted by first author] relation to emotional or physical abuse). CFAs were conducted to verify the validity of the one-factor structure suggested by EFAs. CFAs for the final sets of items for each scale were computed using MPlus 8.0 statistical software. An ML estimator was used. To study model-fit, the following indexes and values were considered (Hooper et al., 2008): Root Mean Square Error of Approximation, Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI).

Qualitative Data

Focus groups interview recordings were transcribed verbatim in Spanish and translated and transcribed to English by an independent professional company then the first author compared the original and translated transcriptions to ensure accuracy. The first and third authors reviewed the transcripts in English and coded the data independently. The analysis was then cross-checked and validated by the second author. Thematic analysis techniques were used (Braun & Clarke, 2006) and the authors used Dedoose to assist them with the

analysis. The first and third authors familiarized themselves with the data and read the transcripts. Then they generated an initial list of codes which were then organized into categories and sub-categories. After each author developed an initial codebook, they met several times to compare their conceptual themes and sub-themes and collaboratively refine the codebook. Once the authors reached consensus about the major themes and sub-themes and their meanings, a final codebook was developed. The second author then proceeded to read each transcript and compare the individual codebooks created by the first and third authors with the final codebook. The authors employed strategies to ensure credibility and trustworthiness (Padgett, 2016). For example, analytic triangulation was used in the creation of the coding scheme and the analysis of the data and responses were considered in the context of the group, as well as individually, and wherever possible adolescents' actual quotations were used.

Results

Qualitative Findings

Two main themes emerged from the qualitative portion of this study: 1) issues with the instrument and 2) social desirability. Three sub-themes emerged within the social desirability theme: 1) participants' attitudes toward the survey, 2) participants' perceptions about peer attitudes, and 3) participants' perceptions about parent attitudes. Each theme was endorsed by each gender and age group.

Issues With Instrument

The participants suggested using bold, italics, and underlines to stress important words in the instructions or within the items themselves across all subscales. Some of the participants reported that the instructions and items were long but lacked specificity, particularly in the behavioral beliefs, social images, and emotions' subscales (i.e., Behavioral beliefs subscale: 'I will cause physical pain to the person I am dating', instead of 'I will cause physical pain'). Young girls were particularly concerned with the length of the survey and suggested summarizing it. To improve clarity in the subscales, older adolescents recommended changes in word choices for some of the items. Younger adolescents suggested broadening the examples used to define psychological abuse. There was discussion about the order in which certain items were presented. The participants voiced several items in the social images' subscales were too similar, resulting in an overlap (i.e., 'brag about the relationship' and 'are immature'). The participants expressed that the emotions subscale only focused on negative emotions and suggested

incorporating positive emotions. Older boys suggested that the data collector go to the school and explain each of the concepts. They were concerned adolescents would misinterpret the instructions, and consequently impacting the data the researchers are collecting. Finally, it became clear that some adolescents did not realize that this instrument was only concerned with violence between adolescents.

Social Desirability

Attitudes About Survey This theme reflected the adolescents' personal comfort with the survey and the survey topic. Multiple adolescents noted that the survey topic was relevant and important. One young boy voiced,

there are a lot of couples that have physical aggression problems and hurt each other's feelings, which isn't positive to develop a couple's growth. This topic should be studied with caution because it could prevent many cases of domestic violence in a couple's relationship.

All adolescents reported that being honest about this topic was important. This theme included discussion of anonymity and confidentiality. One older girl expressed,

what some people may say is uncomfortable, other people do not mind, or I do not have to answer that, because it is not what I am doing or what I will do. It depends on the kind of person and his perception, 'Yes, I will feel comfortable answering it,' 'No, I will not continue answering because I do not want to or I do not feel so comfortable, or I don't feel confident that it will be confidential.

Further, all adolescents, except young adolescent girls, noted that since the survey was anonymous and private, they would be more likely to answer honestly.

Perceptions About Peer Attitudes Another identified theme was the adolescents' perceptions of their peers' attitudes toward the survey. This theme reflected the adolescents' opinions on their peers' level of maturity, lack of seriousness, having engaged in abusive behaviors, and personal traits. One young adolescent boy expressed, "my peers would think it's important to learn about these things... Unless they are machistas [a strong sense of traditional masculinity, whereby men are perceived as providers, courageous, aggressive, and dominant]". To which another young boy responded, "or unless they don't have such a high level of capacity or they know much about that situation, and they're a *mequetrefe* [good-for-nothing, bum]." The participants discussed how an individuals' experience with abuse could influence their ability to participate in the survey. Both

Table 1 Factor loading of the EFA

Item	Factor loading
Behavioral beliefs phys- If I kicked, hit or pushed my boyfriend or girlfriend or the person I am dating/getting to know:	
He or she would call the police and I could go to jail	0.811
I would release negative emotions (anger stress bitterness)	0.811
People will think negatively of me and label me as a violent person	0.786
I will cause physical pain	0.772
He or she will talk to their parents and the parents could hurt me	0.668
He or she would be scared and not be honest anymore	0.652
I will need to seek psychological help	0.624
I will cause psychological pain	0.611
I would disrespect him or her	0.556
The relationship could end	0.490
I fear he or she will respond violently and hit me back	0.481
He or she will fear me and will do what I ask him or her to do	0.378
He or she will learn a lesson and not do it again	0.258
Behavioral beliefs psych- If I screamed or insulted my boyfriend or girlfriend or the person I am dating/getting to know:	
I would release negative emotions (anger, stress, inadequacies, bitterness)	0.755
He or she will be scared and not be honest anymore	0.749
The relationship could end	0.734
He or she would call the police and I could go to jail	0.720
He or she will fear me and do what I ask	0.696
I would cause physical pain	0.695
I will need to seek psychological help	0.687
I would fear he or she will respond violently and hit me back	0.663
He or she will talk to their parents and the parents could hurt me	0.647
I would disrespect his or her	0.639
He or she would learn a lesson and not do it again	0.638
I would cause psychological pain	0.593
People will think negatively of me and label me a violent person	0.502
Disapprove social norms	0.913
My parents would not approve of my kicking, hitting or pushing my romantic partner	
My friends would not approve of my kicking, hitting or pushing my romantic partner	0.874
My friends would not approve of my screaming or insulting my romantic partner	0.855
My parents would not approve of my screaming or insulting my romantic partner	0.838
Approve social norms	
My parents would approve of my kicking, hitting or pushing my romantic partner	0.970
My friends would approve of my kicking, hitting or pushing my romantic partner	0.953
My friends would approve of my screaming or insulting my romantic partner	0.943
My parents would approve of my screaming or insulting my romantic partner	0.938
Actual social images girls-Girls who are dating someone...	
Are clingy	0.793
Are mistreated	0.778
Are gossipers	0.775
Are insecure	0.766
Scream, insult, or ridicule the person they are dating in front of others	0.765
Are cheaters	0.765
Behave differently in front of their friends	0.757
Spend too much time with their friend and not with the person they are dating	0.753
Do not take things seriously	0.735
Are preoccupied with social status	0.734
Make crazy decisions without thinking about the results	0.721

Table 1 (continued)

Item	Factor loading
Act like adults	0.708
Are jealous	0.693
Are immature	0.686
Brag about their relationship	0.673
Become depressed when a boy/girl does not like them	0.644
Argue over silly things	0.617
Ridiculous	0.601
Shy	0.600
Fake	0.550
Actual social images boys-Boys who are dating someone...	0.833
Make crazy decisions and do not think about the consequences	
Argue over silly things	0.827
Are gossipers	0.821
Are ridiculous	0.815
Do not take things seriously	0.810
Brag about their relationship	0.785
Are immature	0.781
Behave differently in front of their friends	0.776
Spend too much time with their friends and not with the person they are dating	0.746
Are mistreated	0.729
Scream, insult, or ridicule the person they are dating in front of others	0.729
Are jealous	0.726
Are preoccupied with social status	0.700
Act as adults	0.693
Become depressed when a boy/girl does not like them	0.689
Are clingy	0.644
Are fake	0.635
Are cheaters	0.624
Are insecure	0.605
Are shy	0.559
Expected social images girls- Girls in relationships or who are dating someone should behave...	
Decent	0.879
Sincere	0.876
Respectful	0.863
Humble	0.860
Trustful	0.859
Supportive	0.812
Kind	0.795
Organized	0.791
Lady-like	0.778
Communicative	0.736
Emotionally independent	0.700
Non-violent	0.642
Lovingly	0.609
Detailed	0.601
Delicate	0.576
Conservative	0.534
Expected social images boys- Boys who are dating someone should behave...	
Supportive	0.931
Respectful	0.930

Table 1 (continued)

Item	Factor loading
Kind	0.920
Organized	0.903
Sincere	0.902
Humble	0.897
Lovingly	0.885
Chivalrous	0.884
Communicative	0.836
Trustful	0.819
Detailed	0.816
Emotionally independent	0.732
Decent	0.713
Delicate	0.651
Nonviolent	0.625
Conservative	0.596
Emotions Physical- When I think about kicking, hitting or pushing the person I am dating, I feel...	
Regret	0.848
Embarrassed	0.837
Sad	0.825
Guilty	0.795
Angry	0.608
Don't feel anything	0.449
Cool	0.418
Emotions Psychological- When I think about screaming at the person I am dating, I feel...	
Regret	0.898
Embarrassed	0.879
Sad	0.851
Guilty	0.836
Angry	0.675
Don't feel anything	0.166
Cool	0.230

young and old adolescents discussed maturity levels as a barrier to their peers taking the survey seriously. Older girls highlighted the potential for gender differences to play a role in their peers' attitudes toward the survey.

Perceptions About Parent Attitudes Within this theme adolescents highlighted that they thought their parents would view this topic as important and would recognize that it “would be okay with it because their children would be helping you create a platform that will stop violence” (older boy). The participants further explained that they thought their parents would support discussion of this topic with the main goals of education and prevention. One older girl voiced that her mother,

thinks that this is not talked about in the world. People make a post on Facebook of a woman or a man who

was abused, and say, ‘What a shame, the world has to change’, but do we do something to change it, and make it better? Mom told me it was essential to talk about it.

Quantitative Findings

The results of EFA, one-factor solutions of each subscales, and the lowest factor solutions were prioritized and presented in Table 1 and 3. The one factor model had acceptable model fit for all BIQ subscales. A few items were removed based on low factor loadings. Cronbach's Alpha of the revised subscales of the BIQ are presented in Table 2. All of the subscales had good reliability results with a range between 0.90 and 0.97. The correlation a) between behavioral beliefs physical, social norms/emotions physical, b) social norms positive and actual social images boys/expected social images girls were not significant and the

Table 2 Cronbach's Alpha of the BIQ subscales

Sub-scale	Cronbach's alpha
Behavioral beliefs phys	.90
Behavioral beliefs psych	.92
Social norms disapprove	.95
Social norms approve	.97
Actual social images girls	.96
Actual social images boys	.96
Expected social images girls	.96
Expected social images boys	.97
Emotions phys	.90
Emotions psych	.95

correlations between all other BIQ subscales were all statistically significant: between 0.28 and 0.80 ($p < 0.001$) and between -0.26 and 0.26 ($p < 0.05$) (See Table 3). We tested the hypothesis that all items from the BIQ subscales loaded on one factor for their specific subscale. To address the high correlation between some subscales, the authors along the experts, reviewed the literature, the results of the previous qualitative study, and focus groups data, to decide which items to retain in each subscale. For example, in the behavioral beliefs physical and psychological abuse subscales, items which were more strongly related to psychological abuse were kept in the psychological subscale, and those more strongly associated with physical abuse, were kept in the physical subscale. Regarding the social norms scale, it was noticed that the subscales were redundant, as those whose parents and friends disapproved engaging in abusive behaviors, would by default imply approval. Thus, the approval subscale was removed. Finally, in regard to the actual and expect social images subscales, the gender dimension was eliminated and items that emerged as the most salient for both boys and girls in the previous qualitative study were kept.

With the measurement revision based on the EFAs, qualitative findings, and discussions among the experts, the fit indices obtained from the one-factor solution were adequate after error covariances were considered. Error correlations can be explained by overlapping content in the questions. After modifying the subscales, the following modification indices were obtained Table 4. For the 'behavioral beliefs physical' subscale, resulted in $\chi^2(15, N = 95) = 135.233, p < .X, CFI = 0.996, TLI = 0.993, RMSEA = 0.0.024, 90\% CI [0.0.000, 0.0.119]$. For the 'social norms' psychological subscale, modification indices for the associations between item: 'My parents

Table 3 Correlations between the modified variables^a based on the EFA

	Behavioral beliefs phys	Behavioral beliefs psych	Social norms disapprove	Social norms approve	Actual social images girls	Actual social images boys	Expect social images girls	Expect social images boys	Emotions phys	Emotions psych
Behavioral beliefs phys	—									
Behavioral beliefs psych	.80**	—								
social norms disapprove	.56**	.42**	—							
social norms approve	.01	.22*	-.07	—						
Actual social images girls_1	.55**	.52**	.44**	.29**	—					
Actual social images boys	.55**	.42**	.55**	-.10	.52**	—				
Expected social images girls_	.47**	.41**	.46**	.18	.83**	.39**	—			
Expected social images boys	.54**	.36**	.56**	-.26*	.42**	.90**	.38**	—		
Emotions phys	.16	.26*	.33**	.28**	.35**	.21*	.43**	.20	—	
Emotions psych	.28**	.25*	.47**	-.06	.28**	.39**	.34**	.50**	.62**	—

^a Refers to variables after eliminating the items suggested to be eliminated by analyses

Table 4 Goodness-of-fit indexes used to assess confirmatory factor analysis for the BIQ subscales (model 1 index/ model 2 index/ model 3 index/ model 4 index)

	CFI	CTI	Number of free parameters	Root Mean Square Error Approximation (RMSEA)	χ^2	(AIC)	(BIC)
Behavioral beliefs phys	0.996	0.993	15	0.024	135.233	1806.204	1852.174
Social norms	1.000	1.011	6	0.000	534.795	863.837	896.620
Actual social images	0.970	0.953	36	0.083	500.397	2262.286	2338.729
Expected social images	0.999	0.997	10	0.035	384.810	916.190	955.644

would approve of my screaming or insulting my romantic partner' and item: 'My friends would approve of my screaming or insulting my romantic partner' resulted in $\chi^2 (6, N=92)=534.795, p<.X, CFI=1.000, TLI=1.011, RMSEA=0.000, 90\% CI [0.000, 0.165]$. For the 'actual social images' boys subscale, modification indices for the associations between item: 'Boys who have a partner are insecure' and item: 'Boys who have a partner are shy'; item: 'Boys who have a boyfriend or girlfriend, are talking and/or flirting with someone are immature' and item: 'Boys who have a boyfriend or girlfriend, are talking and/or flirting with someone—argue over silly things'; item: 'Boys who have a partner behave differently in front of their friends' and item: 'Boys who have a partner are insecure'; item: 'Boys who have a partner don't take things seriously and item: 'Boys who have a partner are jealous'; resulted in $\chi^2 (36, N=87)=500.397, p<0.001, CFI=0.0970, TLI=0.953, RMSEA=0.083, 90\% CI [0.0024, 0.131]$. For the 'expected social images boys' subscale, modification indices for the associations between item: 'Boys in relationships should behave emotionally independent' and item: 'Boys in relationships should behave supportive'; resulted in $\chi^2 (10, N=87)=384.810, p<.X, CFI=0.0999, TLI=0.997, RMSEA=0.035, 90\% CI [0.000, 0.169]$. All of the factor loadings were statistically significant. The revised version of the questionnaire has 63 items.

Discussion

Considering the dearth of culturally appropriate DV measures in PR, this study aimed to develop an empirically driven multidimensional measure intended to assess PR adolescents' intentions to engage in physical and psychological abusive behaviors in dating relationships and to preliminarily assess the measure's psychometric properties. The BIQ was developed via a thorough set of successive phases that included: semi-structured interviews and focus groups with the target population, expert panel discussions, and pilot and secondary testing to generate the questionnaire items, refine its content, and establish preliminary reliability and validity at item and subscale level.

Initially, the BIQ demonstrates to have face and content validity, due to the questionnaire's development process, which was consonant with the revision of the scientific literature and the analyses of the target population and the panel of experts. In terms of the questionnaire's reliability, originally the subscales demonstrated high levels of correlations, but the qualitative data obtained helped us to eliminate items that did not contribute additional information, adding to the internal consistency of the subscales. After refining its contents, all subscales showed high reliability indices, surpassing the minimum acceptable level of reliability established in the literature (DeVellis, 2017). These findings preliminarily suggest that the subscales measure the constructs under study, and these are adequately represented by the items. Additionally, reliability results at the subscale level indicate that the questionnaire could be a reproducible and consistent instrument. Theoretically, exploratory and confirmatory factor analyses support the hypothesis that each one of the subscales showed good fit for testing one factor analysis. The qualitative results suggest that adolescents expressed self, peer, and parent perceptions about the questionnaire and the survey, which could influence adolescents' decision to complete the questionnaire and how they respond to the questions.

Limitations

As with all qualitative studies, a limitation of the study was the relatively small sample size for the focus group interviews. Sample sizes for the quantitative administration were also small. Due to the sample size, analyses at the scale and questionnaire-level could not be performed. Another limitation is that our sample was primarily heterogenous and included adolescents that were not currently in a romantic relationship. Similarly, generalizability of this measure for adolescents of different ages and living in rural areas is unknown, as all adolescents resided in urban areas and in the second phase of the study most adolescents were in 10th grade. Although the foreign-born population in PR is relatively small, PR adolescents may include participants with different ethnic backgrounds, and our study did not ask questions about race and ethnicity. This measure focuses

only on the most prevalent forms of DV in PR, physical and psychological abuse. This does not imply that other forms of DV (i.e., sexual and cyber) are not as common among adolescents in PR. Our study also did not test the correlation between the final scale and DV and the subscales' reliability was only established through its items, but not over time. The authors noticed that questions directly asking about intentions, and not factors influencing intentions, were missing. Finally, our study only measured intentions to engage in abusive behaviors, but did not measure intentions to behave non-abusively, which is an important aspect to explore when working with adolescents.

Next Steps and Issues with Further Research

The preliminary results of reliability and convergent validity of the subscales allow us to move to the next step in testing the revised version of the BIQ measurement in a larger, representative, and diverse sample, as well as examining the psychometric properties at the scale and questionnaire level. In the final validation study, further tests of correlation, reliability (i.e., external) and construct validity will be performed. In addition, the questionnaire's multidimensionality, and alignment with the UTB will be assessed by conducting two-levels of confirmatory factor analyses to examine if each of the subscales' dimensions map onto a single latent dimension of behavioral intentions. The generalizability of this measure for adolescents from diverse ages, ethnic groups, sexual orientations, and romantic relationship statuses should be explored in the final validation study. Future scholarship should also assess this measure in a sample of rural adolescents residing in PR. Future adaptations of this measure should consider assessing other forms of DV. Questions directly inquiring about intentions have been added in the newly revised instrument (See supplements). The incorporation of questions or the creation of a new scale about intentions to choose non-abusive behaviors should be contemplated by the experts group. Finally, questions on or a measure of social desirability will be included in the BIQ, based on the qualitative results.

The findings of this study coupled with the findings from the final validation study will give way to adaptations of the questionnaire considering the differential experiences of dating for adolescents based on specific sociodemographic (i.e., sexual orientation, gender), geographical (urban/rural), and socioeconomic characteristics (education and income level). Given the relevance of the issue and the usefulness of the measure for all adolescents regardless of their ethnicity, future studies could also adapt and validate this measure with other Latino and non-Latino adolescents.

Finally, if proven valid, this measure could have important practice implications. A major advantage of the BIQ is its scales and subscales which offer a way of aggregating factors

which can impact adolescents' intention to perform abusive behavior in a dating relationship that may be of utility for professionals in the field of DV. Many prevention programs target individual (beliefs supportive of violence, emotion regulation) and peer and family (social norms) level factors intended to impact intentions and behaviors (De la Rue et al., 2017), contemplated in the BIQ subscales. Assessment and feedback regarding specific intention domains, such as those measured in the BIQ subscales, may facilitate the implementation of interventions targeting these factors.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10896-021-00341-x>.

Declarations

Conflicts of Interest The authors of this paper have no conflicts of interest to declare.

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