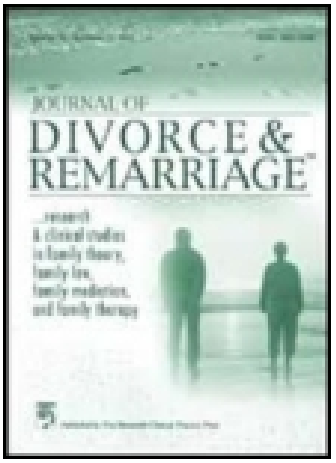

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Validation of a Measure of Intimate Partner Abuse (Relationship Behavior Rating Scale–Revised) Using Item Response Theory Analysis

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There is a need for a screening instrument to provide insight into intimate partner abuse (IPA) to inform legal decisions in child custody, divorce, child welfare, and criminal cases. This study is the third validation of the Relationship Behavior Rating Scale–Revised (RBRS–R) for concurrent validity with the widely used Conflict Tactics Scales 2 (CTS2). Item response theory results show that the RBRS–R compares favorably to the CTS, but also provides a higher degree of resolution than the CTS2 with respect to additional elements of IPA that can be manifested in different situations or individuals. This additional information might be very important in determining the safest legal process (mediation versus traditional litigation) and appropriate case outcomes to protect victims of violence.

KEYWORDS divorce mediation, domestic violence, intimate partner violence, measurement, screening, spousal abuse, validation

Intimate partner abuse (IPA)[1] is unfortunately a common occurrence in many intimate relationships and the financial and human costs associated with IPA are staggering. Recent studies estimate that IPA occurs in 12% to 30% of

[1] Historically IPA has been defined using several different terms and has alternately been labeled domestic violence, interpersonal violence, intimate partner violence, domestic abuse, spousal abuse,

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relationships in the general population (Field & Caetano, 2005). The lower end of this estimate represents older heterosexual married or cohabitating couples (Straus & Gelles, 1986) and the upper end represents younger married, cohabitating, or dating couples and particular ethnic groups (Field & Caetano, 2005; Magdol, Moffitt, & Caspi 1998). For many victims, IPA actually begins or substantially increases after the victim separates from the abuser (Beck, Walsh, Mechanic, Figueredo, & Chen, 2011), as research has consistently shown that one of the most dangerous times for victims is post-separation (Brownridge, 2006; Campbell et al., 2003; Hardesty, 2002). Even higher rates of IPA are found in the divorcing population, whose members cannot agree on child custody arrangements, and are court ordered to attend divorce mediation to attempt to do so. In two studies with independent samples of this population, rates of IPA were found to be between 59% and 98%, depending on the type of IPA assessed (Ballard, Holtzworth-Monroe, Applegate, & Beck, 2011; Beck et al., 2011). Lower IPA estimates were found for stalking and physical and sexual violence, whereas higher frequencies were found for emotional and psychological abuse.

An important first step in assisting divorcing couples with IPA is choosing the appropriate legal process for divorcing (e.g., mediation or traditional litigation). The goal of the process is to obtain legal agreements detailing custody parenting time, which protect victims and violence-exposed children (e.g., supervising visitation, supervising exchanges of children, confidential addresses, limiting communication) and division of any family assets.

Mediation is based on the theory that providing a forum less adversarial than a court and a neutral third party to control the negotiation process will encourage disputing parents to negotiate better agreements with regard to children that are more likely to be kept (Beck & Sales, 2001). Whereas some have applauded mandatory mediation as a groundbreaking legal process focusing parents on the needs of their children, others have seriously questioned its role in justice for cases with IPA (Bryan, 1992; Fischer, Vidmar, & Ellis, 1993; Grillo, 1991). Critics argue that power imbalances created by IPA can result in an unfair negotiating process that traps victims in unacceptable agreements that might not be ameliorated by mediators untrained and unskilled in IPA assessment. By contrast, court litigation with judges required to consider consequences of IPA is thought by some to be a much safer and fairer process than mediation for victims and their violence-exposed children. Fundamental to assessing the appropriateness of either process (mediation

and family violence. Terms such as interpersonal violence or domestic violence often limit the types of behaviors to physical acts or those physical acts that risk the possibility of physical injury, although the actual range of harmful behaviors one partner can engage in against another is actually much broader. The term IPA was chosen because it encompasses the broadest range of behaviors. In this article, IPA is defined as any behavior that causes harm physically, psychologically, or sexually (Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, on behalf of the WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team, 2008).

or litigation) are valid and reliable methods for assessing psychological and physical IPA, to reduce the threat of harmful exposure to violence.

There are currently several instruments designed to assess IPA in the context of divorce and divorce mediation in particular; however, each has associated problems and limitations. An early screening tool developed for disputing parents was the Conflict Assessment Protocol (CAP; Girdner, 1990). The Domestic Violence Evaluation (DOVE) is a 19-item, interview-based instrument designed to assess and make recommendations for agreements to reduce risks for couples both before and after divorce (Ellis & Stuckless, 2006). The P5 is a guideline (as opposed to an IPA screening measure) that describes a set of dimensions of IPA that are important to consider in planning custody and parenting time arrangements (e.g., potency of violence, patterns of violence, primary perpetrator of violence, parenting problems, and perspective of the child; Johnston, Roseby, & Kuehnle, 2009). Although not necessarily widely used with a divorcing population, the Conflict Tactics Scale 2 (CTS2) is a well-known and validated measure used assessing IPA in other contexts (Straus, Hamby, Boney-McCoy, & Sugarman, 1996).

No instrument is perfect and each of the currently available measures already noted has important limitations. Some cover only a relatively limited set of domains or assess only certain types of abuse (e.g., CTS2, CAP). Others do not assess an especially important construct (coercive controlling behaviors; Beck & Raghavan, 2010; Tanha, Beck, Figueredo, & Raghavan, 2010). Some instruments lack detailed behaviorally specific questions (e.g., DOVE, P5). In addition, instruments might require administrators to complete hours of specialized training (e.g., DOVE).

Thus, there is a significant need for a quick, easy-to-use screening instrument that provides important information on theoretically relevant categories of IPA to assist mental health professionals, mediators, and the courts in determining the best legal process for couples with IPA to assess and achieve safe parenting arrangements for their children. Clearly, arrangements and agreements focused on reducing the violence and abuse is in the best interests of adult victims, their children, and society at large.

THE EFFECTS OF IPA ON ADULTS AND CHILDREN

For adults, the psychological and mental health problems for victims have been well documented, including posttraumatic stress disorder, depression, anxiety, substance abuse, and suicidal ideation and attempts (Basile & Black, 2011; Caldwell, Swan, & Woodbrown, 2012). Physical health problems have likewise been well documented and include sexually transmitted diseases, genital injury, somatic syndromes, traumatic brain injury, chronic pain, arthritis, migraines, hearing loss, functional gastrointestinal disorders, and changes in endocrine and immune system functions (Banks, 2007; Basile & Black, 2011; Lesserman & Drossman, 2007; Sommers, 2007).

The effects of children witnessing IPA are also well documented and include aggression, oppositional behavior, anxiety, depression, posttraumatic stress disorder, academic troubles, attachment disorders, cognitive disorders, and social and relationship problems (Jouriles, Norwood, McDonald, & Peters, 2001; Margolin & Vickerman, 2007; Wolf, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003). Children in families experiencing IPA are also at increased risk of child abuse by one or both parents (Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008; Slep & O'Leary, 2005). More recent research has found that IPA independently (and along with child abuse) has additional significant and long-term impacts on children's genetic predispositions that affect emerging brain architecture and long-term health (Carpenter & Stacks, 2009; Shonkoff, Garner, & the Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, and Section on Developmental and Behavioral Pediatrics, 2011). Such impacts are permanent changes in brain development that alter the trajectory of a child's life forever. The mechanism thought to link IPA with both childhood and some adult chronic mental health problems and physical diseases is an underlying biological response to long-term, chronic, high-level stress that accompanies IPA with or without child maltreatment (Crofford, 2007; Pico-Alfonzo, Garcia-Linares, Celda-Navarro, Herbert, & Martinez, 2004; Shonkoff et al., 2011). Thus, it is crucial that a careful assessment of IPA is accomplished to mitigate or reduce exposure to chronic high-level stress for victims and violence-exposed children via client-appropriate postdivorce (or separation if parents were never married) parenting agreements and safety plans.

THE RELATIONSHIP BEHAVIOR RATING SCALE

The Relationship Behavior Rating Scale (RBRS) is a measure of IPA originally developed for use with divorcing couples who were disputing custody and parenting time of their children and were court-ordered to participate in divorce mediation (Beck et al, 2011). The RBRS was validated using separate methods in two studies (Ballard et al., 2011; Beck, Menke, Brewster, & Figueredo, 2009). The current study is a third validation of this instrument in a different population and under different methods.

First Validation Study

The first version of the RBRS was a revised and reworded version of the earlier Partner Abuse Scales, which measured two dimensions of IPA, physical (PASPH) and nonphysical abuse (PASNP; Attala, Hudson & McSweeney, 1994; Hudson & McIntosh, 1981). The PASPH and PASNP and the later RBRS were unique in that they measured a broader range of IPA that was often

entirely ignored or only minimally measured in any context. These instruments measured by self-report physical violence and injury, but also sexually related abuse and violence and a particularly corrosive form of psychological abuse labeled coercive control (Bergen, 2004; Finkelhor & Yllo, 1985; Stark, 2007). Until the RBRS was developed, sexual abuse and coercive control were unlikely to be measured within the mediation context (Ellis & Stuckless, 2006; Kelly & Johnson, 2008; Michigan Supreme Court, 2006). The questions on the RBRS reproduced several theoretically driven subscales, including these two important subscales (Beck et al., 2009).

In the first validation study, a large sample (N = 1,015 couples) of divorcing couples completed the RBRS. Results from this sample were then compared to the original RBRS scales (PASPH and PASNP) for concurrent validity. Classical test theory (Samejima, 1997) results indicated that the total RBRS score correlated highly with original scales (PASHP and PASNP) and were highly reliable. The instruments correlated at above .90 with a p value of less than .05 for the subscales developed from the original (psychological abuse, coercive control, physical abuse, threatened and escalated physical violence, sexual assault, intimidation and coercion) (Beck et al., 2009). Under item response theory (IRT) analyses, internal consistency reliabilities for both wives and husbands on all subscales were found to be very high. The RBRS was as reliable as the original scales but also more inclusive than other traditional self-report measures of IPA, in that it captured other important behaviors not clearly defined in the past. Increased information concerning physical abuse and coercive control fit well with more recent studies in specifying coercive control as an important contributor to other types of abuse (Stark, 2007; Tanha et al., 2010). Although found reliable, an important risk factor for future violence, stalking, was not included in the original RBRS. Thus, the RBRS was revised (RBRS–R) and included questions for this important construct.

Second Validation Study

A second study compared the revised and shortened RBRS–R with standard mediation clinic screening procedures on a similar population of divorcing clients. These procedures included reviewing civil and criminal records for both parties, reviewing court records, asking questions about the history of conflict between the parties, and asking whether the parties were comfortable sitting with each other in the same room in mediation. Mediators on the case had opportunities for additional interactions with the parties to help verify violence (Ballard et al., 2011). At the end of mediation, mediators were asked to complete a brief postmediation questionnaire that included the question "Did/do you believe or suspect domestic violence was present in this case?" The results of this study found that in approximately half of the cases wherein one or both parents reported experiencing physical violence

by their partner on the shortened version of the RBRS–R, mediators using the standard clinic procedures failed to identify the violence (Ballard et al., 2011).

Both validation studies were conducted on a very particular population of adults, namely those couples undergoing a divorce. More specifically, the population included those who could not reach an agreement regarding custody or parenting time without significant intervention from professionals (e.g., the courts, mediators, or attorneys). This population was therefore a more contentious population than the general divorcing adult population.

Third and Current Validation Study

To further explore the validity of an instrument, it is important to look more closely at its structure as compared to that of an established measure. Thus, this study was conducted comparing the RBRS–R to the most commonly used measurement of IPA, the Conflict Tactics Scales (CTS and CTS2; Straus, 1979; Straus et al., 1996; Vega & O'Leary, 2007). Both the RBRS–R and the CTS2 are self-report, paper-and-pencil measures designed to assess specific IPA-related behaviors. The RBRS–R focuses solely on victimization (from the victim's perspective) and contains 47 items, whereas the CTS2 focuses both on victimization and perpetration using 39 matched-item pairs (one for perpetration and one for victimization).

Both instruments also include at least five subscales. The RBRS–R has six subscales (psychological abuse, coercive controlling behaviors, physical abuse, threats of and escalated physical violence, sexual intimidation/coercion/assault, stalking), and the CTS2 contains five (negotiation, psychological aggression, physical assault, physical injury, and sexual coercion; Straus et al., 1996). Because the RBRS–R contains questions related to victimization only, only the 39 victimization items from the CTS2 from the four similar subscales could be used in this study. These could be generally described as psychological abuse, physical assault, physical injury, and sexual abuse and violence subscales.

Item Response Theory

IRT is a structured methodology for estimating the validity of an assessment instrument for measuring a specific trait, also called a latent construct. By convention, the latent construct is named parameter theta, denoted by the Greek letter θ. In this study, IPA as reported from the victim's perspective was the specific latent construct of interest.

Whereas classical test theory studies the efficiency of the entire instrument, IRT examines each item for its contribution to the overall test's ability to measure the underlying construct. IRT requires items to meet three criteria: (a) unidimensionality, (b) monotonicity, and (c) local independence. Items that do not meet these criteria are considered as not informative.

Unidimensionality

Fundamental to IRT analysis is the assumption that item choices designed to measure lower levels of behaviors associated with the latent construct (IPA) would have a higher probability of endorsement than those items assessing higher levels of the behaviors associated with the latent construct. In other words, the IPA paradigm in this study assumes a spectrum of θ from low to high levels of IPA. In IPA measurement, respondents more commonly report psychologically abusive items (screamed or yelled, was mean or rude) than they do physical violent behaviors (break bones, strangle). In this way, the single dimension of IPA is being measured from frequently endorsed items to rarely endorsed items. If the opposite were true, that physically violent items were more frequently endorsed than psychologically abusive items, a different assessment model would be needed—the assumption of unidimensionality would be violated, as our fundamental understanding of the construct would be incorrect.

Monotonicity

Logically, responses to each item along a continuum from low to high should increase in the direction of severity in the latent construct (IPA) being measured. Assessing any single item, those representing lower levels of IPA should be associated with other items measuring lower levels of IPA. Likewise, items measuring higher levels of IPA should be associated with other items measuring higher IPA levels. Items meeting this criterion are conforming to the assumption of monotonicity. Nonmonotonic items, items in which descriptors of higher levels of IPA are paradoxically correlated with endorsement of lower levels of IPA, or vice versa, are not monotonic and must be deleted from the instrument. A Mokken analysis is used to test each item's monotonicity.

Local independence

Although all items should be measuring different levels of the same latent construct (IPA), they should not be highly intercorrelated with each other. In other words, items are related to each other by virtue of their relationship to the construct. Items that violate local independence would essentially be repeating the same question and not be adding any new information to our understanding or measurement of IPA.

METHOD

The objective of this study was to compare the psychometric properties of the RBRS–R and CTS2 instruments using IRT. In this analysis, the CTS2 and

RBRS–R instruments' assessment of the victim's IPA experience is categorized into dimensions (psychological abuse, sexual abuse and violence, physical abuse, and physical assaults leading to injury). In this study, we analyzed only the dimensions common to both instruments. The negotiation dimension is unique to CTS2; the dimensions of coercive controlling behaviors and stalking are unique to RBRS–R. These three dimensions were not included in this analysis.

Under a conventional hierarchical design, total IPA would be considered the sum of its component subscales. The hierarchical assumption is that IPA can be completely explained by the subscale components. An alternative explanatory model for IPA is the bifactor model, where the general IPA factor exceeds the sum of subscales because of a dominant general IPA factor, or a dimension of IPA unknown and unspecified in the model. Under the bifactor model, the factor variance attributable to general IPA is first removed, and the residual variance is subject to confirmatory factor analysis to verify the subscales. The bifactor model acknowledges that other components of IPA might exist that cannot captured by the subscale components of IPA that exceed the simple sum of the hypothesized parts.

The hierarchical structure was explored by using the R software package *psych* with the Omega and Schmid–Leiman bifactor analysis, and using the bias-adjusted polychoric correlations of RBRS–R and CTS2 items. The polychoric correlation matrix was then entered into a confirmatory factor analysis to test dimensionality of the subscales that both instruments shared.

Participants

Two-hundred and sixty-four undergraduates (179 female and 85 male) enrolled in psychology courses participated in this study. Of this total, 156 students provided usable data. Each participant reported a current romantic relationship of at least 3 months during the past year. This allowed for a direct comparison of item endorsement and measurement of the latent construct of IPA.

Procedures

Data collection

This study was part of a larger study (Figueredo, Gladden, & Beck, 2012) in which participants enrolled in the study, entered a secure website, provided informed consent, and completed a series of self-report questions via a personal computer. Specifically for this study the participants responded to items designed to elicit degrees of their experience of four categories of partner abuse (psychological abuse, sexual abuse and violence, physical abuse, and physical assaults leading to injury) occurring over the past year

with their intimate romantic partner. Data were cleaned and noninformative cases, which included single-value responses (e.g., all 1s) and cases with any missing data whatsoever, were excluded from analyses. After cleaning, 106 cases contained full RBRS–R data and 138 cases contained complete CTS2 data.

Instruments

The instruments to be compared were the RBRS–R (Beck & Hudson, 2009) and the CTS2 (Straus et al., 1996). Both instruments included several subscales; however, only those subscales that were common to both instruments were used in the analyses. The common scales were psychological abuse, sexual abuse and violence, physical abuse, and physical assaults leading to injury.

Instruments calibrated

The RBRS–R and CTS2 instruments were based on different item response choices. All CTS2 item choices varied from 0 (*This has never happened*) to 6 (*More than 20 times in the past year*). The original CTS2 coding also included a choice labeled 7, which was anchored by the phrase *Not in the past year, but it did happen before.* Because the period of interest in both instruments was the past year (12 months in RBRS–R), the CTS2 choice of 7 was recoded to 0 for comparing to the RBRS–R instrument.

Table 1 shows that four of six RBRS–R item choices corresponded exactly with four of the seven CTS2 codes. Because the RBRS–R tended to describe more "exact" estimates rather than a range of incidents described in the CTS2, two levels of RBRS–R estimates were assigned their own categories. Table 1 shows that RBRS–R choices of *six times* and *twelve times* were coded as 2 and 3, respectively, instead of included in with the CTS2 coding of 4 and 5.

The new common scale for both instruments varied from lowest, 0 (*no abuse in 1 year*) to 9 (*daily abuse for 1 year*). Each instrument question was polytomous (i.e., each item required the respondent to select a frequency of abuse experience from none to daily (365 times in the past year). The new shared choices were captured on a Likert scale ranging from 0 through 9.

Data Analysis

R *GPArotation* and *psych* software packages (R Development Core Team, 2012) were used for bifactor analyses of the general abuse factor, along with the shared four subscales (psychological abuse, sexual abuse and violence, physical abuse, and physical assaults leading to injury), in Likert scales of frequency of occurrence of each type. The RBRS–R originally contained

TABLE 1 Recoding Scheme for the Conflict Tactics Scale 2 and Relationship Behavior Rating Scale–Revised Instruments to a Shared Frequency Scale

CTS2		RBRS–R Scale		
Original CTS coding	How often did this happen in the past year?	Original RBRS–R coding	How often did this happen in the past 12 months?	New equivalence codes
0	This has never happened	0	Never	0
1	Once in the past year	1	Only once	1
2	Twice in the past year	N/A		2
3	3–5 times in the past year	N/A		3
		2	Six times	4
4	6–10 times in the past year (taken as 8)	N/A		5
		3	Twelve times	6
5	11–20 times in the past year (taken as 15)	N/A		7
6	More than 20 times in the past year	N/A		8
		4	Once a week	9
		5	Daily	9
7	Not in the past year, but it did happen before	N/A		0

Note. CTS2 = Conflict Tactics Scale 2; RBRS–R = Relationship Behavior Rating Scale–Revised.

31 items with seven Likert choices. The CTS2 instrument originally contained 33 items with eight Likert choices from 0 (*never happened*) to 7 (*more than 20 times per year*). Polytomous data are data from which a respondent can only choose one value among a restricted set of values. As the Likert rating scales in both instruments are polytomous, Pearson's *r* correlations between items will underestimate their real relationships of association. For this reason, polychoric correlations are used to obtain unbiased estimates of item association. The matrix of polychoric correlations, then, becomes the set of unbiased correlations to be analyzed in confirmatory factor analysis for unidimensionality and subscale factor structure. The confirmatory factor analysis used for bifactor analysis is the Schmid–Leiman solution. The output factor structure is called omega.

RESULTS

A Mokken analysis for monotonicity indicated that CTS2 Item 74, "My partner kicked me," should be omitted because it violated the assumption of monotonicity. The Schmid–Leiman confirmatory factor analysis was conducted on both CTS2 and RBRS–R instruments by first extracting the general IPA factor, and then factoring the four subscales from each instrument based on the residual variance (Tables 2 and 3). The general IPA factor (*g)* was

TABLE 2 Results of Schmid–Leiman Orthogonality Correction in a Factor Analysis of Polychoric Correlation Coefficients Produced in the CTS2 Instrument on a Sample of 156 College Psychology Students

CTS2 item	Item	General factor	F1	F2	F3	F4
Psychological Abuse scale items						
6. My partner insulted or swore at me.	CPSY6	0.23				
36. My partner shouted or yelled at me.	CPSY36					
50. My partner stomped out of the room or house or yard during a disagreement.	CPSY50	0.30				
68. My partner did something to spite me.	CPSY68	0.42		0.25		
26. My partner called me fat or ugly.	CPSY26	0.62	0.31		0.19	
30. My partner destroyed something belonging to me.	CPSY30	0.79	0.22	0.29		
66. My partner accused me of being a lousy lover.	CPSY66	0.59				
70. My partner threatened to hit or throw something at me.	CPSY70	0.75		0.43		
Physical Abuse scale items						
8. My partner threw something at me that could hurt.	CPHY8	0.64		0.35		
10. My partner twisted my arm or hair.	CPHY10	0.68		0.20		
18. My partner pushed or shoved me.	CPHY18	0.61		0.39		
46. My partner grabbed me.	CPHY46	0.44		0.35		
54. My partner slapped me.	CPHY54	0.69			0.26	
22. My partner used a knife or gun on me.	CPHY22	0.87	0.41			
28. My partner punched or hit me with something that could hurt.	CPHY28	0.76	0.21	0.59		
34. My partner choked me.	CPHY34	0.81	0.43			
38. My partner slammed me against a wall.	CPHY38	0.86			0.29	
44. My partner beat me up.	CPHY44	0.86			0.42	
62. My partner burned or scalded me on purpose.	CPHY62	0.90			0.22	0.26
Sexual Abuse and Violence scale items						
16. My partner made me have sex without a condom.	CSEX16	0.33				
52. My partner insisted on sex when I didn't want to (but did not use physical force).	CSEX52	0.46				
64. My partner insisted I have oral or anal sex (but did not use physical force).	CSEX64	0.45				0.19
20. My partner used force (like hitting, holding down, or using a weapon) to make me have oral or anal sex.	CSEX20	0.75	0.19		0.25	

(*Continued*)

TABLE 2 (Continued)

CTS2 item	Item	General factor	F1	F2	F3	F4
48. My partner used force (like hitting, holding down, or using a weapon) to make me have sex.	CSEX48	0.87				0.45
58. My partner used threats to make me have oral or anal sex.	CSEX58	0.88			0.32	
76. My partner used threats to make me have sex.	CSEX76	0.88			0.40	
Injury scale items						
11. I had a sprain, bruise, or small cut because of a fight with my partner.	CINJ11	0.70		0.33		
71. I felt physical pain that still hurt the next day because of a fight with my partner.	CINJ71	0.83		0.20	0.28	
24. I passed out from being hit on the head by my partner in a fight.	CINJ24	0.88	0.39		0.28	
31. I went to a doctor because of a fight with my partner.	CINJ31	0.74	0.53	0.23		
41. I needed to see a doctor because of a fight with a partner, but I didn't	CINJ41	0.89			0.30	0.20
55. I had a broken bone from a fight with my partner.	CINJ55	0.87				0.45
Eigenvalues		15.91	1.34	1.55	1.17	0.75
Proportion s^2		0.50	0.04	0.05	0.04	0.02
Cumulative s^2 of non-*g* groups			0.04	0.09	0.13	0.15

Note. CTS2 = Conflict Tactics Scale 2.

confirmed for the CTS2, and it explained 49% of the outcome variance. The four CTS2 subscales contributed only an additional 15% of the outcome variance after removing *g* variance. CTS2 items also displayed considerable cross-loadings on all four subscales. The 15% CTS2 subscale variance contributed 4%, 5%, 4%, and 2% for Factors 1 through 4, respectively. Total variance explained by the CTS2 instrument for this population was then 50% + 15% = 65%.

No RBRS–R items were excluded for violating the monotonicity assumption. The RBRS–R instrument's general (*g*) factor variance was lower than the CTS2 general IPA factor, *g,* 38% versus 49% for the CTS2. The four RBRS–R subscales added considerably more information, another 36% of variance, for a total of 74% of outcome variance explained. Thus, the presence of a general factor was important, but the four RBRS–R subscales, with residual variances of 11%, 8%, 11%, and 6% for Factors 1 through 4, respectively, nearly doubling the RBRS–R instrument's ability to describe IPA.

The general RBRS–R factor was most closely associated with physical injury and least associated with *psychological abuse* (see Table 3). The

TABLE 3 Results of Schmid–Leiman Orthogonality Correction in a Factor Analysis of Polychoric Correlation Coefficients Produced in the RBRS–R Instrument on a Sample of 156 College Psychology Students

RBRS–R items	Item	General factor	F1	F2	F3	F4
Psychological Abuse scale items						
6. My partner put me down.	RPSY6	0.23			0.80	
9. My partner told me I was ugly or unattractive.	RPSY9	0.33	0.22			0.47
11. My partner insulted or shamed me in front of others.	RPSY11	0.46		0.32	0.52	
17. My partner screamed or yelled at me.	RPSY17				0.69	
18. My partner had no respect for my feelings.	RPSY18	0.34			0.66	
20. My partner treated me like I was stupid or dumb.	RPSY20	0.20			0.85	
21. My partner was mean or rude to me.	RPSY21	0.32			0.70	−0.29
Sexual Abuse and Violence scale items						
8. My partner demanded that I perform sex acts that I did not want to.	RSEX8	0.58		0.35	0.29	
16. My partner insisted on sex whether I wanted it or not.	RSEX16	0.45	0.33			
22. My partner physically forced me to have sex.	RSEX22	0.76	0.51			0.21
36. My partner hurt me while we were having sex.	RSEX36	0.59		0.36		0.34
37. My partner injured my genitals.	RSEX37	0.81	0.29	0.38		
38. My partner injured my breasts.	RSEX38	0.46	0.21			0.58
Physical Abuse scale items						
23. My partner pushed or shoved me around.	RPHY23	0.28				0.71
24. My partner hit or punched me.	RPHY24	0.58		0.56		
31. My partner tried to choke or strangle me.	RPHY31	0.69		0.24		0.46
34. My partner bit or scratched me.	RPHY34	0.76	0.33			0.33
35. My partner violently pinched or twisted my skin.	RPHY35	0.76		0.51		
Physical Injury scale items						
25. My partner threatened me with or used a weapon against me.	RINJ25	0.64	0.69			
26. My partner hurt me so badly I had to seek medical help.	RINJ26	0.66	0.71			
27. My partner made me afraid for my life.	RINJ27	0.76	0.56			
28. My partner threw me around the room.	RINJ28	0.68	0.43			
29. My partner acted like he/she would like to kill me.	RINJ29	0.71	0.60			
30. My partner threatened to cut or stab me with a knife or other sharp object.	RINJ30	0.76	0.48	0.25		
31. My partner tried to choke or strangle me.	RINJ31	0.76	0.51			0.21
33. My partner threw objects at me.	RINJ33	0.66		0.45		
39. My partner tried to physically suffocate me.	RINJ39	0.70		0.56		

(*Continued*)

TABLE 3 (Continued)

RBRS–R items	Item	General factor	F1	F2	F3	F4
40. My partner poked or jabbed me with pointed or sharp objects.	RINJ40	0.75		0.48		
41. My partner kicked my face or head.	RINJ41	0.76	0.20	0.45		
42. My partner broke one or more of my bones.	RINJ42	0.80	0.42	0.27		
Eigenvalues		11.26	3.32	2.40	3.23	1.85
Proportion s^2		0.38	0.11	0.08	0.11	0.06
Cumulative s^2 of non-*g* factors			0.11	0.19	0.30	0.36

Note. RBRS–R = Relationship Behavior Rating Scale–Revised.

RBRS–R scale, *threatened and escalated physical violence,* items loaded primarily onto Factor 2 for 8% of outcome variance. Factors 3 and 4 contributed 11% and 6%, respectively. Factor 3 covered much of psychological abuse. Factor 4 included some elements of sexual and physical abuse for a total of 6%.

The correlations between CTS2 and RBRS–R subscales are of interest from concurrent and discriminant validity perspectives. It was valuable to estimate the extent to which the two instrument subscales were actually measuring the same subscale construct. For instance, did the CTS2 and the RBRS–R instruments' physical abuse subscales correlate more highly with each other than with psychological abuse scales in both instruments? Common sense and good instrument construction dictates that in measuring the same construct, subscales of the same construct should correlate. Similarly, subscales of independent constructs should *not* correlate with each other.

Table 4 details the Pearson's correlations (*r*s) between the CTS2 and RBRS–R subscales and total scores. With so many high correlations listed between and within instrument subscales, a general factor of IPA can be seen, but discrimination between the subscales in both instruments is lacking. Table 4 lists Cronbach's alpha scores on the diagonal for scale reliability—the degree to which each scale is internally consistent with respect to items that purport to measure the same construct. Table 5 presents the *g* IPA factor for both CTS2 and RBRS–R in terms of their correlation between total score and the Cronbach's alpha for each one.

DISCUSSION

Professionals working with distressed families involved in court processes as well as seeking therapy have an important responsibility to carefully screen for IPA as it is extremely common. Unfortunately, there is a consistent lack of adequate screening found in recent studies of practices of marriage

TABLE 4 Pearson's Correlations Between CTS2 and RBRS–R Subscales, Cronbach's Alpha on the Diagonal

	CTS2 Psychological Abuse	CTS2 Physical Abuse	CTS2 Sexual Abuse and Violence	CTS2 Physical Injury	RBRS–R Psychological Abuse	RBRS–R Physical Abuse	RBRS–R Sexual Abuse and Violence	RBRS–R Physical Injury
CTS2 Psychological Abuse	.81							
CTS2 Physical Abuse	.72	.94						
CTS2 Sexual Abuse and Violence	.65	.81	.82					
CTS2Physical Injury	.67	.94	.84	.96				
RBRS–R Psychological Abuse	.70	.54	.43	.47	.90			
RBRS–R Physical Abuse	.52	.72	.62	.67	.55	.91		
RBRS–R Sexual Abuse and Violence	.54	.78	.57	.68	.57	.92	.88	
RBRS–R Physical Injury	.47	.74	.60	.69	.51	.92	.88	.98

Note. CTS2 = Conflict Tactics Scale 2; RBRS–R = Relationship Behavior Rating Scale–Revised.

TABLE 5 Pearson's Correlations Between Total CTS2 and RBRS–R Scales, Cronbach's Alpha Reliability on the Diagonal

	CTS2 total	RBRS–R total
CTS2 total	.961	
RBRS–R total	.767	.968

Note. CTS2 = Conflict Tactics Scale 2; RBRS–R = Relationship Behavior Rating Scale–Revised.

and family therapists (Schacht, Dimidjian, George, & Berns, 2009). A recent study also found that a significant number of couples (one third) excluded from a therapy research trial due to IPA went on to receive couple therapy elsewhere. In interviewing the wives, these women reported increased relationship satisfaction; however, 75% reported that IPA was ongoing and there was no evidence that therapy was associated with declines in violence (DeBoer, Rowe, Frousakis, Dimidjian, & Christensen, 2012). It is unclear if the particular therapists screened for violence in these cases or if the screenings they used were adequate (McCollum, 2012). Rates of IPA found in couples disputing custody and parenting time of their children rage from 59% to 98% depending on the type of abuse. Other professionals are also involved with these families. It is critical that professionals working with distressed and divorcing couples become aware of screening procedures and use valid and reliable measures.

This study was the third in a series validating a measure of IPA. This measure was originally developed for use with families disputing custody and parenting time of their children and mandated to attend divorce mediation to resolve the issues. Findings from this study lend further support to the effectiveness of this measure. This study compared the RBRS–R to a well-validated and common measure of IPA, the CTS2. Together, the CTS2 and RBRS–R instruments accounted for approximately 88% of the construct of IPA investigated. Also, both instruments have strong general factors of IPA, as assessed in bifactor models using IRT analyses.

In the case of the CTS2, only a general factor was found, which explained 50% of the variance. An additional four subscales added a trivial amount—15% of information. Thus, the CTS2 four subscale designations were not supported by this analysis. In other words, the items intended for each of the four subscale constructs did not match their factor loadings. The CTS2 general and specific scales measured a single-factor IPA construct. This finding is consistent with previous research also using IRT analyses. In the previous study researchers considered only the violence items. The CTS2 items were found to be unidimensional (Regan, Bartholomew, Kwong, Trinke, & Henderson, 2006). The findings reported here extend this research to finding unidimensionality to the CTS2 using the remaining subscales tested. All four subscales tested are unidimensional.

The RBRS–R instrument, however, exhibited more sensitivity to the types of IPA tested. Results did confirm a general factor but also confirmed four rather distinct subfactors that nearly doubled the instrument's information value.

Limitations

As with any study, there are limitations of the method chosen. In this study, a limitation is the sample studied. This study sampled college students. This sample, however, is significantly different than those previously sampled and was chosen specifically for that reason. The RBRS–R remained valid with this very different population. Beyond the sample, the specific results of this study, although likely to generalize to other college student samples, might be not generalizable to other populations.

The analysis also did not compare men and women, so no conclusions can be drawn regarding gender differences. The analyses also focused on victimization only. The RBRS–R version tested only contained questions on victimization. An important question for future research is to analyze both perpetration and victimization for each individual including women and men in the sample tested.

In summary, this study found that the CTS2 is primarily a unidimensional measure, which measured 65% of one overall IPA factor. The CTS2 subscales contributed only a trivial amount (15%) of additional variance. The RBRS–R, on the other hand, described less of the general IPA factor (only 38%), but the RBRS–R subscales contributed an additional 36% of variance to our understanding of IPA after the general factor was removed. The RBRS–R appears to be a valid measure of IPA.

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