

Female Perpetrated Dyadic Psychological Aggression Predicts Relapse in a Treatment Sample of Men with Substance Use Disorders

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Abstract This study examined whether female-to-male (FTM) psychological aggression predicted men's relapse of substance use disorder (SUD) 6 months following substance use treatment. Men diagnosed with either a substance abuse or dependence disorder who had recently begun an SUD treatment program participated in the study with their female relationship partners ($N=173$). Logistic regression was used to examine the relationship between baseline FTM psychological aggression and SUD relapse when controlling for baseline demographic, dyadic, substance abuse- and treatment-related variables, as well as

frequencies of other male- and female-perpetrated aggressive dyadic behaviors. Higher frequencies of severe, but not minor, forms of FTM psychological aggression uniquely predicted an increased risk of relapse at 6 months follow-up. These data add to the developing research program highlighting the negative sequelae of female-perpetrated psychological aggression and also provide an empirical basis for targeting specific dyadic behaviors in the context of SUD treatment and relapse prevention.

Keywords Psychological aggression · Relationship satisfaction · Alcohol use · Relapse

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Substance abuse disorders (SUD), which occur at significantly higher rates in men than women (e.g., Caetano and Tam 1995), are associated with myriad negative intrapersonal consequences and interpersonal problems (e.g., Room et al. 1995). Moreover, rates of post-treatment relapse range from 35% to 90% depending on definitional criteria (Connors et al. 1996), leading some researchers to characterize relapse as a predominant clinical feature of SUD (e.g., Litman 1980). Provided the likelihood of relapse, in conjunction with the well documented negative effects of SUD, it is not surprising that increasing attention is being paid to predictors of men's relapse for SUD following treatment (for examples, see Maisto et al. 1998; and McCrady et al. 2002). Indeed, examining factors that predict variability in relapse incidence across SUD patients can highlight putative causal factors underlying its etiology. In addition, the identification of variables predictive of relapse could guide treatment development by allowing clinically relevant behaviors to be targeted specifically for intervention (Pihl 1999).

One promising candidate predictor of SUD relapse in men is female-to-male (FTM) psychological aggression,

which is characterized by behaviors intended to generate emotional harm without physical injury (Murphy and Cascardi 1999). Research on the detrimental effects of FTM psychological aggression on men in general is relatively scarce when compared to what is known about the effects on men of FTM physical aggression, or about the effects of male-to-female (MTF) psychological and physical aggression on women (Hines and Malley-Morrison 2001). This relative lack of empirical attention is perhaps unwarranted given evidence that psychologically aggressive behaviors are perpetrated by women to an equal or greater extent than they are by men (e.g., Hines and Saudino 2003), and are uniquely predictive of deleterious mental and physical health outcomes for men beyond that which is attribute to FTM physical aggression (e.g., Taft et al. 2006). Similarly, research on the etiological role of FTM psychological aggression in post-treatment SUD relapse is relatively understudied despite evidence to suggest that a causal association is indeed likely. For example, O'Farrell et al. (2004) demonstrated that wives of relapsed alcoholics are more verbally aggressive than those of remitted alcoholics 2 years following Behavioral Couples Therapy (BCT; O'Farrell and Fals-Stewart 2006), with this latter group displaying similar levels of verbal aggression to nonalcoholic controls. Furthermore, Fals-Stewart and Birchler (1998) demonstrated that "verbally abusive and threatening comments, with frequent use of expletives to emphasize points (p. 35–36)," were observed more frequently during treatment in distressed couples when the male counterpart was a substance user, and was associated with a lower percentage of days abstinent 90 days following BCT. These latter findings were significant even when controlling for basic demographic factors (age and years of education) and relationship adjustment.

The aforementioned research highlights the potential utility of FTM psychological aggression in predicting relapse following BCT. Although consistent with existing literature indicating the unique contribution of less severe forms of maladaptive communication behaviors to the prediction of SUD relapse (e.g., expressed emotion; Fals-Stewart et al. 2001; O'Farrell et al. 1998), empirical knowledge regarding the predictive relationship between FTM psychological aggression and substance abuse treatment outcome remains relatively limited. Specifically, the focus of O'Farrell et al. (2000, 2004) studies was to examine reductions in aggressive behaviors resulting from decreased substance use following treatment; the extent to which their findings reflect that FTM psychological aggression predicted clinically significant substance use or vice versa is not clear. Although Fals-Stewart and Birchler (1998) demonstrated a predictive association between FTM psychological aggression and SUD relapse, their findings focused on the effects of aggressive verbal behaviors, as

opposed to more symbolic forms of psychological aggression not conducive to in vivo observation of dyadic behaviors (e.g., destroying something of value to one's partner). Moreover, their sample size was small ($N=17$) and this finding has yet to be replicated. Taken together, additional research is needed to more firmly establish a causal association between FTM psychological aggression and SUD relapse by examining the time ordered predictive utility of the former on the latter using a broader range of psychologically aggressive dyadic behaviors.

It is also important to note that the evidence supporting a potential link between FTM psychological aggression and post-treatment SUD relapse has been examined only following BCT (e.g., Fals-Stewart and Birchler 1998). It is therefore unknown whether or not this association will replicate across treatments and settings outside of this context. For example, it is possible that the use of a specialized marital treatment might preclude generalization of these findings to individualized interventions for SUD more typical in naturalistic treatment settings. Also, the inclusion and exclusion criteria commensurate with well-controlled outcome research might limit applicability of these findings to the potentially more diverse population treated by front-line clinicians. As such, additional data is also required to extend the ecological validity of previous research examining the association between FTM psychological aggression and SUD.

The current study examined the unique predictive relationship between FTM psychological aggression at study entry and relapse 6 months later among men seeking standard substance abuse treatment in the community. Importantly, the amount and type of treatments in which participants engaged was not under experimental control, and the criteria for participation were also more inclusive relative to previous studies in this line of research. Using these data, the hypothesis that FTM psychological aggression would predict unique variance in relapse status was tested using binary logistic regression. Given research indicating that aggressive dyadic behaviors conform to a two-factor structure comprising minor and severe acts of aggression (e.g., Hamby and Sugarman 1999; Newton et al. 2001), these two behavioral domains were examined separately to test whether the effects of FTM psychological aggression on SUD relapse differed across levels of severity.

Consistent with Fals-Stewart and Birchler (1998), dyadic satisfaction and men's age and years of education were statistically controlled, as was variance in relapse associated with baseline severity of substance use-related problems and the number of days men engaged in treatment prior to baseline. Because men and women's aggressive behaviors are shown to be interrelated (e.g., Schumacher and Leonard 2005), the frequencies of male-to-female

(MTF) psychological and physical aggression, and FTM physical aggression also were controlled to provide a more stringent test of the study hypothesis. By controlling for these interrelationships, the analysis will demonstrate the unique variance in relapse status attributable to acts of FTM psychological aggression independent from the effects of other forms of aggressive dyadic behaviors exchanged between partners. As minor and severe FTM psychological aggression were the primary foci of this study, no *a priori* hypotheses were made with respect to the independent or combined predictive contributions of the remaining psychological and physical aggression variables.

Methods

Participants

Participants included 181 men diagnosed with a substance use disorder who had recently begun a substance abuse treatment program and their female relationship partners. Study participants were recruited from four substance abuse treatment centers in Massachusetts. Participants were drawn from three levels of care within these treatment programs: inpatient or residential treatment ($n=105$, 58%), intensive outpatient or day treatment ($n=34$, 18.8%), and outpatient counseling ($n=42$, 23.2%). At each treatment program, study staff reviewed a list of new admissions to the program each week and via chart review or talking with program staff determined which patients were likely to be eligible. Then these patients were interviewed to determine if the patient was eligible and interested for the study. Interested and eligible patients signed informed consent forms and were enrolled in the study. In the 30 days before the baseline interview, participants attended some form of substance abuse treatment for an average of 11.1 days ($SD=7.6$ days) across the following settings: (a) hospital stay for detoxification, (b) hospital or residential alcohol or drug treatment, (c) day treatment or intensive outpatient program, and (d) outpatient counseling sessions with a counselor or therapist.¹

For inclusion in the study, couples were required to be married or cohabiting, living together for at least the last 12 months without more than 4 months separation, living together at the time of the baseline assessment, and not separated or planning a divorce. Other inclusion criteria were as follows: (a) the male partner had to meet diagnostic criteria for current alcohol or substance abuse or dependence using the Structured Clinical Interview for the DSM-IV (SCID; First et al. 1996); (b) the male partner had to

have consumed alcohol or used illicit substances in the 30 days prior to his beginning treatment; (c) both partners had to be older than 18 and younger than 64 years of age at the beginning of the study; and (d) both partners had to provide consent to participate. Couples in which one or both partners showed evidence of a psychotic disorder on the SCID psychoticism screen were excluded from the study. Couples were assessed at baseline upon study entry and 6 months following their baseline assessment.

Eight participants did not attend the 6-month follow-up assessment and were omitted from the analyses. Pooled-variance independent samples *t*-tests were conducted to examine differences between individuals retained or omitted from the sample across demographic variables, dyadic satisfaction, both FTM and MTF psychological and physical aggression, and number of days of heavy drinking or frequency of illicit substance use at baseline. These analyses demonstrated that men omitted from the sample had significantly fewer years of education, $t(7.44)=-2.86$, $p<.05$; no other significant difference were found for the remaining variables. Chi-square analyses were also conducted to assess for differences across groups with respect to race, marital status, number of previous marriages and biological children, current job status, and income. The analyses revealed, however, that the demography of omitted participants was not significantly different than what would be expected by chance.

Substance use disorder diagnostic status was evaluated using the SCID.² Of the 173 men who participated in the study, 96% met diagnostic criteria for current alcohol dependence and 4% met criteria for current alcohol abuse. In addition, 37% and 43% of the sample met diagnostic criteria for drug dependence and abuse, respectively. Men with drug problem diagnoses met criteria for the following: 4.6% for sedative dependence, 12.7% for sedative abuse, 9.2% for cannabis dependence, 16.8% for cannabis abuse, 1.2% for stimulant dependence, 10.4% for stimulant abuse, 17.3% for opiate dependence, 6.4% for opiate

¹ A “day” of treatment for outpatient and day treatment settings was defined as at least 2 h of treatment per day.

² We used the substance abuse section and the psychotic screen of the SCID, respectively, with the alcoholic patient to establish current substance use disorder diagnoses and to rule out current comorbid psychotic disorders. We did not administer other sections of the SCID. The SCID sections were conducted by one of four trained research assistants with Bachelors or Masters degrees. A doctoral level psychologist with extensive experience administering and scoring the SCID trained the interviewers. SCID interviewer training consisted of (a) reading and reviewing guidelines for conducting SCID interviews; (b) reviewing sample cases to learn how to code responses to SCID questions; (c) practicing reading SCID interview questions aloud; (d) conducting simulated SCID interviews with colleagues; and (e) reviewing audio recordings of SCID interview responses from patients and discussing ratings and diagnoses. Data on inter-rater agreement were not available for the SCID diagnostic interviews in the current study.

abuse, 22.5% for cocaine dependence, 8.1% for cocaine abuse, <1% for hallucinogen dependence, 17.9% for hallucinogen abuse, and 0% and 1.2% endorsed dependence and abuse, respectively, for “other.”

Baseline assessments indicated that relationship partners had lived together for an average of 10.7 years ($SD=9.1$; range = 1 to 37). The majority of couples were married (65%), with the remaining couples cohabitating. The sample of men was predominantly Caucasian (82%), with the remaining 18% reporting the following racial and ethnic identifications: American Indian or Alaskan native (<1%), African American (6%), Hispanic (3%), Hawaiian or Pacific Islander (<1%), and “other” (8%). The sample of women was also predominantly Caucasian (82%), with the remaining 18% of women reporting the following ethnic identifications: American Indian or Alaskan native (2%), African American (3%), Hispanic (5%), Hawaiian or Pacific Islander (<1%), and “other” (7%). The average age of the men and women was 41.2 ($SD=8.9$) and 39.6 ($SD=9.5$) years old, respectively. Men had an average of 12.7 years of formal education ($SD=2.2$; range = 5 to 20 years), with women reporting an average of 13.6 years of formal education ($SD=2.4$; range = 8 to 20 years). With regard to men’s employment, 52% were employed full-time, 9% were employed part-time, 35% were unemployed, 3% were retired, and 1% were students. Female partners were predominantly employed full-time (59%), with 19% working part-time, 21% unemployed, and 1% endorsing the category of “other.” During the 6-months prior to the baseline assessment, 40% of men earned \$19,999 or less, 44% earned between \$20,000 and \$49,999, and 16% earned over \$50,000. During the same 6-month time period, 51% of female partners reported earning under \$19,999, 42% earned between \$20,000 and \$49,999, and 7% earned over \$50,000.

Assessment

Substance use. The Timeline Followback Interview (TLFB; Fals-Stewart et al. 2000) was used to assess relapse. The TLFB uses a calendar and other memory aids to gather retrospective estimates of the frequency and amount of substance use per day over a specified period of time. The procedure provides separate assessments for the use of alcohol, cannabis, cocaine, hallucinogens, inhalants, opiates, phencyclidine, sedative-hypnotics, and stimulants. Both male and female participants were administered the TLFB with regard to the male participants’ drug and alcohol use during the time period between admission and the 6 month follow-up assessment. In line with the methodological review conducted by McKay et al. (2006), relapse was defined using a dichotomous scale indicating whether or not a participant either consumed six or more

standard drinks within a single day or engaged in any illicit substance use during the assessment period (for an example of this approach, see Fals-Stewart et al. 2001).³

Relapse was calculated separately for men’s and women’s responses. The level of spousal agreement was assessed using the kappa coefficient, which yielded a k estimate of .78, $p<.01$. Male and female reports of men’s relapse were combined to form the criterion variable. As combining scores for a given variable across gender would be contraindicated should male and female reports differ with respect to their variability, the justifiability of this approach was assessed by examining variance inequalities. As recommended by Kenny et al. (2006), equality of variance was evaluated using Pearson r correlations between the sum and difference scores for male and female reports (see also, Kenny 1979), which did not yield a significant difference ($r=.01$, ns). Men’s and women’s estimates were combined into a single index of relapse by selecting the higher report (i.e., those indicating relapse) when a discrepancy existed across partners. One hundred and seventeen (67.6%) male participants relapsed during the assessment period.

Psychological and physical aggression. Psychologically and physically aggressive behaviors were assessed using the 8-item Psychological Aggression and 12-item Physical Assault subscales, respectively, of the Conflict Tactics Scale, Revised (CTS2; Straus et al. 1996). Items in each scale assessed a single aggressive behavior considered either “minor” (e.g., “Insulted or swore at my partner,” “Grabbed my partner”) or “severe” (e.g., “Called my partner fat or ugly,” “Beat up my partner”). Participants reported the frequency of each behavior for themselves and their partner during the previous 6 months using the following scale: (0) Never; (1) 1 time; (2) 2 times; (3) 3–5 times; (4) 6–10 times; (5) 11–20 times; and (6) more than 20 times. Frequency scores for each male- or female-perpetrated aggressive behavior were combined across gender, with the higher frequency score being selected when discrepancies existed between male and female reports. Two items were omitted from men and women’s

³ Setting “heavy,” and not any, alcohol use as an operational criteria allows for a more conservative differentiation between participants who relapse, per se, as opposed to those who experience a “lapse,” indicating an episode of relatively minor use. However, as it is likely that the severity and clinical significance of use frequency varies across substance type, any instance of illicit substances was used as an operational criterion because it potentially indicates a greater deviation from sobriety than an instance of light alcohol consumption (McKay et al. 2006). The negative consequences associated with use were excluded because the consequences stemming from substance use behaviors likely represent a construct separate from, albeit related to, relapse, and separating substance use from its negative consequences allowed for the latter to be used as a baseline control variable in the foregoing analyses.

physical assault subscale because they were endorsed by <1% of the sample, which resulted in close to zero variance across participants (“Choked my partner” and “Burned or scalded my partner on purpose”).

To assess the appropriateness of using the separate minor and severe subscales with this sample, principal components factor analyses with varimax rotation were conducted to summarize the underlying correlation structure of men and women’s CTS2 items. It was found that the minor and severe psychological aggression items conformed to the factor structure outlined by Straus et al. (1996) for both men and women. Although the physical assault subscales also evidenced a two-factor structure, three items deviated slightly from their expected factor loadings; the items that assessed instances in which men slammed their partner against a wall, female-perpetrated punching or hitting, and female- and male-perpetrated kicking all loaded more heavily on the minor physical assault subscale. The minor and severe physical assault subscales were summed in accordance with the results of the factor analysis to reduce statistical overlap between indices of related behavioral domains.

Using Cronbach’s alpha, the minor FTM and MTF psychological aggression subscales yielded acceptable reliability coefficients of .72 and .76, respectively. The internal consistency estimate for severe FTM psychological aggression was .75 and was .76 for severe MTF psychological aggression. Men’s minor and severe physical assault subscales obtained estimates of .90 and .74, respectively. Reliability estimates of .88 for the minor and .76 for the severe physical assault subscales were found for women. Table 1 displays means, standard deviations, and ranges for the CTS2 subscales.

Baseline severity of substance-related problems. At the baseline assessment, all male partners were administered the Short Index of Problems (SIP; Miller et al. 1995) to assess alcohol- and drug-related problems across the life

span. The SIP is a 15-item measure designed to assess negative consequences associated with drinking or drug use; positive item endorsement indicated the presence of a given problem at some point prior to the baseline assessment. Higher scores on the SIP indicate a greater number of substance-related negative consequences, with scores ranging from 1–15, with a mean of 12.55 (*SD*=3.26). The internal consistency reliability estimate for the SIP was $\alpha=.87$. SIP scores were used in the present analysis as a measure of substance abuse problem severity.

Relationship satisfaction. Relationship satisfaction was assessed using a modified version of the Dyadic Adjustment Scale (DAS; Spanier 1976), a widely-used measure comprising 32-items in its original format. Although the full 32 items of the DAS were administered to participants, relationship satisfaction was measured using only four of the DAS items (16,18,19, and 31) that have been shown using Item Response Theory (IRT) to provide a theoretically pure assessment of satisfaction (Sabourin et al. 2005). It was important to exclude items more indicative of interpersonal process in the relationship because doing otherwise would confound the current analyses of CTS2 items (e.g., “I stomped out of the room or house or yard after a fight”) with overlapping item content in DAS items (e.g., “How often do you or your mate leave the house after a fight”).

The DAS-4 yields summed index scores ranging from 0 to 21 and achieved high coefficient alpha estimates for men and women ($\alpha=.80$ and $.83$, respectively). Men and women’s DAS-4 scores were averaged across gender to conserve statistical power. A test of equality of variance for male and female DAS-4 scores was not significant ($r=.12$, *ns*). In addition, to evaluate whether or not the relationship between DAS-4 scores and relapse differed across gender, the Williams modification of the Hotelling test was used to compare correlations between men and women’s values on the predictor and the criterion (Kenny 1987). As this analysis was not significant, $t(170)=.52$, *ns*, DAS-4 scores were averaged across male and female reports to create a single index of relationship satisfaction.⁴

Table 1 Descriptive statistics for male- and female-perpetrated aggressive behaviors (*N*=173)

Variable	Mean	SD	Range
Minor FTM ^a PSY-A ^b	12.46	5.05	0–24
Minor MTF ^c PSY-A	13.46	5.74	0–24
Severe FTM PSY-A	1.87	3.19	0–21
Severe MTF PSY-A	2.88	4.11	0–20
Minor FTM PH-A ^d	3.15	5.64	0–42
Minor MTF PH-A	2.92	5.91	0–33
Severe FTM PH-A	.32	1.64	0–18
Severe MTF PH-A	.48	1.67	0–12

^a FTM female-to-male; ^b PSY-A Psychological Aggression; ^c MTF male-to-female; ^d PH-A Physical Aggression

Procedure

The specific treatments each participant received varied and was not under experimental control, allowing for an examination of the relationship between study variables in a naturalistic treatment setting. Each male participant was asked to complete a brief screening interview to assess his

⁴ Although relationships in which a causal direction is posited are often assessed using regression weights and not the Pearson *r* correlation coefficient, using the latter is justifiable in cases where predictor variables have equal variances (Kenny et al. 2006).

eligibility for inclusion in the study. If the participant was eligible, he was asked for permission to contact his female partner for study inclusion. The female partners of consenting male participants were contacted and asked to complete a brief screening interview to assess interest in and eligibility for the study. Consenting male and female partners were administered a baseline assessment comprising the CTS, the TLFB, the SIP, and other study measures unrelated to the current analyses. Follow-up assessments of couples were conducted 6 months after the baseline assessment. Participants were given \$5 for completion of the screening measures and \$50 for each of the two full assessments.

Results

Preliminary Analyses

The data were screened prior to analysis for missing values. One and 2% of cases had missing data on particular items on the CTS2 severe psychological aggression and DAS scales, respectively. An item with missing data was regressed on the remaining items within the particular scale or subscale and predicted values were imputed.

Intercorrelations among Variables in the Regression Model

Spearman Rho correlations between study variables were computed prior to the proposed regression analysis and are presented in Table 2. It was demonstrated that higher frequencies of minor and severe FTM psychological aggression, the predictors of interest, were associated with lower relationship satisfaction, whereas only minor FTM psychological aggression significantly correlated with younger age for male participants. Severe, but not minor, FTM psychological aggression was significantly correlated with an increased likelihood of relapse. These correlations were of a small magnitude, as defined by Cohen (1988). With the exception of the association between severe FTM physical aggression and minor MTF psychological aggression, which was not significant, correlations between CTS2 subscales were all statistically significant and ranged in magnitude from small to large.

Predictive Utility of FTM Psychological Aggression for SUD Relapse

The hypothesis that minor and severe forms of female-perpetrated psychological aggression would predict unique variance in relapse was tested using hierarchical binary logistic regression. The assumptions of multicollinearity and linearity in the logit were checked prior to data analysis.

Problematic multicollinearity between CTS2 subscales was detected using the conservative Tolerance and Variance Inflation Index criteria outlined by Allison (1999). To avoid omitting CTS2 variables from the model, equality of variance tests were conducted between variables with $r_s > .70$ to determine whether they could be combined to reduce statistical redundancy. Minor MTF and FTM physical assault were combined into one variable reflecting minor dyadic physical aggression, as their respective variance estimates did not significantly differ ($r = .02$, *ns*). Similarly, variance estimates did not significantly differ across minor MTF and FTM psychological aggression, $r = -.12$, *ns*. As such, these subscales were aggregated into single variables comprising minor acts of either dyadic psychological aggression or dyadic physical aggression. This procedure successfully reduced problematic collinearity among variables. The assumption of linearity in the logit was evaluated using the Box-Tidwell approach (Hosmer and Lemeshow 1989), which indicated that the relationships between the predictor variables and the logit transform of the criteria was indeed linear.

Demographic factors including men's age and education, as well as dyadic satisfaction, baseline severity of substance use-related problems, and the total days of treatment in the 30 days prior to the baseline assessment were entered as control variables in the first block. Minor dyadic physical and psychological aggression, severe MTF psychological and physical aggression, and severe FTM physical aggression were entered in the second block. As frequencies of minor FTM psychological aggression were aggregated with minor MTF psychological aggression, only severe FTM psychological aggression was entered in to the third block of the regression model. Severe FTM psychological aggression was entered separately from the other CTS variables to assess the change in χ^2 for the model that resulted solely from the variable of interest. Prior to analysis, variables were standardized so that regression coefficients can be compared across predictors. Interpretation of standardized logistic regression coefficients is similar to the interpretation of β in ordinary least squares multiple regression (Tabachnick and Fidell 2006). Estimates of the model parameters are displayed in Table 3.

Results show that men's age, baseline severity of problems associated with substance use, and total days in treatment were significantly predictive of relapse in the first block, which was also significant. Neither the second block nor any of its constituent predictors achieved statistical significance. The third block, however, was significant and demonstrated that severe FTM psychological aggression significantly predicted an increased likelihood of relapse beyond what was previously accounted for by the control variables. Men's age, baseline severity of problems associated with substance use, and total days in treatment retained

Table 2 Two-tailed spearman rho correlations among study variables

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Men's age	–													
2. Men's education	.16*	–												
3. SIP ^a	.01	-.14	–											
4. Days in treatment	-.08	-.03	.20**	–										
5. DAS ^b	.00	.03	-.13	.11	–									
6. Minor FTM ^c PSY-A ^d	.26**	-.13	.11	.06	-.34**	–								
7. Severe FTM PSY-A	-.13	-.09	.14	-.02	-.25**	.51**	–							
8. Minor MTF ^e PSY-A	-.26**	-.22**	.15*	.06	-.35**	.76**	.44**	–						
9. Severe MTF PSY-A	-.21**	-.13	.01	.01	-.21**	.49**	.58**	.55**	–					
10. Minor FTM PH-A ^f	-.17*	-.06	.12	.10	-.20**	.44**	.54**	.41**	.47**	–				
11. Severe FTM PH-A	.02	.12	-.01	.02	-.15*	.20**	.35**	.13	.18*	.41**	–			
12. Minor MTF PH-A	-.16*	-.15*	.10	.04	-.22**	.44**	.55**	.52**	.61**	.71**	.32**	–		
13. Severe MTF PH-A	-.10	-.04	.08	.03	-.19**	.25**	.31**	.33**	.46**	.43**	.30**	.64**	–	
14. Relapse	-.24**	-.09	.27**	-.15*	-.21**	.13	.25**	.20**	.10	.09	.05	.07	.05	–

^a SIP Short Inventory of Problems; ^b DAS Dyadic Adjustment Scale; ^c FTM female-to-male; ^d PSY-A Psychological Aggression; ^e MTF male-to-female; ^f PH-A Physical Aggression
 Statistical significance is denoted as follows: * $p < .05$, ** $p < .01$ ($N = 173$)

significance in the final block, Wald $\chi^2 = 10.25$, 6.02, and 6.42, respectively, $ps < .01$.

Discussion

As noted by Hines and Malley-Morrison (2001), the majority of research exploring the consequences of FTM aggression on men has focused primarily on internalizing symptoms, as opposed to symptoms more characteristic of men such as substance abuse. Therefore, the current findings build on this important, albeit relatively limited topic by highlighting the unique predictive contribution of FTM psychological aggression to SUD relapse while controlling for several variables that would otherwise pose threats to internal validity. Specifically, it was found that severe FTM psychological aggression significantly predicted variance in SUD relapse status at the 6 month follow-up beyond what was accounted for by the effects of participant demographics, baseline levels of substance use-related problems, days in treatment, and dyadic satisfaction, as well as frequencies of other forms of aggressive dyadic behaviors. These results are consistent with previous research examining the association between dyadic variables and substance use (e.g., Tracy et al. 2005), and also adds to the literature indicating that psychological aggression contributes to the onset and maintenance of a variety of negative mental and physical health outcomes independently of physical aggression (e.g., Taft et al. 2006).

The current results not only corroborate the findings of previous research, but make two additional contributions to the existing literature. First, the results extend the relationship between FTM psychological aggression and relapse to a broader and more diverse therapy context. In particular, whereas previous research used specialized BCT treatment (Fals-Stewart and Birchler 1998; O'Farrell et al. 2000; O'Farrell et al. 2004), the current study demonstrated that higher baseline frequencies of severe FTM psychological aggression predicted higher relapse risk following more typical individual SUD treatment programs. Moreover, using a sample that is more representative of clinical populations than those obtained in previous research potentially yields findings more applicable to a treatment-as-usual context. These findings also suggest the utility of couple treatment for SUD, as problematic dyadic patterns are perhaps more efficiently treated using relationship-level interventions, and suggest that referrals for empirically-supported couple therapy, such as BCT, might be indicated given the presence of severe FTM psychological aggression in the SUD patient's interpersonal context.

Second, the current findings demonstrated the differential effects of minor versus severe FTM psychological aggression; only frequencies of severe FTM psychological

Table 3 Summary of hierarchical logistic regression analysis for variables predicting relapse

Predictor variable	β	SE β	Wald χ^2	Improvement χ^2
Block 1				30.75**
Men's age	-.64	.19	11.75**	
Men's years of education	-.07	.19	.15	
SIP ^a	.49	.19	6.68**	
Total days in treatment	-.49	.19	6.89**	
DAS ^b	-.35	.19	3.42	
Block 2				2.04
Minor Dyadic PSY-A ^c	-.04	.24	.03	
Severe MTF ^d PSY-A	.35	.29	1.48	
Minor Dyadic PH-A ^e	-.28	.30	.89	
Severe MTF PH-A	-.07	.24	.09	
Severe FTM ^f PH-A	.23	.33	.48	
Block 3				8.07**
Severe FTM PSY-A	1.06	.42	6.47*	

^a *SIP* Short Inventory of Problems; ^b *DAS Dyadic Adjustment Scale*; ^c *PSY-A Psychological Aggression*; ^d *MTF* male-to-female; ^e *PH-A Physical Aggression*; ^f *FTM* female-to-male
 Statistical significance is denoted as follows: * $p < .05$, ** $p < .01$ ($N = 173$)

aggression predicted SUD relapse. It is possible that the greater extent or intensity of severe FTM psychological aggression yielded a more sizeable effect on relapse, with these behavioral domains differing only in terms of degree. Alternatively, the difference in outcomes might indicate that minor and severe FTM psychological aggression are substantively distinct phenomena. Whereas the significant overlap in variance between minor FTM and MTF psychological aggression possibly represents the reciprocation of aggression between partners (c.f., Sabourin et al. 1993), severe FTM psychological aggression might have differed with respect to its etiological determinants (e.g., jealousy; Simonelli and Ingram 1998) or interpersonal function (e.g., social and emotional control; Kasian and Painter 1992), rendering it more similar to spousal abuse than maladaptive communication behavior. Potentially as a result of these differences, severe FTM psychological aggression accounted for variance in relapse status, whereas topographically similar, yet functionally distinct forms of minor FTM psychological aggression did not. In either case, these findings provide further evidence that minor and severe FTM psychological aggression are distinguishable behavioral domains, and that future research should assess and examine each construct separately.

It was also notable that neither minor nor severe FTM physical aggression were significantly correlated with relapse, especially given that female-perpetrated physical aggression is associated with depression, stress, somatic symptoms, and negative affectivity in men (Follingstad et al. 1991; Stets and Straus 1990). Although the cross-sectional and correlational nature of extant research makes it difficult to infer any etiological effect of physical aggression on psychological symptomatology, these studies—considered in tandem with the current results—perhaps suggest that FTM psychological and physical

aggression potentially auger different outcomes. It is alternatively possible, however, that the demonstrated association between FTM physical aggression and psychological symptoms occurs because both variables are correlated with female-perpetrated psychological aggression. Indeed, Taft et al. (2006) found that the effects of FTM physical abuse on men's symptoms of overall psychological distress were no longer significant when controlling for FTM psychological aggression, whereas FTM psychological aggression uniquely predicted this criteria when controlling for women's perpetration of physically aggressive behaviors toward their male counterparts. This finding also implicates symptoms of psychological distress as a potential mediating variable between FTM psychological aggression and SUD relapse, as increased alcohol consumption may be used to cope with or avoid unpleasant emotional or psychological states resulting from female-perpetrated acts of psychological aggression (e.g., Wills and Schiffman 1985). This contention is further supported by findings that reducing negative affect is a commonly reported reason for alcohol use by abusers in treatment (Woody et al. 1992), and for relapse by individuals recovering from alcoholism (Marlatt and Gordon 1980).

Despite their potential clinical and theoretical significance, the current findings should be interpreted in light of at least three notable methodological limitations. First, given evidence that the association between predictor variables and treatment outcomes varies across definitions of relapse (for a review, see McKay et al. 2006), it is uncertain whether the pattern of results in the present study would differ if an alternative operational definitions of SUD outcomes were used. Second, participants were tracked for a relatively short period of time; therefore, it is not possible to ascertain the consistency of the predictive association

between severe FTM psychological aggression and relapse beyond the assessment interval. Finally, the substance abuse treatment varied in its intensity and content and was not under experimental control. However, in a naturalistic study such as this, variation in amount of treatment received can enhance variability in outcome, and approximate the “real world” in which the type and intensity of treatment varies considerably from patient to patient even within the same treatment center.

These limitations notwithstanding, the current findings make a significant contribution to the literature on SUD relapse and the burgeoning evidence implicating dyadic factors in post-treatment outcomes. Moreover, highlighting the impact of severe FTM psychological aggression might increase awareness of, and subsequently encourage continued research on this relatively neglected topic. In regards to future study, it is likely that examining potential mechanisms by which severe FTM psychological aggression increases risk for relapse will prove fruitful in refining both theory and intervention. Furthermore, although these data suggest that interventions specifically targeting severe FTM psychological aggression might be useful, the efficacy of increasing therapeutic emphasis on these behaviors is currently unknown. Therefore, the current findings also provide the empirical foundation for future research to examine the incremental utility of such interventions.

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