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Intimate Partner Violence Control Scale: Development and Initial Testing

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Abstract Although control has long been considered central to understanding intimate partner violence (IPV), there continues to be a notable lack of validated scales measuring control (e.g., Strauchler et al. *Journal of Family Violence*, *19*(6), 339–354, 2004). The purpose of this study was to develop and empirically validate a brief assessment tool, the *Intimate Partner Violence Control Scale* (IPVCS), designed to measure control in the context of IPV. Data from a sample of male undergraduate and graduate students (n=436) were used to examine the scale's properties. After reviewing theoretical conceptualizations and measurement issues of control, psychometric properties of the IPVCS and results of exploratory hypotheses tests are presented. The availability of a brief and reliable measure of control offers a tool for professionals in the judicial system, for IPV victims' advocates, and for human services workers in practice settings to adequately assess for control and fills a gap in this area of research and practice.

Keywords Scale development · Scale validation · Intimate partner violence · Brief assessment

The high prevalence of intimate partner violence in the U. S. has been well-documented. For example, on the 2005 Behavioral Risk Factor Surveillance System survey, 23.6% of the women and 11.5% of the men responding indicated at least one lifetime episode of intimate partner violence (Centers for Disease Control and Prevention 2008). According to the National Crime Victimization Survey, 85% of all intimate partner violence in 2001 was committed against women. And, while intimate partner violence made up 20% of violent crime against women in 2001, only 3% of the non-fatal violence against men was committed by intimate partners (Rennison 2003).

The detrimental effects of intimate partner violence pervade all areas of victims' lives (i.e., physical health, emotional health, economic security) and impact the well-being of their children as well. It has been reported that medically treated injuries due to interpersonal violence cost $37 billion annually in the U. S., with $33 billion of those costs due to productivity losses (Corso et al. 2007). A meta-analysis conducted by Golding (1999) found a three- to six fold increase in rates of depression, posttraumatic stress disorder (PTSD), substance abuse, and suicidality in abused women as compared to women who had not been victims of intimate partner violence. Coker et al. (2000) found that psychological IPV was associated with a disability preventing work, arthritis, chronic pain, sexually transmitted infections, chronic pelvic pain, and various serious digestive disorders. This finding that psychological IPV was as strongly associated as physical IPV with most of the adverse health outcomes is particularly relevant to issues of control in IPV.

Control Construct in Intimate Partner Violence

Battered women's advocates and researchers in the field have long considered control to be the key motivation for the commission of intimate partner violence (but also see Felson and Outlaw (2007) for a gender-neutral perspective on control motives). In fact, professionals as well as the general public understand IPV as "primarily a problem of heterosexual male control of women partners" (Johnson and Ferraro 2000, p. 949). Control as a motive for IPV is central to Pence and Paymar's (1993) Duluth Model.

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Dobash and Dobash (1992) view understanding the use of control by the perpetrator as essential to understanding IPV. Studies, such as the one by Tilley and Brackley (2005), provide empirical support for the control motive in IPV; male study participants who were taking part in a batterers' treatment program consistently reported a need for control in their relationships. Another example of support for the control-IPV link is Stets' (1992) research which used a nationally representative sample and found that men and women who were more controlling were more likely to engage in dating violence.

Further, in their review of family literature on IPV in the 1990's, Johnson and Ferraro (2000) conclude that issues of control are one of two main themes offering the most promise for future progress. Strauchler et al. (2004) conducted a factor analysis in order to explore the contribution of factors other than physical violence in explaining IPV. Responses to 64 items of the Artemis Intake Questionnaire from a sample of IPV victims (n=485) receiving services from an advocacy agency were analyzed. Their findings support the importance of assessing control in the IPV context. Two factors—humiliation/blame and control—accounted for the largest proportions of variance, and taken together these factors accounted for more variance (17.38%) than the two physical violence factors (12.30%).

Despite its centrality to understanding and predicting IPV, the control construct is complex and there is lack of agreement on its meaning and measurement in the IPV context. Dutton and Goodman (2005) provide several arguments for urgency in the need to develop tighter conceptualization and operationalization of control, including, the increasing controversy over gender symmetry in IPV which is fueled by measurement issues (i.e., heavy reliance on measurement of physically violent acts as the indicator of IPV), the need for clearer understanding and measurement of coercion as part of the development of subtypes of IPV, and the lack of inclusion of coercive control as a factor in legal contexts.

Theoretical Conceptualizations of Control in Intimate Partner Violence

A number of different theoretical approaches have been employed in IPV research. For example, psychoanalytic theorists have proposed deficits in the ego structure (e.g., Adams 1990) and object relations (Zosky 1999) as ways to understand IPV. Feminist theorists have extensively studied IPV most often in terms of the larger context of gender inequalities (e.g., Bartle and Rosen 1994; Dobash and Dobash 1979; Dutton 1988; Schubert et al. 2002). In contrast to the feminist theory approach, the social influence/interactionist perspective posits control behavior in gender-neutral terms as opposed to male efforts at dominance (e.g., Felson 2002; Tedeschi and Felson 1994). Family systems theorists have taken the stance that IPV is a symptom of problems in family process and underlying couple dynamics (e.g., Cook and Frantz-Cook 1984; Geffner et al. 1989; Minuchin and Nichols 1993; Murray 2006). Recently, an extension of feminist functional analysis by evolutionary psychologists proposes that IPV is specifically about controlling women's sexuality (e.g., Buss and Malamuth 1996; Daly and Wilson 1993).

Many researchers in the field have made the case that anger is not the driving force for physical or emotional abuse, including controlling behaviors in IPV. For example, Gondolf and Russell (1986) contend that batterers use violence to control their victims and that self-reported anger is simply used by batterers to justify their violence after the fact. Also, Dobash and Dobash (1979) argue that particular beliefs, such as rigid sex-role attitudes, feelings of entitlement, and desire for power and control, outweigh the role of anger in male violence. Other research suggests that violence against spouses is more common in households where power is concentrated in the hands of the husband or male partner (Coleman and Straus 1990; Yllo and Straus 1990). Fagan and Browne (1994) also conclude that aggression is an outcome of frustration over men's inability to control their partner. Dutton and Strachan (1987) found that wife assaulters, in contrast to non-assaulters, demonstrated higher need for power. In their analyses of the National Crime Victimization Survey, Felson and Messner (2000) found males' assaults on female partners were more likely to have a control motive.

In response to fundamental differences in two major bodies of research literature regarding IPV (e.g., studies with large, random samples finding symmetrical levels of violence versus studies with samples of battered women who were in contact with police, shelters, and hospitals finding asymmetrical levels of violence), Johnson (1995) made a strong argument against considering all IPV to be of one type. The control construct can be seen as integral to both his original and more current IPV typology. Johnson originally (1995) proposed two major types of IPV—patriarchal terrorism and common couple violence. More recently Johnson and others have delineated four types of IPV—Coercive Controlling Violence, Violent Resistance , Situational Couple Violence (formerly Common Couple Violence), and Separation-Instigated Violence (Kelly and Johnson 2008). Patriarchal terrorism was seen as a result of patriarchal traditions that support a man's right to control 'his' woman and involves systematic terroristic control with physical violence, economic subordination, isolation and any number of other control tactics. Similarly, Coercive Controlling IPV consists of the use of physical violence along with systematic terroristic control tactics. In comparison, common couple violence (now Situation Couple

Violence) is characterized as less gendered in nature, not as systematic, and not reliant on control.

Although we are focused on motivation for individual behaviors in this study, our theoretical approach is most aligned with the feminist perspective, specifically as it relates to control as a motive for IPV. The feminist theory perspective applies a macro-level approach to IPV and examines the context in which the violence occurs, including, societal, cultural, and institutional inequalities between women and men (Bartle and Rosen 1994). The feminist theory in particular has attributed the motive for violence by men against their relationship partners to control issues (e.g., Dobash and Dobash 1979; Dutton 1988), with men utilizing IPV as a mechanism to maintain power, control, and privilege in a patriarchal society (e.g., Zosky 1999).

Measurement of the Control Construct in Intimate Partner Violence

While the number of IPV assessment scales has increased in recent years, there is a notable lack of development and testing of scales specifically measuring control in IPV (e.g., Cook and Goodman 2006; Dutton and Goodman 2005; Strauchler et al. 2004). Strauchler et al. (2004) provide a thorough review of IPV scales developed from 1979 or later for the purpose of examining the constructs included and evaluating the psychometric support offered for each scale. In their review, measurement of control was operationalized as "Asks if abuser controls or tries to control the partner through various means (e.g., restricted use of money, told partner where she could and could not go, locked her in the house, took car keys, restricted use of phone, tied her up)" (Strauchler et al. 2004, p. 343). As the authors' predicted, the most common construct included in the reviewed measures was physical violence. Items measuring violent acts accounted for more than twice the number of the next most prevalent construct. Items considered to be measuring control were 11.26% of all scale items reviewed. In fact, many scales did not include power and control as separate constructs at all. We agree with the authors that the preponderance of physical violence measures compared to the scarcity of control measures may be in part due to the complexity of defining and measuring the control construct.

Purpose of Current Study and Hypotheses

The purpose of this study was to conduct initial testing of the *Intimate Partner Violence Control Scale* (IPVCS), a brief scale newly designed by the authors to measure the use of control in intimate partner violence. The availability of a brief and reliable specific measure of control in IPV would offer another practical tool for professionals in the judicial system, for IPV victims' advocates, and for human service workers in a many practice settings.

After evaluating the psychometric properties of the IPVCS, the following hypotheses were tested:

Hypothesis 1: Control as measured by the IPVCS will be positively correlated with self-reported measures of IPV (Modified Conflict Tactics Scale) and interpersonal aggression specific to the sexual domain (six items from the Sexual Experiences Scale).

Hypothesis 2: Control as measured by the IPVCS will be positively correlated with measures of beliefs supportive of interpersonal violence—adversarial attitude toward women and rape myth acceptance.

Hypothesis 3: Control as measured by the IPVCS will account for significant additional variance in reported IPV over and above variance accounted for by interpersonal aggression specific to the sexual domain and beliefs supportive of interpersonal violence.

Method

Procedure

The *Intimate Partner Violence Control Scale* was initially developed by review of the literature related to measures of IPV and control (e.g., Cook and Goodman 2006; Dobash and Dobash 1992; Dutton and Goodman 2005; Johnson and Ferraro 2000; Strauchler et al. 2004) and was guided by the authors' previous experience working with and interviewing victims of intimate partner violence. The IPVCS consists of 16 items with a 1 (*Never*) to 5 (*Very often*) response format (see Table 6 for IPVCS items) and was introduced with the following instructions: "Please indicate how often you have experienced these sorts of things in your present or any previous relationship(s). Please circle the number of your answer." The scale was included as part of a larger project on campus safety that surveyed faculty, staff, and students at a Midwestern university to obtain data with which to examine the scale's properties. Responses provided by men in the student sample are the focus of this study.

Human Subjects Protections Approval for administration of survey to students, faculty and staff was sought and received from the University's Human Subjects Protection Program. In order to maintain anonymity, a preamble was used for the purpose of informed consent on all surveys. All participants were given a copy of the preamble consent and

a debriefing statement to keep which included telephone numbers of the investigators and contact information for relevant services on campus and in the community.

Sample Construction In order to recruit a representative sample of students, a stratified random sample of classes was created from all undergraduate, graduate, and professional classes offered at a Midwestern University based on enrollment data. After randomly selecting specific classes, faculty were contacted prior to survey administration for permission to administer the survey during class time. The survey was administered at the end of the class session so that any students not wishing to participate could leave at that time. Trained research assistants distributed and collected all surveys from students in unmarked envelopes. At no time did faculty who taught these classes have access to the students' completed surveys. No classes taught by the authors were invited to participate. Students were informed that the survey contained questions about intimate experiences, including consensual and forced sexual experiences. Students were also reminded that participation was voluntary, and they were free to refuse to answer any and all questions.

Participants

A total of 1,310 undergraduate, graduate, and professional students completed the survey. The resulting sample was representative of the student body enrolled during that time period based on available University enrollment and demographic data. (See Table 1 for detailed demographics of the full sample by semester).

Since no differences in demographics were found by semester (t test for age, χ^2 for other variables), data from both semesters were combined for all subsequent analyses. Since very few participants self-identified as gay (1.4%) or bisexual (1.1%), these data were excluded from analyses. Also, excluded were participants who did not respond to the question regarding sexual orientation (7.2%) and data from those who did not indicate gender (6.6%). Thus, the final sample for analysis included data from 436 male students. The mean age of participants was 24 years (SD=6.40, range

Table 1 Demographics: all participants

Characteristic	Fall (n=619)	Spring (n=691)
Sex	54.8% female	57.5% female
	45.2% male	42.5% male
Age	Mean=25.5	Mean=24.4
	Range 17–58	Range=17–80
Ethnicity	82.3% white	83.8% white
	9.3% African-American	7.2% African-American
	2% Asian-American	3.1% Asian-American
	1.4% Hispanic	0.7% Hispanic
Sexual orientation	1.6% gay or lesbian	1.7% gay or lesbian
	1.6% bisexual	1.0% bisexual
Respondents by classification	15.1% freshmen	14.6% freshmen
	11.2% sophomores	14.8% sophomores
	16.3% juniors	23.8% juniors
	18.4% seniors	25.0% seniors
	21.1% Arts & Sciences graduate students	13.6% Arts & Sciences graduate students
	2.2% medical students	0.2% medical students
	3.4% dental students	1.0% dental students
	12.2% post grad students	4.7% post grad students
Any disabilities?	3.9% responded "yes"	2.0% responded "yes"
Live on campus?	13.5%	12.6%

18–58), and 85% were white, 5.3% African American, 2.5% Asian American, 0.2% Hispanic/Latino).

Measures

Two behavioral variables of intimate partner violence and sexual violence within a relationship were constructed based on the Conflict Tactics Scale (Gelles and Straus 1979; Straus 1979) and on the Sexual Experiences Survey (Koss and Oros 1982).

Modified Conflict Tactics Scale (CTS; Gelles and Straus 1979; Straus 1979) Ten items adapted from the CTS were included in the campus survey. Approximately 400 studies have been published using data collected with the CTS (see Straus 1995). Reported alpha coefficient reliabilities for physical aggression items range from 0.82 to .088 (Straus 1990). Although the full version of the CTS can be used to measure the extent to which partners in dating or marital relationships engage in psychological and physical attacks on each other and their use of reasoning to deal with conflict, the CTS most frequently has been used to measure physical assaults on a partner (Straus et al. 1996) and that is the manner in which it was used here.

Consistent with the original version of the CTS, the items (shown in Table 2) were presented in hierarchical order of social desirability, with the least acceptable behaviors listed last. The response options were '*Yes'* or '*No'*. Respondents were instructed to skip this section if they had never been in a dating or marital relationship and were given the following introduction to the items: "No matter how well a couple gets along, there are times when they disagree, get annoyed with the other person, or just have spats or fights because they are in a bad mood or tired or for some other reason. Now, we would like to ask you some additional questions about your dating or marriage relationships. Please indicate if you have ever used the following methods to settle disputes with your partner(s)." Table 2 provides the number and percentage responding '*Yes'* to each item.

Sexual Experiences Survey (SES; Koss and Oros 1982) Koss and Oros developed the SES in order to detect unreported cases of rape and in an effort to document a dimensional view of sexual aggression and sexual victimization. The original version consisted of male and female parallel versions, with 12 items for men and included one additional question, "Have you ever been raped?" for women. A '*Yes'* or '*No'* response format was used. Koss and Gidycz (1985) found that the level of self-reported aggression using the SES was significantly correlated with self-reports of aggression when the SES was administered by an interviewer (r=.61, p<.001). The SES also has good test-retest reliability (93%, Koss and Gidycz 1985).

For the current study, six items were adapted from the SES were used to create a variable for interpersonal aggression specific to the sexual domain. Table 3 provides the number of '*yes*' responses and number of missing responses for each item. An interpersonal aggression score was formed by summing the total number of affirmative responses, with a possible range of 0 to 6. In the current sample (n=420), the mean score was 0.02 (SD=0.22), and the range of responses was 0 to 4.

Two attitudinal variables related to beliefs supportive of interpersonal violence were formed based on Burt's (1980) Adversarial Sexual Beliefs Scale and Rape Myth Acceptance Scale.

Adversarial Sexual Beliefs Scale Five items based on Burt's (1980) Adversarial Sexual Beliefs Scale (ASB) were adapted to measure one attitudinal domain toward women. The ASB consists of nine items developed by Burt to measure the expectation that sexual relationships are fundamentally exploitative and each party is manipulative and not to be trusted. According to Burt, a person who strongly endorses this point of view might see rape more like the extreme on an exploitative continuum than the unexpected act of violence that it is. In that case, rape might not be seen as an event that generates much sympathy or support for the victim. During ASB scale development, a random sample of 598 adults

Table 2 Modified conflict tactics scale: number and percentage responding '*Yes'*

Have you ever...	Yes n (%)	Missing (n)
1. accused your partner of having affairs or flirting with others	158 (36.2)	17
2. threatened to hit or throw something at your partner	23 (5.3)	21
3. threw, smashed, or kicked something	98 (22.5)	17
4. threw something at partner	18 (4.1)	17
5. pushed, grabbed, or shoved partner	49 (11.2)	17
6. kicked, bit, or hit partner with a fist	9 (2.1)	17
7. beat partner up	3 (0.7)	17
8. choked partner	5 (1.1)	17
9. threatened partner with a gun or knife	2 (0.5)	17
10. used a gun or knife on partner	0	17

Table 3 Interpersonal sexual aggression (*N*=436): frequencies and missing data

Have you ever been in a situation where…	Yes N (%)	Missing (N)
1) you used some degree of physical force (twisting an arm, holding the other person down, etc.) to try to make your partner engage in kissing or petting when he or she didn't want to?	5 (1.1)	16
2) you tried to have sexual intercourse with your partner when he or she didn't want to by threatening to use physical force (twisting an arm, holding the other person down, etc.) if she/he didn't cooperate, but for various reasons sexual intercourse did not occur?	1 (0.2)	16
3) you used some degree of physical force (twisting an arm, holding the other person down, etc.) to try to get her/him to have sexual intercourse with you when she/he didn't want to, but for various reasons sexual intercourse did not occur?	1 (0.2)	16
Had sexual intercourse with your partner...		
4) even though your partner didn't really want to because you threatened to end your relationship otherwise?	1 (0.2)	16
5) when she or he didn't want to because you threatened to use physical force (twisting an arm, holding the other person down, etc.) if she or he didn't cooperate?	0	16
6) when she or he didn't want to because you used some degree of physical force (twisting an arm, holding the other person down, etc.)?	1 (0.2)	16

(60% women) were interviewed using the scale, and the resulting Cronbach's alpha was .802 (Burt 1980).

Five items from the ASB were used to create an adversarial attitude variable. Participants in the current study were asked to respond to each item on a 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) scale, with a possible range of scores of 5 to 25. The total score was formed by summing responses, with a higher score indicating a more adversarial belief set. Table 4 provides the mean response and number of missing responses for each of the five items used to construct the adversarial attitude variable. In the current sample (*n*=438), the mean score was 10.49 (SD=3.34), and the range of responses was 4 to 25.

Rape Myth Acceptance Scale (Burt 1980) Rape myths are defined as prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists and contribute to creating a hostile climate for rape victims (Burt 1980). Burt's scale has been widely used in the past and is a reliable scale with predictive value. A number of previous studies have found that men who committed sexual assault had higher scores on the Rape Myth Acceptance Scale and the Adversarial Sexual Beliefs Scale as compared to men who had not committed sexual assault (Demare et al. 1993; Koss et al. 1985; Malamuth 1986; Malamuth et al. 1991; Malamuth et al. 1995; Muehlenhard and Linton 1987; Rapaport and Burkhart 1984). The Rape Myth Acceptance scale was developed in a similar manner as the Adversarial Sexual Beliefs Scale described above and had a Cronbach's alpha of .875.

In the current study, participants were asked to respond to five items from the Rape Myth Acceptance Scale (Burt 1980) on a 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) scale. The total score was formed by summing items after reverse coding one item ("*Any female can get raped"*). The mean total score was 9.00 (SD= 2.76). The range of possible scores is 5 through 25, and the range of responses in this sample was 3 to 23. Table 5 provides the mean response and number of missing responses for each of the five items based on Burt's Rape Myth Acceptance Scale.

Table 4 Adversarial sexual beliefs: item means and standard deviations (*N*=436)

	M (SD)	Number missing
1) A man's got to show the woman who's boss right from the start.	2.81 (1.70)	3
2) Women are usually sweet until they've caught a man, but then they let their true self show.	1.95 (1.03)	2
3) In a dating relationship a woman is largely out to take advantage of a man.	1.61 (0.93)	2
4) Men are out for only one thing.	2.14 (1.13)	1
5) A lot of women seem to get pleasure from putting a man down.	2.00 (1.01)	1

Table 5 Rape myth acceptance: item means and standard deviations

	M (SD)	Number missing
1) A woman who goes to the home or apartment of a man on their first date implies that she is willing to have sex.	1.77 (1.00)	1
2) Any female can get raped.	2.84 (1.53)	5
3) Any healthy woman can successfully resist a rapist if she really wants to.	1.85 (1.08)	2
4) Many women have an unconscious wish to be raped, and may then unconsciously set up a situation in which they are likely to be attacked.	1.33 (0.07)	1
5) If a woman gets drunk at a party and has intercourse with a man she's just met there, she should be considered "fair game" to other males at the party who also want to have sex with her whether she wants to or not.	1.24 (0.72)	1
	%	
6) What percentage of women who report a rape would you say are lying because they are angry and want to get back at the man they accuse?	15.59 (10.96)	24
7) What percentage of reported rapes would you guess were merely invented by women who discovered they were pregnant and wanted to protect their own reputation?	12.03 (16.41)	25

Results

Overview of Analytic Approach

The following analyses of the IPVCS scale were completed: missing data, item means and distribution, internal consistency, and content analysis. Following this, three exploratory hypotheses were tested.

Missing Data

Examination of missing data indicated that one item ("I wish sometimes that I could take the children away from my partner to get her to go along with things") had a high percentage of missing data at 9.9% (see Table 6). In order to test the impact of missing data on this item in order to make a decision about whether to retain the item, a

Table 6 Intimate partner violence control scale: means, standard deviations and number missing (N=429)

	Mean	SD	Missing n (%)
I wish I had more say over...			
1. who my partner's friends are	1.61	0.89	7 (1.6)
2. the kinds of things my partner does with his or her friends	1.67	0.91	10 (2.3)
I wish my partner would...			
3. not spend time talking or visiting with his or her family members	1.21	0.53	10 (2.3)
4. just go along with decisions about everyday kinds of things	1.62	0.89	10 (2.3)
I wish I could...			
5. get my partner to quit his or her job or get fired	1.09	0.38	7 (1.6)
6. keep my partner from using the car without my permission	1.07	0.37	9 (2.1)
7. always keep track of my partner's whereabouts	1.26	0.60	7 (1.6)
8. keep my partner from using the phone	1.06	0.30	7 (1.6)
9. in some way monitor my partner's phone calls	1.08	0.36	7 (1.6)
10. in some way monitor my partner's emails	1.09	0.37	7 (1.6)
I wish my partner...			
11. didn't have so much say about how the money is spent	1.29	0.66	10 (2.3)
12. would quit complaining about having to ask for money	1.18	0.56	9 (2.1)
I wish...			
13. I had more control of how my partner spends his or her day	1.23	0.54	10 (2.3)
14. I didn't have to threaten to leave sometimes to get my partner to listen to me	1.10	0.44	10 (2.3)
15. I wish sometimes that I could take the children away from my partner to get her to go along with things	1.06	0.31	43 (9.9%)
16. Sometimes I say things in front of other people to embarrass my partner so that he or she will go along with things	1.17	0.50	9 (2.1)

variable was constructed with two groups—missing and nonmissing values on this item (Acock 1997; Tabachnick and Fidell 1989). None of the t tests conducted on the means for these two groups for other important measures in the data set (adversarial beliefs, rape myth acceptance, Modified Conflict Tactics, and interpersonal sexual aggression) were statistically significant, indicating a lack of association between missingness on this item. Therefore, this item was retained.

Item Means and Distribution

The IVPCS total score was formed by summing the responses to all 16 items, with a higher score indicating higher levels of need for control of the relationship partner. The possible range for the total IPVCS scale score is 16 to 80. The actual range with this sample (N=429) was 12 to 50, with a total score mean of 19.64 (SD=5.06). The distribution was non-normal, skewed toward the lower response values. Item means (see Table 6) ranged from 1.67 (SD=0.91) ("I wish my partner would just go along with decisions about the everyday kinds of things.") to 1.06 ("I wish I could keep my partner from using the phone" [SD=0.30] and "I wish sometimes that I could take the children away from my partner to get her to go along with things" [SD=0.31]).

Internal Consistency

Next, inter-item correlations and internal consistency reliability were calculated. Cronbach's alpha (0.86) indicated good internal consistency reliability, and there were no items that would increase Cronbach's alpha if deleted. Inter-item correlations and significance levels are provided in Table 7.

Content Analysis

Principal components analysis (PCA) was used to explore the underlying structure of the IPVCS scale. Before proceeding, factorability of the correlation matrix was assessed. First, the inter-item correlation matrix (see Table 7) was examined for correlations of sufficient number and magnitude. Forty-nine percent of all the correlation coefficients were 0.30 or greater, which indicates that the correlation matrix is favorable for PCA (Tabachnick and Fidell 1989). Second, Bartlett's (1954) test of sphericity was significant, supporting factorability of the data. Third, all inter-item correlations were significant, indicating reliable relationships between pairs of variables and also supporting factorability. Fourth, the anti-image correlation matrix was found to contain mostly small values in the off-diagonal elements. Finally, the Kaiser-Meyer-Oklin measure of sampling adequacy was 0.86, which exceeds the recommended value of 0.60 (Kaiser 1974).

Applying the criterion of retaining only components with eigenvalues >1, the PCA resulted in a three component solution. Varimax rotation was applied since two of the three initially extracted components had correlations less than 0.30 with oblique rotation (Tabachnick and Fidell 1989). As this was an exploratory analysis, a four component solution was also examined. Both three and four component solutions were examined using the variance, scree plot, and residuals. The four component solution was rejected because it did not account for any additional variance, and the three component solution provided a satisfactory and more parsimonious fit to the data.

Table 8 presents the items and item loadings for each component, the variance accounted for by each component, and the total variance accounted for a three component solution. The three component solution accounted for 56.88% of the variance and provides information about the underlying structure of the IPVCS: a) *Control through Surveillance and Threats* (e.g., "I wish I could always keep tract of my partner's whereabouts," "I wish I could in some way monitor my partner's phone calls"), b) *Control over Everyday Routines and Decision Making* (e.g., "I wish my partner would just go along with decisions about everyday kinds of things," "I wish I had more control of how my partner spends the day"), and c) *Control over Autonomous Behaviors* (e.g., "I wish I could keep my partner from using the car without my permission," "I wish I could get my partner to quit her job or get fired"). Interpretation of the loading of items asking about threats (e.g., "I wish I didn't have to threaten to leave sometimes to get my partner to listen to me," "I wish sometimes I could take the children away from my partner to get her to along with things") was somewhat problematic as they did not load on a separate component as expected.

Hypotheses Testing

As expected (Hypothesis 1), IPVCS was positively correlated (Spearman's rho) with both the Modified CTS (r_{416}=0.30, p<0.001) and the interpersonal sexual aggression variable (Pearson r_{416}=0.12, p<0.05), indicating that men who report higher levels of control in a relationship also reported higher levels of committing physical violence and sexual violence or coercion in the context of a relationship.

Also as expected (Hypothesis 2), the IPVCS was positively correlated (Pearson) with an adversarial attitude toward women (r_{428}=0.21, p<0.001) and rape myth acceptance (r_{428}=0.16, p<0.001), indicating that men who reported higher levels of control in relationships also reported more endorsement of beliefs that relationships are fundamentally exploitative and were more likely to hold false beliefs about rape. These

Table 7 Inter-item correlations for intimate partner violence control scale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. partner's friends	1.000	.714**	.313**	.387**	.148**	.117*	.321**	.252**	.248**	.266**	.262**	.227**	.371**	.279**	.239**	.224**
2. activities with friends	.714**	1.000	.253**	.381**	.143**	.142**	.335**	.243**	.243**	.225**	.257**	.269**	.381**	.318**	.207**	.183**
3. time with family	.313**	.253**	1.000	.305**	.251**	.161**	.230**	.265**	.269**	.235**	.201**	.150**	.297**	.164**	.276**	.193**
4. everyday decisions	.387**	.381**	.305**	1.000	.202**	.080	.214**	.208**	.197**	.166**	.382**	.207**	.283**	.292**	.202**	.261**
5. get my partner to quit job / get fired	.148**	.143**	.251**	.202**	1.000	.498**	.222**	.466**	.455**	.443**	.192**	.339**	.430**	.352**	.499**	.360**
6. keep from using the car	.117*	.142**	.161**	.080	.498**	1.000	.226**	.387**	.324**	.331**	.198**	.206**	.250**	.264**	.461**	.286**
7. track partner's whereabouts	.321**	.335**	.230**	.214**	.222**	.226**	1.000	.438**	.477**	.346**	.263**	.189**	.436**	.361**	.334**	.288**
8. keep from using the phone	.252**	.243**	.265**	.208**	.466**	.387**	.438**	1.000	.679**	.531**	.336**	.343**	.423**	.461**	.689**	.389**
9. monitor phone	.248**	.243**	.269**	.197**	.455**	.324**	.477**	.679**	1.000	.725**	.259**	.275**	.444**	.486**	.576**	.340**
10. monitor emails	.266**	.225**	.235**	.166**	.443**	.331**	.346**	.531**	.725**	1.000	.240**	.278**	.383**	.355**	.492**	.304**
11. less say so about how money is spent	.262**	.257**	.201**	.382**	.192**	.198**	.263**	.336**	.259**	.240**	1.000	.384**	.336**	.312**	.285**	.261**
12. quit complaining—asking for money	.227**	.269**	.150**	.207**	.339**	.206**	.189**	.343**	.275**	.278**	.384**	1.000	.329**	.379**	.364**	.363**
13. control how partner spends day	.371**	.381**	.297**	.283**	.430**	.250**	.436**	.423**	.444**	.383**	.336**	.329**	1.000	.460**	.352**	.278**
14. threaten to eave to get partner listen	.279**	.318**	.164**	.292**	.352**	.264**	.361**	.461**	.486**	.355**	.312**	.379**	.460**	1.000	.679**	.378**
15. take children away	.239**	.207**	.276**	.202**	.499**	.461**	.334**	.689**	.576**	.492**	.285**	.364**	.352**	.679**	1.000	.545**
16. say things to embarrass my partner	.224**	.183**	.193**	.261**	.360**	.286**	.288**	.389**	.340**	.304**	.261**	.363**	.278**	.378**	.545**	1.000

** $p \leq 0.01$ (two-tailed)

Table 8 Intimate partner violence control scale principal components analysis: item loadings and variance accounted for

Component 1: Control through Surveillance and Threats (39.44 % Variance)	Item loading
9. I wish I could in some way monitor my partner's phone calls	.849
10. I wish I could in some way monitor my partner's emails	.770
8. I wish I could keep my partner from using the phone	.712
15. I wish sometimes that I could take the children away from my partner to get her to go along with things	.664
14. I wish I didn't have to threaten to leave sometimes to get my partner to listen to me	.604
7. I wish I could always keep track of my partner's whereabouts	.593
Component 2: Control over Everyday Routines and Decision Making (10.75% Variance)	
1. I wish I had more say over who my partner's friends are	.811
2. I wish I had more say over the kinds of things my partner does with his or her friends	.807
4. I wish my partner would just go along with decisions about everyday kinds of things	.625
13. I wish I had more control of how my partner spends the day	.426
3. I wish my partner would not spend time talking or visiting with her family members	.380
Component 3: Control over Autonomous Behaviors (6.69% Variance)	
12. I wish my partner would quit complaining about having to ask for money	.674
5. I wish I could get my partner to quit his or her job or get fired	.610
11. I wish my partner didn't have so much say about how the money is spent	.568
16. Sometimes I say things in front of other people to embarrass my partner so that he or she will go along with things	.547
6. I wish I could keep my partner from using the car without	.528

findings support the expected relationships between coercive control, other aspects of IPV, and attitudes supportive of violence against women. The moderate sizes of the correlations suggest that the IPVCS is measuring a separate construct.

Multiple regression analysis was conducted to determine whether IPVCS accounted for significant additional variance in reported IPV over and above variance accounted for by interpersonal aggression specific to the sexual domain and beliefs supportive of interpersonal violence (rape myth acceptance and adversarial attitude toward women) (Hypothesis 3). Prior to inclusion in the regression analysis, the items on the Modified CTS were weighted based on severity. The first item was given a weight of 1 (accused partner of having affairs of flirting with others), two items were given a weight of 2 (threatened to hit or throw something at partner; threw, smashed or kicked something), and one item was assigned a weight of 3 (threw something at partner). The following three items were given a weight of 4: pushed, grabbed or shoved partner; kicked, bit or hit partner with a fist; and beat partner up. Two items were given a weight of 5 (choked partner; threatened partner with a gun or knife), and one item (used a gun or knife on partner) was assigned a weight of 6. The measure of self-reported IPV used in the regression analysis was formed by summing all ten weighted items.

The adversarial attitude toward women variable, rape myth acceptance, and interpersonal sexual aggression variable were entered in the first step (Model 1) and IPVCS score was entered in Step 2 (Model 2). Regression results indicate that Model 2 which includes IPVCS was significant (R^2=0.144, $F_{(4,\ 413)}$=17.14, p<0.001) and accounted for 14.4% of the variance in self-reported IPV. The additional variance accounted for by IPVCS was significant (R_{change}^2=0.049, $F_{change\ (1,\ 409)}$=23.28, p<0.001). Thus, Hypothesis 3 was supported. As seen in the summary of regression coefficients presented in Table 9, adversarial attitude toward women and interpersonal sexual aggression significantly contributed to Model 1, and adversarial attitude toward women, interpersonal sexual aggression, and IPVCS significantly contributed to the model of interest (Model 2).

Discussion

The results of the evaluation of the psychometric properties of the *Intimate Partner Violence Control Scale* provide initial support for its validity and reliability (Cronbach's alpha= 0.86). All three exploratory hypotheses were supported, thus further confirming that the IPVCS is a reliable and valid measure of control in the IPV context. As predicted, control as measured by the IPVCS had a significant, positive

Table 9 Coefficients for model variables

Model 1						
Variables	B	β	t	p	Bivariate r	Partial r
Adversarial attitude toward women	.187	.180	3.55	<.001	.162	.173
Rape myth acceptance	−.097	−.075	−1.49	ns	−.004	−.073
Interpersonal sexual aggression	3.82	.235	5.38	<.001	.258	.257
Model 2						
Adversarial Sexual Beliefs	.146	.140	2.81	.005	.162	.138
Rape myth acceptance	−.116	−.090	−1.82	ns	−.004	−.090
Interpersonal sexual aggression	3.52	.233	5.06	<.001	.258	.243
IPVCS	.158	.227	4.83	<.001	.266	.232

correlation with self-reported IPV and interpersonal aggression specific to the sexual domain (*Hypothesis 1).* Secondly, the IPVCS was positively correlated with measures of beliefs supportive of interpersonal violence—adversarial attitude toward women and rape myth acceptance (*Hypothesis 2)*. And finally, the IPVCS accounted for significant additional variance in reported IPV over and above variance accounted for by interpersonal aggression specific to the sexual domain and beliefs supportive of interpersonal violence (*Hypothesis 3)*.

As expected the IPVCS was not unidimensional and examination of the structure of the IPVCS content with principal component analyses revealed use of specific control strategies (*Control through Surveillance and Threats)*, control focused on details of everyday life and control over cognitions of the other (*Control over Everyday Routines and Decision Making)*, and a behavioral focus for control (*Control over Autonomous Behaviors)*. Interpretation of the loading of items asking about threats (e.g., "I wish I didn't have to threaten to leave sometimes to get my partner to listen to me," "I wish sometimes I could take the children away from my partner to get her to along with things") was somewhat problematic as they did not load on a separate component as expected.

Limitations

It must be noted that this study was cross-sectional in design and no determination of test-retest reliability could be conducted. A more serious limitation is the low self-reported incidence of IPV in this sample of male undergraduate and graduate university students. This lack of variance in reported IPV requires that the current results be confirmed in a different setting and population with higher rates of IPV. An important related issue is that of the accuracy of self-report for violent behaviors. We have no way to assess the accuracy of self-reported IPV in this study. Numerous other researchers have previously investigated this issue among married couples and also among non-couples. For example, it has been reported that assaultive men reported about half the amount of violence compared to their wives' reports (Browning and Dutton 1986). On the other hand, Arias and Beach (1987) found that social desirability responding was significantly correlated with willingness to report one's own commission of physical violence for both men and women. Dutton and Hemphill (1992) have argued that most research in this area has confounded impression management and self-deception. Their study, which included men who were in treatment for IPV and women who had recently exited abusive relationships found no significant relationship between social desirability responding (as measured by the Marlowe-Crowne) and physical aggression. They did, however, find a relationship between impression management and reports of physical violence. Psychological abuse was significantly related with the Marlowe-Crowne, impression management, and self-deception. These findings indicate the complexities involved in assessing the meaning and reliability of self-reported IPV and highlight the need to utilize a multi-dimensional assessment of social desirability responding and impression management in future tests of the IPVCS among known perpetrators.

Implications for Theory and Conceptualization of Control Construct

Results of our study support feminist theory's attribution of control as a central motive for violence by men against their relationship partners. The need to control the relationship partner's interactions and behaviors in the world is evident in the principal components of the IPVCS—'control through surveillance and threats,' 'control over everyday routines and decision making,' and 'control over autonomous behaviors.' This need for control is expressed by the willingness to use various coercive means in everyday settings (e.g., 'sometimes I say things in front of other people to embarrass my partner to so that he or she will go

along with things'). Also, control is exerted through extensive surveillance of the partner (e.g., 'I wish I could always keep track of my partner's whereabouts').

On the other hand, the social influence/interactionist perspective characterizes control behavior in gender-neutral terms, not as male efforts at dominance. At this point, our findings cannot be said to support or discount this theoretical approach in that we did not include women in this study. Future efforts will benefit from the inclusion of couples and female perpetrators in the sample. Similarly, our current research cannot speak directly to family systems theorists approach to IPV as a symptom of problems in family process and underlying couple dynamics. However, based on our findings, we could speculate that the reported types of control could dominate family and couple dynamics to the exclusion of other processes. If future research supports this conjecture, family systems theory would need to be revised to allow for a more separate and primary role of IPV in family and couple dynamics.

Evolutionary psychology's conceptualization of IPV as specifically about controlling women's sexuality is a more narrow view than that of feminist theory. Although the IPVCS does not specifically assess efforts to control sexual behaviors or sexual intimacy, it seems reasonable that the types of controlling behaviors we measured could also be applied to sexual behaviors. For example, surveillance behaviors and control of everyday routines could be utilized to minimize or eliminate entirely a partner's contact with other potential sexual partners. Although our conceptualization of control in the IPV context is as an underlying motivation that will impact behavior in many areas, it may be productive in the future to include items that assess specific efforts to control women's sexuality.

Implications for Practice

Intimate partner violence is a complex social problem for which there continues to be a need for effective assessment tools to inform practitioners about proper courses of action in combating intimate partner violence. In this paper, we have presented the psychometric properties of a new scale to assess the control dimension in intimate partner violence. This scale can be used by human services professionals to not only assess the need for control in the context of IPV, but also to gauge beliefs supportive of interpersonal violence. This suggestion is based on the findings in this study that persons scoring high on the Intimate Partner Violence Control Scale (IPVCS) were also likely to report higher interpersonal physical and sexual aggression, and were also more likely to endorse beliefs in support of interpersonal violence. Given the three factor structure of the scale, this scale can be a useful tool to assess the various dimensions associated with the need for control. A number of cognitive and behavioral strategies could then be devised to help offenders alter their actions as well as examine the source for the need to control.

Future Research

The initial development and testing of IPVCS was conducted with a representative sample of college students. Future studies will be needed to be conducted with population with a known history of intimate partner violence, perhaps drawing samples from judicial and advocacy settings. Use of a sample with a known history of IPV would address the lack of variance in reported IPV in our current sample.

Additionally, this study derived a three-factor structure for the IPVCS. The stability of this three factor structure requires further examination, especially to see if similar results can be derived using community samples and/or samples with history of intimate partner violence. To further develop utilization and applicability of the IPVCS in practice settings, studies will need to be conducted to establish cut-off scores so that appropriate goals can be set and action plans be implemented.

Finally, a companion scale could be developed and tested that measured perception of being controlled in a relationship. Testing of the IPVCS and this companion scale in a sample of partners would allow for further refinement of cut-off scores for safety evaluations. This approach would also permit further investigation of the accuracy of self-reporting and the influence of social desirability, impression management and denial on self-reporting of IPV. On a more practical level, often the couple member who is overly controlling, at risk for committing violence, or committing violence will not be available or willing to complete an assessment. In those situations, such a scale from the victim's perspective would be a valuable tool in the arsenal for the detection, prevention, and intervention of intimate partner violence. In sum, the results reported here indicate that the *Intimate Partner Violence Control Scale* shows promise as a useful new tool for professionals dealing with intimate partner violence.

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