The Reliability and Validity of the Revised Conflict Tactics Scale (CTS2) in a Female Incarcerated Population

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This study examined the psychometric properties of the revised Conflict Tactics Scale (CTS2) with one specialized population. A sample of 264 incarcerated women in a large, Midwest, maximum security correctional center reported on the conflict tactics they employed against their partner (self as aggressor) and their partner employed on them (self as victim). High chronicity and severity rates of partner violence were reported, and the psychometric properties of the CTS2 were altered. Exploratory factor analysis revealed a four-factor solution for both the Self as Victim and Self as Aggressor subscales. These factors were labeled Negotiation, Sexual Coercion, Injury, and General Assault, which combined the Physical Assault and Psychological Aggression subscales originally proposed by the instrument's developers. Implications for the general use of the CTS2 and for use with incarcerated women are discussed.

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Epidemiological studies have clearly established the high occurrence of partner violence in the United States. Estimates from these national studies indicate that about 161 out of every 1,000 couples experience one or more physical assaults each year with approximately 1.8 million women being severely assaulted (e.g., kicked, choked, had a knife or gun used on them) (Straus & Gelles, 1988). Browne (1993) reported that several groups were not included in these cross-national studies and thus do not provide an accurate representation of the experiences of women in specialized settings. Due to these sampling methods, the vast majority of victims may remain undetected and understudied (Hersen & Ammermen, 1994).

Most normative data on partner violence are derived from community populations in which there is a low frequency of persons that have experi-

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enced extreme rates of partner violence. This has been referred to as the representative sample fallacy, in which community samples contain few clinical cases that are markedly different from the normative sample (Straus, 1990b). Research with the Conflict Tactics Scale (CTS) has shown that clinical populations (e.g., women in battered shelters) report higher chronicity rates and severity of abuse than women from community samples and would most likely comprise the extreme higher end of a normative distribution (Straus, 1990b).

Without specific investigation, there is no way of knowing if the experiences and findings from normative samples apply to special clinical populations. Rather than erroneously applying findings and data from community populations, Straus (1993) advocates that research should aim to use the CTS with specialized populations to generate its findings and relationships pertinent to that population's needs. Data gathered from high-risk violence groups could provide empirical information regarding the appropriate assessment procedures, identification of high-risk cases, and relevant treatment interventions. However, if family violence research within specialized populations is to progress with scientific rigor, the reliability and validity of existing measures must be empirically supported for use with these groups.

The revised CTS (CTS2) (Straus, Hamby, Boney-McCoy & Sugarman, 1996) is a self-report measure of psychological and physical attacks on a partner and the use of negotiation in a marital, cohabiting, or dating relationship. The original CTS is the most widely used instrument in research on family violence (see Straus & Hamby, 1997, for review). The CTS2, its psychometric properties, and its use with special populations should be examined due to the recent revision of the instrument. Additional items were added to existing subscales, the formant was enhanced, some of the wording was revised to increase clarity and specificity, and two subscales were added to measure Sexual Coercion and Physical Injury. The initial investigation of the CTS2 was conducted with a sample of college students and the findings revealed good internal consistency, and although no factor analysis was conducted, the findings provided initial construct and discriminate validity for the five-subscale structure. However, factor structures of instruments may change as a function of its use with different populations. With the CTS2, populations with higher than normal endorsements of certain assessment items may generate different psychometric properties than those obtained from community samples. For example, previous studies that examined the factor structure of the original CTS have yielded a fourth factor, which was composed of items that assessed whether the victim was at risk for a lethal assault (Straus,

1990a). A main hypothesis of this study is that the factor structure of the CTS2 may be altered as a function of its use with a population that experiences high rates of partner violence. By establishing the psychometric properties of the CTS2, researchers will be able to generate reliable and valid findings about the specific nature of partner violence with this special population.

One specialized clinical group includes women who have been incarcerated. The number of female inmates in state and federal prisons has increased by 274% between 1983 and 1994 (Snell, 1995). Preliminary research has found that the frequency and chronicity of sexual and physical violence reported by women in prison is greater than that reported by women in the community (Ladwig & Anderson, 1989; Sargent, Marcus-Mendoza, & Ho Yu, 1993; Snell, 1994). Incarcerated women have been identified as a specialized population in which little if any CTS assessment data has been used to understand these women's history with violence and the possible treatment and criminal justice implications of this violence (Henderson, Schaeffer, & Brown, 1998; Straus, 1993). Another main objective of this study is to determine if incarcerated women do report substantially higher rates of chronicity and severity of abuse than women in the original college sample and if, in turn, the psychometric properties of the CTS2 would be altered.

This study investigated the factor structure, internal consistency, and construct validity of the CTS2 with a female offender population. The subscale structure of the CTS2 was examined to determine if it would be replicated or altered. The construct validity of this instrument was established by correlating data from the CTS2 with scores on the Abusive Behaviors Checklist (Beck & Beck, 1998). It was hypothesized that the Physical Assault, Psychological Aggression, Injury, and Sexual Coercion subscales would be related to higher frequencies of abusive behaviors as measured by the Abusive Behavior Checklist (ABC). Conversely, significant and negative correlations were predicted between the Negotiation subscale and the ABC, Injury subscale, and the Sexual Coercion subscale.

METHOD

PARTICIPANTS

A total of 406 women were approached, 287 participated. Twenty-three women were excluded because they withdrew their consent or did not finish the survey, resulting in a final sample size of 264 and a response

rate of 65%. Of the total sample, 60.8% of the participants were Caucasian, 30.4% were African American, and 8.9% indicated other race classifications. The mean age was 35.5 (*SD* = 8.8). Regarding marital status, 16.5% were currently married, 29.3% had never been married, and 29.6% were of another marital status classification. Participants reported an average of 2.15 children. A total of 69 women had received an ex parte order of protection and 48 had received a full order of protection on a partner. Orders of protection are commonly referred to as restraining orders. The number of prior convictions ranged from 0 to 6. The average length of time of current incarceration was 46.1 months (*SD* = 48.3).

MEASURES

CTS2 (Straus et al., 1996). The CTS2 is a 78-item self-report measure assessing five ways in which conflict can be resolved in a marital, cohabiting, or dating relationship including negotiation, psychological aggression, physical assault, sexual coercion, and injury. Each item is rated on an 8-point scale (*1 time in past year*, *2 times in past year*, *3-5 times in past year*, *6-10 times in past year*, *11-20 times in past year*, *more than 20 times in past year*, *Not in the past year but it did happen before*, and *This has never happened*). The CTS2 was developed for individuals with a sixth-grade reading level. It takes approximately 10-15 minutes to complete. The survey was modified slightly by asking participants to consider their relationship experience 12 months prior to incarceration to answer the questions.

ABC (Beck & Beck, 1998). The ABC is a 19-item checklist that asks respondents to indicate the number of times and how long their partner inflicted abusive acts on the respondent prior to incarceration. The ABC consists of items that are modeled after Missouri statutes, specifically, Missouri statute 455.010, Definitions of Abuse, Adult—Shelters and Protective Orders. Items on the "number of times" are rated on a 5-point scale (*Never*, *1 time*, *2 times*, *3 times*, *At regular intervals [more than 2 but less than 10]*, and *Very often*). Items on the "how long" are also rated on a 5-point scale (*2 weeks*, *Between 2 weeks and 6 months*, *Between 6 months and 1 year*, *1 to 2 years*, and *More than 2 years*).

PROCEDURE

Verbal and written instructions on the purpose of the research were provided and informed consent was obtained. Any participant who could not

read was given the opportunity to listen to the surveys on tape or have the surveys read to them.

RESULTS

COMPARISON WITH NORMS

Prevalence rates, means, and standard deviations for all CTS2 variables are presented in Table 1. The prevalence rate is the percentage of the sample that reported one or more instances of the acts in each scale. The mean scores are based on only those inmates who reported that they engaged in one or more of these acts. These mean scores were compared to the original study's sample of college women population (Straus et. al., 1996). The mean scores of the CTS2 indicate that for all subscales other than Negotiation, the incarcerated women experienced higher prevalence and chronicity rates than women in the college sample.

VALIDITY OF THE CTS2

Correlations among all variables are presented in Table 2. As predicted, the Physical Assault, Psychological Aggression, Sexual Coercion, and Injury subscales of the Self as Victim and Self as Aggressor subscales of the CTS2 were positively and significantly related with the ABC, providing initial evidence of the construct validity of both subscales of the CTS2.

Contrary to what was predicted, the correlation results between the ABC and the Negotiation subscale of the CTS2 indicated that as the victims' attempts to negotiate with their partner increases, so do the rates of abusive behaviors by their partner ($r = .15$, $p < .05$). Conversely, as the partner's use of negotiation tactics increased, the rates of abusive behaviors by the partner decreased ($r = –.23$, $p < .01$). These relationships were also found between the Negotiation and Sexual Coercion subscales. As the respondent's use of negotiation tactics increased, the rates of behaviors used by their partner to engage the respondent in unwanted sexual activity also increased ($r = .13$, $p < .05$). As the partner's use of negotiation tactics increased, the sexual coercion tactics used by their partner significantly decreased ($r = .25$, $p < .01$). Finally, as the respondent's negotiation tactics increased, so did the rates of injury inflicted by their partner ($r = .25$, $p < .01$). The relationship between the partner's use of negotiation and the rates of sexual coercion tactics was not significant. It appears that the

TABLE 1
Prevalence and Chronicity Statistics for Revised Conflict Tactics Scales Subscales

	Tactic	
	Expressed	*Received*
Negotiation		
Prevalence (%)	100	99
Chronicity (*M*)	71.9	56.79
(*SD*)	46.18	43.23
Psychological Aggression		
Prevalence (%)	96	94
Chronicity (*M*)	47.59	62.88
(*SD*)	45.12	58
Physical Assault		
Prevalence (%)	75	78
Chronicity (*M*)	30.75	78.42
(*SD*)	47.02	91.28
Sexual Coercion		
Prevalence (%)	40	63
Chronicity (*M*)	15.96	41.06
(*SD*)	17.76	50.48
Injury		
Prevalence (%)	45	27
Chronicity (*M*)	10.9	31.45
(*SD*)	17.85	38.09

NOTE: $N = 408$. Prevalence = percentage of sample who reported one or more instances of the acts in each subscale; Chronicity = the average number of acts that occurred among those who engaged in one or more instances of these acts.

more the respondent tried to negotiate with her partner, the more the partner inflicted a greater frequency of violence on the respondent. Conversely, the more the partner engaged in negotiation tactics, the less violence the victim experienced from her partner.

FACTOR ANALYSIS

Respondents with missing data were excluded from the factor analysis, leaving a total of 260 participants for the factor analysis. Items were divided into two subscale types, Self as Victim and Self as Aggressor, and each subscale contained 39 items. The final item-to-participant ratio was approximately 6 to 1, which indicates that the participant size is appropriate for factor analysis as recommended by Tabachnick and Fidell (1991).

TABLE 2
Correlations Among All Variables (n = 406)

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1 ABC	—	.30**	–.01	.65**	.18**	.72**	.54**	.08	–.27**
2 General Assault (A)		—	.40**	.57**	.31**	.60**	.30**	.56**	.27**
3 Injury (A)			—	.39**	.05	.29**	.49**	.66**	.12*
4 Negotiation (A)				—	.26**	.80**	.67**	.46**	–.06
5 Sexual Coercion (A)					—	.32**	.15**	.11	.67**
6 General Assault (V)						—	.64**	.29**	–.06
7 Sexual Coercion (V)							—	.33**	–.10
8 Negotiation (V)								—	.19**
9 Injury (V)									—

NOTE: ABC = Abusive Behavior Checklist; (A) = aggressor subscales; (V) = victim subscales.
*p < .05. **p < .01.

The 39 items were examined for normality as a preliminary step before proceeding with the factor analysis. For both scales, at least 20% of the items had nonnormal distributions. The unusual number of items with a nonnormal distribution may be a result of the respondent's response set, indicating that the items have a low frequency of occurrence. A decision was made not to transform the items because this response set, in all likelihood, represents the nature of the frequency of violence in this sample population.

INITIAL VALIDATION OF THE CTS2 FIVE SUBSCALE STRUCTURE

Self as Victim

A principle components analysis (PCA) was performed on the 74-item Self as Victim subscale. To validate the five-subscale structure of the CTS2, a five-factor solution was extracted for analysis. A five-factor oblique rotation yielded an interfactor correlation of –.32 between the Psychological Aggression and Physical Assault subscales. The initial five-factor oblique solution accounted for a total of 57.82% of the variance. The items that loaded on each of the five factors were comparable to the items that made up each of the CTS2 subscales. Coefficient alpha reliabilities showed moderate to excellent reliability for each of the factors (lowest alpha, Sexual Coercion = .62; highest alpha, Negotiation = .91). Thus, the five-factor oblique solution partially matched the five-subscale

structure of the CTS2, with Physical Assault and Psychological Aggression emerging as correlated factors.

Self as Aggressor

A PCA was performed on the 74-item Self as Aggressor scale. Again, to validate the five-subscale structure of the CTS2, a five-factor solution was extracted. The five-factor oblique solution yielded a fifth factor that contained three items from the Sexual Coercion scale (CQ50, CQ16) and the Injury scale (CQ12). A five-factor orthogonal solution also yielded a fifth factor with only two items. Because Factor 5 contained so few items with no discernable pattern among them, it was determined that a five-factor solution was not appropriate for further analysis. We were unable to match the five-subscale structure of the Self as Aggressor subscale with our analysis.

FURTHER MODIFICATIONS OF THE CTS2 FACTOR STRUCTURE

Self as Victim

We proceeded to make further modifications to extract a more viable factor solution. Based on the five-factor solution, nine items were dropped because of low factor loadings or cross-loadings. The items were subject to a PCA, and a five-factor solution was extracted with an oblique rotation. None of the interfactor correlations was above the .30 cutoff (highest $r = -.246$), suggesting that an orthogonal rotation was appropriate for analysis. The five-factor orthogonal rotation yielded a fifth factor with only two items (CQ 65 and 67), which was an insufficient number of items to give an indication of its latent factor structure. It was determined that a four- or three-factor solution should be attempted.

A four-factor oblique solution with all of the CTS2 items was extracted. Interfactor correlations indicated that an orthogonal solution was appropriate (highest $r = .277$). A four-factor orthogonal solution was extracted. The fourth factor had eight items loading on it with an eigenvalue of 2.760 and accounted for 7.08% of the variance. Seven of the eight items that loaded on this factor were items from the Sexual Coercion subscale. A three-factor solution yielded no discernable and interpretable pattern of items from the first two factors. It appeared that the four-factor solution was the most viable for interpretation.

Kiaser-Meyer-Olkin (KMO) measure of sampling adequacy for the four-factor solution was .88, which indicated that factors could be extracted from the data set. Eight items were excluded from further analysis because they either had (a) cross-loadings smaller than .15 on two or more factors, (b) communality estimates lower than .2, or (c) factor loadings lower than .3. This process retained 31 items for analysis. Items that were dropped from the factor analysis included Items 33, 43, 35, 49, 5, 21, 51, and 15 of the Self as Victim subscale. The majority of these items cross-loaded, indicating that the item did not uniquely load on any one factor.

The revised four-factor orthogonal solution yielded eigenvalues of 8.37, 3.72, 2.90, and 2.57 and accounted for a total of 57.67% of the variance. Means, standard deviations, factor loadings, and communality estimates for each item are presented in Table 3. The coefficient alpha for the entire scale was .90. Factor 1 was labeled General Assault. Items loading on this factor contained items from both the Physical and Psychological Assault subscales, and the Physical Assault items had the higher factor loadings. Factor 2 contained items from the Injury subscale, Factor 3 contained items from the Negotiation subscale, and Factor 4 contained items from the Sexual Coercion subscale.

Self as Aggressor

Because the five-factor structure for the Self as Aggressor scale was not viable as a possible solution, other solutions were attempted to determine if they would yield a more viable factor solution. A four-factor oblique solution was extracted with all of the items. Interfactor correlations indicated that Factors 1 and 4 were correlated. ($r = .42$). A four-factor oblique solution had seven items loading on the fourth factor with an eigenvalue of 2.23 and accounting for 5.83% of the variance. Five of the seven items that loaded on this factor were items from the Sexual Coercion subscale; the other items were from the Physical Assault subscale. This factor appeared to be a valid factor and was considered for retention in future analyses. A three-factor solution was extracted with all items intact. Interfactor correlations indicated an orthogonal rotation was appropriate (highest $r = .23$). A three-factor orthogonal solution was extracted. The third factor consisted of all six items from the Injury subscale. However, the first factor consisted of items from the Physical Assault, Psychological Aggression, and Sexual Coercion subscales. No discernable and interpretable pattern could be gleaned from the first factor. It was determined that the four-factor solution was the most parsimonious and viable for inter-

TABLE 3
CTS2 Item Communalities, Factor Loadings, and Eigenvalues for the Four-Factor Orthogonal Solution: Point of View of Self as Victim (My Partner Did This to Me)

	Communality Estimates	*Factor 1: General Assault*	*Factor 2: Sexual Coercion*	*Factor 3: Negotiation*	*Factor 4: Injury*
Eigenvalue		14.04	4.02	2.62	2.08
% of variance		42.56	12.19	7.94	6.32
Reliability		0.97	0.93	0.74	0.72
Grabbed me	0.82	0.89	0.16		
Pushed or shoved me	0.79	0.87	0.16		
Slammed me against a wall	0.83	0.87	0.25		
Punched or hit me with something that could hurt	0.86	0.86	0.32		0.11
Slapped me	0.81	0.85	0.26		0.10
Twisted my arm or hair	0.79	0.85	0.26		
Beat me up	0.81	0.84	0.31		
Threw something at me that could hurt	0.70	0.81	0.14		0.15
Threatened to hit or throw something at me	0.73	0.79	0.33		
Destroyed something of mine	0.70	0.77	0.30		0.12
Kicked me	0.71	0.75	0.37		
Insulted or swore at me	0.59	0.74	0.10	0.19	
Choked me	0.74	0.71	0.46		0.13
Called me fat or ugly	0.67	0.69	0.41	–0.16	
Did something to spite me	0.52	0.68	0.22		
Used threats to make me have oral or anal sex	0.82	0.36	0.83		
Used force (like hitting, holding down, or using a weapon) to make me have oral or anal sex	0.82	0.38	0.80	–0.14	
Insisted on oral or anal sex when I did not want to (but did not use physical force)	0.62	0.32	0.71		
Used a knife or gun on me	0.63	0.45	0.63		0.14
Burned or scalded me on purpose	0.45	0.22	0.61		0.18
Showed care for me even though we disagreed	0.73		–0.13	0.84	
Explained his/her side of a disagreement to me	0.66			0.80	–0.11
Showed respect for my feelings about an issue	0.68	–0.27		0.78	

TABLE 3 Continued

	Communality Estimates	*Factor 1: General Assault*	*Factor 2: Sexual Coercion*	*Factor 3: Negotiation*	*Factor 4: Injury*
Suggested a compromise to a disagreement	0.61			0.78	
Agreed to try a solution I suggested	0.62			0.76	0.17
Was sure we could work it out	0.56			0.73	0.13
Went to a doctor because of a fight with me	0.74			0.12	0.85
Passed out from being hit on the head in a fight with me	0.69		0.19		0.81
Needed to see a doctor because of a fight with me, but didn't	0.57	0.20			0.73
Had a broken bone from a fight with me	0.52		0.23		0.67
Had a sprain, bruise, or small cut because of a fight with me	0.38	0.27	–0.18	0.19	0.48

NOTE: CTS2 = Revised Conflict Tactics Scales; n = 402.

pretation. A four-factor oblique and orthogonal solution was run to determine if the type of rotation yielded different item loadings. Examination of the factor loadings indicated that the orthogonal solution was not markedly different from the oblique solution. For the purpose of ease of interpretation, a four-factor orthogonal solution was retained.

KMO sampling adequacy for the four-factor solution was .93. Six items were excluded from further analysis because they had (a) cross-loadings smaller than .15 on two or more factors, (b) communality estimates lower than .2, and (c) factor loadings lower than .3. This process retained 33 items for analysis. Items that were dropped from the factor analysis included Items 16, 50, 36, 72, 52, and 66 of the Self as Aggressor subscale. The majority of these items cross-loaded, indicating that the item did not uniquely load on any one factor.

The four-factor orthogonal solution yielded eigenvalues of 14.04, 4.02, 2.62, and 2.08 and accounted for a total of 69% of the variance. Factor loadings and communality estimates for each item are presented in Table 4. The alpha coefficient for the entire scale is .94. Factor 1 was labeled General Assault. Items loading on this factor contained items from both the Physical and Psychological Assault subscales, and the Physical Assault items had the higher factor loadings. Factor 2 consisted of the items from

the Sexual Coercion subscale, Factor 3 consisted of items from the Negotiation subscale, and Factor 4 contained items from the Sexual Coercion subscale.

DISCUSSION

One main finding of this study is that a greater percentage of incarcerated women reported much higher rates of chronicity and severity of abuse when compared to Straus et al.'s (1996) sample of college women. This finding lends support to the notion that incarcerated women experience partner violence at much higher rates than do community populations. A second main finding is that contrary to expectation, an inverse correlation was found between the negotiations tactics used by respondents and the ABC. For this sample, the use of negotiation tactics by the victim was associated with increases in abuse behaviors inflicted by their partner. Finally, our factor analysis indicated that a four-factor rather than a five-factor solution best fit the scale's properties. The four-factor solution combined the Psychological and Physical Aggression subscale items into one factor while retaining the Negotiation, Sexual Coercion, and Injury subscales as separate factors. These results suggest that incarcerated women should be examined as their own specialized population because their experience with partner violence is characteristically different from community populations.

This study found that incarcerated women have an abuse history characterized by high rates of chronic and severe partner violence and do indeed comprise the upper extreme tail of a normative distribution regarding the frequency and severity of partner abuse. These findings demonstrate an alarmingly violent environment for these women in which prior to incarceration they experience multiple forms of abuse (psychological, physical, sexual). Furthermore, these acts of abuse often resulted in injury. Our findings also demonstrate that a greater percentage of these women are likely to be aggressive toward their partner. Given their abusive environment, perhaps these women (a) are part of an environment in which they have learned to handle conflict by engaging in abusive behaviors, (b) deal with abuse by being abusive themselves, or (c) are part of an environment so chaotic they must use abusive tactics to survive. Any, if not more, of these scenarios could explain these high rates. Invariably, future research should investigate the etiology of this abuse, the impact of this on the women and their children (the average number of children in the home

TABLE 4
CTS2 Item Communalities, Factor Loadings, and Eigenvalues for the Four-Factor Orthogonal Solution: Point of View of Self as Aggressor (I Did This to My Partner)

	Communality Estimates	*Factor 1: General Assault*	*Factor 2: Sexual Coercion*	*Factor 3: Negotiation*	*Factor 4: Injury*
Eigenvalue		8.64	3.77	2.90	2.57
% of variance		27.87	12.17	9.34	8.30
Reliability		0.90	0.89	0.88	0.80
Pushed/hit my partner with something that could hurt	0.70	0.81	.018		0.14
Threw something at my partner that could hurt	0.61	0.76	0.11		
Pushed or shoved	0.60	0.76	0.12	0.10	
Threatened to hit or throw something	0.64	0.76	0.18	0.19	
Slapped	0.62	0.75	0.20		
Grabbed	0.60	0.75		0.18	
Kicked	0.57	0.71	0.22		
Destroyed something that belonged to my partner	0.48	0.68	0.12	0.10	
Twisted arm or hair	0.48	0.65	0.12		0.22
Slammed against the wall	0.46	0.64			0.22
Said something to spite	0.43	0.59	0.12	0.25	
Called partner fat or ugly	0.33	0.52	0.14		0.20
Accused partner of being a lousy lover	0.28	0.44	0.28		0.10
Burned/scalded on purpose	0.22	0.41		–0.10	0.21
Needed to see a doctor because of a fight with me, but didn't	0.80	0.19	0.87		
Had a sprain, bruise, or small cut because of fight with my partner	0.75	0.29	0.80	0.18	
Passed out from being hit on head by my partner in a fight	0.69		0.79		0.23
Felt physical pain that still hurt the next day because of a fight with my partner	0.76	0.31	0.78	0.19	–0.14
Went to a doctor because of a fight with my partner	0.58	0.21	0.73		
Had a broken bone from a fight with my partner	0.52		0.70		0.15

(continued)

TABLE 4 Continued

	Communality Estimates	*Factor 1: General Assault*	*Factor 2: Sexual Coercion*	*Factor 3: Negotiation*	*Factor 4: Injury*
Showed partner I cared even though we disagreed	0.67	0.17		0.80	
Suggested a compromise to a disagreement	0.66		0.15	0.79	
Explained my side of a disagreement to my partner	0.63			0.79	
Showed respect for partner's feelings about an issue	0.63			0.79	
Said I was sure we could work out a problem	0.62	0.18	0.15	0.75	
Agreed to try a solution to a disagreement my partner suggested	0.52			0.71	
Used force (like hitting, holding down, or using a weapon) to make my partner have sex	0.82	0.18			0.89
Used threats to make my partner have oral or anal sex	0.63	0.18			0.78
Used force (like hitting, holding down, or using a weapon) to make my partner have oral or anal sex	0.60	0.16	0.13		0.75
Used threats to make my partner have sex	0.48		0.18		0.66

NOTE: CTS2 = Revised Conflict Tactics Scales; $n = 402$.

was 2.15), and the possible link between these women's abusive history and their criminal history.

The correlations between the Negotiation subscale and the ABC scale provide some understanding about how incarcerated women handle their abusive environments. Contrary to what was hypothesized, the negotiation tactics expressed by the respondent had a significant and positive correlation with the ABC. This relationship indicates that an increase in the use of negotiation tactics by the respondent was associated with an increase in abusive behaviors inflicted by her partner. On the other hand, an increase in the use of negotiation tactics by the partner was associated with a decrease in the abusive behavior inflicted by that partner. One implication of this finding is that the decrease in the use of abusive tactics lies with

the person committing the abuse (the perpetrator), and that negotiation tactics by the victim do not result in the decrease in abusive behavior by the partner. These findings lay the groundwork that more sophisticated solutions are needed to address the complexity of these abusive environments.

Our analysis of the factor structure of the CTS2 generates two impressions. One is that the analysis does support the addition of the two new subscales (Injury and Coercion) as independent constructs. Alpha coefficients support the internal consistency of these factors, and the construct validity of the Injury subscale was supported by its positive correlations with the ABC scale. The correlation between the Injury subscale and the ABC was not significant; however, this result may be due to the items represented by the ABC, which are primarily a measure of physical assault behaviors and not the consequences of the behavior that is measured by the Injury subscale.

A second finding is that the fusion of the Psychological and Physical Aggression subscales into one factor (labeled General Assault) provides support that the psychometrics properties of the scale are slightly altered when the CTS2 is administered to a specialized population that experiences high rates of violence. This result is contrary to previous factor analyses that were conducted with the original CTS, which indicated that the Physical and Psychological Aggression subscales were distinct factors. The validity of the General Assault factor as its own construct is supported by its positive correlation with the ABC, and the reliability of this factor is demonstrated by its high alpha coefficient.

What factors account for this finding? The addition of the two new subscales does not show any indication that it is responsible for the fusion of the Psychological and Physical subscales. The higher rates of chronicity and severity alone may also not be responsible, because although the Injury and the Sexual Coercion subscale items were endorsed at a higher frequency, these items did not load on the General Assault factor. A possible explanation is that incarcerated women had higher rates of endorsement of the Physical and Psychological subscales and these items were endorsed concurrently, which results in stronger associations between the two subscale items, leading to the emergence of the General Assault factor. This item-endorsement pattern led to both physical and psychological aggression acts to be viewed as a single dimension and suggests that at least with this population, physical and psychological aggression are not considered as separate acts. In addition, the General Assault factor was also found for the Self as Aggressor Scale, indicating that these women also inflicted both physical and psychological harm on their partners at similar rates. Future endeavors with women who are incarcer-

ated must address both aspects of abuse as integral components of their abuse history.

Our analysis resulted in some items being dropped from the final factor structure. On examination, these items were excluded based on their frequency distribution. For example, the item "Shouted or yelled at my partner" was dropped because a large percentage of participants indicated that this behavior occurred at a high frequency and the item did not consistently load with any single subscale. Likewise, the item "Used a knife or gun on my partner" was dropped because a large percentage of the participants indicated that this behavior occurred at a low frequency, which led to a low covariance with all factors. From an empirical standpoint, these items did not adequately represent any of the scale's constructs. However, from a treatment or legal standpoint, these items may be retained as part of the CTS2 as an indication of the potential lethality of the abuse or an indication of a highly abusive environment.

One methodological limitation to this study is the average time lag of 4 years between the completion of the survey and the participant's self-report of behaviors that occurred prior to her incarceration. The validity and reliability of the use of self-report and the time lag between the victim's report and the actual violent act has been debated in the literature and is beyond the scope of this article. Future research should endeavor to replicate these results with different samples and different time periods to contribute additional evidence for the stability of our findings. Although surveying each inmate allowed for a broader representation and generalization of this sample, an alternate approach may be to assess only women who had been incarcerated for a shorter period of time.

Future research should cross-validate the four-factor solution with other samples that have experienced high rates of violence to help generalize these psychometric findings. This study of incarcerated women demonstrates the appropriateness of using the CTS2 with this population. Further research that examines how domestic violence is linked to the possible causes, effects, and processes of criminal behavior can provide helpful information on treatment factors and criminal justice interventions relevant for women who enter the criminal justice system.

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