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Factor analytic procedures were used to examine the internal structure of a modified version of Straus's Conflict Tactics Scale, an instrument given routinely to measure marital aggression. A large sample of military personnel (7,504 men and 896 women) reported on the tactics they employed against their spouses during conflict in the past year. These subjects (6,917 men and 779 women) also reported on what their spouses did against them. The data provide new empirical evidence that physical aggression should be conceptualized separately as mild and severe when appraising self-reports of physical aggression by both men and women and when assessing reports of victimization by men. For both men and women, psychological aggression was moderately correlated with mild physical aggression, which was moderately correlated with severe physical aggression. However, for women reporting on their husbands' behavior, all physically aggressive acts clustered as one factor except for the two items involving the use of weapons. These results were cross-validated in a different sample of military personnel (3,596 men and 425 women).

Male-Female and Aggressor-Victim Differences in the Factor Structure of the Modified Conflict Tactics Scale

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Marital aggression is now commonly assessed with instruments such as Straus's Conflict Tactics Scale (CTS) (Straus, 1979; Straus & Gelles, 1986) or modified versions of this scale, which measure self-reported behaviors during conflict. Studies on the internal structure of the various versions of the CTS suggest that marital violence has three factors (Barling, O'Leary, Jouriles, Vivian, & MacEwen, 1987; Hornung, McCullough, & Sugimoto, 1981; Jorgensen, 1977; Kumagai & Straus, 1983; Schumm, Bollman, Jurich, & Martin, 1982; Straus, 1979). One factor, alternately labeled "low intensity" (Jorgensen, 1977), "rational" (Straus, 1979), or "reasoning" (Straus, 1979),

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consists of items involving reasoning and providing information in an attempt to settle a conflict. A second factor has been variously termed "medium intensity" (Jorgensen, 1977), "verbal aggression" (Straus, 1979), "symbolic aggression" (Straus, 1979), or "psychological aggression" (Barling et al., 1987). This factor includes items depicting the use of verbal and nonverbal acts that generally have the effect of being critical of or controlling the partner. The third factor has been referred to as "high intensity" (Jorgensen, 1977), "violence scale" (Straus, 1979), or "physical aggression" (Barling et al., 1987; Szinovacz, 1983). All the items in this factor involve the use of physical violence.

The physical aggression factor has received the most attention. It has been used as an index of physical aggression between spouses to (a) describe the prevalence of the problem (O'Leary, Barling, Arias, & Rosenbaum, 1989; Straus & Gelles, 1986), (b) describe correlates of physical aggression (Margolin, John, & Gleberman, 1988; Rosenbaum & O'Leary, 1981), (c) define predictors (Murphy & O'Leary, 1989), and (d) formulate models of marital violence (O'Leary & Vivian, 1990). However, there are several important issues concerning the use of the physical aggression index.

A major controversy concerns which items should be included in the physical aggression index and whether or not physical aggression should be divided into mild or "normal physical aggression" (Straus, 1979) and severe physical aggression categories. A distinction between mild and severe physical aggression, if supported empirically, would allow more precise communication concerning the phenomenon, improved agreement on prevalence rate estimates, and more exact prediction and modeling. Data from Straus (1979), Hornung et al. (1981), and Barling et al. (1987) could support both a mild and a severe aggression factor. However, methodological difficulties such as the use of samples with relatively infrequent rates of severe physical aggression have prevented a resolution of the debate regarding whether mild and severe aggression should be evaluated separately.

Another issue is the placement of items that cannot be easily identified as psychological or physical aggression. Two such items are (a) threatened to hit/throw something at your spouse and (b) threw/smashed/hit/kicked something. The former item deals only with a threat. The latter involves aggression not directed at the spouse. This confusion is further complicated by subsets of data from Straus (1979) and Barling et al. (1987) that showed these items to have double loadings on both the psychological and the physical aggression factors. Barling et al. (1987) argued to exclude these items from the physical aggression factor on the grounds that there is a large body of existent literature based on this definition and that the items do not topographically involve any direct physical contact between partners. However, it is possible

to conceptualize violence on a continuum differing in degree of coercion instead of differing on the target and form of the violence. Therefore, a more functional rather than topographic taxonomy of aggression also should be considered.

Last, a severe criticism of using CTS-like instruments has been the lack of sensitivity in detecting gender differences. It has long been suspected that the causes and impacts of interspousal aggression are different for men and women. Women's aggression engenders less fear (O'Leary & Curley, 1986) and inflicts less physical harm than does men's aggression (Berk, Berk, Loseke, & Rauma, 1983; Cantos, Neidig, & O'Leary, 1994; Cascardi, Langhinrichsen, & Vivian, 1992; Straus, Gelles, & Steinmetz, 1980), and it is more likely to be described as an act of self-defense (Browne, 1987; Cascardi, Vivian, & Meyer, 1991). Although gender differences in the factor structure of the CTS could be seen from data by Straus (1979) and Barling et al. (1987), these were not shown or emphasized unequivocally. It is important to assess whether and to what extent the internal structure of this approach reflects these differences.

This study used factor analytic procedures to test and cross-validate two specific hypotheses on large samples of military personnel. The use of a large sample is critical in reaching stable factor analytic solutions because some of the tactics occur at very low frequencies. The hypotheses to be tested are, first, *Could physical aggression be separated into mild and severe forms?* and, second, *Would gender-specific differences be reflected in the factor structure of the Modified CTS?*

METHOD

Subjects and Procedures

During 1989-1992, the Modified CTS was administered to approximately 15% of the personnel on 38 U.S. military bases. Subjects were selected randomly by a computerized program from rosters of the total base population. Confidentiality was assured for all participants.

As the analyses focused on conflict tactics exchanged between intimate partners, only the data from married or cohabiting personnel were included. Subjects were excluded if they failed to answer any of the self-to-spouse or spouse-to-self items on the Modified CTS. This was done so that correlations and reliability coefficients between different items and the different factor structures could be compared. In addition, subjects were excluded if they uniformly responded to all conflict tactics items with "zero."

In the first sample, surveyed during 1989-1990, these exclusions resulted in a sample of 7,504 men and 896 women (71.3% of the married or cohabiting pool) who reported on the conflict tactics they employed against their spouses during conflict in the past year, and a total of 6,917 men and 779 women (65.3% of the married or cohabiting pool) who reported on what their spouses did against them. The ratio of men to women reflected the gender compositions of the military population. The mean age (in years) for men was 29.3, $SD = 7.8$, and for women was 27.3, $SD = 7.0$. The racial composition was as follows: for men, 65.7% White, 22.5% Black, 7.0% Hispanic, 2.3% Asian, 0.9% Native American, and 1.6% other; for women, 51.6% White, 36.6% Black, 5.7% Hispanic, 2.7% Asian, 1.6% Native American, and 1.8% other. The average length of time in the military (in years) for men was 9.9, $SD = 8.4$, and for women was 6.9, $SD = 7.2$. The majority of the men (80.0%) and women (72.3%) were married for the first time. The average length of marriage (in years) for men was 6.7, $SD = 6.5$, and for women was 4.4, $SD = 4.5$.

Subjects used to cross-validate our findings were selected randomly from a second sample of military personnel using the same random selection procedure. This sample contained 3,596 men and 425 women surveyed during 1990-1992. The two samples were comparable demographically.

Measures: The Modified CTS

The original CTS (Straus, 1979) is an 18-item self-report of tactics engaged during conflict with a partner within the past year. The items include rational problem-solving behaviors and various psychologically and physically coercive acts. The CTS is widely used, has high internal consistency (Straus et al., 1980), and has moderate interpartner reliability (O'Leary & Arias, 1988; Jouriles and O'Leary, 1985).

In the Modified CTS used in this study, four acts conceptualized as psychologically coercive were added: (a) "refused to give affection or sex to spouse," (b) "threatened to leave the marriage," (c) "threatened to do things like take money or have an affair," and (d) "drove recklessly to frighten spouse." Two physically coercive acts were added: (a) "tried to control spouse physically (hold down, etc.);" and (b) "physically forced spouse to have sex." The item "choked or strangled spouse" was not in the 1979 version of Straus's CTS but appeared in the 1986 version. This item was retained in the present Modified CTS. The item "hit or tried to hit with something" was removed because it overlapped with the item "kicked, bit, or hit with a fist." The six items noted in this paragraph were added because these acts were mentioned spontaneously by a number of couples when interviewed about means of

dealing with conflicts within the marriage. Further, they balanced the number of items conceptually related to the domains of psychologically coercive, mildly physically coercive, and severely physically coercive tactics.

The response key for each item is a 5-point Likert scale ranging from 0 = *never* to 4 = *more than seven times*. The time frame of the questions refers to the year prior to survey.

Analysis

As noted previously, subjects with incomplete Modified CTS items were eliminated. In addition, Kaiser's Measure of Sample Adequacy (MSA) (Kaiser, 1970) was checked to ascertain that the common factor model was appropriate to the scale as a whole and that the MSA for each individual item was acceptable. Every Modified CTS item exceeded the commonly accepted criterion of .80. Even the least frequently endorsed CTS item ("used knife or gun") had an MSA of .85. The factor structure of tactics engaged by the subjects toward their partners and those engaged by their spouses toward them, both reported by the subjects, were then assessed separately.

The iterated principal factor analysis method was used for initial factor extraction. After an initial solution in which four statistically significant factors were identified, an oblique (promax) rotation was performed following the application of an orthogonal prerotation (varimax). This was done with the goal of identifying a simple factor structure (i.e., one in which no item would load heavily on more than one factor). The scree test and minimum eigenvalue measure (i.e., at least > 1) were used to determine the number of factors to be extracted. Only items with communalities $> .20$ and loadings $> .40$ were considered to contribute significantly to the meaning of a factor. All procedures were run on SAS (version 6.07).

To enhance interpretability, "singlets" and "doublets" were not considered as meaningful factors. Based on the rotated factor structure, Cronbach's alpha for each scale, created by taking the mean of those items whose loadings exceeded .40, was used to evaluate the internal consistency of the scales.

RESULTS

Separate analyses of the Modified CTS were performed on four data sets: (a) male subjects reporting on self, (b) female subjects reporting on self, (c) female subjects reporting on male partners, and (d) male subjects reporting on female partners. Oblique and orthogonal rotations yielded similar factor

structures and loadings; that is, similar numbers of factors and item loadings were observed. Thus data from only the oblique method are presented.

The overall MSA was .94 for male subjects reporting on self, for female subjects reporting on self, and for female subjects reporting on male partners, and the MSA was .95 for male subjects reporting on female partners. The individual MSAs for all of the items were satisfactory, ranging from .76 to .97. The communality for the tactic "gotten information to back up your side of things" was $< .20$ for all four sets of data. The communality for the tactic "tried to bring in someone to help settle things" was $< .20$ for men reported by women subjects. Table 1 summarizes the factor structures, the factor loadings, the Cronbach's alpha coefficients, and the prevalence rates (%) for the reported use of the Modified CTS items by the respondents themselves (self as aggressor). Factor loadings exceeding .40, an accepted criterion for the inclusion of an item into a factor, are underlined. Factor loadings that marginally missed the inclusion criterion are in parentheses. Table 2 lists comparable information on the use of Modified CTS items by the subject's partner as reported by the subject (self as victim). Table 3 shows the interfactor correlations. The factors are weakly ($r < .25$) or modestly (r of about .50) correlated with each other.

Reports of Self as Aggressor

There were substantial similarities in the factor structures of self-report data by male and female subjects (self as aggressor); that is, with three exceptions discussed later, each data set could be best described by a simple factor structure with three interpretable factors: psychological aggression, mild physical aggression, and severe physical aggression. Together, these factors accounted for approximately 50% of the total variance. The psychological factor included items 3-9, which do not entail the use of physical force directed at the partner. Examples of items on this factor include "refused to give affection or sex to spouse," "sulked and/or refused to talk," and "threatened to leave the marriage." The two physical aggression factors comprised items involving the use of physical force directed at the partner. The mild aggression factor (items 11-13 and 15-17) consisted of items such as "controlled spouse physically," "push, grabbed, and shoved," and "slapped." The severe physical aggression factor (items 19-23) included "choked or strangled," "beat up," and "used a knife or a gun."

There were some interesting gender differences for men's and women's self-reported use of conflict tactics. Although "cried" belonged to the psychological

(Text continues on page 376)

TABLE 1: Factor Pattern Following Promax Rotation of 4-Factor Solution of Modified CTS Items: Men's and Women's Report of Their Own Actions (Self as Aggressor)

	Male Subjects Reporting on Self						Female Subjects Reporting on Self					
	Factor 1	Factor 2	Factor 3	Factor 4	MSA	%	Factor 1	Factor 2	Factor 3	Factor 4	MSA	%
1. Have you gotten information to back up your side of things	-.06	.190	.000	.203	.88	66.0	-.06	.095	-.01	(.386)	.87	64.1
2. Have you tried to bring in someone to help settle things	-.000	.014	-.01	.920	.91	25.8	-.01	.094	.009	.547	.91	29.8
3. Have you refused to give affection or sex to spouse	.113	.478	-.03	-.01	.95	29.6	-.01	.457	-.03	.212	.93	45.3
4. Have you insulted or sworn at your spouse	-.09	.611	.125	-.03	.93	69.9	-.02	.670	-.000	.082	.94	74.3
5. Have you sulked and/or refused to talk (during a conflict)	.017	.672	-.11	-.01	.91	69.1	.029	.698	.012	-.11	.93	75.2
6. Have you stomped out of the room, house, or yard	-.0001	.638	.048	.034	.93	51.5	.011	.707	.098	-.10	.94	59.8
7. Have you cried (during a conflict)	.109	.212	.064	.225	.94	26.0	-.06	.525	.012	-.03	.92	73.9
8. Have you done or said something to spite spouse	.012	.686	.076	-.01	.94	59.6	.052	.589	.063	.122	.95	62.5
9. Have you threatened to leave the marriage	-.02	.476	.258	.077	.94	36.7	.071	.504	.048	.260	.93	47.8
10. Have you threatened to do things like take money or have an affair	.194	.279	.279	.040	.96	15.3	.314	.239	.174	.070	.96	12.9
11. Have you tried to control your spouse physically (held down, etc.)	.004	.083	.690	.045	.95	22.1	(.363)	.007	.413	.041	.96	10.8

12. Have you threatened to hit or throw something at your spouse	-.01	.087	<u>.774</u>	-.04	.96	18.9	-.01	.171	<u>.734</u>	-.05	.94	30.5
13. Have you thrown, smashed, hit, or kicked something	-.02	(.368)	(.355)	-.000	.95	40.4	-.02	.216	<u>.635</u>	-.03	.95	36.0
14. Have you driven recklessly to frighten your spouse	.257	.234	.230	-.03	.97	14.6	<u>.499</u>	.112	.054	-.01	.95	7.8
15. Have you thrown something at your spouse	.261	.004	<u>.584</u>	-.03	.97	10.7	.012	.086	<u>.846</u>	-.19	.93	24.1
16. Have you pushed, grabbed, or shoved your spouse	-.07	.086	<u>.815</u>	-.000	.94	26.9	.010	.027	<u>.775</u>	.052	.95	29.7
17. Have you slapped your spouse	.246	-.08	<u>.676</u>	.001	.96	12.5	.141	-.07	<u>.560</u>	.193	.95	17.3
18. Have you kicked, bit, or hit your spouse with a fist	<u>.509</u>	-.10	<u>.452</u>	.006	.95	6.4	.113	-.13	<u>.751</u>	.120	.95	15.1
19. Have you choked or strangled your spouse	<u>.682</u>	-.04	.242	-.000	.96	5.5	<u>.803</u>	-.08	.108	.027	.92	4.6
20. Have you physically forced your spouse to have sex	<u>.705</u>	.061	.008	-.000	.97	4.5	<u>.795</u>	-.03	-.04	-.04	.93	2.8
21. Have you beat up your spouse	<u>.686</u>	-.08	.246	-.000	.94	4.5	<u>.868</u>	-.04	.006	-.04	.90	3.9
22. Have you threatened your spouse with a knife or gun	<u>.920</u>	.057	-.12	-.01	.89	2.9	<u>.511</u>	.047	.211	.011	.93	7.4
23. Have you used a knife or gun on your spouse	<u>.908</u>	.036	-.16	.009	.88	2.4	<u>.911</u>	.032	-.11	-.05	.89	3.1
Cronbach's alpha	.91	.80	.87				.87	.83	.90			

NOTE: For males and females reporting on self, Factors 1, 2, and 3 correspond to severe physical aggression, psychological aggression, and mild physical aggression, respectively.

TABLE 2: Factor Pattern Following Promax Rotation of 4-Factor Solution of Modified CTS Items: Men's and Women's Report of Their Spouses' Action (Self as Victim)

	Females Reporting on Male Partners						Males Reporting on Female Partners					
	Factor 1	Factor 2	Factor 3	Factor 4	MSA	%	Factor 1	Factor 2	Factor 3	Factor 4	MSA	%
1. Has your spouse gotten information to back up her/his side	.016	.052	-.02	.215	.76	58.3	-.01	-.06	.121	.302	.87	61.2
2. Has your spouse tried to bring in someone to help settle things	-.05	-.04	.072	.722	.86	20.9	-.01	.050	-.02	.707	.93	24.4
3. Has your spouse refused to give affection/sex to you	-.04	.527	.007	-.01	.93	34.5	-.03	.052	.572	-.000	.95	42.0
4. Has your spouse insulted or sworn at you	.087	.691	-.15	-.08	.94	74.7	.100	-.06	.671	-.05	.95	67.7
5. Has your spouse sulked and/or refused to talk (during a conflict)	-.10	.671	-.02	.040	.91	72.5	-.13	.031	.724	-.06	.92	70.0
6. Has your spouse stomped out of the room, house, or yard	-.11	.706	.085	.053	.92	59.3	.055	.022	.644	.021	.95	52.0
7. Has your spouse cried (during conflict)	.058	.106	.015	.403	.88	37.5	.058	-.07	.505	.113	.95	74.3
8. Has your spouse done or said something to spite you	.104	.628	-.03	.093	.95	59.8	.085	-.000	.697	-.000	.95	57.9
9. Has your spouse threatened to leave the marriage	.131	.579	.063	.003	.94	39.0	.212	.015	.538	.052	.95	41.2
10. Has your spouse threatened to do things like take money or have an affair	.313	(.393)	.180	-.03	.95	17.8	.232	.241	.298	.054	.96	17.0
11. Has your spouse tried to control you physically (held down, etc.)	.669	.169	-.04	.084	.96	27.6	.448	.237	.001	.109	.97	12.8

12. Has your spouse threatened to hit or throw something at you	<u>.765</u>	.129	-.055	.034	.96	26.8	<u>.786</u>	-.03	.094	.125	.96	25.3
13. Has your spouse thrown, hit, or kicked something	<u>.452</u>	.345	.006	.061	.97	39.0	<u>.624</u>	-.05	.216	.038	.96	33.5
14. Has your spouse driven recklessly to frighten you	.232	(.371)	.202	-.08	.94	22.2	.142	<u>.478</u>	.054	.073	.97	7.3
15. Has your spouse thrown something at you	<u>.668</u>	.064	.110	.003	.97	16.8	<u>.813</u>	.027	.008	-.01	.96	21.6
16. Has your spouse pushed, grabbed, or shoved you	<u>.803</u>	.152	-.15	.061	.94	32.3	<u>.873</u>	-.03	.015	-.01	.96	23.6
17. Has your spouse slapped you	<u>.842</u>	-.03	.025	-.02	.96	16.8	<u>.774</u>	.086	-.01	-.04	.96	19.1
18. Has your spouse kicked, bit, or hit you with a fist	<u>.924</u>	-.12	-.02	.031	.94	14.0	<u>.778</u>	.148	-.04	-.01	.95	14.6
19. Has your spouse choked or strangled you	<u>.615</u>	-.10	.226	-.03	.96	13.2	.162	<u>.605</u>	-.05	-.02	.95	5.1
20. Has your spouse physically forced you to have sex	(.369)	.043	.296	-.04	.95	9.1	-.10	<u>.740</u>	.001	.016	.93	3.9
21. Has your spouse beat you up	<u>.814</u>	-.14	.167	-.10	.92	9.1	.125	<u>.727</u>	-.04	-.02	.94	4.2
22. Has your spouse threatened you with a knife or gun	.230	.065	<u>.686</u>	-.01	.89	6.3	.112	<u>.721</u>	.033	-.05	.91	6.4
23. Has your spouse used a knife or gun on you	.114	-.07	<u>.684</u>	.087	.85	3.2	-.11	<u>.863</u>	.018	-.01	.88	3.3
Cronbach's alpha	.93	.84	.77				.92	.86	.84			

NOTE: For females reporting on male partners, Factors 1 and 2 correspond to severe physical aggression and psychological aggression, respectively. For males reporting on female partners, Factors 1, 2, and 3 correspond to mild physical aggression, severe physical aggression, and psychological aggression, respectively.

TABLE 3: Correlations Among the Four Obliquely Rotated Factors

	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>	<i>Factor 4</i>
A. Male subjects reporting on self				
Factor 1	1.000	.164	.528	.215
Factor 2		1.000	.530	.317
Factor 3			1.000	.305
Factor 4				1.000
B. Female subjects reporting on self				
Factor 1	1.000	.193	.534	.338
Factor 2		1.000	.582	.471
Factor 3			1.000	.477
Factor 4				1.000
C. Female subjects reporting on male partner				
Factor 1	1.000	.568	.458	.332
Factor 2		1.000	.163	.461
Factor 3			1.000	.236
Factor 4				1.000
D. Male subjects reporting on female partner				
Factor 1	1.000	.523	.594	.375
Factor 2		1.000	.217	.291
Factor 3			1.000	.425
Factor 4				1.000

aggression factor and "drove recklessly to frighten spouse" belonged to the severe physical aggression factor for women, they did not load onto any factors for men. The item "kicked, bit, or hit with a fist" loaded on both the mild (.45) and severe (.51) physical aggression factors for men; however, it was related only to the mild physical aggression factor for women. Although "tried to control your spouse physically" was clearly in the mild physical aggression factor for men, it could be seen as either severe (loading .36) or mild (loading .41) physical aggression for women. Finally, the item "threw, smashed, hit, or kicked something" marginally missed the criterion for inclusion into either the mild (.36) or psychological (.37) physical aggression factor for men but was clearly mild physical aggression for women. The only item that did not load onto any factor for both male and female subjects reporting on their own behavior was "gotten information to back up your side of things." The other item conceptualized by Straus as reasoning, "tried to bring someone to help settle things," appeared as a singlet and was uninterpretable.

For men and women as aggressors, mild physical aggression was moderately correlated (r s of about .50) with both psychological aggression and severe physical aggression. Other interfactor correlations were weak. The Cronbach's alpha (obtained by taking the mean of those items whose loadings exceeded .40) for each scale was high, ranging from .80 to .91.

Reports of Self as Victim

The factor patterns for men's and women's reports of the physically aggressive tactics of their partners (self as victim) were remarkably different. For women as victims, mild and severe physical aggression were not separate factors. All items involving the use of physical force against the women respondents (items 11-21) loaded onto a single physical aggression factor. The exception was that the item "drove recklessly to frighten spouse" was associated with the psychological factor and the two items involving the use of weapons (items 22 and 23) appeared as an uninterpretable factor. For men as victims, the mild and severe physical aggression factors were clearly distinguishable, as were the data on men and women as aggressors. The item "drove recklessly" was associated with the severe physical aggression factor for male subjects reporting on their spouses' behavior.

The item "forced spouse to have sex" loaded onto the severe physical aggression factor for males reporting on their partners' action, and it marginally missed (loading of .37) being included onto the same factor for women reporting on their partners' action. Although "drove recklessly to frighten you" clearly loaded onto the severe physical aggression factor for men reporting on their partners, it marginally missed (loading of .37) being included onto the psychological aggression factor for women reporting on their partners. The items "gotten information to back up your side of things" and "threatened to do things like take money or have an affair" did not load onto any factor, although the latter marginally missed (.39) the criterion for inclusion onto the psychological aggression factor for females reporting on their partners' action. The item "tried to bring in someone to help settle things" appeared as a singlet.

For men as victims, the mild physical aggression factor was modestly correlated (r s of about .50) with both the psychological and the severe physical aggression factors. For women as victims, the severe physical aggression factor was modestly correlated with the psychological aggression factor. Other interfactor correlations were weak. Cronbach's alphas for the scales were consistently high, ranging from .77 to .93 for factors consisting

of more than two items. The factors accounted for about 50% of the total variance for both men and women reporting themselves as victims.

Cross-Validation Results

Analyses performed on the second sample of 3,596 men and 425 women yielded similar information compared with the first sample; that is, the two samples had similar prevalence rates for each tactic. The cross-validation sample also explained about 50% of total variance in each of the four data sets. Using self-reports, mild and severe physical aggression emerged as separate factors in both samples. For women's reports of victimization, all physically aggressive acts clustered onto one factor except for the two items involving the use of weapons. The items and factor loadings in the psychological, mild physical aggression, and severe physical aggression were similar in the original and cross-validation samples.

DISCUSSION

Reports on Self as Aggressor

This study extends findings concerning the factor structure of the CTS. Consistent with previous findings (Barling et al., 1987; Hornung et al., 1981; Jorgensen, 1977; Kumagai & Straus, 1983; Schumm et al., 1982; Straus, 1979), conflict behavior in marriage as measured by the Modified CTS represents a multidimensional construct. Specifically, most of the different tactics could be described as psychological or physical aggression. However, in contrast to previous reports, the results here suggest that physical aggression be further divided into mild and severe categories. It is likely that previous research was unable to discern two separate physical aggression factors because the samples had low endorsement frequencies of the severe items (Barling et al., 1987; Straus, 1979). Moreover, there were very few severe physical aggression items.

Although studies to date that used the factor analytic methods have not supported the existence of distinct mild and severe physical aggression factors, other data suggest the validity of this distinction. First, the two forms of physical aggression are endorsed with different frequency. Many couples used mild physical aggression; only a relatively small percentage of couples used severe physical aggression tactics (O'Leary et al., 1989; Straus, 1979).

Second, for wives as victims, injuries have been significantly associated with more severe tactics (Cantos et al., 1994).

A psychological aggression factor emerged from our study, as was the case with other studies (Barling et al., 1987; Hornung et al., 1981; Jorgensen, 1977; Kumagai & Straus, 1983; Schumm et al., 1982; Straus, 1979). Some gender differences were observed. Although "cried" and "drove recklessly to frighten your spouse" did not load onto any factor for men as aggressors, the former loaded onto the psychological aggression factor and the latter loaded onto the severe physical aggression factor for women reporting on their own aggression.

Reports on Self as Victims

The aforementioned factor structure was replicated when men reported on themselves as victims. Specifically, the factor pattern of men as victims mirrored the structure for men and women as aggressors.

Interestingly, the factor structure of women as victims did not follow the general pattern. All acts of physical aggression aggregated into one factor with the exception of the two items that are connected with the use of weapons. This result might well be a reflection that all kinds of physical attacks from a husband are salient and similar to women. Further studies are needed to elucidate whether women's responses are a reflection of their assessment of the potential harm linked with the tactics, the context within which the tactics are used, or both.

GENERAL DISCUSSION

The separation of physical violence into male-female and aggressor-victim role-sensitive mild and severe forms has important implications in research. Currently, some authors have used the strategy of averaging couples' responses to correct for underreporting (Barling et al., 1987; Browning & Dutton, 1986; Szinovacz, 1983). This may not be a desirable approach if the goal is to focus on gender-specific aggression. Moreover, different items should be included in defining aggression for males and females depending on the research hypotheses. Finally, the prediction and formulation of models of physical aggression should deal with both mild and severe physical aggression and the relationship between the two.

The results of using oblique rotation in our factor analytic analyses yielded simple factor structures that could be interpreted meaningfully. Although

orthogonal rotation, commonly used in psychology research, yielded qualitatively similar data, the oblique method is preferable over the orthogonal (Rummel, 1970, p. 388). Oblique rotation has the advantage of not requiring the factors to be noncorrelated, as does orthogonal rotation. This is desirable when the factors are expected to be correlated on theoretical grounds. Such was the case here, and the data clearly support associations among the factors. Software packages with the ability to perform oblique rotations have become available during recent years. When appropriate, oblique rotation should be considered in exploring the factor structure of data sets.

The generalizability of these results to the general population deserves attention. It is reasonable to assume that men and women in the military are somewhat different from the civilian population, especially because membership is voluntary. Shupe, Stacy, and Hazlewood (1987) suggested that participation in the military will increase the probability of various types of physical aggression. However, comparisons of prevalence rates of self-reported physical aggression across different samples need to control for age, racial composition, socioeconomic status, and other demographic variables associated with aggression. The conclusion on the generalizability of the military sample on the phenomenon of interspousal aggression awaits the publication of more studies.

CONCLUSION

The Modified CTS is a structurally sound instrument that can be used to operationalize aggression between spouses. The Modified CTS reflects the multidimensional nature of the conflict tactics used within a marriage. Particularly relevant is that physical aggression can be further divided into mild and severe categories. Finally, the Modified CTS reflects differences in men and women in their enactment and perception of aggression.

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