


2007

# Risk Markers Associated with Physical and Psychological Abuse by Intimate Partners Against Women in Substance Abuse Treatment

Scott J. Buchanan  
*Seton Hall University*

Follow this and additional works at: <https://scholarship.shu.edu/dissertations>

 Part of the [Clinical Psychology Commons](#), [Substance Abuse and Addiction Commons](#), and the [Women's Studies Commons](#)

---

## Recommended Citation

Buchanan, Scott J., "Risk Markers Associated with Physical and Psychological Abuse by Intimate Partners Against Women in Substance Abuse Treatment" (2007). *Seton Hall University Dissertations and Theses (ETDs)*. 1404.  
<https://scholarship.shu.edu/dissertations/1404>

RISK MARKERS ASSOCIATED WITH PHYSICAL AND PSYCHOLOGICAL ABUSE  
BY INTIMATE PARTNERS AGAINST WOMEN IN  
SUBSTANCE ABUSE TREATMENT

BY

SCOTT JAMES BUCHANAN

Dissertation Committee

Robert F. Massey, Ph.D., Mentor

Sharon Davis Massey, Ph.D.

Karen C. Rhines, Ph.D.

Submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy  
Seton Hall University  
2006

## ABSTRACT

### RISK MARKERS ASSOCIATED WITH PHYSICAL AND PSYCHOLOGICAL ABUSE BY INTIMATE PARTNERS AGAINST WOMEN IN SUBSTANCE ABUSE TREATMENT

SCOTT JAMES BUCHANAN

Many women entering substance-abuse treatment report domestic violence victimization. Leonard (1993) suggested this violence reflects interpersonal conflicts when a woman abuses alcohol but her partner does not. Kaufman-Kantor and Asdigian (1997a) argued instead that substance-abusing women often have partners who are also substance abusers and therefore more violent. Correlations with partner substance abuse, dyadic adjustment, and other variables were examined in terms of physical and psychological abuse during the past year against 135 adult heterosexual women who were in substance-abuse treatment. Anonymous volunteers completed a demographic questionnaire, the Brief Marlowe-Crowne Social Desirability Scale (Reynolds, 1982), the Dyadic Adjustment Scale, (Spanier, 1976), the Short Michigan Alcohol Screening Test (Selzer, Vinokur, & Rooijen, 1975), the Drug Abuse Screening Test (Skinner, 1982), and the Abusive Behavior Inventory (Shepard & Campbell, 1992). Separate post-hoc analyses were conducted with 17 lesbian respondents.

The incidence of physical abuse correlated significantly with lower socially desirable responding, elevated partner alcohol and drug abuse, elevated respondent drug abuse, lower dyadic adjustment, lower socioeconomic level, unwed marital status, lower partner and respondent age, and respondent childhood emotional and physical

abuse. Sequential logistic regression revealed elevated partner alcohol and drug abuse, lower dyadic adjustment, and lower respondent age were significant multivariate predictors.

Among respondents reporting physical abuse, higher frequency abuse was significantly correlated with elevated partner alcohol and drug abuse, lower dyadic adjustment, and respondent and partner ethnicity. Ordinal regression analysis found elevated partner alcohol abuse, lower dyadic adjustment, and partner ethnicity were multivariate predictors.

The incidence of psychological abuse was significantly correlated only with lower dyadic adjustment.

Among respondents reporting psychological abuse, higher frequency abuse was significantly correlated with elevated partner alcohol and drug abuse, elevated respondent alcohol abuse, lower dyadic adjustment, and respondent childhood emotional abuse. Ordinal regression analysis found only lower dyadic adjustment and partner drug abuse were significant multivariate predictors.

Interpersonal dynamics and partner substance abuse emerged as key predictors of partner physical and psychological abuse suggesting these issues need to be addressed for screening and treatment to be more effective. Safety planning and implications for marital interventions with violent, substance-abusing couples are discussed.

SETON HALL UNIVERSITY  
COLLEGE OF EDUCATION AND HUMAN SERVICES  
OFFICE OF GRADUATE STUDIES

APPROVAL FOR SUCCESSFUL DEFENSE

Doctoral Candidate, **Scott Buchanan**, has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ph.D.** during this **Summer Semester 2006**.

DISSERTATION COMMITTEE  
(please sign and date beside your name)

Mentor:

Dr. Robert Massey Robert D. Massey, Ph.D. 8/31/06

Committee Member:

Dr. Sharon Davis-Massey Sharon Davis Massey, Ph.D. 4/27/06

Committee Member:

Dr. Ben Beitin Ben Beitin 6/27/06 Reader

Committee Member:

Dr. Henry Schreitmuller Henry Schreitmuller EdM Reader 6/27/06

Committee Member:

Dr. Karen Rhines Karen Rhines 06/27/06

Associate Dean:

[Signature]

The mentor and any other committee members, who wish a review to recommend revision, will sign and date this document only when revisions have been completed. Please return this form to the Office of Graduate Studies, where it will be placed in the candidate's file.

## ACKNOWLEDGMENTS

Many people have made significant contributions to this research project in both direct and indirect ways. First, I need to thank my mentor Dr. Robert F. Massey for his guidance and feedback throughout this process. His dedication to his students amazes me and serves as a model to be emulated. I would also like to thank Dr. Adriana Dunn, Dr. Sharon Davis Massey, Dr. Karen Clay Rhines, Dr. Ben Beitin, Dr. Henry Schreitmueller, and Dr. Mary Ruzicka. Each provided thoughtful feedback which enhanced the design of the study.

I need to thank my parents Marolyn and Jim Buchanan for all their love and encouragement over the years. They taught us to find a meaningful path that contributes to the greater good. My sister's strength-of-character and commitment to her children as she has overcome an abusive relationship has also been an inspiration.

Many other friends and family, not to mention our kids, have added their support during this project. My brother Dan, Paul and Jeffrey Hartt, Dorothy Berlind, my whole clan of in-laws, Dr. Greg Estadt and Dr. Yuci Tan, to name just a few, all believed this would come to fruition when I was not so sure.

Finally, I thank my incredible wife Kay-Marie. She copied articles at the library, purchased paper and ink, engaged in thoughtful debate, checked grammar, and helped proof-read time and time again. How did I get lucky enough to find such a loving and gifted partner to share this mysterious journey?

## DEDICATION

This study is dedicated to the many victims of domestic violence, particularly those anonymous volunteers who were brave enough to revisit their personal experiences of violence and emotional abuse to make this research possible. The project would also not have come together without the therapists who went out of their way to facilitate the data collection while helping these clients recover and move forward. I hope the findings can improve our treatment efforts in the future.

*Hazard Zet Forward*

## TABLE OF CONTENTS

ACKNOWLEDGMENTS.....	iii
DEDICATION.....	iv
LIST OF TABLES.....	viii
LIST OF FIGURES.....	x
I INTRODUCTION.....	11
II LITERATURE REVIEW.....	18
Risk Markers for Partner Psychological Abuse.....	20
Risk Markers for Partner Physical Abuse.....	23
Partner Substance Abuse as a Risk Marker.....	25
Female Substance Abuse as a Risk Marker.....	27
Substance Abuse Patterns of the Couple as a Risk Marker.....	30
Socioeconomic Resources as a Risk Marker.....	35
Relationship Adjustment as a Risk Marker.....	37
Marital Status as a Risk Marker.....	39
Socially Desirable Responding.....	41
Questions to be Addressed.....	43
Conceptual Frameworks to be Assessed.....	46
Statements of Primary Hypotheses.....	46
III METHODOLOGY.....	50
Method of Recruitment.....	51
Independent Predictor Measures.....	52
Socially Desirable Responding.....	52
Respondent Alcohol-Related Problems.....	54
Partner Alcohol-Related Problems.....	58
Respondent Drug-Related Problems.....	60
Partner Drug-Related Problems.....	62
Socioeconomic Resources.....	63
Relationship Adjustment.....	64
Marital Status.....	66
Dependent Criterion Measures.....	67
Partner Physical Abuse Incidence.....	67
Partner Physical Abuse Frequency.....	67



	Partner Psychological Abuse Incidence.....	68
	Partner Psychological Abuse Frequency.....	68
	Procedure.....	71
	Power and Sample Size.....	72
	Plan for Analysis of Data.....	73
	Methodological Limitations.....	78
IV	RESULTS.....	80
	Full-Sample Profile.....	81
	Training-Sample Profile.....	94
	Incidence of Partner Violence.....	99
	Univariate Correlations.....	99
	Partial Correlations.....	102
	Logistic Regression Model.....	105
	Cross-Validation.....	112
	Frequency of Partner Violence.....	112
	Univariate Correlations.....	112
	Partial Correlations.....	119
	Ordinal Regression Model.....	121
	Cross-Validation.....	131
	Secondary Analysis - Caucasians and African-Americans.....	131
	Univariate Correlations.....	133
	Ordinal Regression Model.....	133
	Cross-Validation.....	140
	Incidence of Partner Emotional Abuse.....	142
	Univariate Correlations.....	142
	Partial Correlations.....	144
	Logistic Regression Model.....	144
	Cross-Validation.....	149
	Frequency of Partner Emotional Abuse.....	149
	Univariate Correlations.....	149
	Partial Correlations.....	152
	Ordinal Regression Model.....	155
	Cross-Validation.....	162
V	DISCUSSION.....	164
	Interpretation of Results.....	171
	Social Desirability.....	171
	Partner Physical Abuse.....	173
	Partner Emotional Abuse.....	174

Relationship Adjustment.....	176
Demographic Predictors.....	178
Respondent Substance Abuse.....	182
Partner Substance Abuse.....	183
Theoretical Implications.....	183
Treatment Implications and Approaches.....	185
Study Limitations and Recommendations.....	194
Conclusion.....	197
References.....	201

Appendix A: BDAP Letter-of-Solicitation.....	231
Appendix B: Treatment Provider Letter-of-Solicitation.....	240
Appendix C: BDAP and Provider Endorsement Letters.....	248
Appendix D: Guidelines and Script for Agency Staff.....	253
Appendix E: Study Participant Consent Form.....	260
Appendix F: Demographic/Background Information.....	269
Appendix G: Brief Marlowe-Crowne Social Desirability Scale.....	274
Appendix H: Revised Dyadic Adjustment Scale.....	276
Appendix I: Abusive Behavior Inventory-Partner Form.....	279
Appendix J: Short Michigan Alcohol Screening Test.....	282
Appendix K: Drug Abuse Screening Test-20.....	284
Appendix L: Short Michigan Alcohol Screening Test-Sig. Other.....	286
Appendix M: Drug Abuse Screening Test-20-Significant Other.....	288
Appendix N: Domestic Violence Informational Handout.....	291
Appendix O: Lesbian Subsample Analyses.....	295
Appendix P: Cohabitation and Marriage as Combined Risk Marker..	302
Appendix Q: Emotional Abuse as Predictor for Physical Abuse.....	305
Appendix R: Partner Substance Abuse as Grouping Variable.....	308

## LIST OF TABLES

1. Full-Sample Occupational Profile.....	83
2. Full-Sample Ethnic Representation.....	85
3. Full-Sample Profile of Hypothesized Predictors.....	87
4. Full-Sample Profile of Respondent Substance Abuse.....	90
5. Full-Sample Profile of Partner Substance Abuse.....	92
6. Training and Evaluation Sample Comparison- Demographic Variables.....	95
7. Training and Evaluation Sample Comparison- Hypothesized Variables.....	97
8. Training and Evaluation Sample Comparison- Dependent Variables.....	98
9. Hypothesized Correlations with Incidence of Partner Violence...	101
10. Correlations Between the Incidence of Partner Violence and Demographic Variables.....	103
11. Partial Correlations Between the Incidence of Partner Violence and Significant Bivariate Predictors.....	104
12. Initial Logistic Regression for Incidence of Partner Violence.....	107
13. Final Logistic Regression for Incidence of Partner Violence.....	110
14. Predicted versus Actual Incidence of Partner Violence for the Evaluation Sample.....	113
15. Correlations between the Logarithm of the Frequency of Partner Violence and Hypothesized Predictors.....	116
16. Correlations between the Logarithm of the Frequency of Partner Violence and Demographic Variables.....	118
17. Partial Correlations between the Logarithm of the Frequency of Partner Violence and Significant Bivariate Predictors.....	120
18. Initial Ordinal Regression for Frequency of Partner Violence.....	123
19. Final Ordinal Regression for Frequency of Partner Violence.....	126
20. Cross-Validation Sample Confusion Matrix for Frequency of Partner Violence.....	132
21. Initial Ordinal Regression for Frequency of Partner Violence (African American and Caucasian Partners only).....	134
22. Final Ordinal Regression for Frequency of Partner Violence (African American and Caucasian Partners only).....	137
23. Hypothesized Correlations with the Incidence of Partner Emotional Abuse.....	143
24. Demographic Correlations with the Incidence of Partner Emotional Abuse.....	145
25. Logistic Regression - Incidence of Partner Emotional Abuse.....	147

26. Correlations Between the Frequency of Partner Emotional Abuse and Hypothesized Predictors.....	151
27. Correlations Between the Frequency of Partner Emotional Abuse and Demographic Variables.....	153
28. Partial Correlations between the Frequency of Partner Emotional Abuse and Hypothesized Predictors.....	154
29. Initial Ordinal Regression for Partner Emotional Abuse Frequency.....	156
30. Final Ordinal Regression for Partner Emotional Abuse Frequency.....	159
31. Cross-Validation Sample Confusion Matrix for Frequency of Partner Emotional Abuse.....	163
32. Summary of Univariate and Multivariate Correlates.....	165

## LIST OF FIGURES

1.	Leonard's Heuristic Model of Alcohol and Marital Aggression.....	13
2.	Hypothesized Model for Predicting Physical and Psychological Abuse Against Female Substance Abusers.....	16
3.	Receiver Operating Curve - Incidence of Partner Violence.....	114
4.	Receiver Operating Curve - Frequency of Partner Violence.....	130
5.	Receiver Operating Curve - Frequency of Partner Violence (African American and Caucasian Partners only).....	141
6.	Receiver Operating Curve - Incidence of Partner Emotional Abuse.....	148
7.	Receiver Operating Curve - Frequency of Partner Emotional Abuse.....	161

## CHAPTER I

### Introduction

Each year in the United States over 900,000 women experience domestic violence with half suffering injury as a result (Rennison & Welchans, 2000). Unfortunately, many women do not readily disclose physical and psychological abuse from their intimate partners, often out of fear or shame (Browne, 1991; Keller, 1996). Risk markers associated with an increased probability of partner physical and nonphysical abuse have been sought to help identify those at greatest risk (Hotaling & Sugarman, 1990; Schumacher, Slep, & Heyman, 2001) and to enhance treatment interventions on their behalf (Hotaling and Sugarman, 1984, 1986, 1990; Pagelow, 1984; Sedlak, 1988; Sugarman & Hotaling, 1989; Violence Against Women Act, 1994).

Female substance abusers have been identified as a group at particularly high risk for domestic violence with approximately 65% of women seeking treatment for substance abuse reporting a history of physical assaults from their male partners (Bergman, Larsson, Brismar, & Klang, 1989; Chase, O'Farrell, Murphy, Fals-Stewart, & Murphy, 2003; Haver, 1987; Swift, Copeland, & Hall, 1996). Although partner violence may be a precipitating factor leading women to seek treatment for their own substance abuse (Downs, Miller, & Panek, 1993), most substance-abuse programs focus almost exclusively on the woman's drug and alcohol abuse issues and fail to adequately assess or address her experience

of domestic violence and psychological abuse (Bennett & Lawson, 1994; Collins, Kroutil, Roland, & Moore-Gurrera, 1997; Gondolf & Foster, 1991; Gustafson & Scott, 2000). Outcome studies have also shown female substance abusers frequently remain in these violent relationships during and after treatment, which often leads to re-victimization and relapse to substance abuse (Bollerud, 1990; Haver, 1987; Hien & Levin, 1994; Miller, 1998; North, Thompson, Smith, & Kyburz, 1996; Root, 1989; Yaffe, Jenson, & Howard, 1995).

Since most risk-marker analyses for domestic violence and psychological abuse have drawn on samples from shelters for abused women or general-population surveys without regard to the woman's substance abuse issues (Hotaling & Sugarman, 1986, 1990; Pagelow, 1984; Sedlak, 1988; Sommer, Barnes, & Murray, 1992; Sugarman & Hotaling, 1989), relatively little is known about the risk markers specifically associated with partner violence and psychological abuse against female substance abusers or the underlying factors that might be contributing to their particularly high rates of victimization (Brady, Killeen, Saladin, Dansky, & Becker, 1994; Chase et al., 2003; Kaufman-Kantor, 1993; Schumacher, Slep, & Heyman, 2001). The present study has sought to address this gap.

Leonard (1993) has proposed one of the few theoretical models connecting female substance abuse with domestic violence. In his heuristic model, (see Figure 1), the drinking patterns of both partners in a relationship are considered along with the way their patterns might interact to produce chronic conflicts as well as acute situations which can contribute to violence. Based on

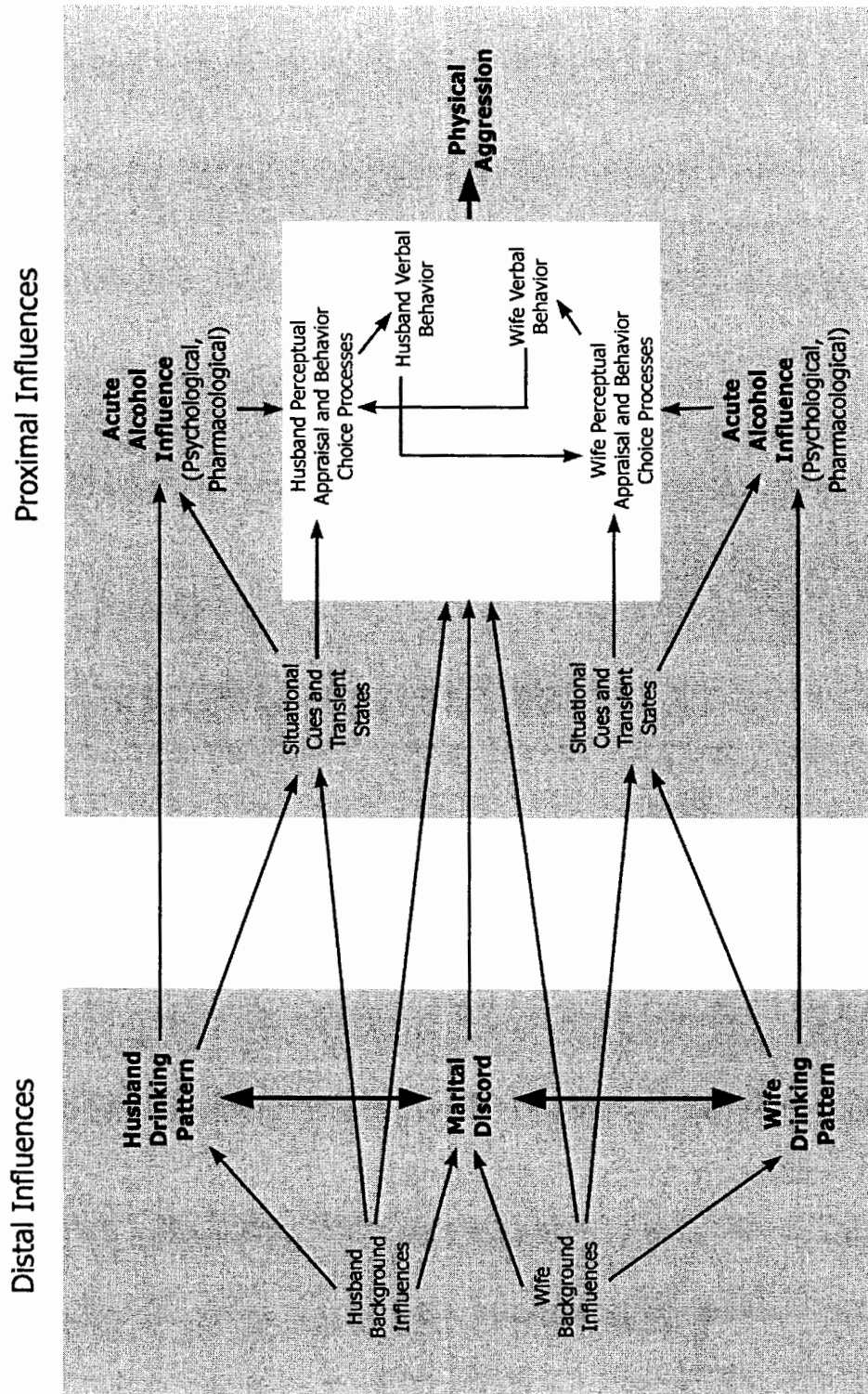


Figure 1. Leonard Heuristic Model of Alcohol and Marital Aggression



such a systemic, interactive model, Leonard suggested domestic violence against alcohol-abusing women might stem from friction and conflict when a woman abuses alcohol, but her male partner does not. Leonard has referred to this configuration, when one of the marital partners is a substance abuser while the other is not, as "discrepant substance use" (Mudar, Leonard, & Soltysinski, 2001).

Kaufman-Kantor and Asdigian (1997a; 1997b), on the other hand, have proposed that female substance abusers experience high rates of domestic violence because their male partners, rather than being temperate (Leonard, 1993), are often substance abusers themselves (Bergman et al., 1989; Jacob & Bremer, 1986; Miller, 1992) who tend to be violent as a consequence (Greenfeld, 1998; von der Pahlen, Ost, Lindfors, & Lindman, 1997). From this perspective, her male partner's substance abuse, rather than the woman's substance abuse per se, may be the critical factor mediating the strong relationship between female substance abuse and domestic violence (Brewer, Fleming, Haggerty, & Catalano, 1998).

While substance-abuse patterns of the male partner, particularly alcohol abuse, have been associated with intimate violence against women in general-population and domestic-violence surveys (Coker, Smith, McKeown, & King, 2000; Hotaling & Sugarman, 1986, 1990; Kyriacou et al., 1999), alcohol- and drug-abuse patterns of the male partner have received very little attention as risk markers for domestic violence and psychological abuse against female substance abusers (Kaufman-Kantor & Asdigian, 1997a, 1997b; Kilpatrick,

Acierno, Resnick, Saunders, & Best, 1997).

The present study was designed to examine partner alcohol- and drug-abuse problems as predictors of the incidence and frequency of partner physical and psychological abuse against women in treatment for substance abuse. In addition, the severity of the alcohol and drug abuse of the female respondent, the socioeconomic resources of the couple, their relationship adjustment (as described by the female respondent), and their current marital status were also evaluated. These last three variables were the risk markers most consistently found to be associated with domestic violence against women in analyses of general population surveys (Hotaling & Sugarman, 1986, 1990). A social-desirability measure was also incorporated as a check against potential response bias (Crowne & Marlowe, 1960; Sugarman & Hotaling, 1997; Szinovacz, 1983).

It was hoped that a multivariate model (see Figure 2) examining socially desirable responding as a control against response bias, the partner's alcohol- and drug-abuse problems, the respondent's alcohol- and drug-abuse problems, the socioeconomic resources of the couple, their relationship adjustment as reported by the female respondent, and their current marital status would provide a means of identifying those women in treatment for substance abuse who are at greatest risk for physical and psychological abuse from their male partners.

If partner alcohol- and drug-use patterns, whether temperate (Leonard, 1993) or substance-abusing (Kaufman-Kantor & Asdigian, 1997b), represent

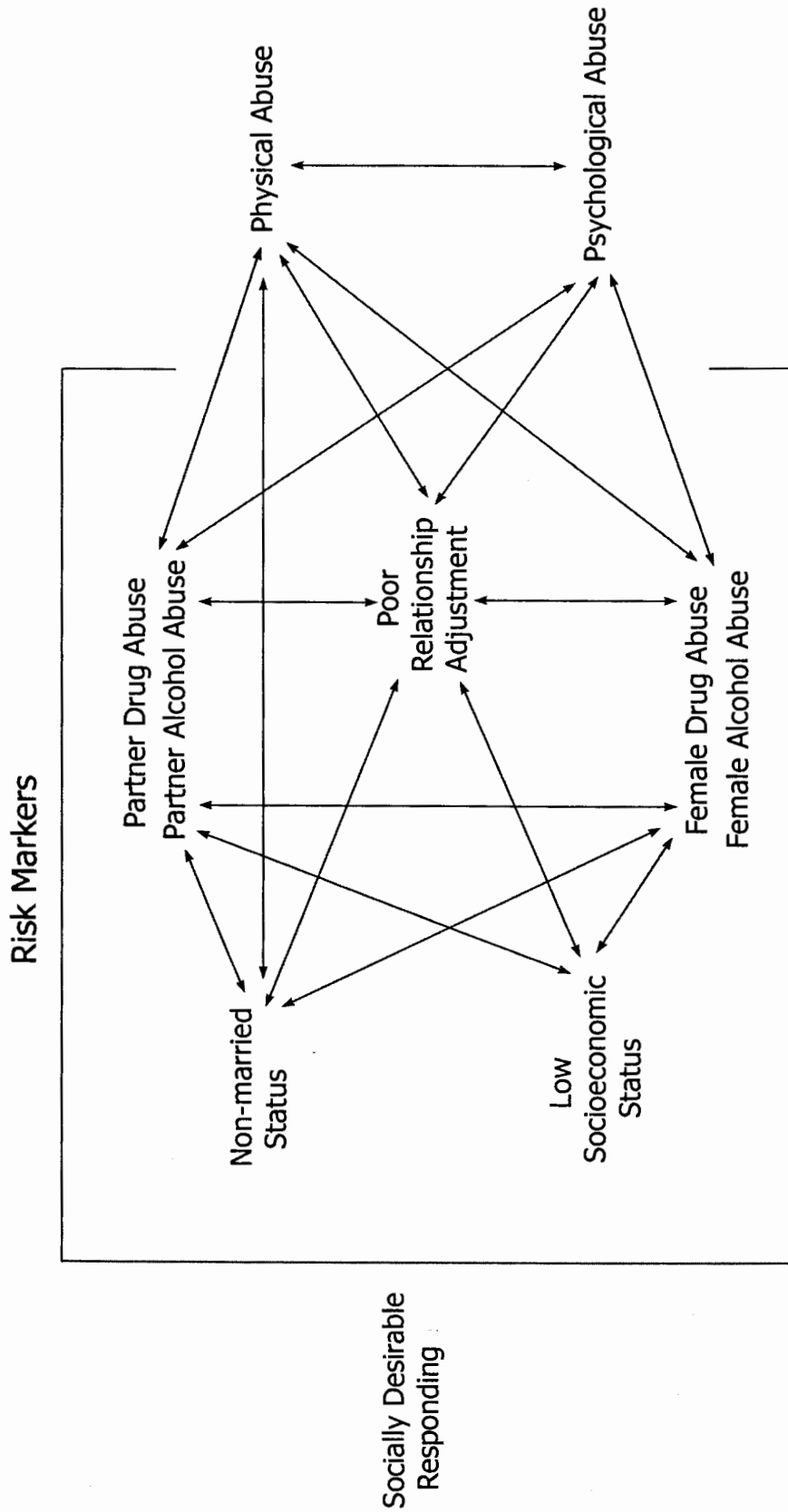


Figure 2. Hypothesized Model for Predicting Physical and Psychological Abuse Against Female Substance Abusers

significant risk markers for partner physical and psychological abuse, this could shed light on the volatile interpersonal dynamics operating within these high-risk couples and allow more effective screening and treatment interventions to be developed. Addressing the substance abuse of the partner and the interaction of the couple could improve treatment efficacy and potentially reduce the physical and psychological victimization and relapse among female substance abusers (Jones, Ji, Beck, & Beck, 2002).

## CHAPTER II

### Literature Review

Women in substance-abuse treatment describe extremely high rates of domestic violence and psychological abuse (Bergman et al., 1989; Downs et al., 1993; Swift et al., 1996), comparable with the rates of assault reported by women entering shelters for victims of domestic violence (Miller, 1998). Bergman et al. (1989) interviewed a group of 49 women seeking help for alcoholism and found 65% had been physically assaulted at least once by their male partners. Of these assaulted women, 85% had been victimized more than once, 50% had been seriously injured, and 63% had sought medical treatment for their injuries. Half of these abused female substance abusers had also been in more than one violent relationship.

Swift, Copeland, and Hall (1996) also interviewed 267 women with a history of substance abuse from a variety of sources--43% from outpatient and 39% from inpatient substance-abuse treatment settings, 11% from self-help groups, and 7% who were not involved in any type of organized recovery program. From this sample, 128 women were married, cohabiting, or currently involved in a romantic relationship with a male partner and 63% of this subgroup reported a history of physical assaults from their partner.

Downs, Miller, and Panek (1993) also assessed a group of 32 women from Alcoholics Anonymous and 13 women from outpatient substance-abuse

treatment programs and found 52% had been the victims of severe physical assault from past male partners.

Haver (1986a; 1986b; 1987) conducted one of the few studies to examine the relationship between domestic violence and substance-abuse treatment outcomes in a follow-up survey of 44 women who had sought help for alcoholism an average of 6.5 years earlier. Sixty-four% of these women had been physically abused by their male partner either before or after treatment. Having a violent male partner after treatment was also the strongest predictor of a woman's relapse to substance abuse with a correlation of 0.51, significant at the .001 level. Twenty percent of the women who were living with a male partner at follow-up were still in relationships that continued to be violent.

Unfortunately, very little research has been conducted on the specific risk markers associated with partner physical and psychological abuse against female substance abusers or the underlying factors within their relationships that might be contributing to these high levels of victimization (Bennett & Lawson, 1994; Kaufman-Kantor, 1993; Kaufman-Kantor & Jasinski, 1998). The research on risk markers associated with partner psychological and physical abuse has generally been based on the results of general population surveys or samples of abused women in shelters without regard for the substance abuse of the women. The research results based on general population and domestic violence shelter samples of women will be examined next and may shed light on the dynamics of physical and psychological abuse against female substance abusers.

### *Risk Markers for Partner Psychological Abuse*

Partner psychological abuse has generally received very little attention by researchers (Arias & Pape, 1999; Henning & Klesges, 2003), with almost no exploration of risk markers predictive of psychological abuse by the male partner (Gondolf, Heckert, & Kimmel, 2002; Schumacher et al., 2001).

Definitions of partner psychological abuse show considerable variability (O'Leary, 1999; Schumacher et al., 2001). Most studies have emphasized verbal and psychological aggression during acute episodes of interpersonal conflict (Straus, 1979; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Tolman (1989; 1999) and others (Hamby, 1996; Marshall, 1992, 1999; Shepard & Campbell, 1992) have instead focused on more chronic and pervasive nonverbal aspects of psychological abuse. Marshall (1999) has differentiated between obvious, overt, and subtle forms of psychological abuse. According to this formula, obvious psychological abuse includes verbal aggression and controlling or dominating behaviors easily recognizable as hurtful by an outside observer. Overt psychological abuse includes indifference as well as monitoring and discrediting behaviors. While these overt behaviors might not be apparent to an outside observer, the intended recipient can usually recognize the inherent negative messages. Subtle psychological abuse is defined to include undermining, discounting, or depersonalizing behaviors and comments which can go unrecognized by the recipient and even by the perpetrator. According to Marshall, these subtle forms of psychological abuse are perhaps the most damaging since subtle negative messages are harder for both parties to

recognize as derogatory or debasing and are consequently more difficult for the recipient to psychologically defend against. O'Leary (1999) has defined partner psychological abuse more broadly by combining these different perspectives as "any acts of recurring criticism and/or verbal aggression, and/or acts of isolation and domination . . . which cause the partner to be fearful of the other or lead the partner to have very low self-esteem" (p. 19).

Research into partner psychological abuse is also complicated by the psychological impact of concurrent physical abuse (Follingstad, Rutledge, Berg, & Hause, 1990; O'Leary & Jouriles, 1994). Few women report experiencing physical abuse without also reporting psychological abuse by their male partner (Aguilar & Nightingale, 1994; Henning & Klesges, 2003; Marshall, 1996; Stets, 1990). Even when there is no specific psychological abuse, partner violence can carry powerful psychological ramifications, including traumatic stress (Arias & Pape, 1999; Dutton, Goodman, & Bennett, 1999; Walker, 1984, 2000). Verbal threats of violence also represent an important overlap between physical and psychological abuse. In a factor-analysis using the Abusive Behavior Inventory with a sample of 100 male substance abusers and 78 of their wives, Shepard and Campbell (1992) reported three items concerning threats of physical violence unexpectedly loaded more strongly with the physical abuse factor than the psychological abuse factor. This relationship has also been observed in other studies which have shown verbal threats of violence by the male partner are common precursors of later physical violence (Follingstad et al., 1990; O'Leary, 1988). Indirect forms of physical abuse such as destruction of pets and property



(Ascione, Weber, & Wood, 1997; Sakett & Saunders, 1999) and child abuse by the male partner (Rhodes, 1992; Rodenburg & Fantuzzo, 1993) can also have significant psychological repercussions.

Another reason for the paucity of research on partner psychological abuse may be the wide-spread assumption that partner physical abuse is generally more damaging to the victim than is psychological abuse (Arias & Pape, 1999; O'Leary, 1999). While severe partner violence and homicide are obviously important concerns, such extreme assaults are not the norm and most violent couples report only more moderate levels of physical assault (O'Leary & Jouriles, 1994; Straus & Gelles, 1990). Women who have experienced both physical and nonphysical abuse from their male partner frequently describe psychological abuse as more damaging to their relationship (Aguilar & Nightingale, 1994; Follingstad et al., 1990; Walker, 1984, 2000) and more destructive for their sense-of-self than physical abuse (Marshall, 1996, 1999).

Jacobson, Gottman, Gortner, Berns, and Shortt (1996) demonstrated the need for treatment providers to pay more attention to psychological abuse in a study of the male partners of 45 battered women over a 24-month period following violence-abatement counseling. Even though physical assaults had been curtailed, nonphysical, psychological abuse continued or even increased. Henning and Klesges (2003) have recently called for treatment providers to begin assessing partner psychological abuse and not just partner physical abuse among battered women seeking help.

Psychological abuse may also help explain why many women lack the

emotional resources to escape an ongoing, physically-abusive relationship (Arias & Pape, 1999; Marshall, 1996) and show a tendency to blame themselves for physical abuse from their partners (O'Neill & Kerig, 2000; Strube & Barbour, 1983; Walker, 1979). Psychological abuse may also be an important trigger for relapse among female substance abusers (Arias, Street, & Brody, 1996; Haver, 1986b).

#### *Risk Markers for Partner Physical Abuse*

Hotaling and Sugarman (1984; 1986), Pagelow (1984), and Sedlak (1988) each reviewed the research literature on risk markers associated with domestic violence against women in the general population. All four of these reviews identified high levels of relationship conflict and being unmarried (i.e., divorced, separated, or cohabiting) as the two most consistent risk markers for domestic violence. Since these four reviews differed with regard to several other risk markers, Hotaling and Sugarman (1990) went on to conduct a secondary factor-analysis to determine the relative strength of potential risk markers and the extent to which these risk markers might overlap in the prediction of domestic violence. This secondary analysis still represents the most comprehensive factor-analytic evaluation of risk makers for domestic violence to date (Kaufman-Kantor & Asdigian, 1997b).

Based on the reports of 699 female respondents to the National Family Violence Survey (Straus, Gelles, & Steinmetz, 1980), a nationally-representative general-population sample, this secondary factor-analysis included the following

14 potential risk markers for domestic violence: (a) educational level of the wife higher than her husband, (b) religious participation of the wife greater than her husband, (c) low occupational prestige of the husband, (d) low family income, (e) low husband income, (f) low husband self-esteem, (g) low wife self-esteem, (h) high relationship conflict, (I) high frequency of husband drunkenness, (j) high level of sex-role traditionalism within the couple, (k) high frequency of the wife's father hitting her mother, (l) high frequency of the wife's mother hitting her father, (m) high frequency of the wife's father using physical punishment against her during her childhood, and (n) high frequency of the wife's mother using physical punishment against her during childhood. Marital status was not included since only married or cohabiting couples were part of the original survey. The female respondent's alcohol and drug abuse was also not assessed in the secondary factor-analysis since this issue was not explored in the original survey.

A varimax rotation revealed six latent factors identified by Hotelling and Sugarman (1990) as: (a) low socioeconomic status, (b) high frequency of experiencing physical violence as a child, (c) low self-esteem, (d) high frequency of witnessing physical violence as a child, (e) heightened relationship conflict, and (f) status disparities between partners. These factors were subsequently examined using a four-group ANOVA comparing female respondents who reported: (a) no violence, (b) verbal aggression only, (c) minor physical violence only, and (d) any severe physical violence. Only two of these factors, low socioeconomic status and heightened relationship conflict, significantly

differentiated respondents reporting severe violence from those reporting no violence or verbal aggression only. Hotaling and Sugarman (1990) found the specific variables loading most strongly on the low socioeconomic status factor were "low family income" (0.93) followed closely by "low husband income" (0.83) while the strongest variables loading on the heightened relationship conflict factor were "high marital conflict" (0.45) and "high frequency of husband drunkenness" (0.55).

These results coincide with a more recent multivariate analysis (Kyriacou et al., 1998) which examined risk factors for injury resulting from domestic violence in a sample of 256 women seen in eight hospital emergency rooms in comparison with 659 women seen in the same emergency rooms for medical problems unrelated to domestic violence. Significant risk factors (as reported by the female respondent) included partner alcohol abuse (with an adjusted relative risk of 3.6), partner drug abuse (adjusted relative risk of 3.5), intermittent employment of the male partner (adjusted relative risk of 3.1), recent partner unemployment (adjusted relative risk of 2.7), and less than a high-school education for the male partner (adjusted relative risk of 2.5), and the male being a former or estranged husband or boyfriend rather than a current companion (adjusted relative risk of 3.5). Unfortunately, as often happens, the substance-abuse patterns of the women were not reported.

#### *Partner Substance Abuse as a Risk Marker*

Partner substance abuse has been identified as one of the most consistent

risk markers for violence against women in general-population and domestic-violence-shelter surveys (Hamberger & Hastings, 1990; Jasinski & Williams, 1998; Kaufman-Kantor & Straus, 1989). While most research has focused on partner alcohol abuse, more recent studies have also found partner violence to be associated with partner drug abuse (Amaro, Fried, Cabral, & Zuckerman, 1990; Bennett, Tolman, Rogalski, & Srinivasaraghavan, 1994), particularly when alcohol and drugs are both used (Fagan, Barnett, & Patton, 1988; Goldstein, Belluci, Spunt, & Miller, 1989).

Many theoretical explanations have been put forward to account for the link between partner substance abuse and partner domestic violence ranging from pharmacological "disinhibitory" effects (Gelles, 1974) to learned expectancies regarding substance abuse and violence (Kaufman-Kantor, 1993). Taylor and Chermak (1993) have pointed out that substance abuse impairs cognitive functioning which results in distorted interpersonal perceptions and attributions, miscommunication between partners, and poor consequential thinking all of which can set the stage for violence in the home. Substance abuse may also serve as a chronic source of conflict between partners which can result in arguments which escalate to violence, especially during periods of intoxication (Berenson, 1976; Frieze & Schafer, 1984; Sugarman & Hotaling, 1989).

In terms of psychological abuse, Gondolf, Heckert, and Kimmel (2002) examined risk markers among 840 male batterers in violence-abatement treatment and reported heavy drinking by the male partner was not a significant predictor of nonphysical abuse during the 15-month followup. In addition, abuse

in the partner's family-of-origin, previous antisocial behaviors by the partner, and all demographic variables failed to predict ongoing post-treatment psychological abuse by the male batterer. Only prior nonphysical abuse, severe physical abuse, and treatment dropout were associated with ongoing psychological abuse.

Similarly, Margolin, John, and Foo (1998) evaluated risk factors for husband-to-wife physical and psychological abusiveness in 175 couples from the community and partner alcohol abuse again did not discriminate those men who were psychologically abusive from those who were not.

Henning and Klesges (2003), on the other hand, interviewed a sample of 3,370 women who had sought help from the criminal justice system following an episode of domestic violence and did find a significant relationship between partner substance abuse and partner psychological abuse.

#### *Female Substance Abuse as a Risk Marker*

Hotaling and Sugarman (1986) identified three empirical studies (K. Coleman, Weinman, & Hsi, 1980; Semmelman, 1982; Stark, Flitcraft, Zuckerman, Gray, Robinson, & Frazier, 1981) in their empirical review suggesting a relationship between drug abuse by women and domestic violence, but two other studies (Shields & Hanneke, 1983; Star, 1978) showed no relationship between female drug abuse and domestic violence. As a result, Hotaling and Sugarman (1986) categorized female drug abuse as an inconsistent risk maker for domestic violence because of this discrepancy. Based on the same review of the empirical literature, female alcohol use was termed a consistent non-risk

marker for partner abuse since only one (Telch & Lindquist, 1984) out of six studies identified a positive correlation between female alcohol use and domestic violence victimization.

The variability seen in these early results may reflect differences between the samples of women employed by different researchers. The incidence of alcohol abuse among women in general population surveys is relatively low compared with clinical populations which tends to obscure the relationship between female substance use and domestic violence (Miller, Downs, & Gondoli, 1989).

More recently, Miller (1998) reported a study comparing 157 women in treatment for substance abuse, 144 women in shelters for domestic violence, and a group of women drawn from the general population who were matched in terms of age and geographic proximity. This community sample was further divided into 56 women with a history of alcohol or drug abuse and 102 women without substance abuse histories. No significant differences were found between the community-sample women with and without substance-abuse histories in terms of their rates of severe violence victimization over the previous six months. About 9% of both community groups reported at least one episode of severe violence defined as either being hit with a fist, hit with an object, beaten up, burned or scalded, choked, threatened with a gun or knife, assaulted with a gun or knife by a partner, or having had sex forced by a partner during this time frame. A significant difference was seen, however, between lifetime experiences of severe domestic violence with 16% of the community-sample

women who had problems with substance abuse reporting severe partner abuse compared to only 3% among the community sample women who had no history of alcohol or drug problems (Miller, 1998).

In the second part of this study, Miller (1998) compared the rates of domestic violence reported by these two community samples of women with those of the women in treatment for substance abuse and found significantly more severe violence reported by the women in treatment for substance abuse. Twenty-six% of the women in treatment reported episodes of severe domestic violence during the past six months and 80% reported lifetime experiences of severe domestic violence. As Miller pointed out, there were no significant differences in the rates of severe partner abuse reported by women living in domestic violence shelters when compared with the women in treatment for substance abuse, a finding which highlights the frequency of severe violence seen against women in treatment for substance abuse. Unfortunately, the substance-abuse patterns of these violent male partners were not examined as part of this study.

Hotaling and Sugarman (1990) were unable to examine female substance abuse as a risk factor in their secondary factor-analysis because this variable had not been assessed during the original national sampling (Straus et al., 1980). In discussing the possible relationship between female substance abuse and violence, however, Hotaling and Sugarman (1990) speculated that substance abuse by a woman might be more of a coping response to domestic violence victimization than a contributing factor leading to domestic violence (Koss, 1990;



Miller, 1998; Stark et al., 1981).

In terms of psychological abuse, Downs, Miller, and Panek (1993) assessed a sample of 45 women receiving treatment for alcoholism and reported a significantly higher frequency of negative verbal abuse from their male partners than did a group of women drawn from the community. This result remained significant even after statistically controlling for the drinking of the partner. Similarly, in a community sample of 232 married women who had experienced partner psychological abuse, Arias, Street, and Brody (1996) reported strong correlations between psychological abuse and the woman's problem drinking and depression. The relationship between psychological abuse and alcohol abuse by the woman persisted even after statistically controlling for her depression. In this sample, partner psychological abuse was also associated with neglect and maltreatment of their children by the women (Arias, Street, & Brody, 1996).

Straight, Harper, and Arias (2003), on the other hand, assessed partner psychological abuse in a sample of college women, but did not find problematic drinking by women to be associated with partner psychological abuse. However, illegal drug use by women did correlate with partner psychological abuse, and those who did not employ adaptive coping styles reported more binge drinking in connection with partner psychological abuse.

#### *Substance Abuse Patterns of the Couple as a Risk Marker*

The majority of studies have focused on the male partner's intoxication

during episodes of violence or the partners' long-term patterns of substance abuse while ignoring the females' substance use during assaults or her long-term substance abuse patterns (Lindquist et al., 1997; Pan, Neidig, & O'Leary, 1994; Schafer & Fals-Stewart, 1997). Similarly, research which has examined the substance abuse of female as a risk marker for domestic violence has generally failed to take into consideration her partner's substance-abuse issues (Brady et al., 1994; Covington & Kohen, 1984; Stuart et al., 2002; Swett, Cohan, Surrey, Compaine, & Chavez, 1991). As a result, little attention has been paid to the systemic interaction between the substance abuse patterns of both partners in a violent relationship. Couples in which both partners have substance-abuse problems have even been screened-out from some studies (Epstein, McCrady, Miller, & Steinberg, 1994; Leonard & Senchak, 1993) despite the possibility that such two-substance-abuser couples might represent the sub-population at greatest risk for severe levels of domestic violence and homicide (Eberle, 1982).

Leonard (1993) has proposed a heuristic model which takes into account the dynamic interplay between the two partners in a violent relationship. In his more systemic model, long-term, "distal influences" interact with short-term "proximal influences" to create the immediate interpersonal context which gives rise to violence between partners. Distal influences include both partners' childhood experiences, personality profile, and drinking patterns while proximal influences include more transient stressors, circumstances, and cues in the immediate situation. These influences are filtered through the acute effects of alcohol on both partners' physiological, psychological, and cognitive functioning.

Leonard's interpersonal model (1993) highlighted the dynamic exchange between the substance-abuse patterns of both partners in a violent relationship and distinguished between chronic alcohol-abuse patterns and acute alcohol intoxication. Such an interpersonal, systemic perspective represents a departure from previous research which has focused almost exclusively on the substance abuse patterns of one or the other partner (but not both) as a risk marker for domestic violence (Goldberg, 1995; Kaufman-Kantor & Asdigian, 1997b). Unfortunately, the few studies which have taken the substance-abuse patterns of both partners into account have yielded apparently conflicting results regarding partner substance abuse as a risk marker for domestic violence against substance-abusing women (Leonard, 1993).

Based on his heuristic interpersonal model, Leonard (1993) suggested couples with an alcohol-abusing female and a non-alcohol-abusing or temperate male might be at particularly high risk for domestic violence. Leonard apparently based this hypothesis on the results of a study by Miller (1990) who examined the rates of domestic violence reported by 82 male parolees and their wives in terms of both partners' alcohol-consumption patterns. While neither partners' alcohol-consumption patterns alone predicted domestic violence, the interaction of the alcohol patterns of both partners was significantly associated with an elevated level of domestic violence. Specifically, couples in which the wife drank excessively, but the husband was abstinent reported the highest rates of domestic violence. When both partners drank excessively the couples reported the lowest levels of domestic violence. Miller (1990) remarked that

generalizations from these results should be made with caution since the parolee sample was a particularly violent group (Epstein et al., 1994; Leonard & Senchak, 1993).

In support of Leonard's suggestion that substance-abusing women with temperate male partners might be at especially high risk for partner abuse, Brewer, Fleming, Haggerty, and Catalano (1998) examined the relationship between crack cocaine and domestic violence in a sample of fourteen women receiving outpatient substance abuse treatment and found the crack cocaine use of the women were strongly associated with domestic violence victimization with a correlation coefficient of 0.55 while the crack-cocaine use of the male partner showed a non-significant 0.12 correlation with violence against her.

Miller (1992) also conducted another study which drew on the reports of domestic violence from 45 alcoholic women in treatment or attending local AA meetings compared with a random household sample of 40 women with no reported alcohol problems. The alcoholic sample reported severe violence from their male partners five times more frequently than the non-alcoholic women and this difference remained significant even after statistically controlling for the partners' alcohol problems. Miller concluded from this result that partner substance abuse by itself cannot account for the elevated rates of domestic violence seen among alcoholic women.

Kaufman-Kantor and Asdigian (1997b) and Kaufman-Kantor and Jasinski (1998) have taken the opposite position that the elevated rates of domestic violence against female substance abusers stem from the fact that many female

substance abusers have male substance-abusing partners (Bergman et al., 1989; Jacob & Bremer, 1986; Miller, 1992) who are likely to be violent as a result of their own alcohol and drug dependencies (Greenfeld, 1998; Taylor & Chermack, 1993; von der Pahlen et al., 1997).

Supporting this perspective, Chase, O'Farrell, Murphy, Fals-Stewart, and Murphy (2003) interviewed the male partners of 103 female alcoholics attending couples therapy and a greater likelihood of problematic drinking and alcoholism was seen among the 66 male partners who had been violent, while no differences emerged within the alcohol-abuse patterns of the women.

Bergman et al. (1989) also reported 65% of 49 women seeking help for alcoholism had been physically assaulted by their male partners and 68% had husbands who abused alcohol. Unfortunately, the relationship between partner violence and partner alcohol abuse in this group was not explored.

Similarly, in a follow-up study by Haver (1986b) on 44 female alcoholics 3-10 years post-treatment, 64% of the women had been physically assaulted by male partners and 84% lived with an alcohol-abusing male partner. Once again, the relationship between partner violence and partner alcohol abuse was not described. In addition, 20% of these women remained in an abusive relationship and 40% were living with a male partner who abused alcohol at follow-up, but again the link between partner violence and partner alcohol abuse was apparently not considered.

Downs, Miller, and Panek (1993) also found 52% of a sample of 32 women recruited from Alcoholics Anonymous and 13 women in outpatient

substance abuse treatment had been victims of severe physical abuse. Fifty-three percent of these women had male partners with alcohol-related problems, but the relationship between partner violence and partner alcohol abuse was not considered.

Swift, Copeland, and Hall (1996) also interviewed 128 female substance abusers with a male partner and found 63% had been physically abused by their male partners while 67% had male partners who were or had been substance-abusers. Once again, the relationship between partner violence and partner substance abuse was not examined in this sample.

#### *Socioeconomic Resources as a Risk Marker*

There is considerable controversy regarding financial status as a risk marker for domestic violence (Hotaling & Sugarman, 1986, 1990; Kaufman-Kantor & Jasinski, 1998). Pagelow (1984) and Sedlak (1988) failed to find a clear connection between income levels and domestic violence in their reviews of the empirical risk marker literature. On the other hand, Straus and Gelles (1986) reported more frequent domestic violence and more severe partner assaults among lower socioeconomic couples in their Second National Family Violence Survey. In the secondary factor-analysis of this survey conducted by Hotaling and Sugarman (1990), low family income emerged as the strongest predictor of domestic violence. It has been suggested that having limited financial resources, especially living in poverty (Straus et al., 1980), creates both stress and conflict over how money is to be spent which can lead to power struggles which erupt in

violence (Conger et al., 1990; Jasinski & Williams, 1998; Straus et al., 1980). A population-based random-number phone survey conducted by the New York State Department of Health involving interviews with 692 women and 546 men indicated that domestic violence occurred significantly more often among those with household incomes below \$15,000 (Hale-Carlson, Hutton, Morse, McNutt, & Clifford, 1996). Some studies designed to examine ethnicity as a risk marker for domestic violence have also yielded no significant differences along racial lines once the influence of socioeconomic status was taken into account (Marshall, 1999; Rodriguez, Lasch, Chandra, & Lee, 2001).

Low socioeconomic resources may also be associated with partner abuse as a consequence of domestic violence. Many women, especially those with children, will struggle financially if they decide to leave an abusive male partner. Baker, Cook, and Norris (2003) interviewed a sample of 110 women who had experienced domestic violence and found 38% were left homeless when they fled their abusing male partner, and a similar number had financial problems such as late rent payments, eviction notices, and having to skip meals to make ends meet. This lack of independent resources can be a critical issue causing many women who would otherwise leave to remain in abusive relationships (Gelles, 1976; Straus et al., 1980).

Socioeconomic status has not emerged as a significant predictor for psychological abuse (Hotaling & Sugarman, 1990; Schumacher et al., 2001; Straus & Sweet, 1992; Sugarman & Hotaling, 1989). Hornung, McCullough, and Sugimoto (1981) called 1553 women in Kentucky using random digit dialing and

male-perpetrated psychological abuse tended to be seen in couples when both partners had higher than average educational levels, especially when the woman worked outside of the home, but these results have yet to be replicated.

Sagrestano, Heavey, and Christensen (1999), however, examined 42 couples recruited from the community and the income of the husband was negatively correlated with his use of verbal aggression against his female partner. Babcock, Waltz, Jacobson, and Gottman (1993), Hotaling and Sugarman (1989) and Sugarman and Hotaling (1990) have also examined discrepancies between the educational levels, income levels, and occupational status between partners and found no predictive relationships with partner psychological abuse.

#### *Relationship Adjustment as a Risk Marker*

Poor relationship adjustment and high levels of interpersonal conflict have frequently been regarded as both precursors to domestic violence (Leonard & Senchak, 1996; Pan et al., 1994; Straus et al., 1996) as well as a common outcome of partner abuse (Katz, Arias, Beach, & Brody, 1995; Testa & Leonard, 2001). Straus (1979) characterized domestic violence as a last resort attempt to settle unresolved interpersonal conflict. Based on results from the Second National Family Violence Survey, Coleman and Straus (1990) found heightened interpersonal conflict associated with male-dominant relationships, especially when the woman was not content with the power imbalance within the couple. When interpersonal conflicts were combined with power imbalances in the relationship, the highest rates of partner violence were produced (Coleman &



Straus, 1990). This finding supports the perspective of many feminist theorists who point to violence as a tool used by many men to enforce control and power within a relationship (Bograd, 1990; Kaufman, 1991).

As Sedlak (1988) has pointed out, interpersonal conflicts and decreased marital satisfaction are also likely to be a consequence of domestic violence. Testa and Leonard (2001) examined the impact of husband-to-wife physical aggression on marital satisfaction in a community sample of 543 couples at the time of marriage and then one year later. Wives who had been physically assaulted by spouses during their first year of marriage reported higher levels of stress and significantly lower satisfaction with their relationship after differences between initial relationship satisfaction, verbal aggression, and sociodemographic variables were taken into account. Resentments over past violence probably foster an ongoing cycle of unresolved issues which contribute toward further conflict and violence (Feldman & Ridley, 2000; Testa & Leonard, 2001).

The line between psychological abuse and angry interpersonal communications can be difficult to identify during periods of heightened relationship conflict (Schumacher et al., 2001). Sagrestano et al. (1999) used the Dyadic Adjustment Scale (Spanier & Filsinger, 1983) with a group of 42 couples and reported a correlation between low marital satisfaction by the male partner and his use of verbal aggression. Based on videotaped observations of these couples using a communication-style rating scale (Heavey, Christensen, & Malmuth, 1995), male verbal aggression was generally associated with couples in which one partner would make demands while the other partner would

withdraw.

In the secondary factor-analysis by Hotaling and Sugarman (1990) using a nationally representative sample of 699 women, no correlation was found between relationship conflict and verbal abuse by the male partner. Similarly, Margolin, John, and Foo (1998) evaluated a sample of 175 couples drawn from the community and reported no significant differences in marital satisfaction of male partners in couples with and without a history of psychological abuse.

#### *Marital Status as a Risk Marker*

Marital status was identified as an important risk marker for domestic violence in four reviews of the empirical literature (Hotaling & Sugarman, 1986; Pagelow, 1984; Sedlak, 1988). Eighty% of the studies identified by Hotaling and Sugarman (1986) which took marital status into account demonstrated a strong association between being unmarried (i.e., separated, divorced or cohabiting) and domestic violence. Hotaling and Sugarman (1990) were unable to assess the relative strength of marital status as a risk marker for partner violence in their secondary factor analysis of the National Family Violence Survey because only intact, i.e., married or cohabiting, couples had been included in the original sampling. In the population-based, random-number phone survey conducted by the New York State Department of Health mentioned above based on interviews with 692 women and 546 men, married women were significantly less likely to report domestic violence when compared with single/widowed women and women who were separated or divorced (Hale-Carlson et al., 1996).

Separation and divorce are thought to be common sequellae of partner violence and this is probably reflected in the strong association with domestic abuse (DeMaris, 2001; Fagan, Stewart, & Hansen, 1983; Kaufman-Kantor & Jasinski, 1998; Kurz, 1996; Testa & Leonard, 2001). Evidence also points to separation and divorce as critical flashpoints with particularly high risk for severe partner violence (Ellis, 1987; Feld & Straus, 1990), homicides and murder-suicides (Wilson & Daly, 1993). Hale-Carlson, Hutton, Morse, McNutt, and Clifford (1996) conducted a random phone survey and interviewed 43 women who had sought treatment during 1994 for injuries stemming from domestic violence. Married women were the least likely to have sustained violent injury (with an adjusted relative risk of 2.7%) followed by single/widowed women (relative risk of 6.9%), and divorced women (9.7%). Separated women experienced the highest relative risk for injury at 17.1%, a sixfold increase over those who were married and living together.

Cohabitation rather than marriage has received less study and less theoretical attention than separation and divorce as a risk marker for partner violence (Jasinski & Williams, 1998). Even though a couple is not married, sexual intimacy may allow some people to feel they have a right to expect certain behaviors from their male partners (Laner & Thompson, 1982). In comparison with marriage, dating relationships could leave both parties feeling less secure, and jealousy issues are perhaps more likely to surface (Laner & Thompson, 1982). As in the case of separation and divorce, episodes of premarital violence may also dissuade some from marrying an abusive male partner (O'Leary, Arias,

Rosenbaum, & Barling, 1985). On the other hand, some women interpret violence as a sign of love (Henton, Cate, Koval, Lloyd, & Christopher, 1983).

Arias and Pape (1999) interviewed 68 women in a shelter for battered women and found partner psychological abuse was associated with intentions to permanently leave relationships even after controlling for the effects of partner physical abuse. Women who were suffering post-traumatic stress, however, were less able psychologically to consider leaving an abusive male partner or to follow through with such plans. Marshall (1999) also showed frequent psychological abuse was correlated with attempts by the women to leave abusive relationships in a community sample of 578 women. These women had responded to advertisements looking for those who were in "bad or stressful long-term relationships with a man" (p. 383) and only 3% of this group had never experienced any psychological abuse from their male partner.

Jacobson, Gottman, Gortner, Berns, and Shortt (1996) followed 45 batterers and their wives for a two-year period and psychological abuse by the husband was stronger than physical abuse as a predictor of which couples would eventually separate or divorce (Gortner, Berns, Jacobson, & Gottman, 1997).

### *Socially Desirable Responding*

Response bias attributed to social desirability has been recognized as a significant threat to the validity of self-reports by violence perpetrators (Shepard & Campbell, 1992), but is less pronounced in studies examining self-reports of violence victimization (Dutton & Hemphill, 1992; Sigelman, Berry, & Wiles, 1984;

Sugarman & Hotaling, 1997).

In a study of 90 married women recruited through newspaper advertisements, Arias and Beach (1987) found no significant correlations between social-desirability scores and violence victimization in terms of frequency or severity of assault. While the specific correlation coefficients were not reported because these were not significant, they recommended regarding victim self-reports as free of socially-desirable response bias.

Sugarman and Hotaling (1997) performed a meta-analysis focusing on the relationships between socially desirable responding and intimate violence. Based on seven studies permitting estimates of eighteen different effect sizes, self-reports of violence perpetration were more strongly associated with social desirability scores than were self-reports of partner violence-victimization. Only two of these seven studies examined the self-reports of victimization by the women, however, in both of these studies only slight negative correlations were found between social-desirability scores and reports of victimization reflecting some stigma associated with being a victim of intimate violence.

In the first study, Dutton and Hemphill (1992) administered the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), the Conflict Tactics Scale (Straus, 1979), and the Psychological Maltreatment of Women Inventory (Tolman, 1989) with 75 female respondents to a newspaper advertisement who had left a psychologically or physically abusive relationship during the previous six months. The correlation between socially desirable responding and reported partner physical abuse was only  $-.09$  and not significant at the  $.05$  level. None of

the women who were recipients of psychological abuse displayed significant levels of socially desirable responding. The manner in which this sample was recruited also probably screened out any women who were either too embarrassed or too ashamed of their victimization.

The second study cited by Sugarman and Hotaling (1997) which included self-reports of victimization by the women was conducted by Sigelman et al. (1984), and based on a sample of 388 undergraduate women taking psychology, sociology or nursing classes. Once again, a small, negative correlation of .14 was found between socially desirable responding and the incidence of violent victimization in dating relationships and this result was significant at the .05 level of significance.

While Hotaling and Sugarman (1997) have speculated that socially desirable responding may be more prevalent with self-reports of severe violence victimization, based on the two studies above, they tentatively concluded that voluntary participants whose confidentiality is protected would be the least likely to demonstrate social-desirability bias in their self-reports of violence victimization.

### *Questions to be Addressed*

1. Are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status each associated

with the incidence of partner physical abuse during the previous year among women in treatment for substance abuse?

2. When taken together, are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status associated with the incidence of partner physical abuse during the previous year among women in treatment for substance abuse?

3. Are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment as reported by the female respondent, and unwed marital status each associated with the high frequency of partner physical abuse during the previous year among women in treatment for substance abuse who report at least one episode of partner physical abuse?

4. When taken together, are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status associated with a high frequency of partner physical abuse during the previous year among women in treatment for substance abuse who report at least one episode of partner physical abuse?

5. Are low levels of socially desirable responding, high levels of partner

alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status each associated with the incidence of partner psychological abuse during the previous year among women in treatment for substance abuse?

6. When taken together, are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status associated with the incidence of partner psychological abuse during the previous year among women in treatment for substance abuse?

7. Are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status each associated with a high frequency of partner psychological abuse during the previous year among women in treatment for substance abuse who report at least one episode of partner psychological abuse?

8. When taken together, are low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female respondent alcohol abuse, and female respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status associated with a high frequency of partner psychological abuse



during the previous year among women in treatment for substance abuse who report at least one episode of partner psychological abuse?

### *Conceptual Frameworks to be Assessed*

Leonard (1993) suggested that the high rates of domestic violence against alcohol-abusing women might stem from the frustration of temperate male partners (who do not abuse alcohol) when confronted with the chronic alcohol abuse of the women. Kaufman-Kantor and Asdigian (1997a), however, have contended female substance abusers experience high rates of domestic violence because their male partners, instead of being temperate, are very often substance abusers themselves who tend to be violent as a result of their own substance abuse. The present study was intended to address the discrepancy between these two perspectives by examining the contribution of partner alcohol- and drug-abuse problems in predicting both the incidence and frequency of partner physical and psychological abuse while also considering the study participant's own alcohol- and drug-abuse problems, the effects of elevated socially-desirable responding (Sugarman & Hotaling, 1997) and three other risk markers which had been identified as the most consistent predictors associated with domestic violence—low socioeconomic resources, poor relationship adjustment, and unwed marital status (Hotaling & Sugarman, 1990).

### *Statements of Primary Hypotheses*

1. It was hypothesized that low levels of socially desirable responding,

high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status are each associated with the incidence of partner physical abuse during the previous year reported by women in treatment for substance abuse.

2. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together are associated with the incidence of partner physical abuse during the previous year reported by women in treatment for substance abuse.

3. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment as reported by the female respondent, and unwed marital status are each associated with a high frequency of partner physical abuse during the previous year reported by women in treatment for substance abuse who have experienced at least one episode of partner physical violence during this time.

4. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of

socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together are associated with a high frequency of partner physical abuse during the previous year reported by women in treatment for substance abuse who have experienced at least one episode of partner physical abuse during this time.

5. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status are each associated with the incidence of partner psychological abuse during the previous year reported by women in treatment for substance abuse.

6. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together are associated with the incidence of partner psychological abuse during the previous year reported by women in treatment for substance abuse.

7. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed

marital status are each associated with a high frequency of partner psychological abuse during the previous year reported by women in treatment for substance abuse who have experienced at least one episode of partner psychological abuse during this time.

8. It was hypothesized that low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together are associated with a high frequency of partner psychological abuse during the previous year reported by women in treatment for substance abuse who have experienced at least one episode of partner psychological abuse during this time.

## CHAPTER III

### Methodology

This study was limited to female volunteers who had been in outpatient or inpatient treatment for alcohol or drug abuse for at least the past seven days with no reported use of alcohol or drugs during this time frame. Participation was further restricted to those who had been abstinent from alcohol and drugs for less than six months. Female participants needed to have completed any medically-necessary detoxification, be at least 18 years old, and describe themselves as having been sexually/romantically involved with a particular male partner or spouse for at least three months during the past year (Coker, Paige, McKeown, & King, 2000; Mills & Malley-Morrison, 1998). Women who were incarcerated for more than six months during the past year were not included in the data analysis. Similarly, women whose male partner had been incarcerated for more than six months during the past year were also not included. Study participants were unpaid and remained anonymous to protect their confidentiality and reduce response bias (Ong & Weiss, 2000; Rhodes, 1992; Straus et al., 1980; Straus et al., 1996).

Demographic information was collected in order to compare women who had been abused from those who had not been abused. This information also allowed comparison between a cross-validation sample and the primary sample. This demographic data included female respondent and partner age, ethnicity,

educational levels, employment status, family socioeconomic resources, number of individuals living in the household, current marital status, the female respondents experience of physical, sexual and psychological abuse in childhood as well as respondent and partner alcohol-and-drug-abuse preferences, and the type of substance-abuse treatment the female respondent was currently receiving. The information was gathered using questions derived from the Second National Family Violence Survey (Gelles & Straus, 1988), also known as the National Family Violence Resurvey (Straus & Gelles, 1990).

#### *Method of Recruitment*

The Treatment Provider Letter-of-Solicitation (Appendix B) introducing the study and requesting assistance was sent to the clinical director of each outpatient and inpatient substance-abuse treatment facility offering services specifically for women in Pennsylvania. These facilities were all licensed to provide substance-abuse treatment by the Pennsylvania Bureau of Drug and Alcohol Programs, the funding and oversight agency of the Pennsylvania Department of Health.

Staff at six cooperating facilities distributed the Study Participant Consent Form (Appendix E) to potentially eligible women and explained that the study was voluntary, with no negative consequences if a woman decided not to participate. Prospective participants were also be told that the research was completely separate from their treatment and that survey responses would not be shared with their treatment provider. Staff members then contacted this

researcher and a meeting with a group of prospective participants was scheduled at the agency. At this meeting, the Study Participant Consent Form (Appendix E) was redistributed, the voluntary and anonymous nature of participation was clarified, and any questions or concerns prospective participants had were addressed before the questionnaires were distributed. Several agencies preferred that a staff member was trained to answer participant questions about the study, ensure informed consent by participants, administer the questionnaires, distribute the informational handout, and address follow-up concerns of participants (Appendix N). Agency staff were instructed to follow the Guidelines and Script for Agency Staff (Appendix D) and these sealed envelopes were later collected from the agency by the researcher.

### *Independent Predictor Measures*

The independent variables for this study consisted of the respondent's report concerning her own alcohol-related problems (RALC), her partner's alcohol-related problems (PALC), her own drug-related problems (RDRG), her partner's drug-related problems (PDRG), the socioeconomic resources (SES) of the couple, their relationship adjustment (ADJ), and their marital status (MAR). A measure of the research participant's socially desirable responding (SDR) was also included as check for validity. Research participants were asked to answer all survey questions using the previous year as the frame of reference.

### *Socially Desirable Responding*

Socially desirable responding (SDR) was operationally defined as the

cumulative score of the respondent on the Marlowe-Crowne Scale-Form C, a brief thirteen-item version of the Marlowe-Crowne Social Desirability Scale (MC-SDS; Crowne & Marlowe, 1960; Reynolds, 1982). This inventory uses a true/false response format to gauge respondents' tendencies to present themselves in a favorable light. The original Marlowe-Crowne Social Desirability Scale was developed from a pool of 50 socially-desirable and socially-undesirable items and rated by ten judges on a 5-point Likert scale in terms of the level of adjustment reflected by each item. Items suggesting maladjustment or psychopathology were removed on this basis, and the remaining 47 items were administered to a sample of 76 introductory psychology students. Only the 33 items which discriminated between the high and low scoring students at the .05 level were retained in the final MC-SDS. Internal consistency coefficients for the MC-SDS were then determined using a sample of 39 undergraduates and the Kuder-Richardson Formula 20 yielded a correlation of .88 between items and total scale. Test-retest reliabilities after one month were .89.

The M-C SDS was also compared with the Edwards Social Desirability Scale and the MMPI (Crowne & Marlowe, 1960). The M-C SDS correlated at .35 with the Edwards SDS and .54 with the L Scale of the MMPI and both of these correlations were significant at the .01 level. Elevated L Scale scores are generally associated with respondents who desire to give a good impression. Similarly, the M-C SDS was found to correlate .40 with the K Scale suggesting some defensiveness and -.36 with the F Scale at the .05 level of significance pointing to a tendency to "fake good" (Hathaway & McKinley, 1983).



Reynolds (1982) examined briefer forms of the Marlowe-Crowne Social Desirability Scale, including several proposed by Strahan and Gerbasi (1972) and developed a 13-item version (M-C SDS Form-C) with an improved mean item-scale reliability of .38 compared with .32 for the full scale Marlowe-Crowne SDS version. The brief M-C SDS Form C version also demonstrated the best range of item-to-scale correlations (0.32 - 0.47) among these alternative forms when compared with the range of the full Marlowe-Crowne SDS (0.13 - 0.49). The M-C SDS Form C was found to correlate .93 with the full-scale Marlowe-Crowne Social Desirability Scale which was significant at the .001 level. Based on a sample of 608 undergraduates, a principal factor analysis revealed a strong primary factor which accounted for three times the variance of the next factor. Eleven items were found to load at 0.40 or higher on this primary factor and these were grouped into M-C SDS Form A. Two additional items which loaded at 0.39 were also added to produce Forms B and C. The short forms proposed by Strahan and Gerbasi (1972) were also examined, but had lower reliabilities and poorer item-scale correlations than all of the factor-analytically derived forms proposed by Reynolds (1982).

#### *Respondent Alcohol-Related Problems*

Female respondent alcohol-related problems (RALC) were operationally defined as the score reported by each respondent regarding problems stemming from her own use of alcohol on the Short Michigan Alcohol Screening Test-C (SMAST-C, Selzer, Vinokur, & Rooijen, 1975; Watt, 2000). Watt (2000) described a variation of the SMAST, the SMAST-C, which narrowed the time frame of the

inventory to the past year and reported an improvement in the reliability and validity of the screening test.

Although Selzer et al. (1975) presented no theoretical foundation underpinning the original MAST, as Skinner (1982) pointed out in support of the content validity of the MAST, the items reflect the continuum of problems that usually become more severe and frequent as alcoholism progresses. For example, two of the SMAST items are "Have you ever gotten into trouble at work because of drinking?" and "Have you ever been in a hospital because of drinking?"

The 13-item SMAST was derived at the same time and with the same sample as the complete 25-item MAST using stepwise multiple regression to identify those MAST items which were most sensitive to differences between participants in samples of alcoholics and controls. The alcoholic sample consisted of 129 males undergoing inpatient treatment for alcohol abuse together with 99 males receiving outpatient treatment for alcohol abuse. Skinner et al. (1975) reported the MAST questionnaire was "mandatory" for both of these alcoholic groups. The control group consisted of 102 men who were renewing their driving licenses and 171 men who were court-ordered to driver-education classes. Those ordered to driver education classes were also mandated to complete the MAST questionnaire. All participants involved were more than 20 years old.

The twelve items from the multivariate analysis which most differentiated those who abused alcohol were used to form the SMAST. One additional MAST item was added because it facilitated identification of problem drinkers from

public records: "Have you ever been arrested, even for a few hours, because of drunken behavior?"

Each SMAST item positive for alcohol abuse is counted as one point, and points are added to yield a final score ranging from zero to 13 points. Based on results with the alcoholic and control group SMAST scores, three or more points indicate alcohol abuse, two points possible alcohol abuse, and one or zero points non-problematic alcohol use. Using this cutoff score, 14% of the control group fell into the alcoholic category (18% of the driver-education group and 7% of the license-renewal group). Of those in treatment for alcoholism, 94% scored at or above three points (88% for those in outpatient treatment and 98% for the inpatient group). Reliability coefficient alphas for the SMAST were .76 for the control group, .78 for the alcoholic group, and .93 for the combined samples.

In terms of criterion validity, when the license-renewal group (the group with the fewest alcohol abusers) was compared with the inpatient group (with the most alcoholics) in terms of the group total MAST scores, the validity coefficient was .90 (Goodman's gamma = .99) which supports the use of the SMAST to differentiate problematic from non-problematic alcohol use.

The issue of socially desirable responding with use of the SMAST was also explored during development (Selzer et al., 1975). Correlations between the Deny-Bad scale of the Crowne-Marlowe Social Desirability Scale (Crowne & Marlowe, 1960) and the SMAST were  $-.12$ ,  $-.20$  ( $p < .01$ ), and  $-.18$  ( $p < .01$ ) for the control sample, the alcoholic sample, and the combined group respectively. No significant changes were found in the product-moment coefficients when

these Deny-Bad scores were "statistically controlled" suggesting only minimal effects from response bias on the validity of the SMAST self-report scores. Because many of the participants involved in the development of the MAST were not volunteers, but were mandated to participate by a judge, some response biases should be anticipated. This association was none-the-less relatively small, and Selzer et al. (1975) argued that this minor level of socially desirable responding should not diminish the validity of the MAST.

The Veteran Alcoholism Screening Test (VAST) was developed primarily to address a perceived shortcoming of the original MAST and asks participants about three time frames in which alcohol-related problems have been experienced. These time frames include the past year, between one and five years ago, and more than five years ago. Current alcohol problems are measured using VAST-C responses regarding problems during the past year. Compared with the lifetime-referent period of the MAST, the VAST-C has also demonstrated improved reliability and validity (Watt, 2000). The VAST was developed with a parallel family-member report adaptation referred to as the VAST-A (Magruder-Habib, Harris, & Fraker, 1982).

Watt (2000) also examined a brief form of the VAST-C corresponding to the 13-items of the SMAST (Selzer et al., 1975) using a sample of 104 outpatients in treatment for substance abuse and reported a chi square of 48.97 significant at the .001 level. This current or past-year version is referred to as the SMAST-C.

### *Partner Alcohol-Related Problems*

Partner alcohol-related problems (PDRG) were operationally defined as the score reported by each female participant regarding problems resulting from her partner's alcohol abuse on a partner-report version of the Short Michigan Alcohol Screening Test-Significant Other (SMAST-SO-C, Schenberg, 1999; Selzer et al., 1975; Watt, 2000). In developing the MAST, Selzer et al. (1975) indicated the MAST can be used "with little modification for interviewing friends and relatives of the patient in question" (p. 143). Although Selzer et al. offered no reliability or validity data in support of a family version of the SMAST, others have utilized the MAST and SMAST in this fashion (Leonard, Dunn, & Jacob, 1983; McAuley, Longabaugh, & Gross, 1978; Murphy & O'Farrell, 1994; Rosenbaum & O'Leary, 1981; Schenberg, 1999; Watt, 2000).

Leonard, Dunn, and Jacob (1983) described a "parallel" version of the MAST developed for a woman to report on the alcohol-related problems of her husband, but fail to provide the specific wording of this version or offer any data about test reliability. Wives tended to report more alcohol-related difficulties for husbands than husbands did, although total MAST scores of self-report and wife-report versions were generally correlated ( $r = .70, p < .01$ ). Wives and husbands tended to agree on more concrete items such as loss of a job attributable to alcohol while husbands tended to "under-report" on more subjective items such as whether they believed they were "normal" drinkers. Leonard et al. concluded that the wife MAST scores were more credible than the husband MAST scores since husbands were more likely to present themselves in

a favorable light. Hedlund and Vieweg (1984) have also suggested that informant reports of substance-abuse problems are more likely to be free of socially desirable response bias than substance-abuser self-reports.

McAuley, Longabaugh, and Gross (1978) developed a MAST-family form by changing the pronoun in each item from "you" to "he/she." In a study comparing MAST self-reports from a sample of seventy-five psychiatric inpatients, MAST-family reports by collaterals and psychiatric evaluations for alcoholism, MAST self-reports and MAST-family scores were in agreement regarding an alcohol problem 75% of the time. Discrepancies between self-reports and family reports were generally in the direction of collaterals not realizing the number of alcohol-related problems reported by the patient (19%). In only 5% of these cases did family members report alcohol-related problems denied by the patient. The MAST-family scores were in agreement with psychiatric diagnoses of alcoholism in 91% of the cases. Once again, no reliability data were presented regarding the MAST family form.

Murphy and O'Farrell (1994) also employed a version of the MAST allowing wives to report on their husbands' alcohol-related difficulties, but did not offer any information on the revised wording for this spouse-MAST, and no reliability data were included. In univariate comparisons, the spouse-MAST scores differentiated thirty-three aggressive from sixty-nine nonaggressive men entering treatment for alcohol abuse while the self-reported MAST scores of the men only approached significance in this regard.

Rosenbaum and O'Leary (1981) described a study with 52 abused wives

seen at a domestic violence agency who completed a reworded SMAST to characterize their husbands' alcohol-related difficulties. The husbands of 20 of these women also consented to SMAST self-reports, but the correlation between the husband and wife reports was only .64 with no further details mentioned.

Schenberg (1999) also utilized a modified version of the MAST for significant others (MAST-SO) by rewording each item from "Have you..." to "Has your partner..." For example, "Has your partner been in trouble at work because of drinking?" In a sample of 22 substance abusers in outpatient treatment and their partners, a correlation of .51 significant at the .015 level was found between partner-MAST scores and patient SMAST scores. Schenberg recommended the use of the modified MAST-SO for family reports as a means of increasing the accuracy of substance-abuse assessments.

Watt (2000) compared 25 pairs of collateral-report SMAST scores and patient-report SMAST scores in a group of veterans receiving treatment for substance abuse and found the two types of reports were highly correlated at the .001 level of significance. This adapted version of the MAST was reworded as "Does he or she ever..." The correlation between collateral SMAST scores and treatment-provider assessments was not explored, but patient and collateral SMAST scores were highly associated, and patient SMAST scores were highly correlated with provider assessments suggesting the collateral SMAST scores were also correlated with provider assessments.

#### *Respondent Drug-Related Problems*

Female respondent drug-related problems (RDRG) were operationally

defined as the total score reported by the female respondent regarding her own problems related to drug use on the Drug Abuse Screening Test-20 (Skinner, 1982; Skinner & Goldberg, 1986). The original DAST was designed to parallel the MAST with 28 self-report items regarding a range of negative consequences associated with drug abuse. For example, "Are you always able to stop using drugs when you want to?"

Scoring of the DAST is identical to the SMAST with each response in the direction of problematic drug abuse counted as one point. Points are added to yield a total score from zero to 28. Skinner (1982) found the DAST adequately differentiated clients who abused drugs from those abusing only alcohol in a mixed-sex clinical sample of 256 substance-abusing clients in which 59% abused only alcohol, 25% abused only drugs, and 16% abused both drugs and alcohol. Based on this sample, a cutoff score of five was suggested as indicative of a pattern of drug abuse. The internal consistency alpha for the total scale was .92 with individual item-total correlations ranging from .24 to .78.

A principal-components analysis performed as part of the development of the DAST found that 45% of the total variance along a single dominant factor which held for additional varimax rotations suggesting that the DAST offers a unidimensional scale assessing the difficulties associated with drug abuse. DAST scores were also significantly associated with frequency of drug use during the preceding 12 months across all categories of abused substances indicating concurrent validity.

Socially desirable responding, denial, and infrequency (carelessness)



biases were also examined during the development of the DAST using three subscales from the Basic Personality Inventory (Jackson, 1976). While a negative correlation of .31 was found with socially-desirable responding among the drug-abusing samples, no significant effects were seen for denial or careless responding.

Skinner (1982) also tested a shortened form of the DAST using only the twenty items with the highest item-total scale correlations to differentiate the alcohol- and drug-abusing sample from those who only abused drugs. The resulting DAST-20 and full DAST correlated almost perfectly ( $r = .99$ ) with the internal consistency reliability of the DAST-20 being .95 for the total sample (which included individuals with just alcohol problems) and .86 for the sample with only drug abusers. The DAST-20 also allows for a past-year referent time-frame (Skinner & Goldberg, 1986).

#### *Partner Drug-Related Problems*

Partner drug-related problems (PDRG) were operationally defined as the score reported by the female participant regarding problems associated with her partner's drug abuse on the collateral Drug Abuse Screening Test-20 (Skinner, 1982; Skinner & Goldberg, 1986). As with the MAST, the DAST-20 has been reworded to permit collateral reports of drug-related problems (Schenberg, 1999; Watt, 2000). For example, "Has your partner lost a job because of drug abuse?" With a group of 25 veterans in an outpatient substance abuse program and their family members, Watt (2000) noted that collateral DAST-20 reports and veteran DAST-20 self-reports were correlated .74 which was significant at

the .001 level.

Schenberg (1999) also employed a modified version of the DAST for significant others, e.g., "Has your partner used drugs other than those required for medical reasons?" With a sample of 25 substance abusers in outpatient treatment and their partners, a correlation of .86 significant at the .01 level was found between partner-DAST scores (DAST-SO) and patient DAST-20 scores. Schenberg recommended the use of the modified DAST-20 for family reports of drug-abuse-related problems as a means of increasing the validity of substance-abuse assessments.

#### *Socioeconomic Resources*

Socioeconomic resources (SES) were operationally defined based on two questions from the Second National Family Violence Survey (Gelles & Straus, 1988). These were as follows:

-Which of these groups describes your total family income before taxes last year? Please include your own income and that of all members of your immediate family who were living with you. Also include any other income you may have had such as welfare payments, food stamps, social security checks, invests, etc.

None\_\_\_ \$10,000 or less\_\_\_ \$10,001-20,000\_\_\_ \$20,001-30,000\_\_\_  
 \$31,000-40,000\_\_\_ \$40,001-50,000\_\_\_ \$50,001-60,000\_\_\_  
 \$60,001-70,000\_\_\_ \$70,001-80,000\_\_\_ \$80,001-90,000\_\_\_  
 \$90,001-100,000\_\_\_ over \$100,000\_\_\_ not sure\_\_\_

This amount was then divided by the number of people living in the household using the following question on the demographic questionnaire: "How many people were living with you during the past year?"

#### *Relationship Adjustment*

Relationship adjustment (ADJ) was operationally defined as the total score reported by the female participant regarding her relationship on the Dyadic Adjustment Scale (Spanier, 1976; Spanier & Filsinger, 1983). The DAS is a 32-item questionnaire designed for use with both married and cohabiting couples. The instrument was developed using every item from 17 previously published relationship-adjustment instruments plus several new items. These questions were then screened for redundancy and relevance by a panel of three independent judges and the remaining 200 items were administered to a general-population sample of 218 married individuals and 94 recently divorced respondents (Spanier, 1976). Forty of these items were selected as the most promising from a theoretical standpoint and then factor-analyzed. Four separate, but somewhat correlated, factors emerged and eight items which failed to load adequately were eliminated. The four factors that emerged were labeled Dyadic Consensus, Satisfaction, Cohesion and Affectional Expression.

The first section of the DAS presents a range of issues couples might disagree about and asks whether they *always agree* (5 points), *almost always agree* (4 points), *occasionally disagree* (3 points), *frequently disagree* (2 points), *almost always disagree* (1 point), or *always disagree* (0 points). Other questions use a similar Likert scale format to explore how frequently the respondent has

experienced particular signs of distress concerning the relationship as well as areas the couple can enjoy together. Some items use a true/false format, for example, "On a few occasions, I have given up doing something because I thought too little of my own ability" or "It is sometimes hard for me to go on with my work if I am not encouraged." Respondents are also asked to pinpoint their degrees of happiness with the relationship along a scale ranging from *perfect* (5 points) to *extremely unhappy* (0 points). Finally, respondents are asked to choose from a list of statements regarding their outlooks on the future of their relationships ranging from "I want desperately for my relationship to succeed, and would go to almost any length to see that it does" (5 points) to the other extreme of "My relationship can never succeed, and there is no more that I can do to keep the relationship going" (0 points). Total DAS scores can range from 0-151 with the high scores representing high levels of relationship adjustment and satisfaction.

Cronbach's reliability coefficient alpha for the total DAS was found to be .96 and the subscale reliability coefficients ranged from .73 for Affectional Expression to .94 for Dyadic Satisfaction.

Each item in the DAS and the DAS total scores differentiated the recently divorced from the married control group at the .001 level of significance. These four DAS factors were found to be very similar to the results of a factor analysis performed by Locke and Williamson (1958). The DAS correlation with the Locke-Wallace Marital Adjustment Test was .86 for the married sample and .88 for the recently divorced group (Locke & Wallace, 1959).

In response to criticisms of the construct validity and psychometric shortcomings of the DAS, Busby, Christensen, Crane, and Larson (1995), used confirmatory factor analysis to identify fourteen items representing seven first-order scales (decision-making, leisure, values, affection, stability, conflict, activities and discussion), which combined to form three second-order constructs of Consensus, Satisfaction, and Cohesion. These second-order constructs were associated with the overarching dyadic adjustment factor. The format of some items was also changed to be more consistent and less confusing. The revised DAS has also shown superior internal consistency and split-half reliabilities. In contrast with the original DAS, the revised DAS was developed with samples of distressed and non-distressed couples rather than separated and intact couples as criterion groups. The underlying structure and validity of the revised DAS has also been confirmed across other samples (Crane, Middleton, & Bean, 2000; Vandeleur, Fenton, Ferrero, & Preisig, 2003).

#### *Marital status*

Marital status (MAR) was operationally defined as a dichotomous variable with "currently married" on the one hand and "cohabiting, separated or divorced" on the other (Gelles & Straus, 1988). The following questions, derived from the Second National Family Violence Survey, were included in the demographic questionnaire:

-During the past year, were you romantically involved with a particular partner or spouse for more than three months?                      Yes      No      (Circle one)

IF SO, PLEASE ANSWER ALL REMAINING SURVEY QUESTIONS IN TERMS OF THIS PERSON.

-In the past year, were you and this partner living together but not married?

Yes No (Circle one)

-If yes, how long have you been living as a couple with this partner?\_\_\_\_\_

-Are you currently married to this partner? Yes No (Circle one)

-If yes, how long have you been married to this partner?\_\_\_\_\_

-Are you currently separated from this partner ? Yes No (Circle one)

-If yes, how long have you and this partner been separated?\_\_\_\_\_

-Are you currently divorced from this partner? Yes No (Circle one)

-If yes, how long have you and this partner been divorced?\_\_\_\_\_

-How long were you and this partner married before divorcing?\_\_\_\_\_

-Are you currently a widow of this partner ? Yes No (Circle one)

-If yes, how long have you been a widow of this partner?\_\_\_\_\_

-How long were you married before this partner died ?\_\_\_\_\_

*Dependent Measures*

*Partner Physical Abuse Incidence*

Partner physical abuse (Violence) Incidence (PVI) was operationally defined as a dichotomous variable reflecting any reported partner physical abuse during the previous year on the ABI physical abuse subscale.

*Partner Physical Abuse Frequency*

Partner physical abuse (Violence) Frequency (PVF) was operationally defined as the cumulative score on the Physical Abuse subscale of the Abusive

Behavior Inventory-Partner Form (Shepard & Campbell, 1992), a 9-item scale to describe specific partner behaviors such as "Slapped, hit or punched you." For example, "Has your partner threatened to hit or throw something at you during the past year?" Respondents were asked to circle how often each act took place during the referent time period along a 5-point Likert-type scale ranging from "never, rarely, occasionally, frequently, and very frequently." Subscale scores were averaged by adding the item-response frequencies with 1 point for "never" up to 5 points for "very frequently," and this total was divided by the number of subscale items to obtain an average physical abuse subscale score ranging from a score of 1 for *none* to a score of 5 for *very frequent* physical abuse. The ABI physical abuse subscale consists of 10 items and included three questions about sexual abuse.

#### *Partner Psychological Abuse Incidence*

Partner psychological (Emotional) abuse Incidence (PEI) was operationally defined as a dichotomous variable reflecting any reported partner psychological abuse during the past year.

#### *Partner Psychological Abuse Frequency*

Partner psychological (Emotional) abuse Frequency (PEF) was operationally defined as the cumulative score on the Psychological Abuse subscale of the Abusive Behavior Inventory-Partner Form (Shepard & Campbell, 1992). The psychological abuse subscale included 19 items reflecting psychological abuse, intimidation, isolation, male privilege, and economic abuse and was scored in the same fashion as the Physical Abuse subscale. For

example, "How often during the past year did your partner make you do something humiliating or degrading? (for example: begging for forgiveness, having to ask his permission to use the car or do something).

The Abusive Behavior Inventory (ABI) was originally developed to evaluate a domestic-abuse treatment program for male batterers using a psycho-educational curriculum constructed by Pence and Paymar (1985). With input from program staff and battered women, inventory items were included which reflected a range of psychological and physical abuse behaviors. An early form of the instrument was administered to 92 batterers and 77 battered women (Shepard, 1987). A more thorough analysis of the instrument was conducted with a sample of 100 male substance abusers in treatment at a Veterans hospital and 78 of their female partners (Shepard & Campbell, 1992). These male and female groups were "equally divided" into abuser/abused and non-abuser/non-abused subgroups although the exact breakdown of these two groups was not spelled out. Reliabilities for the subscales based on these four subgroups were found to range from .70 to .92, while the standard error of measurements ranged from .04 to .12 indicating good reliability for both subscales across all groups. In terms of criterion-related validity, the mean scores of the abused and non-abused women differed by .80 on the psychological abuse subscale and .55 on the physical abuse subscale. These differences were significant at the .01 level after controlling for slight differences between the groups in terms of age and education. Factorial validity was also examined, and one item concerning spanking was dropped because of low item-scale correlations. Three items from



the psychological abuse subscale dealing with threats and gestures of physical violence were found to correlate more highly with the physical abuse subscale. When these three items were included as part of the physical abuse subscale, improved item-subscale alpha coefficients ranging from .80 to .92 resulted.

Although the ABI is a relatively new instrument, it has recently been employed by several researchers and demonstrated good criterion validity. Watson, Barnett, Nikunen, Schultz, Randolph-Elgin, and Mendez (1997), in a study comparing the frequency of psychiatric and personality disorders between a sample of 110 female domestic abuse survivors drawn from shelters and victim support groups and a control sample of 50 women without histories of partner abuse, found subscale scores regarding the previous six months for the victim sample were 2.58 on the ABI physical abuse subscale and 3.34 on the psychological abuse subscale. These scores were elevated at the .01 level of significance in comparison with the control group results (1.05 and 1.18 respectfully). The authors pointed out that the control group values were only slightly above the lowest possible scores on the ABI.

Neufeld, McNamara, and Ertl (1999) also used the ABI with a sample of 623 college females and found rates of physical abuse during the previous six months were 27% with 77% reporting psychological abuse. These results were comparable with those seen in a national survey of college females conducted by White and Koss (1991) who found an incidence of physical aggression of 32.4% and a rate of symbolic (verbal) aggression of 86.8% when measured over the course of a longer academic year. Neufeld et al. (1999) also modified the frame-

of-reference to ask respondents about their lifetime experiences for each ABI item and found lifetime prevalence rates of 43% for physical abuse and 91% for psychological abuse.

### *Procedure*

The proposal for this study was presented to the Seton Hall University Institutional Review Board (IRB) and approved prior to the solicitation of any data. After IRB approval, licensed substance abuse treatment agencies were approached and six agencies agreed to cooperate (Appendix C). Each agency then approached female clients receiving substance abuse treatment to inform them of the study and invite their participation. This researcher or a trained staff member from the treatment agency then met with groups of potential respondents to introduce the study, explain the voluntary and confidential nature of participation and answer any questions or concerns they had. Consenting respondents were then given a survey packet and pencil. These packets contained, in the following order, a demographic questionnaire (Appendix F) along with seven brief inventories: the Brief Marlowe-Crowne Social Desirability Scale (Appendix G), the Revised Dyadic Adjustment Scale (Appendix H), and the Abusive Behavior Inventory-Partner Form (Appendix I), the Short Michigan Alcohol Screening Test (Appendix J), the Drug Abuse Screening Test-20 (Appendix K), the Short Michigan Alcohol Screening Test-Significant Other (Appendix L), and the Drug Abuse Screening Test-20-Significant Other (Appendix M). Once finished, research respondents sealed their anonymous survey

responses in a blank envelope and returned this to the researcher or the trained agency staff member. Following administration of the surveys, study respondents received a Domestic Violence Resource Handout (Appendix N). An opportunity was also provided for study respondents to voice their reactions to the questionnaires with the researcher or the trained staff member. Respondents were encouraged to discuss their responses at greater length with their individual counselor if they choose.

#### *Power and Sample Size*

Since this study employed multiple regression analyses, the number of participants ( $n^*$ ) needed to balance Type I ( $\alpha$ ) and Type II ( $\beta$ ) error rates was calculated using the following formulas offered by Cohen and Cohen (1983):

$$n^* = \frac{L}{f^2} + k + 1 \quad \text{and} \quad f^2 = \frac{R^2}{1 - R^2}$$

To achieve a statistical power ( $1 - \beta$ ) of .80, as recommended by Cohen (1988), for an eight ( $k$ ) variable model at the .05 alpha level of significance corresponding with an  $L$  value of 15.02 (Cohen & Cohen, 1983) with an estimated medium effect size ( $R^2$ ) of 0.15 (Cohen, 1988; Lipsey, 1990), the sample needed to include at least 94 participants.

To assess the relative significance of each independent predictor variable, Green (1991) recommended  $104 + k$  participants with  $k$  being the number of

independent variables in the regression model. This guideline is based on an alpha level of significance of .05 with a .80 power sensitivity. Because the present study incorporated eight independent variables, the recommended sample size according to this formula was 112 participants.

To cross-validate the prediction equation, the total sample size was further increased by an additional 20% (Garson, 2003). These 23 participants were randomly held-out from the development stage of the prediction equation and then employed to gauge the population validity of the model. The total sample size was therefore 135 participants.

#### *Plan for Analysis of Data*

Demographic variables were examined in terms of partner physical abuse (violence) incidence (PVI) as well as partner psychological (emotional) abuse incidence (PEI) using point-biserial correlations when the demographic variable was continuous (eg., age, highest grade in school) and phi-coefficient correlations in the case of dichotomous demographic variables (e.g., inpatient versus outpatient treatment status, voluntary versus involuntary treatment). Any variables with a statistically significant correlation with partner physical abuse or psychological abuse incidence was included in further multivariate analyses.

Bivariate correlations between each of the independent variables-- socially-desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, socioeconomic resources,

relationship adjustment, and marital status--were examined using Pearson product-moment coefficients and, in the case of the dichotomous predictor variable marital status, point-biserial correlations.

Bivariate correlations between each independent variable--socially-desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status--and the dichotomous dependent variable incidence of physical abuse by the male partner during the previous year were also examined using point-biserial correlations.

Bivariate correlations between each independent variable--socially-desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status--and the dependent variable frequency of physical abuse by the male partner during the previous year among those women who report at least one episode of partner physical abuse were also examined using Pearson product-moment coefficients and a point-biserial correlation in the case of the dichotomous independent variable marital status.

Bivariate correlations between each independent variable--socially-desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status--and the dichotomous dependent variable incidence of psychological abuse by the male partner during the

previous year were also examined using point-biserial correlations.

Bivariate correlations between each independent variable-- socially-desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status--and the dependent variable frequency of psychological abuse by the male partner during the previous year among those women who report at least one episode of partner psychological abuse were also examined using Pearson product-moment coefficients and a point-biserial correlation in the case of the dichotomous independent variable marital status.

Partial correlations between each combination of two significant predictor variables in terms of each of the four dependent variables were also examined.

To evaluate the multivariate relationships associated with the incidence of partner physical abuse, a logistic regression equation was examined by entering the independent variables in the following order: socially desirable responding, partner alcohol abuse, partner drug abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status.

Demographic variables found to be significantly correlated with partner physical abuse incidence were then added to the logistic regression equation to see if the variable made a significant contribution to the model.

To evaluate the multivariate relationships associated with the frequency of partner physical abuse among those women who reported at least one episode

of physical abuse during the past year, a hierarchical multiple regression equation was to be examined by entering the independent variables in the following order: socially desirable responding, partner alcohol abuse, partner drug abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status. Demographic variables found to be significantly correlated with partner physical abuse incidence were then be added to the logistic regression equation to see if the variable made a significant contribution to the model. Since the data did not meet the assumptions for a parametric multiple regression, a non-parametric ordinal regression was conducted.

To evaluate the multivariate relationships associated with the incidence of partner psychological abuse, a second logistic regression equation was examined by entering the independent variables in the following order: socially desirable responding, partner alcohol abuse, partner drug abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status. Demographic variables found to be significantly correlated with partner psychological abuse incidence were then added to the logistic regression equation to see if the variable made a significant contribution to this model.

To evaluate the multivariate relationships associated with the frequency of partner psychological abuse among those women who reported at least one episode of partner psychological abuse during the past year, a hierarchical multiple regression equation was to be examined by entering the independent variables in the following order: socially desirable responding, partner alcohol

abuse, partner drug abuse, respondent drug abuse, socioeconomic resources, relationship adjustment, and marital status. Demographic variables found to be significantly correlated with partner psychological abuse incidence were then added to this regression equation to see if the variable makes a significant contribution to this model. Since the data did not meet the assumptions for a multiple regression, a non-parametric ordinal regression was conducted.

To gauge the population validity of the logistic regression equation associated with the incidence of partner physical abuse, a second, cross-validation sample of women in treatment for substance abuse whose results were held out from the derivation of the original equation were examined. The incidence of partner physical abuse among the cross-validation sample was compared against the predicted incidence of partner physical abuse during the previous year as generated by the logistic regression equation.

To gauge the population validity of the multiple regression equation associated with the frequency of partner physical abuse among those women who reported at least one episode of partner physical abuse, the frequency of partner physical abuse towards those women in the cross-validation sample who reported at least one episode of partner physical abuse were compared against the predicted frequency of partner physical abuse during the previous year based on the multiple regression equation.

To gauge the population validity of the logistic regression equation associated with the incidence of partner psychological abuse, the cross-validation



sample was also examined. The incidence of partner psychological abuse among this second sample was compared against the predicted incidence of partner psychological abuse during the previous year as generated by the logistic regression.

To gauge the population validity of the multiple regression equation associated with the frequency of partner psychological abuse among those who reported at least one episode of partner psychological abuse, the frequency of partner psychological abuse reported by the cross-validation sample was compared against the predicted frequency of partner psychological abuse during the previous year for those who reported at least one episode of partner psychological abuse as generated by the multiple regression equation.

### *Methodological Limitations*

Because of the nature of domestic violence, a retrospective correlational study of naturally occurring groups rather than a controlled experiment was proposed. As a result, any predictive risk factors which were associated with partner physical or psychological abuse can not be regarded as causative in nature. To enhance questionnaire validity, research participants were asked to answer only in terms of the previous 12 months even though experiences of partner abuse before this time may have been critical for some respondents. Women who had not been in a relationship for at least three months during the previous year were excluded from the study even though they may have

represented a group who avoided relationships as a result of earlier victimization. This study was focused on partner-perpetrated violence and psychological abuse rather than other types of interpersonal violence although these other forms of violence may be very significant issues as well. To reduce the risk of retribution from male partners, no effort was made to substantiate the partner substance-abuse and domestic-abuse reports of the research participants by attempting to contact their male partners. The study also did not attempt to quantify the amount or frequency of substance abuse by the respondent or her male partner or the acute effects of such substance abuse during episodes of domestic violence or psychological abuse. Similarly, the limited sample size precluded an in-depth analysis based on each specific drug-of-abuse. Responses from those who reported a male partner rather than female partner during the past year were analyzed separately. While physical and psychological abuse within lesbian relationships are important concerns, the small sample size of this study precluded a robust analysis of these relationships (see Appendix O). Since research participants for this study were anonymous volunteers, there was no way to compare respondents who participated with those who decided not to be involved.

## CHAPTER IV

### Results

A total of 251 questionnaires were received from six different substance abuse treatment agencies in eastern Pennsylvania. The participating agencies offered a wide range of therapy services for female substance abusers, both voluntary and mandated to treatment, including inpatient and outpatient, group and individual treatment for urban, suburban and rural populations. The programs are funded by both private insurance and public assistance. In addition to more conventional settings, respondents were drawn from longer-term shelters where recovering women live with their children, an outpatient methadone program, as well as a treatment-based halfway-house for women sent by the court system. Since respondents were anonymous, it was not known which questionnaires came from which agencies.

Ninety-four questionnaires (37.5%) did not meet the protocol criteria and were excluded from further study. Specifically, 27 respondents reported no romantic relationship during the past 12 months and two respondents did not meet the minimum screening criteria for substance abuse. Seven respondents (or their partners) were incarcerated for most of the previous year and were excluded for this reason. Fifty-eight respondents returned questionnaires which were too incomplete to permit measurement of the hypothesized or dependent

variables. Questionnaires with more than two items on a given inventory left unanswered were considered invalid and excluded from the study. Eleven questionnaires had left one or two items unanswered on the embedded multi-item inventories and, in these cases, a prorated score was generated to arrive at a proportional response.

Seventeen respondents reported a primary lesbian relationship during the past year and these survey results were examined in a separate analysis (see Appendix O).

#### *Full-Sample Profile*

Of the 135 respondents in the full sample, 113 (83.7%) were receiving inpatient substance-abuse treatment, and 22 were attending outpatient substance-abuse counseling. Seven respondents (5.2%) were enrolled in outpatient methadone maintenance. Twenty-one respondents (15.6%) had been in jail or a correctional halfway house for less than six months during the previous year. Similarly, 27 respondents (20%) indicated their partners had been incarcerated or sentenced to a correctional halfway house for less than six months in the past year. Most women were in treatment on a voluntary basis, but 24 (17.7%) indicated they were mandated by a judge or parole board to attend alcohol-and-drug-abuse counseling.

Respondents ranged from 18 to 62 years-of-age with a mean of 34.5 years ( $SD = 9.9$ ,  $n = 135$ ). Their partners ranged from 20 to 70 years-of-age

with a mean of 38.3 years ( $SD = 10.8$ ,  $n = 133$ ). Two respondents did not indicate the age of their partner.

Respondent education ranged from eight to eighteen years of schooling with a mean of 12.7 years ( $SD = 1.93$ ,  $n = 135$ ). Partner education ranged from three to twenty years of schooling with a mean of 12.5 years ( $SD = 2.40$ ,  $n = 130$ ). Five respondents did not specify the educational histories of their partners.

When asked about their employment circumstances during the previous year, respondents generally selected more than one category to characterize their occupational experiences (see Table 1). Forty-five women (33.4%) indicated they had generally been unemployed, and 31 respondents (23%) reported keeping house. Twenty-eight respondents (20.7%) had been working full-time, and 25 (18.5%) were working part-time. Another 14 women (10.4%) were disabled, and eight (5.9%) reported working more than one job. Seven respondents (5.2%) did not work for at least part of the past year due to incarceration. Three women (2.2%) had been attending school and two (1.5%) described themselves as retired.

When asked to describe their partners' employment during the previous twelve months, seventy women (52.2%) reported their partners were generally working full-time, and 23 (17.2%) described their partners as being unemployed. Fifteen partners (11.2%) had worked part-time, and fourteen (10.5%) had worked more than one job. Seven partners (5.2%) did not work for at least part of the year due to incarceration, and six partners (4.5%) were

Table 1

*Full-Sample Occupational Profile**Respondent Occupational Profile*

	Frequency	Percent <sup>a</sup>
Unemployed	45	33.4
Keeping house	31	23.0
Full-time job	28	20.7
Part-time job	25	18.5
Disabled	14	10.4
Multiple jobs	8	5.9
Incarcerated	7	5.2
School	3	2.2
Retired	2	1.5

a. Past year,  $N = 135$ .

*Partner Occupational Profile*

	Frequency	Percent <sup>a</sup>
Full-time job	70	52.2
Unemployed	23	17.2
Part-time job	15	11.2
Multiple jobs	14	10.5
Incarcerated	7	5.2
Disabled	6	4.5
Keeping House	2	1.5
Retired	1	.7
School	1	.7

a. Past year,  $N = 134$  (one partner unreported).

disabled. Two partners (1.5%) were described as keeping house. One partner (0.7%) was retired, and another partner (0.7%) was attending school. One respondent (0.7%) provided no information about her partner's employment during the previous year.

When asked to describe their ethnic backgrounds (see Table 2), 95 respondents (70.4%) indicated Caucasian ancestry, 35 (25.9%) reported being African Americans, and five (3.7%) were Hispanic.

Respondents indicated eighty-two partners (60.7%) were Caucasian, 43 (31.9%) were African Americans, 6 (4.4%) were Hispanic, 3 (2.2%) were Asian Americans, and one partner (0.7%) was Native American.

In comparison, the American Community Survey (U.S. Census, 2004) estimated the current population of Pennsylvania to be 84.8% Caucasian, 10% African American, 3.7% Hispanic, with 1.5% from "other" ethnic backgrounds. This suggests the sample in the current study included an higher concentration of respondents and partners who were African American than one would expect to find in a random sample of adult Pennsylvanians.

Given the small number of respondents from Hispanic, Asian, and Native American ethnic groups and the limited statistical reliability based on this data (Federal Register Notice, 1997), ethnic categories were collapsed for statistical purposes into "Caucasian" and "All Other Races," in order to include all participating ethnic groups in the study (National Institute of Health, 2001).

Based on this aggregation, 95 respondents (70.4%) described themselves

*Full-Sample Ethnic Representation**Respondent Ethnic Background*

	Frequency	Percent
European American	95	70.4
African American	35	25.9
Latina American	5	3.7
Total	135	100.0

*Partner Ethnic Background*

	Frequency	Percent
European American	82	60.7
African American	43	31.9
Latino American	6	4.4
Asian American	3	2.2
Native American	1	.7
Total	135	100.0



as Caucasian, while 40 (29.6%) reported other ethnic backgrounds. Similarly, there were 82 partners (60.7%) who were described by the female respondent as Caucasian and 53 partners (39.3%) from all other races. Analyses were also conducted comparing only the Caucasian and African American respondent and partner subsamples.

On the 13-item Marlowe-Crowne Social Desirability Scale-Form C (M-C SDS-C, Reynolds, 1982; Crowne & Marlowe, 1960), there was a mean score of 4.94 ( $SD = 2.8$ ), with a range of 0-13 for the full sample (see Table 3).

On the 13-item Short Michigan Alcohol Screening Test-C (SMAST-C, Selzer et al., 1975; Watt, 2000), the full sample reported a mean of 5.57 alcohol-related problems ( $SD = 4.20$ ) with a range from zero to thirteen. Based on studies examining criterion validity with clinical and community samples, Hays and Preeto (1992) supported the recommended demarcation score of three and above (Selzer et al., 1975) to distinguish those with diagnosable alcohol problems. Seventy-eight (65.2%) of the full sample were above this cut point.

Partners were described with a somewhat lower mean of 4.06 ( $SD = 4.06$ ) on the similar 13-item Short Michigan Alcohol Screening Test-Significant Other (SMAST-SO-C, Schenberg, 1999; Selzer et al., 1975; Watt, 2000), with the same full range of scores. Seventy-two (53.3%) of the 135 partners were above the recommended demarcation score of three suggesting a high rate of alcohol problems in the partner cohort.

The full sample of respondents also reported a mean of 13.45 drug-

Table 3

*Full-Sample Profile of Hypothesized Predictors<sup>a</sup>*

	Mean	Median	Std. Deviation
SDR	4.9407	5.0000	2.80395
PALC	4.0593	3.0000	4.05515
PDRG	9.2889	10.0000	6.76786
RALC	5.5704	6.0000	4.20473
RDRG	13.4519	15.0000	5.50538
SES	11.4743	8.0000	11.60452
ADJ	44.8889	45.0000	12.99751

a.  $N = 135$ .

Note. SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; SES = socioeconomic resources; ADJ = relationship adjustment.

related problems ( $SD = 5.51$ ) associated with drug abuse on the 20-item Drug Abuse Screening Test-20 (Skinner, 1982; Skinner & Goldberg, 1986) with a range from zero to twenty. Based on several studies examining criterion validity, Gavin, Ross, and Skinner (1989) as well as Cocco and Carey (1998) have recommended a score of five and above on the DAST-20 to distinguish those with diagnosable substance-abuse problems. One hundred and twenty-seven of the 135 respondents (91.9%) were above the cut point of five indicative of problematic drug abuse.

The mean score was 9.29 ( $SD = 6.77$ ) for partner drug abuse problems on the collateral version of the Drug Abuse Screening Test-20 (Skinner, 1982; Skinner & Goldberg, 1986) with the same range, but still well above the recommended cut score of five indicating problematic drug abuse. Specifically, 89 of the 135 partners (65.9%) fell above the cut point indicating drug abuse problems.

In terms of socioeconomic resources, the full sample reported annual household incomes ranging from zero to over \$100,000 with a mean of \$32,150 ( $SD = 31.2$ ) and a median of \$10,000.

Similarly, among the full sample of respondents, the per capita income was found to be \$11,470 ( $SD = \$11,600$ ) which ranged between \$1,430 and \$60,000 per family member.

Responses from the full sample on the 32-item Revised Dyadic Adjustment Scale (RDAS; Spanier, 1976; Spanier & Filsinger, 1983) showed a

mean relationship adjustment of 44.9 ( $SD = 13.0$ ) which ranged from the lowest possible of 14 to the maximum of 74. Crane, Middleton, and Bean (2000) recommended a cut score of 48 and below on the RDAS to distinguish distressed from non-distressed couples. This suggests that the current sample generally reported distressed relationships.

In response to questions about the status of their primary relationship, twenty-three respondents (17.1%) from the full sample of 135 described themselves as currently married. Thirty seven (27.4%) identified themselves as "living together," three (2.2%) were "divorced," and 72 (53.3%) were "separated and not living together." None of the respondents indicated they were widowed. In line with the general-population risk-marker analysis of Hotaling and Sugarman (1986), the "divorced, widowed, separated, and living together" categories were collapsed for the present study into an "unmarried" group for further analyses.

When asked to appraise their own substance abuse patterns (see Table 4), 62 respondents (45.9%) felt both alcohol and drugs were problems for them, 16 (11.9%) described themselves as having problems only with alcohol, and 56 (41.5%) felt they had problems only with drugs. One respondent (0.7%) described herself as not having no problems with alcohol or drugs, although she met the criteria for problematic drug abuse based on her responses to the Drug Abuse Screening Test.

Of the 118 respondents who reported abusing drugs, 70 (59.3%) used

Table 4

*Full-Sample Profile of Respondent Substance Abuse*  
*Respondent Alcohol-Abuse and Drug-Abuse Problems*

	Frequency	Percent
Alcohol problems	16	11.9
Drug problems	56	41.5
Alcohol & drug problems	62	45.9
No substance abuse problem	1	.7
Total	135	100.0

*Respondent Drug-Abuse Pattern*

	Frequency	Percent <sup>a</sup>
One drug	76	64.4
Several drugs	42	35.6
Any drugs	118	100.0

a. n = 118 drug-users.

*Drugs Abused by Respondents*

	Frequency	Percent <sup>a</sup>
Cocaine	70	59.3
Heroin	33	28.0
Unspecified drugs	19	16.1
Prescription pills	17	14.4
Marijuana	7	5.9
Amphetamines	2	1.7
PCP	2	1.7

a. n = 118 drug-users.

crack and other forms of cocaine, while 33 (28%) abused heroin. Nineteen respondents (16.1%) abused some drugs, but were not specific about which drugs. Another 17 (14.4%) abused prescription medications, 7 (5.9%) reported abusing marijuana, two (1.7%) abused methamphetamine, and 2 (1.7%) reported abusing PCP. Among the respondents who reported drug abuse, 42 (35.6%) abused more than one of these drugs, not including alcohol as a drug.

Respondents were also asked to evaluate their partners' substance abuse patterns (see Table 5), and 67 (49.6%) felt their partners had problems with both alcohol and drugs, 13 (9.6%) described their partners as having problems with alcohol only, and 30 (22.2%) of these partners had problems with drugs only. Another twenty-five respondents (18.5%) reported their partners did not have problems with alcohol or drugs, suggesting 110 respondents (81.5 %) in this sample felt their significant others had some substance-abuse problems.

Of the 97 partners who abused drugs, 51 (40.2%) abused crack and other forms of cocaine, and 27 (21.3%) abused heroin. Seventeen partners (13.4%) were reportedly abusing drugs, but the respondents failed to specify which drugs or wrote down "every drug." Another 15 partners (11.8%) abused marijuana, 7 (5.5%) abused prescription medications, 6 (4.7%) abused amphetamines, and 4 (3.2%) were described as abusing Ecstasy. Among respondents who reported partners who abused drugs, 31 (31.6%) indicated their partners abused more than one of these drugs, not including alcohol as a drug.

One hundred and one women (74.8%) from the full sample described at

*Full-Sample Profile of Partner Substance Abuse**Partner Alcohol-Abuse and Drug-Abuse Problems*

	Frequency	Percent
Alcohol problems	13	9.6
Drug problems	30	22.2
Alcohol & drug problems	67	49.6
No substance abuse problem	25	18.5
Total	135	100.0

*Partner Drug-Abuse Pattern*

	Frequency	Percent <sup>a</sup>
One drug	67	68.4
Several drugs	31	31.6
Any drugs	98	100.0

a. n = 97 drug users.

*Drugs Abused by Partners*

	Frequency	Percent <sup>a</sup>
Cocaine	51	40.2
Heroin	27	21.3
Unspecified drugs	17	13.4
Marijuana	15	11.8
Prescription drugs	7	5.5
Amphetamines	6	4.7
Ecstasy (MDMA)	4	3.2

a. n = 97 drug users.

least one episode of partner violence in the past year on the 12-item physical abuse subscale of the Abusive Behavior Inventory-physical abuse subscale (ABI; Shepard & Campbell, 1992) with an average frequency score of 1.75 ( $SD = .85$ ) on a scale from 1 (*never*) to 5 (*very frequently*). Among respondents who reported at least one episode of partner violence in the past year, the mean frequency of partner violence over the past year was 1.97 ( $SD = 0.83$ ) with a range from 1.08 to 4.45.

One hundred and thirty-one women (97%), from the full sample of 135 respondents, reported psychological abuse on the 17-item psychological abuse subscale of the Abusive Behavior Inventory (ABI; Shepard & Campbell, 1992) with an overall average frequency of 2.2 ( $SD = .82$ ) on a scale from 1 (*never*) to 5 (*very frequently*). Among respondents who reported at least one episode of partner emotional abuse, the mean frequency of emotional abuse from their partners during the past year was 2.24 ( $SD = 0.80$ ) with a range of 1.06 to 4.33.

Respondents were also asked if they had ever been physically, sexually, or emotionally abused by any partners. These terms were again not defined in order to allow respondents to give their own interpretations. Eighty-two women (60.7%) felt they had been with partners who were physically abusive, 45 (33.3%) reported having had partners who were sexually abusive, and 107 (79.3%) indicated they had been with partners who were emotionally or psychologically abusive at some point.

Respondents were also asked if they had been physically, sexually, and



psychologically or emotionally abused as children, without specifically defining the meaning of these terms. Thirty-six respondents (29%) indicated they had been physically abused as children, and 67 (54%) felt they had been emotionally abused out of the 124 who answered these two questions. Forty-two women (34.7%) acknowledged having been sexually abused as children out of the 121 respondents who answered this question.

### *Training-Sample Profile*

From the pool of 135 completed questionnaires, 112 respondent surveys were drawn at random using the SPSS - 13 "random select" function to serve as the training sample for further analyses. The remaining 23 questionnaires (20% of the original sample) were held-out from initial analyses as an evaluation sample to allow cross-validation of the prediction models.

To check that the training and evaluation samples were comparable, Mann-Whitney  $U$  Tests were used to check for any differences between the two groups. There were no significant differences between the training and evaluation samples in terms of demographic variables (see Table 6): respondent age (RAGE), respondent education (REDU), respondent ethnicity-Caucasian or All Other Races (RETH), respondent incarceration during the past year (RJAIL), respondent childhood physical abuse (CVIO), respondent childhood sexual abuse (CSEX), respondent childhood emotional abuse (CEMO), methadone maintenance treatment (METH), voluntary or involuntary treatment

Table 6

## Training and Evaluation Sample Comparison- Demographic Variables

Test Statistics<sup>a</sup>

	RAGE	REDU	RETH	RJAIL	CVIO	CSEX	CEMO	METH
Mann-Whitney U	1100.00	1199.50	1154.00	1181.50	707.500	644.000	599.000	1275.00
Wilcoxon W	7428.00	7527.50	7482.00	1457.50	6923.50	722.000	6815.00	1551.00
Z	-1.101	-.544	-.985	-.993	-.145	-.105	-1.157	-.198
Asymp. Sig. (2-tailed)	.271	.587	.325	.321	.885	.916	.247	.843
Exact Sig. (2-tailed)	.274	.590	.456	.373	1.000	1.000	.379	1.000

Test Statistics<sup>a</sup>

	INVOL	TXTYP	PAGE	PEDU	PETH	PJAIL
Mann-Whitney U	1079.50	1237.50	959.500	941.500	1083.50	1101.00
Wilcoxon W	1355.50	7565.50	7287.50	6827.50	7411.50	1377.00
Z	-1.843	-.462	-1.337	-1.621	-1.415	-1.558
Asymp. Sig. (2-tailed)	.065	.644	.181	.105	.157	.119
Exact Sig. (2-tailed)	.076	.766	.183	.106	.170	.160

a. Grouping Variable: Training vs Evaluation Samples.

Note. RAGE = respondent age; REDU = respondent education; RETH = respondent ethnicity; RJAIL = respondent incarceration; CVIO = childhood physical abuse; CSEX = childhood sexual abuse; CEMO = childhood emotional abuse; METH = methadone maintenance; INVOL = mandated treatment; TXTYP = treatment type; PAGE = partner age; PEDU = partner education; PETH = partner ethnicity; PJAIL = partner incarceration.

(INVOL), and type of treatment-either inpatient or outpatient (TXTYP), partner age (PAGE), partner education (PEDU), partner ethnicity-either Caucasian or All Other Races (PETH), and partner incarceration in the past year (PJAIL). There were also no significant differences between the training and evaluation samples when examined only in terms of Caucasian and African American respondents and their partners.

There were also no significant differences found in terms of the hypothesized independent variables (see Table 7): socially desirable responding (SDR), partner alcohol abuse (PALC), partner drug abuse (PDRG), respondent alcohol abuse (RALC), respondent drug abuse (RDRG), socioeconomic status (SES), dyadic adjustment (ADJ), and marital status (MAR). Similarly, there were no significant differences in terms of the dependent variables (see Table 8): incidence of partner violence during the past year (PVI), incidence of partner emotional abuse during the past year (PEI), frequency of partner violence (PVF) among those who reported episodes of violence, and frequency of partner emotional abuse frequency (PEF) among those who reported episodes of partner emotional abuse.

Univariate distributions of all hypothesized variables in the training sample (except for dyadic adjustment) showed excessive skew or kurtosis based on the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality. Since Pearson correlation coefficients assume normal distributions, the corresponding distribution-free non-parametric Spearman rho ( $r_s$ ) correlations were employed.

Table 7

## Training and Evaluation Samples Comparison- Hypothesized Variables

Test Statistics<sup>a</sup>

	SDR	PALC	PDRG	RALC	RDRG	LgSES	ADJ	MAR
Mann-Whitney U	1001.50	1205.00	1264.00	1151.50	1157.50	1217.50	1196.00	1080.00
Wilcoxon W	7329.50	7533.00	1540.00	7479.50	1433.50	1493.50	1472.00	7408.00
Z	-1.687	-.495	-.141	-.803	-.766	-.415	-.539	-1.869
Asymp. Sig. (2-tailed)	.092	.621	.888	.422	.444	.678	.590	.062
Exact Sig. (2-tailed)	.092	.624	.890	.425	.447	.685	.593	.072

a. Note. SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; LgSES = logarithm of socioeconomic resources; ADJ = relationship adjustment; MAR = marital status.

Given these departures from normality, and the relatively small sample size of some subgroups, univariate correlations between independent and dependent variables with a dichotomous variable were calculated to exact rather than approximate p-values (Uitenbroek, 1997). Correlations between two dichotomous variables were assessed with phi ( $\phi$ ) correlations. Preliminary examination of the training sample also revealed significant univariate outliers in the distributions of socioeconomic status and the frequency of partner violence. Rather than exclude these extreme cases, socioeconomic status and the frequency of partner violence were logarithmically transformed with a base of 10 to permit inclusion of outliers.

No adjustments were made to the hypothesized one-tail .05 alpha levels of significance since this study was primarily exploratory, and lower power, non-parametric statistics were utilized with a cross-validation sample (Feise, 2002; Garson, 2003; Perneger, 1998; Uitenbroek, 1997). Additional demographic variables, with no hypothesized directional relationship to the dependent variables, were held to the more stringent two-tailed .05 alpha levels of significance. All analyses were conducted with SPSS-13 Advanced.

### *Incidence of Partner Violence*

#### *Univariate Correlations*

The first hypothesis stated that the incidence of partner physical abuse during the previous year (PVI) would be associated with low levels of socially

desirable responding (SDR), high levels of partner alcohol abuse (PALC), partner drug abuse (PDRG), respondent alcohol abuse (RALC), and respondent drug abuse (RDRG), as well as low levels of socioeconomic resources (SES), low levels of relationship adjustment (ADJ), and unwed marital status (MAR). This hypothesis was partially confirmed in that the incidence of partner violence in the training sample was found to have significant univariate correlations with low socially desirable responding ( $r_s = .214, p = .012, n = 112$ ), elevated partner alcohol abuse ( $r_s = .321, p = .000, n = 112$ ), elevated partner drug abuse ( $r_s = .438, p = .000, n = 112$ ), elevated respondent drug abuse ( $r_s = .160, p = .046, n = 112$ ), a lower logarithm of socioeconomic status ( $r_s = .184, p = .025, n = 112$ ), lower dyadic adjustment ( $r_s = .349, p = .000, n = 112$ ), and unwed marital status ( $\phi = .283, p = .003, n = 112$ ) at the one-tailed .05 alpha level (see Table 9). The hypothesized correlation between the incidence of partner violence and elevated respondent alcohol abuse, however, was not significant at the one-tailed .05 alpha level.

Univariate correlations between the incidence of partner physical abuse and demographic variables were also examined—respondent age (RAGE), respondent education (REDU), respondent ethnicity-Caucasian or All Other Races (RETH), respondent past-year incarceration (RJAIL), childhood physical abuse (CVIO), childhood sexual abuse (CSEX), and childhood emotional abuse (CEMO), methadone maintenance (METH), treatment type (TXTYP), mandated treatment (INVOL), partner age (PAGE), partner education (PEDU), partner ethnicity-

Table 9

*Hypothesized Correlations with the Incidence of Partner Violence.*

	SDR	PALC	PDRG	RALC	RDRG	LgSES	ADJ	MAR
PVI	-.214*	.321**	.438**	.127	.160*	-.184*	-.349**	-.283**
SDR	----	-.132	-.263**	-.137	-.350**	.062	.196*	-.027
PALC	----	----	.379**	.224**	.091	-.061	-.141	-.081
PDRG	----	----	----	-.088	.357**	-.246**	-.257**	-.205*
RALC	----	----	----	----	.063	.134	-.132	.040
RDRG	----	----	----	----	----	-.153	-.091	-.127
LgSES	----	----	----	----	----	----	-.043	.312**
ADJ	----	----	----	----	----	----	----	.065
MAR	----	----	----	----	----	----	----	----

\*  $p < .05$ , one-tail.\*\*  $p < .01$ , one-tail.

Note. PVI = partner violence incidence; SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; LgSES = logarithm of socioeconomic resources; ADJ = relationship adjustment; MAR = marital status.

Caucasian or All Other Races (PETH), and partner incarceration (PJAIL) during the past year (see Table 10). The incidence of partner violence was found to be significantly correlated with lower respondent age ( $r_s = .271, p = .004, n = 112$ ), respondent childhood physical abuse ( $\phi = .197, p = .038, n = 111$ ), respondent childhood emotional abuse ( $\phi = .212, p = .032, n = 111$ ), and lower partner age ( $r_s = .279, p = .003, n = 112$ ) at the two-tailed .05 alpha level. No other demographic variables, including comparisons between Caucasian and African American subsamples, were correlated with the incidence of partner violence at the two-tailed .05 alpha level of significance.

#### *Partial Correlations*

First-order partial correlations between the incidence of partner violence and each significant univariate correlate were then examined while controlling for the remaining significant univariate correlates. As can be seen in Table 11, the incidence of partner violence was strongly correlated with partner alcohol abuse, partner drug abuse, dyadic adjustment and marital status after all other significant predictors were controlled. Respondent drug abuse, however, no longer correlated with the incidence of partner violence once other significant univariate predictors were controlled. The partial correlation between the incidence of partner violence and respondent age was also not significant when partner age was controlled. Similarly, the partial correlation between the incidence of partner violence and partner age was not significant when respondent age was controlled. These results suggested partner age and





Table 11

*Partial Correlation between the Incidence of Partner Violence and Significant Bivariate Predictors<sup>a</sup>*

Controlled variable	SDR	PALC	PDRG	RDRG	LgSES	ADJ	MAR	RAGE <sup>b</sup>	CVIO <sup>b</sup>	CEMO <sup>b</sup>	PAGE <sup>b</sup>
(SDR)	----	.307**	.429**	.073	-.189*	-.335**	-.296**	-.258**	.191*	.171	-.249**
(PALC)	-.167*	----	.381**	.147	-.177*	-.326**	-.273**	-.315**	.195*	.177	-.268**
(PDRG)	-.087	.174*	----	-.025	-.099	-.266**	-.213*	-.210*	.129	.145	-.175
(RDRG)	-.168*	.330**	.444**	----	-.185*	-.352**	-.270**	-.249**	.189*	.198*	-.240**
(LgSES)	-.186*	.310**	.430**	.102	----	-.372**	-.235**	-.218*	.183	.216*	-.218*
(ADJ)	-.145	.286**	.397**	.107	-.226**	----	-.272**	-.322**	.146	.191*	-.303**
(MAR)	-.217*	.315**	.425**	.097	-.120	-.351**	----	-.221*	.196*	.246**	-.241*
(RAGE)	-.174*	.358**	.429**	.053	-.108	-.394**	-.232**	----	.219*	.191*	-.108
(CVIO)	-.192*	.322**	.438**	.116	-.187*	-.336**	-.282**	-.290**	----	.135	-.259**
(CEMO)	-.154	.304**	.437**	.105	-.205*	-.348**	-.309**	-.259**	.110	----	-.264**
(PAGE)	-.162*	.320**	.416**	.062	-.112	-.359**	-.253**	-.112	.177	.199*	----

a. With parenthesized variable controlled.  $N = 109$  except CVIO and CEMO correlations where  $n = 108$ .

\*,  $p < .05$

\*\*,  $p < .01$

b. Partial correlations between RAGE, CVIO, CEMO, PAGE, and PVI two-tailed, all others one-tail.

Note. □SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; LgSES = logarithm of socioeconomic resources; ADJ = relationship adjustment; MAR = marital status; □RAGE = respondent age; □CVIO = childhood physical abuse; CEMO = childhood emotional abuse; PAGE = partner age.

respondent age were not uniquely significant univariate predictors.

Because respondent age and partner age were highly correlated with each other ( $r_s = .783, p = .000, n = 112$ ), collinearity diagnostics were conducted to compare respondent age and partner age in terms of the incidence of partner violence. The two variables showed equivalent variance proportions (.87), a moderately elevated tolerance (.453), and a moderately elevated variance inflation factor (2.21). The Condition Index was also somewhat elevated (12.33), but did not reach the threshold indicating problematic multicollinearity between respondent age and partner age in terms of the incidence of partner violence.

Since assumptions regarding multicollinearity were not violated, and partial correlations did not point to either respondent age or partner age as a significantly stronger univariate correlate with the incidence of partner violence, both respondent age and partner age were entered simultaneously (as a block) in the subsequent logistic regression analysis of the incidence of partner violence.

#### *Logistic Regression Model*

The second hypothesis stated that the incidence of partner physical abuse during the previous year would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, female-respondent alcohol abuse, and female-respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together. To test this hypothesis, a sequential logistic

regression analysis predicting the incidence of partner violence (PVI) was conducted using significant univariate correlates entered in the following order: socially desirable responding (SDR), partner alcohol abuse (PALC), partner drug abuse (PDRG), respondent drug abuse (RDRG), the log of socioeconomic status (LgSES), dyadic adjustment (ADJ), marital status (MAR). Since respondent childhood physical abuse (CVIO), respondent childhood emotional abuse (CEMO), respondent age (RAGE) and partner age (PAGE) were not hypothesized as predictors, these variables were entered as a block at the end. One case was missing data for both respondent childhood physical abuse and childhood emotional abuse and this case was excluded from further analyses regarding the incidence of partner violence, leaving 111 cases for the training sample.

The initial logistic regression model log-likelihood with these eleven correlates (see Table 12) was 69.096 with a reliable fit  $\chi^2(11, n = 111) = 58.415, p = .000$ . The Hosmer and Lemeshow goodness-of-fit test was also acceptable with  $\chi^2(8, n = 111) = 7.003, p = .536$ . Evaluation of minimum expected frequencies indicated underlying  $\chi^2$  goodness-of-fit assumptions were met. Based on the initial regression model, prediction success was 92.7% for those reporting partner violence, and 69% for those reporting no partner violence for an overall prediction success rate of 86.5 percent. The approximate variance accounted for was high (Nagelkerke  $R^2 = .599$ ), and these results suggested the eleven variables taken together adequately differentiated respondents who reported any episode of partner violence in the past year from

*Initial Logistic Regression - Incidence of Partner Violence**Model Summary*

	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Step 1	69.096	.409	.599

*Classification Table<sup>a</sup>*

		Predicted			Percent Correct
		PVI			
		.00	1.00		
Observed PVI <sup>b</sup>	.00	20	9	69.0	
	1.00	6	76	92.7	
Overall Percent				86.5	

a. The cut value is .500

b. Note. PVI = incidence of partner violence.

*Variables in the Equation<sup>a</sup>*

	B	S.E.	Wald	df	Sig.	Exp(B)
SDR	-.014	.117	.015	1	.904	.986
PALC	.276	.115	5.752	1	.016	1.318
PDRG	.133	.064	4.387	1	.036	1.143
RDRG	-.083	.072	1.330	1	.249	.920
LgSES	.592	.860	.474	1	.491	1.807
ADJ	-.121	.040	9.361	1	.002	.886
MAR(1)	1.271	.783	2.635	1	.105	3.565
RAGE	-.117	.053	4.819	1	.028	.889
CVIO(1)	-1.201	1.044	1.325	1	.250	.301
CEMO(1)	-.270	.809	.111	1	.739	.764
PAGE	-.021	.041	.267	1	.605	.979
Constant	11.029	3.666	9.051	1	.003	61657.0

a. Note. PVI = partner violence incidence; SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RDRG = respondent drug abuse; LgSES = logarithm of socioeconomic resources; ADJ = relationship adjustment; MAR = marital status; RAGE = respondent age; CVIO = childhood physical abuse; CEMO = childhood emotional abuse; PAGE = partner age.

respondents who reported no episode of partner violence.

Changes in the model likelihood-ratio  $\chi^2$  with and without each independent variable were then examined to gauge the contribution of each independent variable to the overall regression model (Tabachnick & Fidell, 2001). The following five variables were found to make significant contributions at the one-tailed .05 alpha level: partner alcohol abuse ( $LR\chi^2 = 7.539$ ,  $df = 1$ ,  $p = .003$ ), partner drug abuse, ( $LR\chi^2 = 5.205$ ,  $df = 1$ ,  $p = .0113$ ), dyadic adjustment ( $LR\chi^2 = 14.338$ ,  $df = 1$ ,  $p = .0001$ ), and marital status ( $LR\chi^2 = 2.751$ ,  $df = 1$ ,  $p = .0486$ ). Respondent age made a significant contribution at the two-tail .05 alpha level ( $LR\chi^2 = 5.443$ ,  $df = 1$ ,  $p = .0196$ ). When socially desirable responding, respondent drug abuse, the log of socioeconomic status, respondent childhood physical abuse, respondent childhood emotional abuse, and partner age were each removed from the initial regression model, there were no significant likelihood-ratio  $\chi^2$  differences, suggesting that these six variables could be omitted from the regression model without significantly diminishing predictive strength.

An abridged model was then examined and contained only partner alcohol abuse, partner drug abuse, dyadic adjustment, marital status, and respondent age. The log-likelihood for this regression model was slightly elevated from the initial model at 73.824, but still showed a reliable fit  $\chi^2(8, n = 111) = 53.687$ ,  $p = .000$ . The Hosmer and Lemeshow goodness-of-fit test was also acceptable with  $\chi^2(8, n = 111) = 7.486$ ,  $p = .485$ .

Likelihood-ratio  $\chi^2$  differences in the abridged model were then reexamined with and without each of the five remaining independent variables. Significant contributions were made by partner alcohol abuse ( $LR\chi^2 = 8.003$ ,  $df = 1$ ,  $p = .0024$ ), partner drug abuse ( $LR\chi^2 = 5.938$ ,  $df = 1$ ,  $p = .0048$ ), and dyadic adjustment ( $LR\chi^2 = 15.648$ ,  $df = 1$ ,  $p < .0001$ ) at the one-tail .05 alpha level, as well as respondent age ( $LR\chi^2 = 10.204$ ,  $df = 1$ ,  $p = .0014$ ) at the two-tail .05 alpha level. Marital status no longer reached the one-tail .05 level of significance and was dropped from the final regression model.

A final predictive model was then examined (see Table 13) consisting of partner alcohol abuse, partner drug abuse, dyadic adjustment, and respondent age. The model log-likelihood was somewhat higher at 76.447, but still showed a reliable fit  $\chi^2(4, n = 111) = 51.064$ ,  $p = .000$ . The Hosmer and Lemeshow goodness-of-fit test was also still acceptable with  $\chi^2(8, n = 111) = 8.042$ ,  $p = .429$ . Evaluation of minimum expected frequencies indicated  $\chi^2$  goodness-of-fit assumptions were met. The assumption of linearity between the logits of the independent variables and the dependent variable was also confirmed using Box-Tidwell transformations (Garson, 2003). There were no multivariate outliers.

The predictive strength of this final regression model was only slightly less than the initial model, and still accounted for approximately 54% of the variance found with the incidence of partner violence based on the Nagelkerke  $R^2$ . Predictive success also remained strong with 87.8% of those reporting any incidence of partner violence, and 48.3% of those reporting no partner

*Final Logistic Regression - Incidence of Partner Violence**Model Summary*

	-2 Log likelihood	Cox & Snell R Square	Nagelke rke R Square
Step 1	76.447	.369	.540

*Classification Table<sup>a</sup>*

		Predicted			
		PVI		Percent Correct	
		.00	1.00		
Observed	PVI	.00	14	15	48.3
		1.00	10	72	87.8
Overall Percentage					77.5

a. The cut value is .500. Note. PVI = incidence of partner violence.

*Variables in the Equation<sup>a</sup>*

	B	S.E.	Wald	df	Sig.	Exp(B)
PALC	.255	.105	5.884	1	.015	1.290
PDRG	.123	.051	5.917	1	.015	1.131
ADJ	-.107	.032	11.331	1	.001	.898
RAGE	-.106	.034	9.821	1	.002	.899
Constant	8.467	2.334	13.163	1	.000	4755.993

a. Note. PALC = partner alcohol abuse; PDRG = partner drug abuse; ADJ = dyadic adjustment; RAGE = respondent age.



violence correctly identified for an overall predictive success rate of 77.5 percent.

Based on the model likelihood-ratio  $\chi^2$  differences with and without each independent variable, significant contributions at the one-tail .05 alpha level were made to the final model by partner alcohol abuse ( $LR\chi^2 = 8.003$ ,  $df = 1$ ,  $p = .0024$ ), partner drug abuse ( $LR\chi^2 = 5.938$ ,  $df = 1$ ,  $p = .0048$ ), and dyadic adjustment ( $LR\chi^2 = 15.648$ ,  $df = 1$ ,  $p < .0001$ ), as well as respondent age ( $LR\chi^2 = 10.204$ ,  $df = 1$ ,  $p = .0014$ ) at the two-tailed .05 alpha level.

The likelihood-ratio  $\chi^2$  difference between the initial and final regression model was not significant ( $LR\chi^2 = 7.351$ ,  $df = 7$ ,  $p = .3933$ ) suggesting the final, four-variable model could be utilized in lieu of the initial eleven-variable model without a significant loss in predictive strength.

The probability of the incidence of partner violence for a particular respondent,  $p = 1 / (1 + e^{-z})$  can be found based on this final model using the following regression equation:

$$z = 8.47 + .255 \cdot (\text{PALC}) + .123 \cdot (\text{PDRG}) - .107 \cdot (\text{ADJ}) - .106 \cdot (\text{RAGE})$$

Holding the other variables constant, the odds of partner violence during the past year increase 29% per unit rise in partner alcohol abuse (Odds Ratio = 1.29, 95% CI = 1.05, 1.584), and increase 13.1% per unit rise in partner drug abuse (OR = 1.131, 95% CI = 1.024, 1.249) while the odds of partner violence drop 10.2% per unit rise in dyadic adjustment (OR = -0.898, 95% CI = -0.844, -

0.956), and drop 10.1% per unit rise in respondent age (OR = -0.899, 95% CI = -0.842, -0.961).

Based on this final model, when actual and predicted outcomes were compared for the training sample ( $n = 111$ ), the area under the Receiver Operating Curve (see Figure 3) measuring the discriminate power of the logistic regression model was highly significant ( $c = .896$ ,  $p < .000$ , 95% CI = .84, .95).

#### *Cross-Validation*

Using the final logistic regression model with the evaluation sample ( $n = 23$ ), demonstrated that 88.9% of the respondents who reported partner violence in the past year were correctly identified, as were 60% of those who reported no partner violence, for an overall success rate of 82.6% (see Table 14). Since some cells in the classification table for the cross-validation sample had frequencies below five, McNemar 2x2 test statistic rather than a Pearson  $\chi^2$  was used to evaluate predicted against actual outcomes (Agresti, 1996). There was no significant difference between the predicted and actual outcomes ( $p = .688$ , one-tailed), suggesting external validity for the final logistic model to predict the incidence of partner violence.

#### *Frequency of Partner Violence*

##### *Univariate Correlations*

The third hypothesis stated that a high frequency of partner physical abuse (among women who reported at least one episode of partner physical

*Predicted versus Actual Incidence of Partner Violence for the Evaluation Sample*

PVI		Actual		Total correct
		no violence	violence	
Predicted	no violence	3	2	60.0%
	violence	2	16	88.9%
Total				82.6%

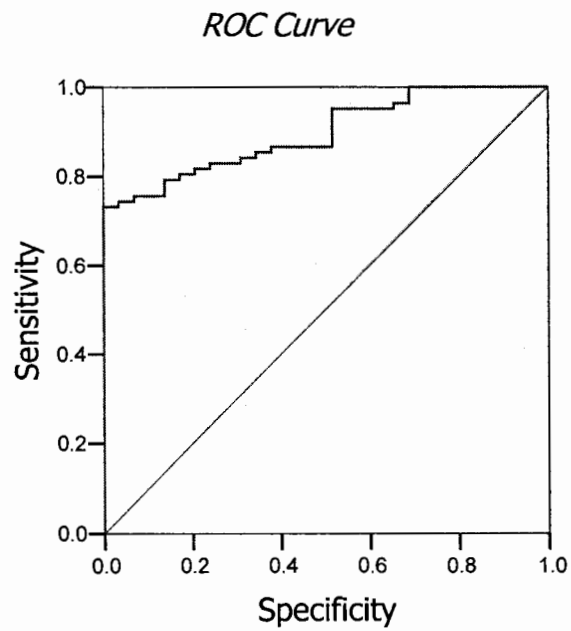
a. Note. PVI = incidence of partner violence.

*McNemar Test Statistics*

	Actual vs. Predicted PVI
N	23
Exact Sig. (1-tailed)	.688
Point Probability	.375

	Valid N (listwise)
Positive <sup>a</sup>	82
Negative	29

a. The positive actual state is 1.00.



*Area Under the Curve*

Test Result Variable(s): Predicted probability

Area	Std. Error <sup>a</sup>	Asymptotic Sig.	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.896	.029	.000	.840	.952

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Figure 3. Receiver Operating Curve - Incidence of Partner Violence

violence during the previous year) would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment as reported by the female respondent, and unwed marital status. To test this hypothesis, univariate correlates with the frequency of partner violence during the past year were assessed for the 83 respondents in the training sample who reported at least one episode of partner physical abuse. To reduce the influence of outliers, the frequency of partner violence was logarithmically transformed (base - 10).

Univariate correlations between the logarithm of the frequency of partner violence (LgPVF), socially desirable responding (SDR), partner alcohol abuse (PALC), partner drug abuse (PDRG), respondent alcohol abuse (RALC), respondent drug abuse (RDRG), the log of socioeconomic status (LgSES), dyadic adjustment (ADJ), and marital status (MAR) were examined (see Table 15). In partial support of the hypothesis, the logarithm of the frequency of partner violence was found to have significant univariate correlations at the one-tail .05 alpha level with elevated partner alcohol abuse ( $r_s = .190, p = .042, n = 83$ ), elevated partner drug abuse ( $r_s = .262, p = .008, n = 83$ ), and lower dyadic adjustment ( $r_s = .476, p < .000, n = 83$ ). The logarithm of the frequency of partner violence was not significantly correlated, however, with lower socially desirable responding, elevated respondent alcohol abuse, elevated respondent drug abuse, lower logarithm of socioeconomic status, and unwed marital status.

Table 15

Correlations Between the Logarithm of the Frequency of Partner Violence and Hypothesized Predictors<sup>a</sup>

	SDR	PALC	PDRG	RALC	RDRG	LgSES	ADJ	MAR
LgPVF	.039	.190*	.262**	.006	-.064	-.113	-.476**	-.063
SDR	----	-.091	-.201*	.83	-.310**	.057	.038	-.048
PALC		----	.234*	.153	.097	-.032	-.110	.021
PDRG			----	-.209*	.389**	-.242*	-.221*	-.170
RALC				----	.092	.120	-.059	.166
RDRG					----	-.138	-.041	-.203*
LgSES						----	-.038	.395**
ADJ							----	.072
MAR								----

\**p* < .05, one-tail.\*\**p* < .01, one-tail.

a. Spearman rho correlation coefficients, *n* = 83. Note. LgPVF = logarithm of partner violence frequency; SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; LgSES = logarithm of socioeconomic resources; ADJ = relationship adjustment; MAR = marital status.

Univariate correlations between the logarithm of the frequency of partner violence and respondent age (RAGE), respondent education (REDU), respondent ethnicity-Caucasian or All Other Races (RETH), respondent past-year incarceration (RJAIL), childhood physical abuse (CVIO), childhood sexual abuse (CSEX), and childhood emotional abuse (CEMO), methadone maintenance (METH), treatment type (TXTYP), and mandated treatment (INVOL), partner age (PAGE), partner education (PEDU), partner ethnicity-Caucasian or All Other Races (PETH), and partner past-year incarceration (PJAIL) were then examined (see Table 16).

The logarithm of the frequency of partner violence was found to have a univariate correlation with respondent ethnicity (in terms of Caucasian or All Other Races) at the two-tail .05 alpha level ( $r_s = .245, p = .026, n = 83$ ) with 56 Caucasian respondents reporting significantly less frequent partner violence when compared with respondents from other races taken together (22 African American and 5 Latinas). Similarly, the log of the frequency of partner violence was found to have a univariate correlation at the two-tail .05 alpha level ( $r_s = .232, p = .035, n = 83$ ) with significantly less frequent violence reported from the 48 Caucasian partners in comparison to the partners from all other races taken together (27 African American, 6 Hispanic, and 2 Asian American). The lone Native American partner was not reported as having been violent and was therefore not included in analyses of the frequency of partner violence.

None of the other demographic correlations were significant at the exact

Table 16

Correlations Between the Logarithm of the Frequency of Partner Violence and Demographic Variables<sup>a</sup>

	RAGE	REDU	RETH	RJAIL	METH	INVOL	TXTYP	CVIO	CSEX	CEMO	PAGE	PEDU	PETH	PJAIL
LgPVF	.017	-.080	-.245*	.002	.070	-.086	.159	.055	.085	-.059	-.088	.044	-.232*	.143
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
RAGE	---	.213	-.277*	.044	.051	.121	-.067	.086	.098	-.017	.769**	.040	-.201	-.201
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
REDU	---	---	.294**	-.205	.128	-.175	-.023	.070	.070	.205	.302**	.145	.289**	-.092
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
RETH	---	---	---	-.031	-.003	-.030	.182	-.007	.116	.171	-.166	.184	.761**	-.087
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
RJAIL	---	---	---	---	-.087	.499**	.057	-.053	-.005	.053	.052	.049	-.071	.081
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
METH	---	---	---	---	---	-.109	-.233*	.134	.125	.164	.071	.093	.035	-.120
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
INVOL	---	---	---	---	---	---	-.082	.010	-.075	.017	.182	-.006	-.203	-.034
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
TXTYP	---	---	---	---	---	---	---	-.100	.052	-.040	-.085	.149	.201	.030
	N	83	83	83	83	83	83	82	80	82	83	80	83	83
CVIO	---	---	---	---	---	---	---	---	.397**	.449**	-.066	-.049	-.177	.066
	N	83	83	83	83	83	83	82	80	82	82	80	82	82
CSEX	---	---	---	---	---	---	---	---	---	.421**	-.020	.028	.051	.118
	N	83	83	83	83	83	83	82	80	80	80	78	80	80
CEMO	---	---	---	---	---	---	---	---	---	---	.099	.138	.045	.085
	N	83	83	83	83	83	83	82	80	82	82	80	82	82
PAGE	---	---	---	---	---	---	---	---	---	---	---	.100	-.038	-.109
	N	83	83	83	83	83	83	82	80	82	82	80	83	83
PEDU	---	---	---	---	---	---	---	---	---	---	---	---	.220	-.208
	N	83	83	83	83	83	83	82	80	82	82	80	80	80
PETH	---	---	---	---	---	---	---	---	---	---	---	---	---	-.016
	N	83	83	83	83	83	83	82	80	82	82	80	80	83
PJAIL	---	---	---	---	---	---	---	---	---	---	---	---	---	---

\*.  $p < .05$ , two-tail.  
 \*\*.  $p < .01$ , two-tail.

a. Note. LgPVF = logarithm of partner violence frequency; RAGE = respondent age; REDU = respondent education; RETH = respondent ethnicity; RJAIL = respondent incarceration; CVIO = childhood physical abuse; CSEX = childhood sexual abuse; CEMO = childhood emotional abuse; METH = methadone maintenance; TXTYP = treatment type; INVOL = mandated treatment; PAGE = partner age; PEDU = partner education; PETH = partner ethnicity; PJAIL = partner incarceration.



.05 two-tail alpha level. Secondary analyses limited to Caucasian and African American subsamples are discussed below.

### *Partial Correlations*

When differentiated in terms of Caucasian or All Other Races, the logarithm of the frequency of partner violence frequency was no longer significantly correlated with respondent ethnicity (partial  $r = .126$ ,  $p = .083$ ,  $n = 80$ ) after controlling for partner ethnicity (see Table 17). Similarly, the logarithm of the frequency of partner violence was no longer significantly correlated with partner ethnicity (Caucasian or All Other Races) when controlling for respondent ethnicity (partial  $r = .073$ ,  $p = .294$ ,  $n = 80$ ).

Since respondent ethnicity and partner ethnicity (Caucasian or All Other Races) were highly correlated ( $\phi = .761$ ,  $p = .000$ ,  $n = 83$ ), collinearity diagnostics between these two variables were then examined. Respondent ethnicity accounted for 95% of the explained variance in the log of the frequency of partner violence while partner ethnicity explained 77% of this variance. Tolerance (.421) and the Variance Inflation Factor (2.377) were only moderately elevated. The Condition Index (5.584) also did not reach the threshold indicative of problematic multicollinearity.

Because assumptions regarding multicollinearity were not violated, and both respondent ethnicity and partner ethnicity (Caucasian or All Other Races) showed no significant partial correlations with the log of the frequency of partner violence, both respondent and partner ethnicity were included in the regression

Table 17

*Partial Correlations Between the Logarithm of the Frequency of Partner Violence and Significant Bivariate Predictors<sup>a</sup>*

Controlled Variable	PALC	PDRG	ADJ	RETH	PETH
(PALC)	----	.232*	-.431**	-.227*	-.279*
(PDRG)	.137	----	-.401**	-.252*	-.270*
(ADJ)	.173	.189*	----	-.260*	-.274*
(RETH)	.210	.255*	-.435**	----	-.073
(PETH)	.235*	.290**	-.452**	-.126	----

a. With parenthesized variable controlled.  $N = 80$ .

\*.  $p < .05$

\*\* $p < .01$

b. Partial correlations between RETH, PETH and LgPVF two-tailed, all others one-tailed.

Note. PALC = partner alcohol abuse; PDRG = partner drug abuse; ADJ = relationship adjustment;

RETH = respondent ethnicity; PETH = partner ethnicity.

analysis to predict the frequency of partner violence.

*Ordinal Regression Model*

The fourth hypothesis was that a high frequency of partner physical abuse during the previous year among women who experienced at least one episode of partner physical abuse would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together. A non-parametric alternative to linear regression, ordinal regression, was used to test this hypothesis in light of the non-normal distribution of the independent and dependent variables (Norušis, 2004; Tabachnick & Fidell, 2001). The response set of the Abusive Behavior Inventory (i.e., never, rarely, occasionally, frequently, and very frequently) is an ordinal scale, rather than an interval measure, which also made ordinal regression an appropriate approach. Ordinal regression uses an iterative-reweighted, least-squares algorithm to identify maximum-likelihood estimates for each parameter (McCullagh & Nelder, 1992). Since sequential ordinal regression is not offered in any currently available statistical package, simultaneous entry of independent variables was employed. Because ordinal regression assumes parallelism--essentially equal regression (slope) coefficients across all categories of the outcome variable--the log of the frequency of partner violence was divided into seven equally-spaced intervals (with evenly distributed cases) for this analysis.

Seven categories were selected for two reasons. Garson (2003) recommended five to seven categories as the minimum number of intervals to represent an underlying continuum. In addition, the logarithm of the frequency of partner violence based on the Abusive Behavior Inventory ranges exponentially from one through seven.

To predict the log of partner-violence frequency (LgPVF), the five significant univariate correlates--partner alcohol abuse (PALC), partner drug abuse (PDRG), dyadic adjustment (ADJ), respondent ethnicity-Caucasian or All Other Races (RETH), and partner ethnicity-Caucasian or All Other Races (PETH)--were entered in a simultaneous ordinal regression analysis (see Table 18). Due to the positively skewed distribution in this sample of the dependent variable, the negative log-log link function  $-\ln[-\ln(p_k)]$  produced the best fitting model, where  $p_k$  equals the probability of each response category.

The log-likelihood for the initial model was 283.854 with  $\chi^2(5, n = 83) = 31.92, p = .000$  suggesting a reliable fit. Based on the Nagelkerke  $R^2$ , this regression model accounted for approximately 32.6% of the variance.

To determine whether each of the independent variables made a significant contribution to the model, the difference in likelihood-ratio chi-square ( $LR\chi^2$ ) with and without each variable was examined (Tabachnick & Fidell, 2001). Overall model fit was significantly reduced at the one-tail .05 alpha level with removal of partner alcohol abuse ( $LR\chi^2 = 5.906, df = 1, p = .0076$ ), dyadic adjustment ( $LR\chi^2 = 23.366, df = 1, p < .0001$ ). The model was also significantly

*Initial Ordinal Regression - Frequency of Partner Violence**Case Processing Summary<sup>a</sup>*

		N	Marginal Percentage
LgPVF7	1.00	11	13.3%
	2.00	13	15.7%
	3.00	15	18.1%
	4.00	8	9.6%
	5.00	16	19.3%
	6.00	9	10.8%
	7.00	11	13.3%
RETH	All Other Races	27	32.5%
	Caucasian	56	67.5%
PETH	All Other Races	35	42.2%
	Caucasian	48	57.8%
Total		83	

a. Note. LgPVF7 = Logarithm of frequency of partner violence with 7 levels; RETH = respondent ethnicity; PETH = partner ethnicity.

*Model Fitting Information*

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Intercept Only	315.773			
	Final	283.854	31.920	5	.000

Link function: Negative Log-log.

*Goodness-of-Fit*

	Chi-Square	df	Sig.
Pearson	445.479	475	.831
Deviance	281.081	475	1.000

Link function: Negative Log-log.

Cox and Snell	.319
Nagelkerke	.326
McFadden	.100

Link function: Negative Log-log.

#### Parameter Estimates<sup>b</sup>

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[LgPVF7 = 1.00]	-2.301	.607	14.388	1	.000	-3.490	-1.112
	[LgPVF7 = 2.00]	-1.640	.587	7.823	1	.005	-2.790	-.491
	[LgPVF7 = 3.00]	-1.019	.574	3.146	1	.076	-2.145	.107
	[LgPVF7 = 4.00]	-.667	.572	1.356	1	.244	-1.789	.455
	[LgPVF7 = 5.00]	.198	.582	.115	1	.734	-.944	1.339
	[LgPVF7 = 6.00]	.920	.614	2.248	1	.134	-.283	2.123
Location	PALC	.060	.029	4.162	1	.041	.002	.118
	PDRG	.028	.022	1.601	1	.206	-.015	.070
	ADJ	-.051	.011	21.036	1	.000	-.072	-.029
	RETH = All Other Races	.301	.406	.549	1	.459	.494	1.096
	RETH = Caucasian	0 <sup>a</sup>	.	.	0	.	.	.
	PETH = All Other Races	.825	.394	4.375	1	.036	.052	1.598
	PETH = Caucasian	0 <sup>a</sup>	.	.	0	.	.	.

Link function: Negative Log-log.

a. This parameter is set to zero because it is redundant.

b. Note. LgPVF7 = logarithm of frequency of partner violence with 7 levels; PALC = partner alcohol abuse; PDRG = partner drug abuse; ADJ = relationship adjustment; RETH = respondent ethnicity; PETH = partner ethnicity.

#### Test of Parallel Lines<sup>c</sup>

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Null Hypothesis	283.854			
	General	262.505	21.348	25	.673

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

c. Link function: Negative Log-log.

reduced at the two-tail .05 alpha level with removal of partner ethnicity ( $LR\chi^2 = 5.007, df = 1, p = .0252$ ). Removing partner drug abuse and respondent ethnicity caused no significant changes in the likelihood-ratio  $\chi^2$  of the overall model, suggesting partner drug abuse and respondent ethnicity could be left out of the regression model without a significant reduction in predictive strength.

This final model (see Table 19), including partner alcohol abuse, dyadic adjustment, and partner ethnicity, demonstrated a log-likelihood of 275.916 with a reliable fit  $\chi^2 (3, n = 83) = 29.917, p = .000$ . Based on the Nagelkerke  $R^2$ , the final model accounted for approximately 30.9% of the variance which was only slightly reduced from the initial regression model.

There was no significant likelihood-ratio chi-square difference between the initial and final models ( $LR\chi^2 = 2.003, df = 2, p = .5718$ ). This result indicates that the final three-variable model effectively predicted the frequency of partner violence as well as the initial five-variable model. The test for parallel lines was also acceptable. The test for parallel lines was also acceptable ( $\chi^2 = 15.476, df = 15, p = .418$ ). The assumption of linearity between the logits of the independent variables and the dependent variable was also confirmed using Box-Tidwell transformations (Garson, 2003).

The contribution made by each of the three remaining independent variables was then reassessed. A significant decline in the regression model was seen with removal of partner alcohol abuse ( $LR\chi^2 = 5.906, df = 1, p = .0151$ ) and dyadic adjustment ( $LR\chi^2 = 23.366, df = 1, p < .0001$ ) at the one-tail .05

*Final Ordinal Regression-Frequency of Partner Violence**Case Processing Summary<sup>a</sup>*

		N	Marginal Percentage
LgPVF7	1.00	11	13.3%
	2.00	13	15.7%
	3.00	15	18.1%
	4.00	8	9.6%
	5.00	16	19.3%
	6.00	9	10.8%
	7.00	11	13.3%
PETH	All Other Races	35	42.2%
	Causasian	48	57.8%
Valid		83	100.0%
Missing		0	
Total		83	

a. Note. LgPVF = logarithm of the frequency of partner violence; PETH = partner ethnicity.

*Model Fitting Information*

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Intercept Only	305.834			
	Final	275.916	29.917	3	.000

Link function: Negative Log-log.

*Goodness-of-Fit*

	Chi-Square	df	Sig.
Pearson	410.194	435	.798
Deviance	264.355	435	1.000

Link function: Negative Log-log.



Cox and Snell	.303
Nagelkerke	.309
McFadden	.094

Link function: Negative Log-log.

### Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[LgPVF = 1]	-2.617	.532	24.237	1	.000	-3.659	-1.575
	[LgPVF = 2]	-1.975	.504	15.353	1	.000	-2.962	-.987
	[LgPVF = 3]	-1.368	.486	7.903	1	.005	-2.321	-.414
	[LgPVF = 4]	-1.019	.482	4.458	1	.035	-1.964	-.073
	[LgPVF = 5]	-.156	.492	.100	1	.751	-1.119	.808
	[LgPVF = 6]	.565	.527	1.149	1	.284	-.468	1.599
Location	PALC	.069	.029	5.896	1	.015	.013	.126
	ADJ	-.052	.011	23.400	1	.000	-.074	-.031
	PETH=Non-Caucasian	.577	.249	5.372	1	.020	.089	1.065
	PETH=Caucasian	0 <sup>a</sup>	.	.	0	.	.	.

Link function: Negative Log-log.

a. This parameter is set to zero because it is redundant.

Note. LgPVF = logarithm of frequency of partner violence; PALC = partner alcohol abuse; ADJ = elevated relationship adjustment; PETH = partner ethnicity.

### Test of Parallel Lines<sup>a</sup>

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Null Hypothesis	275.916			
	General	260.440	15.476	15	.418

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Negative Log-log.

alpha level. Removal of partner ethnicity also significantly undermined the model at the two-tail .05 alpha level ( $LR\chi^2 = 5.007$ ,  $df = 1$ ,  $p = .0252$ ).

The probability that a particular individual would fall into each of the response categories of the log of the frequency of partner violence based on this final model was calculated using the following process (Norušis, 2004). Partner alcohol abuse, dyadic adjustment, and partner ethnicity scores reported by a respondent were entered into each of the following equations:

$$z_1 = 2.617 + .069 \cdot (\text{PALC}) - .052 \cdot (\text{ADJ}) + .577 \cdot (\text{PETH}) \quad (1)$$

$$z_2 = 1.975 + .069 \cdot (\text{PALC}) - .052 \cdot (\text{ADJ}) + .577 \cdot (\text{PETH}) \quad (2)$$

$$z_3 = 1.368 + .069 \cdot (\text{PALC}) - .052 \cdot (\text{ADJ}) + .577 \cdot (\text{PETH}) \quad (3)$$

$$z_4 = 1.019 + .069 \cdot (\text{PALC}) - .052 \cdot (\text{ADJ}) + .577 \cdot (\text{PETH}) \quad (4)$$

$$z_5 = 0.156 + .069 \cdot (\text{PALC}) - .052 \cdot (\text{ADJ}) + .577 \cdot (\text{PETH}) \quad (5)$$

$$z_6 = -0.565 + .069 \cdot (\text{PALC}) - .052 \cdot (\text{ADJ}) + .577 \cdot (\text{PETH}) \quad (6)$$

The probabilities for the response categories were then calculated:

$$p_1 = 1 / (1 + e^{z_1}) \quad (7)$$

$$p_2 = [1 / (1 + e^{z_2})] - p_1 \quad (8)$$

$$p_3 = [1 / (1 + e^{z_3})] - (p_1 + p_2) \quad (9)$$

$$p_4 = [1 / (1 + e^{z_4})] - (p_1 + p_2 + p_3) \quad (10)$$

$$p_5 = [1 / (1 + e^{z_5})] - (p_1 + p_2 + p_3 + p_4) \quad (11)$$

$$p_6 = [1 / (1 + e^{z_6})] - (p_1 + p_2 + p_3 + p_4 + p_5) \quad (12)$$

$$p_7 = 1 - (p_1 + p_2 + p_3 + p_4 + p_5 + p_6) \quad (13)$$

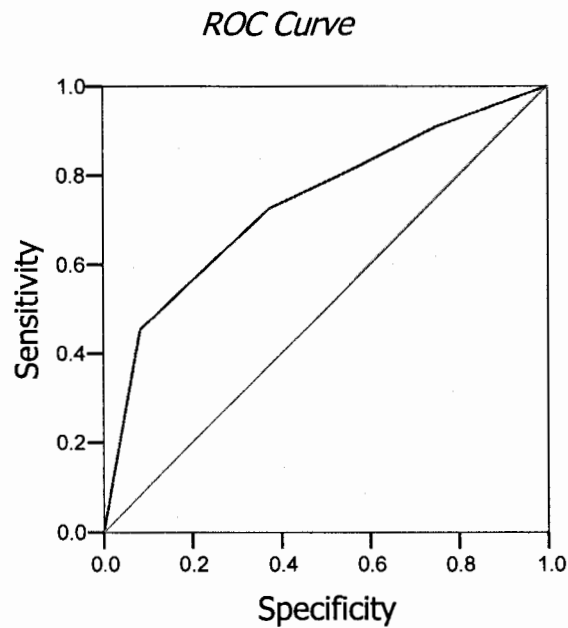
The response category with the greatest probability was then determined for each respondent.

The response categories for the actual and predicted log of the frequency of partner violence for each respondent reporting partner violence in the training sample ( $n = 83$ ), based on the final model, were compared using a Receiver Operating Curve (see Figure 4). This three-variable regression model significantly differentiated those in the highest response category ( $p_7$ ) from those in the lower categories ( $c = .736$ ,  $p = .012$ , 95% CI = .563, .910), in partial support of the hypothesis.

Although the negative log-log link function produced the best fitting model, the logit link function generated a regression model with only a slightly higher log-likelihood at 278.105, and allowed calculation of the *approximate* odds ratios associated with each of the independent variables in the final model. With the other variables held constant, the odds of a higher log of the frequency of partner violence rose 10% per unit increase in partner alcohol abuse (OR = 1.10, 95% CI = 1.00, 1.20), rose 7% per unit decline in dyadic adjustment (OR = .093, 95% CI = 0.90, 0.96), and dropped 69% if a respondent described her partner as Caucasian rather than All Other Races (OR = 0.31, 95% CI = 0.14, 0.69).

	Valid N
Positive <sup>a</sup>	11
Negative	72

a. The positive actual state is 7.00.



*Area Under the Curve*

Test Result Variable(s): Predicted Response Category

Area	Std. Error <sup>a</sup>	Asymptotic Sig.	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.736	.089	.012	.563	.910

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Figure 4. Receiver Operating Curve - Partner Violence Frequency

### *Cross-Validation*

This final regression model for predicting the frequency of partner violence was then applied with respondents from the cross-validation sample ( $n = 18$ ) who reported at least one episode of partner violence during the past year (see Table 20). The actual and predicted response categories of the log of the frequency of partner violence were compared using the non-parametric Wilcoxon signed-rank test. There was no significant difference between the actual and predicted response categories for the log of the frequency of partner violence ( $Z = -.574, p = .566$ ), suggesting external validity for the final regression model to predict the frequency of partner violence.

### *Secondary Analysis - Caucasians and African Americans*

Since respondent and partner ethnicity emerged as significant univariate predictors of the logarithm of the frequency of partner violence and relatively few of those reporting partner violence or their partners were Hispanic or Asian American, a secondary analysis was conducted contrasting the 56 Caucasian respondents (71.8%) with the 22 African American respondents (28.2%) as well as the 48 Caucasian partners (64%) and the 27 African American partners (36%) in terms of predicting the logarithm of the frequency of partner violence. The five respondents who were Hispanic and reported partner violence were excluded from analyses examining respondent ethnicity as were the six partners who were reported as violent and Hispanic or Asian.

Table 20

*Cross-Validation Sample Confusion Matrix for Frequency of Partner Violence<sup>a</sup>*  
*Count*

		LgPVF Actual						Total
		1.00	2.00	3.00	4.00	6.00	7.00	
LgPVF	1.00	1	1	1	1	0	0	4
Predicted	2.00	0	0	1	0	0	1	2
	3.00	0	1	0	2	0	0	3
	5.00	3	0	2	1	0	1	7
	7.00	0	0	0	1	1	0	2
Total		4	2	4	5	1	2	18

a. Note. LgPVF = log of partner violence frequency.

### *Wilcoxon Signed Ranks Test*

		N	Mean Rank	Sum of Ranks
Predicted - Actual LgPVF	Negative Ranks	8 <sup>a</sup>	8.06	64.50
	Positive Ranks	9 <sup>b</sup>	9.83	88.50
	Ties	1 <sup>c</sup>		
	Total	18		

a. Predicted < Actual

b. Predicted > Actual

c. Predicted = Actual

### *Test Statistics<sup>b</sup>*

	Predicted- Actual
Z	-.574 <sup>a</sup>
Asymp. Sig. (2-tailed)	.566
Exact Sig. (2-tailed)	.585
Exact Sig. (1-tailed)	.292
Point Probability	.007

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

### *Univariate Correlations*

The logarithm of the frequency of partner violence was not found to have a significant point-biserial correlation with respondent Caucasian or African American ethnicity at the two-tail .05 alpha level ( $r_s = .215, p = .059, n = 78$ ) with African American respondents reporting more frequent partner violence. The logarithm of the frequency of partner violence and partner Caucasian or African American ethnicity was found to have a significant point-biserial correlation at the two-tail .05 alpha level ( $r_s = .286, p = .013, n = 75$ ) with more frequent partner violence by African American partners. Other significant correlations with the logarithm of the frequency of partner violence at the one-tail .05 alpha level included partner alcohol abuse ( $r_s = .187, p = .046, n = 75$ ), partner drug abuse ( $r_s = .268, p = .008, n = 75$ ), and dyadic adjustment ( $r_s = -.469, p < .000, n = 82$ ). All other hypothesized predictors and demographic variables were not significantly correlated with the logarithm of the frequency of partner violence.

### *Ordinal Regression Model*

The log-likelihood for the initial model based on the negative log-log link function (Table 21) containing partner alcohol abuse, partner drug abuse, dyadic adjustment, and partner Caucasian or African American ethnicity was 256.668 with  $\chi^2(5, n = 75) = 28.517, p = .000$  suggesting a reliable fit. Based on the Nagelkerke  $R^2$ , this ordinal regression model accounted for approximately 32.3% of the variance between thresholds of the logarithm of partner

*Initial Ordinal Regression for Frequency of Partner Violence  
(African American and Caucasian Partners only)*

*Case Processing Summary*

		N	Marginal Percentage
LgPVF7	1.00	9	12.0%
	2.00	13	17.3%
	3.00	13	17.3%
	4.00	7	9.3%
	5.00	14	18.7%
	6.00	9	12.0%
	7.00	10	13.3%
pbw	.00	48	64.0%
	1.00	27	36.0%
Valid		75	100.0%

*Model Fitting Information*

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Intercept Only	285.185			
	Final	256.668	28.517	4	.000

*Link function: Negative Log-log.*

*Goodness-of-Fit*

	Chi-Square	df	Sig.
Pearson	404.399	428	.788
Deviance	253.895	428	1.000

*Link function: Negative Log-log.*



Cox and Snell	.316
Nagelkerke	.323
McFadden	.099

Link function: Negative Log-log.

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	LgPVF7 = 1	-2.825	.648	18.981	1	.000	-4.095	-1.554
	LgPVF7 = 2	-2.090	.618	11.460	1	.001	-3.301	-.880
	LgPVF7 = 3	-1.504	.601	6.261	1	.012	-2.682	-.326
	LgPVF7 = 4	-1.166	.597	3.819	1	.051	-2.335	.003
	LgPVF7 = 5	-.345	.601	.331	1	.565	-1.523	.832
	LgPVF7 = 6	.432	.633	.465	1	.495	-.809	1.673
Location	PALC	.061	.031	3.946	1	.047	.001	.121
	ADJ	-.047	.011	16.790	1	.000	-.069	-.025
	PDRG	.027	.023	1.471	1	.225	-.017	.072
	Partner- African American	-.658	.267	6.071	1	.014	-1.181	-.135
	Partner- Caucasian	0 <sup>a</sup>	.	.	0	.	.	.

Link function: Negative Log-log.

a. This parameter is set to zero because it is redundant.

Test of Parallel Lines<sup>a</sup>

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Null Hypothesis	256.668			
	General	235.608	21.060	20	.394

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Negative Log-log.

violence frequency.

To determine whether each of the independent variables made a significant contribution to the overall model, the difference in likelihood-ratio chi-square ( $LR\chi^2$ ) with and without each variable was examined (Tabachnick & Fidell, 2001). Removing partner drug abuse improved the likelihood-ratio  $\chi^2$  for the overall model, suggesting partner drug abuse could be left out of the final regression model without a significant reduction in predictive strength.

Significant decreases in the likelihood-ratio  $\chi^2$  were found when partner alcohol abuse ( $LR\chi^2 = 4.202$ ,  $df = 1$ ,  $p = .0404$ ), dyadic adjustment ( $LR\chi^2 = 5.037$ ,  $df = 1$ ,  $p = .0248$ ), and partner Caucasian or African American ethnicity ( $LR\chi^2 = 30.26$ ,  $df = 1$ ,  $p < .0001$ ) were removed from the model.

The final model (see Table 22), based on the negative log-log link function included partner alcohol abuse, dyadic adjustment, and partner ethnicity and demonstrated a log-likelihood of 248.376 with a reliable fit  $\chi^2(3, n = 75) = 26.869$ ,  $p = .000$ . Based on the Nagelkerke  $R^2$ , the final model accounted for approximately 30.8% of the variance which was only slightly reduced from the initial regression model. The test for parallelism was also acceptable ( $\chi^2 = 12.741$ ,  $df = 15$ ,  $p = .662$ ). Overall model fit was significantly reduced at the one-tail .05 alpha level with removal of partner alcohol abuse ( $LR\chi^2 = 15.783$ ,  $df = 1$ ,  $p < .0001$ ), and dyadic adjustment ( $LR\chi^2 = 75.53$ ,  $df = 1$ ,  $p < .0001$ ). The model was also significantly reduced at the two-tail .05 alpha level with removal of partner ethnicity ( $LR\chi^2 = 26.476$ ,  $df = 1$ ,  $p < .0001$ ).

*Final Ordinal Regression for Frequency of Partner Violence  
(African American and Caucasian Partners only)*

*Case Processing Summary*

		N	Marginal Percentage
LgPVF7	1.00	9	12.0%
	2.00	13	17.3%
	3.00	13	17.3%
	4.00	7	9.3%
	5.00	14	18.7%
	6.00	9	12.0%
	7.00	10	13.3%
pbw	.00	48	64.0%
	1.00	27	36.0%
Valid		75	100.0%

*Model Fitting Information*

		-2 Log Likelihood	Chi-Square	df	Sig.
Model	Intercept Only	275.246			
	Final	248.376	26.869	3	.000

*Link function: Negative Log-log.*

*Goodness-of-Fit*

	Chi-Square	df	Sig.
Pearson	363.958	387	.794
Deviance	236.815	387	1.000

*Link function: Negative Log-log.*

*Pseudo R-Square*

Cox and Snell	.301
Nagelkerke	.308
McFadden	.093

*Link function: Negative Log-log.*

*Parameter Estimates*

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Threshold	LgPVF7 = 1	-3.164	.575	30.290	1	.000	-4.291	-2.037
	LgPVF7 = 2	-2.447	.534	21.022	1	.000	-3.493	-1.401
	LgPVF7 = 3	-1.870	.511	13.391	1	.000	-2.872	-.868
	LgPVF7 = 4	-1.535	.504	9.265	1	.002	-2.523	-.547
	LgPVF7 = 5	-.719	.507	2.009	1	.156	-1.712	.275
	LgPVF7 = 6	.056	.544	.011	1	.917	-1.011	1.123
Location	PALC	.071	.030	5.727	1	.017	.013	.130
	ADJ	-.049	.011	18.850	1	.000	-.071	-.027
	Partner-African American	-.665	.267	6.211	1	.013	-1.188	-.142
	Partner-Caucasian	0 <sup>a</sup>	.	.	0	.	.	.

*Link function: Negative Log-log.*

a. This parameter is set to zero because it is redundant.

*Test of Parallel Lines<sup>a</sup>*

Model		-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	General	248.376			
		235.636	12.741	15	.622

*The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.*

a. *Link function: Negative Log-log.*

The probability that a particular individual would fall into each of the response categories of the log of the frequency of partner violence based on this final model was calculated using the following process (Norušis, 2004). Partner alcohol abuse, dyadic adjustment, and partner ethnicity scores reported by respondents were entered into each of the following equations:

$$z_1 = 3.164 + .071 \cdot (\text{PALC}) - .049 \cdot (\text{ADJ}) - .665 \cdot (\text{PETH}) \quad (1)$$

$$z_2 = 2.447 + .071 \cdot (\text{PALC}) - .049 \cdot (\text{ADJ}) - .665 \cdot (\text{PETH}) \quad (2)$$

$$z_3 = 1.870 + .071 \cdot (\text{PALC}) - .049 \cdot (\text{ADJ}) - .665 \cdot (\text{PETH}) \quad (3)$$

$$z_4 = 1.535 + .071 \cdot (\text{PALC}) - .049 \cdot (\text{ADJ}) - .665 \cdot (\text{PETH}) \quad (4)$$

$$z_5 = 0.719 + .071 \cdot (\text{PALC}) - .049 \cdot (\text{ADJ}) - .665 \cdot (\text{PETH}) \quad (5)$$

$$z_6 = -0.056 + .071 \cdot (\text{PALC}) - .049 \cdot (\text{ADJ}) - .665 \cdot (\text{PETH}) \quad (6)$$

The probabilities for the response categories were then calculated:

$$p_1 = 1 / (1 + e^{z_1}) \quad (7)$$

$$p_2 = [1 / (1 + e^{z_2})] - p_1 \quad (8)$$

$$p_3 = [1 / (1 + e^{z_3})] - (p_1 + p_2) \quad (9)$$

$$p_4 = [1 / (1 + e^{z_4})] - (p_1 + p_2 + p_3) \quad (10)$$

$$p_5 = [1 / (1 + e^{z_5})] - (p_1 + p_2 + p_3 + p_4) \quad (11)$$

$$p_6 = [1 / (1 + e^{z_6})] - (p_1 + p_2 + p_3 + p_4 + p_5) \quad (12)$$

$$p_7 = 1 - (p_1 + p_2 + p_3 + p_4 + p_5 + p_6) \quad (13)$$

The response category with the greatest probability was then determined for each respondent.

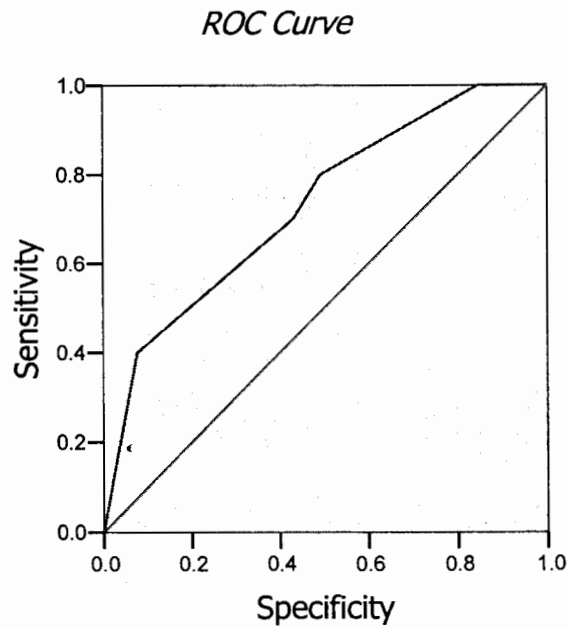
The response categories for the actual and predicted log of the frequency of partner violence for each respondent reporting partner violence in the training sample ( $n = 75$ ), based on the final model, were compared using a Receiver Operating Curve (see Figure 5, below). This three-variable regression model significantly differentiated those in the highest response category ( $p_7$ ) from those in the lower categories ( $c = .728, p = .021, 95\% \text{ CI} = .561, .896$ ).

#### *Cross-Validation*

This final regression model for predicting the frequency of partner violence was then applied with respondents from the cross-validation sample ( $n = 18$ ) who were African American or Caucasian and reported partner violence during the past year. The actual and predicted response categories of the logarithm of the frequency of partner violence were compared using the non-parametric Wilcoxon signed-rank test. There was no significant difference between the actual and predicted response categories for the logarithm of the frequency of partner violence ( $Z = -1.488, p = .137, \text{ two-tailed}$ ), suggesting some external validity for the final regression model to predict the frequency of partner violence with only African American and Caucasian partners in the sample.

		Valid N (listwise)
LgPVF7	Positive <sup>a</sup>	10
	Negative	65

a. The positive actual state is 7.00.



*Area Under the Curve*

*Test Result Variable(s): Predicted Response Category*

Area	Std. Error <sup>a</sup>	Asymptotic Sig.	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.728	.085	.021	.561	.896

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

*Figure 5. Receiver Operating Curve - Frequency of Partner Violence (African American and Caucasian Partners Only)*

### *Incidence of Partner Emotional Abuse*

#### *Univariate Correlations*

The fifth hypothesis stated that the incidence of partner psychological abuse during the previous year would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status. In partial support of this hypothesis, when univariate correlations in the training sample were assessed, only lower dyadic adjustment ( $r_s = -.252$ ,  $p = .001$ ,  $n = 112$ ) was significantly correlated with the incidence of partner emotional abuse at the one-tail .05 alpha level (see Table 23). The incidence of partner emotional abuse was not found to be significantly correlated at the one-tail .05 alpha level, however, with socially desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, the log of socioeconomic status, dyadic adjustment, or marital status.

Univariate correlations between the incidence of partner emotional abuse and respondent age (RAGE), respondent education (REDU), respondent ethnicity-Caucasian and All Other Races (RETH), respondent past-year incarceration (RJAIL), childhood physical abuse (CVIO), childhood sexual abuse (CSEX), and childhood emotional abuse (CEMO), methadone maintenance (METH), treatment type (TXTYPE), and mandated treatment (INVOL), partner age (PAGE), partner education (PEDU), partner ethnicity-Caucasian and All Other



Table 23

*Hypothesized Correlations with the Incidence of Partner Emotional Abuse<sup>a</sup>*

	SDR	PALC	PDRG	RALC	RDRG	LgSES	ADJ	MAR
PEI	-.127	.121	.097	-.051	.039	-.104	-.252**	-.248
SDR	---	-.132	-.263**	-.137	-.350**	.062	.196*	-.027
PALC	---	---	.379**	.224**	.091	-.061	-.141	-.081
PDRG	---	---	---	-.088	.357**	-.246**	-.257**	-.205*
RALC	---	---	---	---	.063	.134	-.132	.040
RDRG	---	---	---	---	---	-.153	-.091	-.127
LgSES	---	---	---	---	---	---	-.043	.312**
ADJ	---	---	---	---	---	---	---	.065
MAR	---	---	---	---	---	---	---	---

\*\**Correlation is significant at the 0.01 level (1-tailed).*

\**Correlation is significant at the 0.05 level (1-tailed).*

a. *N = 112. Note. PEI = partner emotional abuse incidence; SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; LgSES = logarithm of socioeconomic resources; ADJ = relationship adjustment; MAR = marital status.*

Races (PETH), and partner past-year incarceration (PJAIL) during the past year were then examined (see Table 24). No significant univariate correlations were found at the two-tail .05 alpha level between the incidence of partner emotional abuse and any demographic variables, including comparisons between Caucasian and African American subsamples. As a result, no demographic variables were included in the logistic regression model to predict the incidence of partner emotional abuse.

#### *Partial Correlations*

The incidence of partner emotional abuse showed a significant univariate correlation with dyadic adjustment only, and none of the partial correlations controlling for dyadic adjustment were significant at the .05 level of significance.

#### *Logistic Regression Model*

The sixth hypothesis was that the incidence of partner psychological abuse during the previous year would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together.

Since the incidence of partner emotional abuse was significantly correlated only with dyadic adjustment, the sixth hypothesis concerning multivariate prediction was not confirmed. However, dyadic adjustment was entered into a logistic regression analysis by itself (see Table 25). The

Table 24

Demographic Correlations with the Incidence of Partner Emotional Abuse

	RAGE	REDU	RETH	RJAIL	CVIO	CSEX	CEMO	METH	INVOL	TXTYP	PAGE	PEDU	PETH	PJAIL
PEI	.056	-.057	-.114	.075	.106	.005	-.048	-.206*	.084	.220*	.059	-.005	-.141	-.040
	112	112	112	112	111	109	111	112	112	112	112	108	112	112
RAGE	---	.258**	-.267**	.054	.034	-.049	-.111	.002	.063	.013	.783**	.123	-.190*	-.283**
	N	112	112	112	111	109	111	112	112	112	112	108	112	112
REDU	---	---	.219*	-.132	.065	-.020	.139	.039	-.173	.034	.252**	.151	.242*	-.096
	N	112	112	112	111	109	111	112	112	112	112	108	112	112
RETH	---	---	---	.056	.047	.077	.166	.079	-.029	.096	-.142	.189	.771**	-.074
	N	112	112	112	111	109	111	112	112	112	112	108	112	112
RJAIL	---	---	---	---	-.025	-.082	.051	-.108	.477**	.078	.049	-.005	-.049	.033
	N	111	111	---	111	109	111	112	112	112	112	108	112	112
CVIO	---	---	---	---	---	.307**	.489**	.024	.018	-.080	-.096	-.076	-.070	.071
	N	111	111	---	---	109	111	111	111	111	111	108	111	111
CSEX	---	---	---	---	---	---	.352**	.077	-.095	.032	-.083	-.057	.027	.150
	N	109	109	---	---	---	109	109	109	109	109	106	109	109
CEMO	---	---	---	---	---	---	---	.069	.993	.593	.675	.626	.245	.128
	N	111	111	---	---	---	---	111	111	111	111	108	111	111
METH	---	---	---	---	---	---	---	---	-.121	-.315**	.027	.222*	.122	-.131
	N	112	112	---	---	---	---	---	112	112	112	108	112	112
INVOL	---	---	---	---	---	---	---	---	---	-.065	.121	-.110	-.195*	-.018
	N	112	112	---	---	---	---	---	---	112	112	108	112	112
TXTYP	---	---	---	---	---	---	---	---	---	---	-.007	.067	.098	.023
	N	112	112	---	---	---	---	---	---	---	112	108	112	112
PAGE	---	---	---	---	---	---	---	---	---	---	---	.119	-.034	-.232*
	N	112	112	---	---	---	---	---	---	---	---	108	112	112
PEDU	---	---	---	---	---	---	---	---	---	---	---	---	.225*	-.220*
	N	112	112	---	---	---	---	---	---	---	---	---	108	108
PETH	---	---	---	---	---	---	---	---	---	---	---	---	---	-.047
	N	112	112	---	---	---	---	---	---	---	---	---	---	112
PJAIL	---	---	---	---	---	---	---	---	---	---	---	---	---	---

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).  
 Note: PEI = partner emotional abuse incidence; RAGE = respondent age; REDU = respondent education; RETH = respondent ethnicity; RJAIL = respondent incarceration; CVIO = childhood physical abuse; CSEX = childhood sexual abuse; CEMO = childhood emotional abuse; METH = methadone maintenance; TXTYP = mandated treatment; PAGE = partner age; PEDU = partner education; PETH = partner ethnicity; PJAIL = partner incarceration.

assumption of linearity between the logit of the independent variable and the dependent variable was confirmed using a Box-Tidwell transformation (Garson, 2003).

The log-likelihood for this model was 14.236 with a reliable fit of  $\chi^2 (1, n = 112) = 13.402, p = .000$ . The Hosmer and Lemeshow goodness-of-fit test was also acceptable with  $\chi^2 (8, n = 111) = 2.048, p = .980$ . Based on the Nagelkerke  $R^2$  value, this regression model accounted for approximately 51.6% of the variance in the incidence of partner emotional abuse in this training sample.

The probability  $p = 1 / (1 + e^{-z})$  of an episode of partner emotional abuse during the past year based on dyadic adjustment can be calculated from the following regression equation:  $z = 22.525 - .319 \cdot (\text{ADJ})$ .

When actual and predicted outcomes for the training sample ( $n = 111$ ) based on this model were compared (see Figure 6), the area under the Receiver Operating Curve measuring the discriminate power of the logistic regression model was significant ( $c = .95, p = .008, 95\% \text{ CI} = .86, .99$ ).

This regression model correctly predicted all of the respondents who reported an episode of partner emotional abuse, but mis-classified the three respondents who reported no partner emotional abuse. The overall predictive success rate was, therefore, 98.2 percent.

The odds of an episode of partner emotional abuse over the past year fell 26.3% per unit rise in dyadic adjustment ( $\text{OR} = 0.737, 95\% \text{ CI} = 0.55, 0.961$ ).

*Logistic Regression - Incidence of Partner Emotional Abuse**Omnibus Tests of Model Coefficients<sup>a</sup>*

		Chi-square	df	Sig.
Step 1	Step	13.402	1	.000
	Block	13.402	1	.000
	Model	13.402	1	.000

a. N = 112.

*Model Summary*

		-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Step 1	1	14.236	.113	.516

*Hosmer and Lemeshow Test*

		Chi-square	df	Sig.
Step 1	1	2.048	8	.980

*Classification Table<sup>a</sup>*

				Predicted		
				PEI		Percent Correct
				.00	1.00	
Step 1	Observed PEI			1	2	33.3
				0	109	100.0
Overall Percentage						98.2

a. The cut value is .500

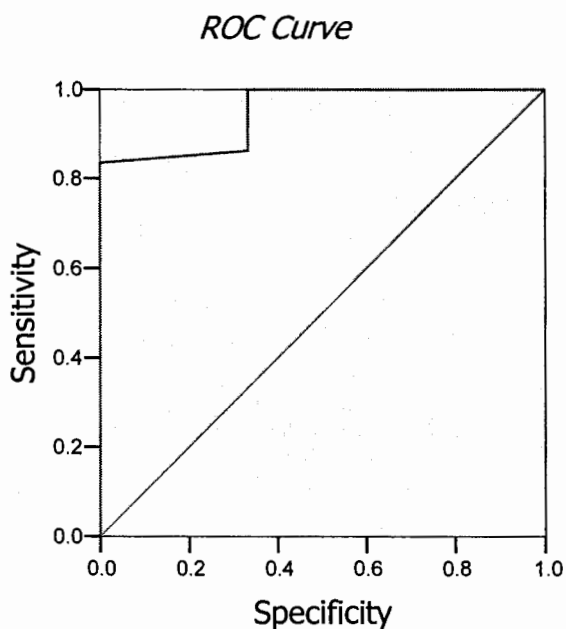
*Variables in the Equation<sup>b</sup>*

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Step 1	ADJ	-.319	.142	5.007	1	.025	.727	.550	.961
	Constant	22.525	9.339	5.818	1	.016	6E+009		

a. Variable(s) entered on step 1: ADJ.

		Valid N (listwise)
PEI	Positive <sup>a</sup>	109
	Negative	3

a. The positive actual state is 1.00.  
 Note. PEI = partner emotional abuse incidence.



Area Under the Curve

Test Result Variable(s): Predicted probability

Area	Std. Error <sup>a</sup>	Asymptotic Sig.	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.950	.044	.008	.864	.999

a. Under the nonparametric assumption  
 b. Null hypothesis: true area = 0.5

Figure 6. Receiver Operating Curve - Incidence of Partner Emotional Abuse

### *Cross-Validation*

When this final model was applied with the cross-validation sample, ( $n = 23$ ), all of the respondents who reported partner emotional abuse during the past year were correctly classified, but the respondent who reported no partner emotional abuse was mis-classified. With this model, the overall predictive success with the cross-validation sample was 95.7 percent. Since quasi-complete separation of the data precluded use of  $\chi^2$  tests, an exact one-tailed binomial test was conducted to compare predicted with actual outcomes. There was no significant difference ( $p = .391$ , one-tailed) between the actual and predicted responses based on an expected proportion of .96, suggesting external validity for this logistic model in predicting the incidence of partner emotional abuse.

### *Frequency of Partner Emotional Abuse*

#### *Univariate Correlations*

The seventh hypothesis stated that a high frequency of partner psychological abuse during the previous year (among women who had experienced at least one episode of partner psychological abuse) would be associated low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status. To test this hypothesis, univariate correlations with the frequency of partner emotional abuse during the

past year were assessed for the 109 respondents in the training sample who reported at least one episode of partner emotional abuse (see Table 26).

Univariate correlations between the frequency of partner emotional abuse (PEF), socially desirable responding (SDR), partner alcohol abuse (PALC), partner drug abuse (PDRG), respondent alcohol abuse (RALC), respondent drug abuse (RDRG), the log of socioeconomic status (LgSES), dyadic adjustment (ADJ), and marital status (MAR). In partial support of this hypothesis, higher frequencies of partner emotional abuse were found to be significantly correlated at the one-tail .05 alpha level with elevated partner alcohol abuse ( $r_s = .19, p = .024, n = 109$ ), elevated partner drug abuse ( $r_s = .375, p < .000, n = 109$ ), elevated respondent alcohol abuse ( $r_s = .164, p = .045, n = 109$ ), and lower dyadic adjustment ( $r_s = -.634, p < .000, n = 109$ ). No significant univariate correlations were found, however, between higher frequencies of partner emotional abuse and socially desirable responding, respondent drug abuse, the log of socioeconomic status, or marital status.

Univariate correlations between the frequency of partner emotional abuse (PEF) and respondent age (RAGE), respondent education (REDU), respondent ethnicity-Caucasian or All Other Races (RETH), respondent past-year incarceration (RJAIL), childhood physical abuse (CVIO), childhood sexual abuse (CSEX), and childhood emotional abuse (CEMO), methadone maintenance (METH), treatment type (TXTYPE), mandated treatment (INVOL), partner age (PAGE), partner education (PEDU), partner ethnicity-Caucasian or All Other



Table 26

Correlations Between the Frequency of Partner Emotional Abuse and Hypothesized Predictors<sup>a</sup>

	SDR	PALC	PDRG	RALC	RDRG	LgSES	ADJ	MAR
PEF	-.124	.190*	.375**	.164*	.096	-.044	-.634**	-.012
SDR	----	-.115	-.253**	-.148	-.349**	.055	.171*	-.059
PALC	----	----	.362**	.244**	.082	-.061	-.120	-.066
PDRG	----	----	----	-.066	.351**	-.266**	-.252**	-.219*
RALC	----	----	----	----	.076	.148	-.149	.050
RDRG	----	----	----	----	----	-.163*	-.082	-.143
LgSES	----	----	----	----	----	----	-.071	.274**
ADJ	----	----	----	----	----	----	----	.009
MAR	----	----	----	----	----	----	----	----

\**p* < .05, one-tail.\*\**p* < .01, one-tail.a. Spearman rho correlation coefficients. *N* = 109.

Note. PEF = partner emotional abuse frequency; SDR = socially desirable responding; PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; RDRG = respondent drug abuse; LgSES = log of socioeconomic resources; ADJ = relationship adjustment; MAR = unwed marital status.

Races (PETH), and partner past-year incarceration (PJAIL) were then examined (see Table 27). The frequency of partner emotional abuse was found to be significantly correlated at the two-tailed .05 alpha level with only respondent report of childhood emotional abuse ( $r_s = .211, p = .029, n = 108$ ). Of these 108 respondents, 56 (51.9%) indicated they had experienced childhood emotional abuse. The frequency of partner emotional abuse was not significantly correlated with these other demographic variables or comparisons between Caucasian and African American subsamples.

#### *Partial Correlations*

First-order partial correlations were examined (see Table 28) between the frequency of partner emotional abuse and each significant univariate correlate--partner alcohol abuse, partner drug abuse, respondent alcohol abuse, dyadic adjustment, and respondent childhood emotional abuse--while controlling for other significant correlates. The frequency of partner emotional abuse showed a significant partial correlation with partner alcohol abuse (partial  $r = .195, p = .022$ , one-tail,  $n = 106$ ) only when the influence of respondent alcohol abuse was controlled. Similarly, the frequency of partner emotional abuse was significantly correlated with respondent alcohol abuse (partial  $r = .163, p = .045$ , one-tail,  $n = 106$ ) only when partner drug abuse was controlled. The frequency of partner emotional abuse was not significantly correlated with respondent childhood emotional abuse after controlling for partner drug abuse (partial  $r = .159, p = .102$ , two-tail,  $n = 105$ ) and dyadic adjustment (partial  $r = .188$ ,

Table 27

Correlations Between the Frequency of Partner Emotional Abuse and Demographic Variables<sup>a</sup>

	RAGE	REDU	RETH	RJAIL	CVIO	CSEX	CEMO	METH	INVOL	TXTYP	PAGE	PEDU	PETH	PJAIL
PEF	-.060	.021	.022	-.035	.177	.069	-.211*	.082	-.047	-.010	-.049	-.050	.033	.148
	N	109	109	109	108	106	108	109	109	109	109	106	109	109
RAGE	----	.283**	-.266**	.050	.028	-.033	-.092	.018	.058	.025	.776**	.115	-.186	-.269**
	N	109	109	109	108	106	108	109	109	109	109	106	109	109
REDU	----	----	.217*	-.130	.072	-.044	.129	.056	-.171	.018	.273**	.179	.239*	-.127
	N	109	109	109	108	106	108	109	109	109	109	106	109	109
RETH	----	----	----	.066	.059	.079	.164	.061	-.019	.128	-.139	.194*	.767**	-.081
	N	109	109	109	108	106	108	109	109	109	109	106	109	109
RJAIL	----	----	----	----	-.034	-.084	.056	-.101	.474**	.064	.045	-.004	-.039	.037
	N	108	108	108	108	106	108	109	109	109	109	106	109	109
CVIO	----	----	----	----	----	.312**	.504**	.050	.009	-.109	-.106	-.077	-.056	.077
	N	108	108	108	108	106	108	108	108	108	108	106	108	108
CSEX	----	----	----	----	----	----	.349**	.117	-.097	-.004	-.070	-.030	.028	.124
	N	106	106	106	106	106	106	106	106	106	106	104	106	106
CEMO	----	----	----	----	----	----	----	.036	.003	-.060	-.018	.049	.107	.133
	N	108	108	108	108	108	108	108	108	108	108	106	108	108
METH	----	----	----	----	----	----	----	----	-.113	-.268**	.054	.181	.102	-.120
	N	109	109	109	109	109	109	109	109	109	109	106	109	109
INVOL	----	----	----	----	----	----	----	----	----	-.088	.119	-.111	-.185	-.015
	N	109	109	109	109	109	109	109	109	109	109	106	109	109
TXTYP	----	----	----	----	----	----	----	----	----	----	.000	.107	.136	-.006
	N	109	109	109	109	109	109	109	109	109	109	106	109	109
PAGE	----	----	----	----	----	----	----	----	----	----	----	.112	-.028	-.218*
	N	109	109	109	109	109	109	109	109	109	109	106	109	109
PEDU	----	----	----	----	----	----	----	----	----	----	----	----	.231*	-.197*
	N	106	106	106	106	106	106	106	106	106	106	106	106	106
PETH	----	----	----	----	----	----	----	----	----	----	----	----	----	-.054
	N	109	109	109	109	109	109	109	109	109	109	106	109	109
PJAIL	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	N	109	109	109	109	109	109	109	109	109	109	106	109	109

\*.  $p < .05$ , two-tail.

\*\* $p < .01$ , two-tail.

a. Spearman rho correlations.

sample size; PEF = partner emotional abuse frequency; RAGE = respondent age; REDU = respondent education; RETH = respondent ethnicity; RJAIL = respondent incarceration; CVIO = childhood physical abuse; CSEX = childhood sexual abuse; CEMO = childhood emotional abuse; METH = methadone maintenance; TXTYP = mandated treatment; PAGE = partner age; PEDU = partner education; PETH = partner ethnicity; PJAIL = partner incarceration.

Table 28

*Partial Correlations Between the Frequency of Partner Emotional Abuse and Hypothesized Predictors*

Controlled Variable	PALC	PDRG	RALC	ADJ	CEMO
(PALC)	----	.345**	.081	-.627**	.191*
(PDRG)	.073	----	.163*	-.594**	.159
(RALC)	.195*	.406**	----	-.632**	.205*
(ADJ)	.158	.281**	.062	----	.188
(CEMO)	.188	.369**	.098	-.631**	----

a. With parenthesized variable controlled.  $N = 106$ . For correlations with CEMO  $N = 105$ .

\*.  $p < .05$

\*\* $p < .01$

b. Partial correlations between PEF and CEMO two-tailed, all others one-tailed. Note. PALC = partner alcohol abuse; PDRG = partner drug abuse; RALC = respondent alcohol abuse; ADJ = relationship adjustment; CEMO = respondent childhood emotional abuse.

$p = .053$ , two-tail,  $n = 105$ ).

#### *Ordinal Regression Model*

The eighth hypothesis was that a high frequency of partner psychological abuse during the previous year (among women who experienced at least one episode of partner psychological abuse) would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together.

To test this hypothesis, a simultaneous ordinal regression predicting the frequency of partner emotional abuse was conducted using the following significant univariate correlates: partner alcohol abuse, partner drug abuse, respondent alcohol abuse, dyadic adjustment, and respondent childhood emotional abuse (see Table 29). The frequency of partner emotional abuse was divided into seven response categories with equal intervals to address the assumption of parallelism. Since Categories 6 and 7 each included only two respondents, these categories were merged with Category 5 (Norušis, 2004). As a result, Category 1 contained 32 respondents (29.6%) reporting the lowest frequencies of partner emotional abuse, Category 2 contained 16 respondents (14.8%) with the next higher frequencies of emotional abuse, Category 3 contained 19 respondents (17.6%), Category 4 contained 19 respondents (17.6%), and Category 5 contained 22 respondents reporting the highest

*Initial Ordinal Regression for Partner Emotional Abuse Frequency**Model Fitting Information*

		-2 Log Likelihood	Chi- Square	df	Sig.
Model	Intercept Only	341.027			
	Final	278.622	62.405	5	.000

*Link function: Logit.*

*Pseudo R-Square*

Cox and Snell	.439
Nagelkerke	.458
McFadden	.183

*Link function: Logit.*

*Parameter Estimates<sup>b</sup>*

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[PEF5 = 1.00]	-5.602	1.067	27.579	1	.000	-7.693	-3.512
	[PEF5 = 2.00]	-4.675	1.032	20.541	1	.000	-6.697	-2.653
	[PEF5 = 3.00]	-3.579	.990	13.069	1	.000	-5.519	-1.639
	[PEF5 = 4.00]	-2.251	.952	5.589	1	.018	-4.117	-.385
Location	PALC	.025	.048	.269	1	.604	-.070	.120
	PDRG	.067	.032	4.458	1	.035	.005	.129
	RALC	.035	.046	.587	1	.444	-.055	.125
	ADJ	-.111	.019	35.753	1	.000	-.148	-.075
	CEMO = No	-.532	.376	2.005	1	.157	-1.269	.204
	CEMO = Yes	0 <sup>a</sup>	.	.	0	.	.	.

*Link function: Logit.*

a. This parameter is set to zero because it is redundant.

b. Note. PEF5 = partner emotional abuse frequency with 5 levels; CEMO = respondent childhood emotional abuse.

frequencies of partner emotional abuse (20.4%).

The log-likelihood for the initial five-variable regression model was 278.622 with  $\chi^2(5, n = 108) = 62.405, p = .000$ , thus suggesting a reliable fit. The logit link function,  $\ln(p_k/1 - p_k)$  where  $p_k$  = the observed probability for each case, produced the best fitting model. Based on the Nagelkerke  $R^2$ , approximately 45.8% of the variance was predicted with this regression model. The test for parallelism was favorable with  $\chi^2(15, n = 108) = 13.334, p = .576$ .

To determine whether each of these independent variables made a significant contribution to the regression model, the likelihood-ratio chi-square process was again used to measure the changes in the regression model with and without each variable (Tabachnick & Fidell, 2001). The likelihood-ratio chi-square for the regression model significantly declined at the one-tail .05 alpha level with the removal of both partner drug abuse ( $LR\chi^2 = 4.799, df = 1, p = .0285$ ), and dyadic adjustment ( $LR\chi^2 = 41.973, df = 1, p < .0001$ ). There was no significant change in the likelihood-ratio chi-square after removal of partner alcohol abuse, respondent alcohol abuse, and respondent childhood emotional abuse. This result suggested a more parsimonious regression model should be considered which did not include these three correlates.

With only partner drug abuse and dyadic adjustment in the final regression model, an improved log-likelihood of 278.105 was found with a reliable fit  $\chi^2(2, n = 108) = 58.763, p = .000$  (see Table 30). Based on the Nagelkerke  $R^2$  value, 43.8% of the approximate variance was still accounted for

with this final regression model. The test for parallel lines was also favorable with  $\chi^2(6, n = 108) = 3.251, p = .777$ . The assumption of linearity between the logits of the independent variables and the dependent variable was also confirmed using Box-Tidwell transformations (Garson, 2003).

Comparison between the likelihood-ratio chi-square for the five-variable regression model and the final two-variable regression model found no significant difference in predictive power with the abridged regression model ( $LR\chi^2 = 3.642, df = 3, p = .303$ ) suggesting the two-variable regression model could be used in lieu of the initial, more encompassing, regression model. The likelihood-ratio chi-square process was used to test the contribution of each independent variable to the regression model. Removing partner drug abuse ( $LR\chi^2 = 7.139, df = 1, p = .0075$ ), and dyadic adjustment ( $LR\chi^2 = 44.208, df = 1, p < .0001$ ) led to a significant decline in the regression model at the one-tail .05 alpha level.

Based on this final prediction model for the frequency of partner emotional abuse, the linear probabilities that a particular individual would fall within each of the response categories was then calculated using the following multi-step process (Norušis, 2004). First, partner drug abuse and dyadic adjustment values reported by a respondent were entered into each of the following equations:

$$z_1 = 5.552 + .075 \cdot (\text{PALC}) - .112 \cdot (\text{ADJ}) \quad (14)$$

$$z_2 = 4.637 + .075 \cdot (\text{PALC}) - .112 \cdot (\text{ADJ}) \quad (15)$$



*Final Ordinal Regression for Partner Emotional Abuse Frequency**Model Fitting Information*

		-2 Log Likelihood	Chi- Square	df	Sig.
Model	Intercept Only	336.868			
	Final	278.105	58.763	2	.000

*Link function: Logit.*

*Goodness-of-Fit*

	Chi- Square	df	Sig.
Pearson	408.559	410	.511
Deviance	273.946	410	1.000

*Link function: Logit.*

*Pseudo R-Square*

Cox and Snell	.420
Nagelkerke	.438
McFadden	.172

*Link function: Logit.*

*Parameter Estimates<sup>a</sup>*

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[PEF5 = 1.00]	-5.552	.964	33.156	1	.000	-7.441	-3.662
	[PEF5 = 2.00]	-4.637	.924	25.183	1	.000	-6.448	-2.826
	[PEF5 = 3.00]	-3.569	.880	16.431	1	.000	-5.294	-1.843
	[PEF5 = 4.00]	-2.287	.843	7.356	1	.007	-3.940	-.634
Location	ADJ	-.112	.018	36.814	1	.000	-.148	-.076
	PDRG	.075	.029	6.761	1	.009	.018	.132

*Link function: Logit.*

a. Note. PEF5 = partner emotional abuse frequency with 5 levels; ADJ = relationship adjustment; PDRG = partner drug abuse.

$$z_3 = 3.569 + .075 \cdot (\text{PALC}) - .112 \cdot (\text{ADJ}) \quad (16)$$

$$z_4 = 2.287 + .075 \cdot (\text{PALC}) - .112 \cdot (\text{ADJ}) \quad (17)$$

The probabilities for the response categories were then calculated:

$$p_1 = 1 / (1 + e^{z_1}) \quad (18)$$

$$p_2 = [1 / (1 + e^{z_2})] - p_1 \quad (19)$$

$$p_3 = [1 / (1 + e^{z_3})] - (p_1 + p_2) \quad (20)$$

$$p_4 = [1 / (1 + e^{z_4})] - (p_1 + p_2 + p_3) \quad (21)$$

$$p_5 = 1 - (p_1 + p_2 + p_3 + p_4) \quad (22)$$

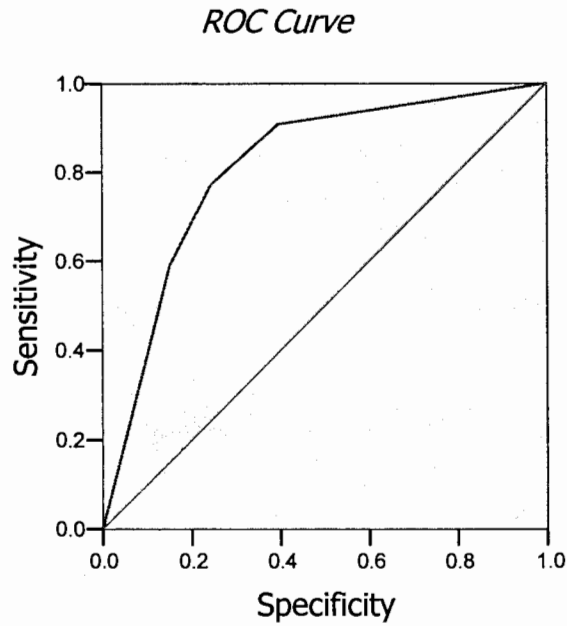
The response category with the highest probability was then determined for that individual.

The predicted response category for each respondent in the training sample was then compared against their actual response category with a Receiver Operating Curve (see Figure 7). Results suggest this two-variable regression model significantly differentiated respondents in the highest category from those in lower response categories ( $c = .812$ ,  $p = .000$ , 95% CI = .716, .909), in partial support of the hypothesis.

Holding other variables constant, the odds of a higher frequency of partner emotional abuse rose 8% per unit increase in partner drug abuse (OR = 1.08, 95% CI = 1.02, 1.14), and dropped 11% per unit rise in dyadic adjustment

		Valid N (listwise)
PEF5	Positive <sup>a</sup>	22
	Negative	86

a. The positive actual state is 5.00. Note. PEF5 = Partner emotional abuse frequency with 5 levels.



*Area Under the Curve*

Test Result Variable(s): Predicted Response Category

Area	Std. Error <sup>a</sup>	Asymptotic Sig.	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.812	.049	.000	.716	.909

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Figure 7. Receiver Operating Curve - Frequency of Partner Emotional Abuse

(OR = 0.89, 95% CI = .86, .93).

### *Cross-Validation*

This final regression model predicting the frequency of partner emotional abuse was then applied with respondents from the cross-validation sample ( $n = 22$ ) who reported at least one episode of partner emotional abuse during the past year (see Table 31). No respondents were predicted for Category 2. The actual and predicted response categories were compared using the non-parametric Wilcoxon signed-ranks test. There was no significant difference between the actual and predicted response categories for frequency of partner emotional abuse ( $Z = -.191, p = .897$ , two-tailed), suggesting external validity for the final regression model to predict the frequency of partner emotional abuse.

*Cross-Validation Sample Confusion Matrix for Frequency of Partner Emotional Abuse<sup>a</sup>*  
*Count*

		PEF Actual					Total
		1.00	2.00	3.00	4.00	5.00	
PEF Predicted	1.00	2	4	0	3	0	9
	3.00	1	0	2	0	1	4
	4.00	0	2	0	0	0	2
	5.00	0	2	0	1	4	7
Total		3	8	2	4	5	22

a. Note. PEF = partner emotional abuse frequency.

*Wilcoxon Signed Ranks Test- Frequency of Partner Emotional Abuse*

		N	Mean Rank	Sum of Ranks
Predicted-Actual PEF	Negative Ranks	8 <sup>a</sup>	6.94	55.50
	Positive Ranks	6 <sup>b</sup>	8.25	49.50
	Ties	8 <sup>c</sup>		
	Total	22		

a. Predicted < Actual

b. Predicted > Actual

c. Predicted = Actual

*Test Statistics<sup>b</sup>*

	Predicted-Actual
Z	-.191 <sup>a</sup>
Asymp. Sig. (2-tailed)	.849
Exact Sig. (2-tailed)	.897
Exact Sig. (1-tailed)	.448
Point Probability	.038

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

## CHAPTER V

### Discussion

The present study was designed to identify the most salient risk markers for partner physical and psychological abuse during the past year against substance-abusing women in treatment, and to assess divergent theoretical models regarding the role of partner substance abuse as an explanation for the link between female substance abuse and domestic violence (Leonard, 1993; Kaufman-Kantor & Asdigian, 1997a). As suggested by Kaufman-Kantor and Asdigian, the results of this study generally point to elevated partner substance abuse as an important predictor for physical as well as psychological abuse against substance-abusing women. However, as Leonard pointed out, interpersonal adjustment between the couple was the strongest risk marker for both physical and psychological abuse. Significant univariate and multivariate correlates found to predict the incidence and frequency of partner violence and the incidence and frequency of partner emotional abuse are summarized in Table 32.

The first hypothesis stated that the incidence of partner physical abuse during the previous year (PVI) would be associated with low levels of socially desirable responding (SDR), high levels of partner alcohol abuse (PALC), partner drug abuse (PDRG), respondent alcohol abuse (RALC), and respondent

Table 32

Summary of Univariate and Multivariate Correlates<sup>a</sup>

	Correlates											Criteria				
	SDR	PALC	PDRG	RALC	RDRG	LgSES	ADJ	MAR	CVIO	CEMO	RAGE	PAGE	RETH	PETH		
○	●	●	○	○	○	○	●	○	○	○	●	○	○	○	↔	PVI
●	●	○	○	○	○	○	●	○	○	○	○	○	○	○	↔	LgPVF
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	↔	PEI
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	↔	PEF

Legend. ○ = significant univariate correlate; ● = significant univariate and multivariate correlate; • = non-significant correlate

<sup>a</sup> Note. PVI = any incidence of partner violence during past year; LgPVF = elevated log of partner violence frequency; PEI = any incidence of partner emotional abuse during past year; PEF = elevated partner emotional abuse frequency; SDR = low socially desirable responding; PALC = elevated partner alcohol abuse; PDRG = elevated partner drug abuse; RALC = elevated respondent alcohol abuse; RDRG = elevated respondent drug abuse; LgSES = log of low socioeconomic resources; ADJ = lower relationship adjustment; MAR = unwed marital status; CVIO = childhood physical abuse; CEMO = childhood emotional abuse; RAGE = younger respondent age; PAGE = younger partner age; RETH = respondent African American; PETH = partner African American.

drug abuse (RDRG), as well as low levels of socioeconomic resources (SES), low levels of relationship adjustment (ADJ), and unwed marital status (MAR). This hypothesis was partially confirmed in that lower socially desirable responding, elevated partner alcohol abuse, elevated partner drug abuse, elevated respondent drug abuse, lower socioeconomic resources, lower relationship adjustment, and unwed marital status were each significantly associated with the incidence of partner physical abuse against respondents during the previous year. Elevated respondent alcohol abuse, however, did not show the hypothesized relationship with an elevated incidence of partner physical abuse. In addition to the hypothesized predictors, a history of physical and emotional abuse against the respondent as a child as well as younger partner and respondent age were also found to be significant univariate predictors for an elevated incidence of partner physical abuse.

The second hypothesis stated that the incidence of partner physical abuse during the previous year would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together. This hypothesis was partially confirmed in that elevated partner alcohol abuse, elevated partner drug abuse, and lower dyadic adjustment taken together with lower respondent age produced the most parsimonious model for predicting the incidence of partner physical abuse.



However, lower socially desirable responding, elevated respondent alcohol abuse, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status did not add significantly to the multivariate prediction of an elevated incidence of partner violence as hypothesized.

The third hypothesis stated that a high frequency of partner physical abuse (PVF) among women who reported at least one episode of partner physical violence during the previous year would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment as reported by the female respondent, and unwed marital status. This hypothesis was partially confirmed in that elevated partner alcohol abuse, elevated partner drug abuse, and lower dyadic adjustment were each significantly associated with an elevated frequency of partner physical abuse during the previous year among those respondents who reported partner physical abuse. However, lower socially desirable responding, elevated respondent alcohol abuse, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status were not significantly associated with an elevated frequency of partner violence as hypothesized. In addition to hypothesized predictors, respondent and partner ethnicity were also found to be significant demographic predictors for an elevated frequency of partner violence with Caucasian respondents and partners reporting less frequent violence than individuals from All Other Races, and more specifically, African-American respondents and partners.

The fourth hypothesis was that a high frequency of partner physical abuse during the previous year among women who experienced at least one episode of partner physical abuse would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together. This hypothesis was partially confirmed in that elevated partner alcohol abuse and lower relationship adjustment taken together with partner ethnicity produced the most parsimonious model for predicting an elevated frequency of partner violence during the previous year among those women who reported partner physical abuse. Caucasian partners were reported to be violent less frequently than partners from All Other Races, and more specifically, African-American partners. Lower socially desirable responding, elevated respondent alcohol abuse, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status did not add significantly to the multivariate prediction of an elevated frequency of partner violence as hypothesized.

The fifth hypothesis stated that the incidence of partner psychological (emotional) abuse during the previous year (PEI) would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship

adjustment, and unwed marital status. This hypothesis was partially confirmed in that lower dyadic adjustment was significantly correlated with the incidence of partner emotional abuse against respondents during the previous year. However, lower socially desirable responding, elevated partner alcohol abuse, elevated partner drug abuse, elevated respondent alcohol abuse, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status were not found to be significantly associated with an elevated incidence of partner emotional abuse as hypothesized.

The sixth hypothesis was that the incidence of partner psychological abuse during the previous year would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together. This hypothesis was not confirmed in that only lower relationship adjustment predicted the incidence of partner psychological abuse during the previous year. However, lower levels of socially desirable responding, elevated partner alcohol abuse, elevated partner drug abuse, elevated respondent alcohol abuse, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status did not add significantly to the multivariate prediction of an elevated incidence of partner emotional abuse as hypothesized.

The seventh hypothesis stated that a high frequency of partner psychological abuse (PEF) during the previous year among women who had

experienced at least one episode of partner psychological abuse would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status. This hypothesis was partially confirmed in that elevated partner alcohol abuse, elevated partner drug abuse, elevated respondent alcohol abuse, and lower dyadic adjustment were each significantly correlated with the frequency of partner emotional abuse during the previous year among those women who reported partner psychological abuse. However, lower socially desirable responding, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status were not significantly associated with an elevated frequency of partner emotional abuse as hypothesized. In addition to hypothesized predictors, elevated frequency of partner emotional abuse was also found to be associated with a history of respondent childhood emotional abuse.

The eighth hypothesis was that a high frequency of partner psychological abuse during the previous year among women who experienced at least one episode of partner psychological abuse would be associated with low levels of socially desirable responding, high levels of partner alcohol abuse, partner drug abuse, respondent alcohol abuse, and respondent drug abuse, as well as low levels of socioeconomic resources, low levels of relationship adjustment, and unwed marital status taken together. This hypothesis was partially confirmed in that partner drug abuse and lower dyadic adjustment taken together generally

produced the most parsimonious model for predicting an elevated frequency of partner psychological abuse during the previous year among those women who reported partner psychological abuse. However, lower levels of socially desirable responding, elevated partner alcohol abuse, elevated respondent alcohol abuse, elevated respondent drug abuse, lower socioeconomic resources, and unwed marital status did not add significantly to the multivariate prediction of an elevated frequency of partner emotional abuse as hypothesized.

### *Interpretation of Results*

#### *Social Desirability*

The level of socially desirable responding found in this study was similar to levels reported by 133 female college students on the Marlowe-Crowne Social Desirability Scale-C (Zook & Sipps, 1985) and lower than the socially desirable responding found by Robinette (1991) in a sample of 174 female Army recruits referred involuntarily for psychological evaluations. In this sample, low levels of socially desirable responding were associated with reports of an elevated incidence of partner violence. This could suggest that respondents with elevated levels of socially desirable responding under-reported their domestic violence victimization, as Browne (1991) and Keller (1996) have described. Low levels of socially desirable responding were not correlated, however, with the frequency of partner violence or the incidence and frequency of partner psychological abuse. This suggests either some respondents minimized their reports of abuse

or those who were uncomfortable disclosing such information may have decided not to participate in the study. The association between socially desirable responding and the incidence of partner violence was fully accounted for once variance due to other variables was partialled out, particularly partner drug abuse. Anonymous questionnaires may also have facilitated more honest self-disclosure from those who participated, in keeping with the conclusions of Sugarman and Hotaling (1997) as well as Arias and Beach (1987), who found little connection between reports of domestic violence victimization and socially desirable response bias when voluntary respondents in confidential studies were queried. The respondents in this study were currently in treatment, and therefore probably encouraged to be more self-disclosing. Abused women may also be willing to answer specific questions about victimization if they feel safe and supported. The introduction and informed consent for this study may also have primed respondents to report violence victimization. Perhaps with the media and society in general giving more attention to domestic violence, women may feel more comfortable discussing such victimization.

An inverse association was found between socially desirable responding and both respondent and partner drug abuse, suggesting it may be more difficult for respondents to reveal personal and partner drug abuse than to disclose partner violence and emotional abuse. Perhaps respondents blame themselves for their own substance abuse and are therefore less willing to disclose this information. Respondents might perceive partner violence, on the other hand, as

having a more external locus-of-control with less personal responsibility attached to themselves.

Similarly, an inverse relationship between socially desirable responding and dyadic adjustment suggests some respondents also have difficulty acknowledging relationship problems, perhaps because they blame themselves for their own relationship problems as has been suggested by O'Neill and Kerig (2000), Strube and Barbour (1983), and Walker (1979).

The inverse relationship found between socially desirable responding and reported childhood emotional abuse suggests that some respondents might be unwilling to admit childhood emotional abuse, perhaps as a result of the trauma and consequent low self-esteem.

#### *Partner Physical Abuse*

Results from the present study were generally comparable with the average frequency of 1.8 physically abusive acts ( $SD = .47$ ) reported by 89 abused women surveyed during development of the ABI. Among the 89 women in the development sample control group, an average frequency of 1.3 episodes of physical abuse ( $SD = .65$ ) were reported. Watson et al. (1997) also administered the ABI (using the 30 item version) with a sample of 110 women in domestic violence shelters and found an average frequency score of 2.58 on the physical abuse subscale in contrast with a community control group of 50 women reporting a mean ABI subscale score of 1.05 for physical abuse.

Dyadic adjustment, socioeconomic level, marital status as well as partner

alcohol and drug abuse were chosen as risk markers for this study on the basis of previous research by Hotaling and Sugarman (1990) concerning the incidence of partner violence among women in general population surveys. In the current study, each of these five variables was found to have a significant univariate relationship with the incidence of partner violence among women in treatment for substance abuse.

#### *Partner Emotional Abuse*

Based on the ABI-Psychological Abuse subscale, 97% of the respondents reported partner psychological abuse in the past year. It is possible that this result should be taken at face value and that nearly all substance-abusing women experience some psychological abuse, either as a factor contributing to their substance abuse or as a consequence of their substance abuse or both. In support of this possibility, Neufeld, McNamara, and Ertl (1999) employed the ABI with 623 college-age women, and found over 91% had experienced partner emotional abuse, suggesting that partner emotional abuse, at least as measured with the ABI, is not particularly uncommon for women in our society. The results from the current sample were similar to the mean score of 2.0 ( $SD = .70$ ) reported by the sample of 89 women surveyed during development of the ABI who were not physically abused. In contrast, a second group of 89 women who had been physically abused at some point by their partners reported a mean of 2.8 ( $SD = .70$ ) on the ABI psychological-abuse subscale. Watson et al. (1997) found an average ABI psychological abuse score of 3.34 among a sample of 110



female domestic violence survivors, with an average score of 1.18 among the 50 women in a community control group, suggesting the present sample was not as frequently abused psychologically as these domestic violence survivors but were more emotionally abused than this control sample.

Another interpretation of the high incidence of partner psychological abuse hinges on the difficulties of operationalizing emotional and psychological abuse, as discussed by O'Leary (1999), Schumacher et al. (2001), and Follingstad and DeHart (2000). When asked if they had ever been emotionally abused by a partner, 21 women (18.8%) in this study reported they had never been emotionally abused even though 95% ( $n = 20$ ) of this subgroup were identified as emotionally abused based on their ABI scores. It may be that psychological abuse should be defined subjectively by each respondent in terms of the particular ethics of her own relationship in keeping with the contextual model developed by Boszormenyi-Nagy and Spark (1973). On the other hand, it could be argued that victims and even perpetrators do not always recognize psychological and emotional abuse, depending on the criteria used to define such abuse.

More frequent partner emotional abuse was also found to be associated with higher partner drug abuse. This finding could support the suggestion of Taylor and Chermack (1993) that partners under the influence of drugs are more emotionally and verbally aggressive with less concern for possible repercussions. On the other hand, some partner behaviors may not hold the same negative

connotations when substance abuse is a critical factor in the relationship. For example, if a partner tries to help a female substance abuser by putting her on an allowance to keep her from buying drugs or alcohol, this would be regarded as psychological abuse in terms of the ABI psychological abuse subscale, even though withholding this money was not intended as emotional abuse per se.

Given the difficulties of operationalizing psychological abuse, the ABI psychological abuse subscale may need further refinement, at least before being used as a measure of the *incidence* of partner psychological abuse, especially among samples of substance-abusing women. The high-sensitivity, low-specificity of the ABI - Psychological Abuse subscale, at least with the present sample, might also explain why almost all of the predictor variables failed to show the hypothesized relationships with partner emotional abuse.

#### *Relationship Adjustment*

The respondents in this study described levels of relationship adjustment similar to a clinical sample of 98 couples seeking relationship counseling who reported a mean score of 41.6 ( $SD = 8.2$ ) on the Revised Dyadic Adjustment Scale (Busby, Christensen, Crane, & Larson, 1995).

Low dyadic adjustment was the strongest and most consistent predictor of abuse in this study, and predicted the incidence and frequency of both partner violence and partner emotional abuse. This outcome suggests the critical role played by interactive, interpersonal dynamics in violent family systems, over and above the influence of partner-specific variables. The only appreciable reduction

in the partial correlations between lower dyadic adjustment and the incidence and frequency of partner violence followed removal of effects associated with partner drug abuse, but even this reduction was relatively small. Dyadic adjustment appears to reflect the distal influences cited in Leonard's interpersonal model (1993), which set the stage for unresolved conflicts to escalate into violent outbursts, especially when combined with substance abuse, as pointed out by Kaufman (1984). Despite substance abuse, couples with higher levels of relationship adjustment are apparently able to resolve their conflicts amicably through effective communication and problem-solving as demonstrated by Anglin and Holtzworth-Munroe (1997). Bowen (1978) suggested marital tension and conflicts stem from attempts by both partners to establish individual boundaries while also being dependent on the relationship. According to Schnarch (1997), as well as Schubert, Protinsky, and Viers (2002), fused couples who show poor differentiation-of-self tend to be emotionally reactive, less flexible, and, therefore, more prone to violence. Stanton and Todd (1979) have also linked substance abuse to inadequate individuation. Bernal, Rodriguez, and Diamond (1990) successfully applied such a contextual model to the treatment of substance abuse with couples.

The link between low dyadic adjustment and elevated partner emotional abuse is also not too surprising since low dyadic adjustment may give rise to emotional abuse while emotional abuse reciprocally degrades the level of dyadic adjustment as Arias and Pape (1999) have described. The same reciprocal

relationship between low dyadic adjustment and physical abuse also seems likely.

### *Demographic Predictors*

The respondents in this study reported extremely low household incomes during the previous year in light of the American Community Survey (U.S. Census, 2004) which estimated a mean income of \$57,157 and a median of \$42,941 for households in Pennsylvania. Fifty-two percent of the full sample reported annual household incomes below \$10,000, while 25.2% reported incomes between \$10,000 and \$50,000 and 22.9% were above \$50,000. According to this census data, only 5.5% of the households in Pennsylvania are estimated to earn less than \$10,000 annually, 40.9% earn between \$10,000 and \$50,000, and 36.5% earn over \$50,000. Similarly, the present sample reported annual incomes of \$11,470 per capita, which was less than half of the inflation-adjusted incomes of \$23,511 per capita for Pennsylvanians based on the 2004 census data.

Low socioeconomic level was a significant univariate predictor for the incidence of partner violence as previously described by Kaufman-Kantor & Jasinski (1998). Low per capita SES was not a significant multivariate predictor, however, possibly because this sample was skewed toward lower socioeconomic levels. Once the variance due to partner drug abuse was partialled out, however, the correlation between the incidence of partner violence and low socioeconomic level was fully accounted for.

The frequency of marriage in the present sample was relatively low in comparison with estimates from the National Survey of America's Families (NSAF) conducted by the Urban Institute (2002). The NSAF survey estimated 72.3% of the women aged 18 to 65 in Pennsylvania who were in a relationship were married, 3.4% were widowed, 14.9% were divorced, 5.1% were separated, and 4.2% were unmarried but living with a partner.

Unwed marital status was a significant univariate predictor for the incidence of partner violence as previously described by Kaufman-Kantor & Jasinski (1998). Unwed marital status was not a significant multivariate predictor, however, possibly because this sample was largely skewed toward unmarried couples. The partial correlation between the incidence of partner violence and unwed marital status was generally accounted for once the effect of partner drug abuse was removed. It may also be that marital status was not a significant multivariate predictor in the present study because couples who live together without being married were grouped together with divorced and separated couples.

Additional demographic variables also emerged as univariate correlates of the incidence and frequency of partner violence, although these relationships were not specifically hypothesized for this study. Childhood physical and emotional abuse against the respondent were univariate, but not multivariate, correlates of the incidence of partner physical abuse. There could also be a reporting bias at work, such that respondents who are willing to disclose adult

victimizations are also more comfortable disclosing childhood victimizations and vice versa. It is also possible that victims of childhood abuse develop "learned helplessness," as Seligman (1975) described, and so have more trouble avoiding abusive adult relationships. Arias and Pape (1999) as well as Marshall (1996) emphasized that a certain amount of self-efficacy is needed to escape a violent relationship which victims of childhood abuse may lack. The relationship between childhood trauma and adult abuse found in the present sample may also reflect the isomorphic object relations highlighted by Bowlby (1973) and Hazen and Shaver (1987), particularly the insecure attachment style described by Gormley (2005) as well as Henderson, Bartholomew, Trinke, and Kwong (2005). Based on therapy with violent couples, Goldner (1998) and Goldner, Penn, Sheinberg, and Walker (1990) give an example of such destructive attachments--an abused woman may take solace during the honeymoon phase between violent episodes when her partner lavishes love and seeks her forgiveness because, when she was a child, her alcoholic father never apologized for beating her mother.

Younger respondent age was found to be a significant multivariate correlate in the final regression model predicting the incidence of partner violence and there are several explanations for this finding. Leonard (2002) has suggested partner violence may be triggered by the developmental stressors of early family life, for example, pregnancy, and the challenges of child-rearing. Younger women may also be more financially dependent on their partners when small children are involved, according to Baker, Cook, and Norris (2003), which

can create additional power imbalances and prevent escape. Anecdotally, during the course of data collection, several women described very violent relationships from years before which they had since escaped, in one case because the woman's partner had received a lengthy prison sentence as a result of his domestic abuse. Some of these women indicated they no longer trusted any male companions as a result and several of these women were not included as respondents in the current study because they had not been in a romantic relationship during the previous year.

Partners of Caucasian backgrounds were reported as being less frequently violent when compared with partners from All Other Races in both univariate and multivariate analyses. In order to examine this finding in more detail, differences between the Caucasian and African American respondents and partner were then evaluated with less frequent violence described for Caucasian respondents and partners. This relationship between ethnicity and domestic violence has been the subject of considerable debate in the literature, with different financial opportunities, social power, and cultural norms identified as possible underlying explanations (Jasinski & Williams, 1998). In the current study, African-American partner ethnicity was associated with both lower educational background, and lower income suggesting more financial stressors which, according to Fox, Benson, DeMaris, and Van Wyk, (2002) as well as Rodriguez, Lasch, Chandra, and Lee (2001) could help precipitate violence in these relationships. It also seems likely that many women of color have fewer financial resources to draw

on and therefore more hurdles to overcome in trying to escape repeated domestic violence as Baker, Cook, and Norris (2003) have argued.

### *Respondent Substance Abuse*

Respondent alcohol and drug abuse were not previously identified as strong risk markers for partner violence in the general population, but they were included in the present study to examine the “discrepant” model of Leonard (1993) and Mudar, Leonard, & Soltysinski (2001) for elevated domestic violence against substance-abusing women. Based on this model, Leonard (1993) suggested that partner violence among substance-abusing women was the result of elevated respondent alcohol abuse together with low partner alcohol abuse. Results from the current study fail to support this speculation since respondent substance abuse was not associated with the incidence of partner violence after partner substance abuse was taken into account. While this particular dynamic may exist between some couples, it was not apparent in the present sample. Respondent substance abuse was also not associated with the incidence and frequency of partner violence after controlling for socially desirable responding. These findings lend support to the model proposed by Kaufman-Kantor and Asdigian (1997a), who predicted an elevated incidence of domestic violence based on the substance abuse of *both* partners, not just the substance abuse of the woman.

Elevated respondent alcohol abuse was found to be a univariate, but not multivariate, correlate of the frequency of partner emotional abuse. This finding



would be consistent with speculation that substance abuse by a woman is more of a coping response to domestic-violence victimization than a factor leading to domestic violence (Gelles & Straus, 1988; Hotaling & Sugarman, 1990; Koss, 1990; Miller, 1998; Stark et al., 1981).

Elevated respondent drug abuse was barely significant in terms of the correlation with the incidence of partner violence (Hotaling & Sugarman, 1986). The variance in this relationship was fully explained once other predictor variables, particularly partner substance abuse, were partialled out.

#### *Partner Substance Abuse*

Partner alcohol abuse emerged as a significant multivariate predictor for both the incidence and frequency of partner violence, and was also a significant univariate predictor for the frequency of partner emotional abuse. Partner drug abuse demonstrated a significant multivariate correlation with the incidence of partner violence as well as the frequency of partner emotional abuse. It was also a significant univariate predictor for the frequency of partner violence. Since partner alcohol and partner drug abuse were highly correlated in this study, it was difficult to differentiate between them as predictors. Partner substance abuse was second only to dyadic adjustment in predictive efficiency for partner domestic abuse.

#### *Theoretical Implications*

The results of this study do not appear to support the speculation of

Leonard (1993) that elevated rates of domestic violence against substance-abusing women reflect abstinent partners frustrated with the substance abuse of these women. Instead, elevated partner substance abuse was found to play a crucial role in predicting domestic abuse against substance-abusing women, as posited by Kaufman-Kantor and Asdigian (1997a). On the other hand, Leonard's complete interpersonal model does reflect the ongoing, systemic processes of dyadic adjustment in violent family systems.

Based on results of this study, a synthesis of Leonard's systemic perspective together with Kaufman-Kantor and Asdigian's emphasis on partner substance abuse would appear to offer the best theoretical model, since dyadic adjustment and other background variables in conjunction with partner substance abuse demonstrate the strongest univariate and multivariate correlates for physical and psychological abuse against women in treatment for substance abuse. Since 110 couples (81.9%) of this sample were concordant for substance abuse, substance abuse by both partners was the norm rather than the exception. Instead of being a source of conflict, substance abuse by both partners may begin as a mutual and intimate interaction within these couples. Couples in which both abuse substances may come to rely on the substance abuse for some homeostatic, adaptive function in their relationship such as allowing more open dialogue or sexual relaxation. Steinglass (1987) referred to the "intoxicated interactional state" as an unconscious (or conscious) short-term problem-solving strategy used by some alcoholic families. The sobriety-

intoxication cycle may also allow unresolved interpersonal tensions to be relieved by acting as a "solvent" that temporarily reduces interpersonal boundaries and permits fusion between partners similar to the cycle of violence (Walker, 1979). Police records and anecdotal reports suggest many of these couples will drink or use drugs together almost every Saturday night until the violence erupts and police are called.

### *Treatment Implications and Approaches*

This study found high rates of both physical and psychological abuse against substance-abusing women, which underscores the need for effective screening, shelter resources, and treatment interventions targeting domestic abuse and psychological abuse in substance-abuse treatment settings.

Due to the retrospective design of this study, correlated risk markers rather than causal risk factors for domestic abuse were assessed. Screening and treatment interventions based on these risk markers may not prove to reduce the high rates of violence against substance-abusing women as a result. On the other hand, many of the risk markers identified in this study, particularly dyadic adjustment and partner substance abuse, can potentially be modified and may represent important avenues for treatment interventions.

Reports of partner substance abuse and domestic violence appeared to be somewhat influenced by socially desirable responding in this study. As a result, when women present for treatment of substance abuse problems, therapists

may do well to err on the side of caution and assume until proven otherwise that partner substance abuse, emotional abuse, and domestic violence are part of the picture, even if these issues are not initially disclosed. Based on the results of this study, the index-of-suspicion for domestic violence against female substance abusers should rise for women who offer socially desirable responses, report low socioeconomic resources, unwed marital status, childhood physical or sexual abuse, lower age, and elevated problems with drug abuse. In particular, those at highest risk for chronic domestic violence victimization among substance-abusing women entering treatment appear to be women reporting low dyadic adjustment in combination with alcohol-abusing partners who are men-of-color. Similarly, a substance-abusing woman entering treatment who reports childhood emotional abuse, low dyadic adjustment, and a partner who abuses drugs or alcohol is likely to experience the highest rates of psychological abuse. Psychological abuse is also a significant predictor of physical abuse (Appendix Q) and may also be a critical factor predicting relapse. As such, screening efforts should also include questions regarding previous and recent psychological abuse as well as the risk for ongoing psychological abuse.

This also highlights the importance of cross-training substance-abuse-treatment providers and domestic-violence support staff in the perspectives and practices of the other discipline as Cooley and Severson (1993), as well as Bennett and Lawson (1994), have recommended.

Almeida and Durkin (1999) argued that failure by therapists to integrate

substance abuse and domestic violence approaches can precipitate dangerous situations when working with violent, substance-abusing couples. For example, a substance-abuse counselor might encourage a woman not to “enable” her partner’s substance-abuse by refusing to give him money for drugs, but such resistance could also trigger violence and result in a woman’s death if the counselor were unaware of a potential for violence. Some therapists may also assume that abstinence from substance abuse will be sufficient to bring an end to the partner violence. It may be assumed the recovering woman will leave her abusive partner or that the partner will no longer be violent if he is not drinking or using drugs. To the contrary, domestic violence seems very likely to continue, particularly if the partner continues to abuse substances and is not somehow included in therapy. Even if the couple splits up, the threat of violence remains high without appropriate interventions against domestic violence. If encouraging a woman in early recovery to leave a violent, substance-abusing partner, therapists need to realize this intervention requires safeguards since threatening the relationship can escalate the violence, putting her and her children at even higher risk.

While the treatment of domestic violence is somewhat beyond the scope of this paper, some general guidelines for working with violent, substance-abusing couples are worth reviewing, especially in light of the theoretical models evaluated in this study.

According to Almeida and Durkin (1999), if a woman and her children are

found to be in significant danger of domestic violence, resolving this threat becomes the first priority for the therapist, even if a delay in the substance-abuse treatment is the result. In order to ensure the female client's safety, her partner and other family members should generally not be present during the part of the assessment interview when questions about domestic violence are posed, as Gondolf and Foster (1991) have pointed out. Based on the findings in this study regarding socially desirable responding and the incidence of partner violence, it may also take time before a woman in treatment for substance abuse feels safe enough, both literally and psychologically, to disclose partner abuse, so assessment of domestic violence needs to be an ongoing process.

Substance-abuse treatment has traditionally provided primarily group and individual therapy for the identified patient. As described by Edwards and Steinglass (1995), O'Farrell (1992), as well as Rotunda and O'Farrell (1997), the families of substance abusers generally receive little, if any, concurrent therapy. Instead, they are usually offered psycho-educational classes about substance abuse and encouraged to attend Al-Anon or Nar-Anon programs. Few programs offer conjoint treatment for couples. Even fewer programs report attempting to treat couples when there is both substance abuse and domestic violence or both partners have substance-abuse problems.

As seen in this study, many women enter treatment for substance abuse while separated from their partners. However, it is not enough for therapists to simply encourage battered, substance-abusing women to stay away from an

abusive relationship since violent couples often reconcile despite severe abuse due to deep and subtle attachments (Goldner, 1998; Goldner, Penn, Sheinberg, & Walker, 1990). Treatment interventions against domestic-violence victimization are warranted even if a woman is not currently in an abusive relationship since she may well have been in a past abusive relationship or end up in a violent relationship if she continues to abuse alcohol and drugs, as Testa, Livingston, and Leonard (2003) have shown. There are also many reports of women initiating romantic relationships with other substance abusers during treatment, further complicating their long-term recovery efforts.

Based on this study, in addition to substance abuse recovery skills and strategies, treatment providers also need to focus on family-of-origin experiences of emotional and physical abuse, as well as ethnic-cultural values and beliefs about the use of interpersonal violence. Since emotional abuse was found to be so ubiquitous, women in treatment for substance abuse may need to be specifically taught skills for emotional self-defense and empowered and encouraged to become more self-accepting and resilient. The traditional Twelve-Step emphasis on "character defects" may also need to be adapted to better meet the needs of substance-abusing women who have been psychologically abused as both children and adults.

Substance abuse appears to be the norm for both partners, at least as reported by female substance abusers entering treatment who have been in recent romantic relationships. Rather than being simply a source of conflict,

concordant or symbiotic substance abuse between partners may represent a source of considerable intimacy and attachment, despite the apparent negative consequences. Concordant substance abuse also seems likely to increase internal and external stressors, which promote violence, while reducing the couple's ability to care for children, manage finances, and deal effectively with the problems of everyday life. Treatment providers may also need to help female clients find solutions to these aspects of family life before these women will be able to focus on recovery from substance abuse. For example, many women apparently leave detox centers early and against medical advice to get back to their children. It may be necessary, therefore, for many women to be able to bring their children with them when they go into substance abuse treatment programs as shelters for abused women often allow.

According to Haver (1986b), many substance-abusing women apparently do return to violent relationships following substance-abuse treatment. Being with a partner during and after substance-abuse treatment who continues to abuse alcohol and drugs, or resorts to violence, makes a woman's relapse to substance abuse seem both likely and dangerous, as Arias, Street, and Brody (1996) and Haver (1986b) have demonstrated.

According to Downs and Miller (2002), O'Farrell, Choquette, and Cutter (1998), and Rotunda and O'Farrell (1997), conjoint marital therapy in conjunction with individual substance-abuse treatment can sometimes improve substance-abuse treatment efficacy and long-term outcome; however,



practitioners of these models have generally screened-out couples when both partners were substance abusers.

Many domestic-violence counselors argue that conjoint couples treatment for violence is inappropriate or too dangerous (Bograd, 1984; 1992; Hansen, 1993). According to Almeida and Durkin (1999), however, when partners wish to continue with a relationship and there is domestic violence and one or both are substance abusers, the partners need to be encouraged to enter treatment individually before conjoint couples treatment is attempted. Almeida and Durkin argued that the violent partner first needs to attend group treatment specifically for batterers. Sending the partners to different treatment providers and different 12-Step meetings may also prove to be a useful intervention, particularly sending the partners to gender-specific 12-Step meetings. Only after both partners are free from alcohol or drug use for a period of time and the violence potential has been adequately addressed would conjoint treatment be appropriate. If either partner returns to alcohol or drug use, conjoint treatment efforts would generally be suspended.

Goldner (1998) and others (Feldman & Ridley, 1995; Geffner, 1997; Goldner, Penn, Sheinberg, & Walker, 1990) have argued for more immediate conjoint couples treatment in cases where there is sufficient motivation for change and reasonable safety, especially when the couple rejects recommendations for separate treatment or there are insufficient programs for treatment of batterers. Goldner (1998) also reported effective group therapy

with violent couples and suggested discussions with the couple concerning safety and conjoint treatment should serve as the starting point for therapy.

According to treatment guidelines for violent, substance-abusing couples proposed by Cooley and Severson (1993) and Madanes (1990), full responsibility for the violence has to fall squarely on the perpetrator. From a clinical standpoint, such a perspective runs counter to Leonard's emphasis on the woman's substance abuse as the underlying "cause" for her partner's violence since the woman's substance abuse is blamed rather than the partner for the partner's violence. Madanes (1990) has referred to such a perspective as the "excuse of provocation," and argued that the therapist must insist on accountability for the violence from the violent partner, even if the woman was in some ways provocative.

According to Cooley and Severson (1993), systemic interpretations for violence, such as Leonard's interpersonal model (1993), should not be offered to the couple since focusing on the interaction of both partners implicates the victim and also shifts responsibility from the perpetrator. Goldner et al. (1990), on the other hand, hold the batterer individually responsible while also examining and re-framing the systemic interactions of the couple, without allowing blame to fall on the victim.

Although the results of the present study appear to highlight the role of partner substance in domestic violence, as emphasized by Kaufman-Kantor and Asdigian (1997a), focusing on the partner's substance abuse as the underlying

cause for violence in a therapeutic context can shift responsibility for the violence away from the partner and obscure their accountability, as Testa and Leonard (2001) have pointed out. This can be a dangerous interpretation since the partner's violence may not stop just because the partner curtails the substance abuse, especially given the stresses of early recovery.

Renzetti (1993) and Cooley and Severson (1993) have recommended that marriage and family therapists need to clarify their own biases concerning the reunification of families before attempting to help salvage some of these highly conflicted relationships. Hansen (1993) and Goldberg (1995) pointed out that some couples actually have little basis for their relationships other than substance abuse, in which case separation and divorce are preferable outcomes to ongoing abuse and homicide. Conjoint therapy may also be important to help some couples negotiate the difficult and volatile process of separation and divorce without resorting to violence. As Goldner (1998) and others (Jacobson & Gottman, 1998; Walker, 2000) have shown, attempts to separate can often trigger the most extreme interpersonal violence.

Treatment efforts with violent, substance-abusing lesbian couples probably need to address many of these same issues as well as the unique challenges faced by homosexual couples in our society. There appeared to be a higher correlation between respondent and partner substance abuse in the limited sample of lesbians who participated in this study suggesting conjoint treatment may be as critical for this population as for heterosexual couples.

### *Study Limitations and Recommendations*

The results of the current study must be regarded as tentative and preliminary. Due to the retrospective design of this study, causal links between the identified risk markers and partner abuse could not be established. Longitudinal designs together with additional corroborative information could help to untangle these influences. Due to the limited number of available respondents, a detailed structural equation analysis of all interactions between specific predictors was not feasible. The sample size was minimally adequate for logistic regression analyses, and possibly under-powered with regard to the frequency of partner violence against the smaller sample of women who reported some violence and theoretically important correlates with smaller effect sizes may not have been identified as a result. While this study was designed to compare abused and non-abused women seeking treatment for substance abuse, a community control group would have been valuable from a theoretical standpoint, as well as a sample of couples in which only the male partner was a substance abuser. Similarly, results of this study do not necessarily generalize to substance-abusing women who are not in treatment. It may be that domestic abuse causes many women to seek out treatment for substance abuse, particularly inpatient treatment. Outpatient respondents were not proportionately represented in the current study, and may demonstrate a different constellation of predictors, and could correspond more closely with substance-abusing women not in treatment. Another limitation of this study was the lack of information on

women who opted not to participate. The twelve-month time-frame may also obscure important links between domestic violence and respondent substance abuse (Miller, 1998). Many substance-abusing women probably extricate themselves from abusive relationships, and these longer-term patterns need to be examined. The number of abusive partners was also not assessed. Women who repeatedly experience violent partners probably represent the group at highest risk of future violence (Bergman et al., 1989; Coolidge & Anderson, 2002). Since some disparity was found between objective and subjective reports of abuse, future studies need to compare objective against subjective reports of physical, sexual and psychological abuse for the index relationship. Exposure to street crime and other types of interpersonal violence associated with a substance-abusing lifestyle were also not examined (McKeganey, Neale, & Robertson, 2005). This study also did not involve an attempt to quantify the type, amount, or frequency of substance abuse by the respondent or her partner in detail. The acute effects played by alcohol and other drugs during specific episodes of domestic violence and psychological abuse were also not explored. Stimulant abuse may well contribute to domestic violence in different ways from abuse of central nervous system depressants (Brewer et al., 1998). As cohabitation becomes more commonplace (Jones, 2006), unmarried couples who live together may need to be grouped with married couples in terms of relationship satisfaction and distinguished from separated and divorced couples in future research as Jasinski and Williams (1998) as well as Stockdale, Klap,

Belin, Zhang, and Wells (2006) have done. (A post-hoc analysis combining married with cohabiting couples can be found in Appendix P). Possible ethnocultural differences were also obscured by the small sample size relative to the statistical analyses, and need to be reexamined in a larger study, possibly with over-sampling of less-represented ethnic groups. As Meston, Heiman, and Trapnell (1999) have demonstrated, emotional and psychological abuse probably also varies considerably depending on the cultural context of the family, and future instruments need to take such variations into account. The female respondents in this study also reported particularly limited socioeconomic resources, and these results should be re-examined with a more economically diverse sample before firm conclusions regarding economic indicators and domestic violence are drawn. It could be that ethnocultural differences in domestic violence rates are better explained by differences in socioeconomic resources.

The high selectivity, low specificity of the Abusive Behavior Inventory regarding partner psychological abuse also supports the suggestion by Follingstad and DeHart (2000) that operational measures of partner emotional abuse may need further refinement. This study did not explore violence on the part of the female substance-abuser, and this aspect should be examined further. It may be that mutual violence is more common in couples where the woman is a substance abuser or both partners are substance abusers (see Appendix R). In a recent study of female alcoholics and their partners, Drapkin,

McCrary, Swingle and Epstein (2005), found in 23% of the couples ( $n = 21$ ), the woman was more severely violent than her partner in comparison with only 11% of the couples ( $n = 10$ ) in which the man was severely violent. Even if the consequences of her violence are not as severe, the woman's use of violence and verbal abuse will need to be addressed during treatment (Goldner, 1998).

Although 17 lesbian respondents completed questionnaires for this study, (see Appendix O) this number was not sufficient for a multivariate analysis. Renzetti (1993) has pointed out that further research into same-sex partner violence is needed, and this will probably require over-sampling to achieve. Post-hoc analyses were also examined in regard to cohabitation as a predictor of abuse (Appendix P), partner emotional abuse as a predictor for partner violence (Appendix Q), and partner substance abuse as a grouping variable (Appendix R).

### *Conclusion*

Domestic abuse has been found to be extremely common among women seeking treatment for substance abuse, but little is known about the specific risk markers associated with this abuse. The present study was designed to identify salient risk markers for past-year physical and psychological partner abuse against substance abusing women, and to assess divergent theoretical models explaining the link between female substance abuse and domestic violence (Kaufman-Kantor & Asdigian, 1997a; Leonard, 1993). Significant univariate predictors for the incidence of partner physical abuse were found to be low

socially desirable responding, elevated partner alcohol abuse, partner drug abuse, and respondent drug abuse, low dyadic adjustment and socioeconomic level, unwed marital status, partner and respondent age, and childhood experience of emotional and physical abuse. Elevated partner alcohol and drug abuse, low dyadic adjustment, and lower respondent age emerged as important multivariate predictors. Significant univariate predictors for the elevated frequency of partner physical abuse during the previous year among respondents who reported partner physical abuse were found to be elevated partner alcohol and drug abuse, lower dyadic adjustment, and African American respondent and partner ethnicity, while elevated partner alcohol abuse, low dyadic adjustment, and African American partner ethnicity were significant multivariate predictors. The incidence of partner emotional abuse was only predicted by dyadic adjustment. Significant univariate predictors for the frequency of partner emotional abuse during the previous year among respondents who reported partner psychological abuse were found to be elevated partner alcohol and drug abuse, elevated respondent alcohol abuse, lower dyadic adjustment, and respondent childhood emotional abuse. Only dyadic adjustment and partner drug abuse were significant multivariate predictors for elevated frequency of partner emotional abuse.

The results of this study run counter to Leonard's (1993) speculation that the high rates of domestic violence against substance-abusing women stem from temperate partners frustrated with the ongoing substance abuse of these



women. Instead, support was found for the suggestion made by Kaufman-Kantor and Asdigian (1997a) that high rates of domestic violence against substance-abusing women were associated with the high rates of substance abuse by male partners. Strong evidence supporting other dimensions of Leonard's systemic model (1993), particularly the interpersonal dynamics, age, traumatic childhood experiences, and the cultural background of the couple as predictors for domestic abuse did find support. As a result, blending Kaufman-Kantor and Asdigian's (1997a) emphasis on partner substance abuse with Leonard's systemic model probably represents the best overall theoretical approach for understanding the dynamics and predicting physical and psychological partner abuse against women in treatment for substance abuse. Concordant substance abuse was the norm in this study and suggests substance abuse could serve as an important homeostatic mechanism. Concordant substance abuse may facilitate intimate, adaptive functions for the couple, which are not readily apparent to outside observers. The systemic role of substance abuse in concordant couples will require further study, perhaps using qualitative methods.

The treatment implications flowing from these results include more effective risk-marker screening for physical and psychological abuse as well as partner substance abuse among women entering treatment for substance abuse. In this study, socially desirable responding may have limited some disclosure of partner substance abuse as well as the incidence of partner violence. Even if a client initially denies these issues, therapists need to continually assess the risk

of partner violence and partner substance abuse. Evaluating the risk of violence against women seeking treatment for substance abuse is crucial for several reasons. The immediate safety of the female substance abuser needs to be the initial focus of any screening and treatment efforts. If the risk of violence is not recognized, inappropriate treatment can trigger further assaults, leading to treatment drop-out, injuries, and even death. Simultaneous and separate treatment efforts for the partner are also indicated to curtail both the partner's domestic abuse and substance abuse. Group therapy for batterers may be an important adjunctive approach. General guidelines to help women develop a safety plan are offered in Appendix N. In some cases, separation and divorce may be an appropriate resolution, especially if one partner is unwilling to make changes. Conjoint treatment with the couple is appropriate once both partners have established abstinence from alcohol and drugs, the batterer is adequately engaged in treatment for domestic violence, and a reasonable period of time has elapsed without further psychological or physical abuse.

## References

- Agresti, A. (1996). *An introduction to categorical data analysis*. New York: Wiley.
- Aguilar, R., & Nightingale, N. (1994). The impact of specific battering experiences on the self-esteem of abused women. *Journal of Family Violence, 9*(1), 35-45.
- Almeida, R., & Durkin, T. (1999). The cultural context model: Therapy for couples with domestic violence. *Journal of Marital and Family Therapy, 25*(3) 313-324.
- Amaro, H., Fried, L. E., Cabral, H., & Zuckerman, B. (1990). Violence during pregnancy and substance abuse. *American Journal of Public Health, 80*, 575-579.
- Anglin, K., & Holtzworth-Munroe, A. (1997). Comparing the responses of maritally violent and nonviolent spouses to problematic marital and nonmarital situations: Are the skill deficits of physically aggressive husbands and wives global? *Journal of Family Psychology, 11*(3), 301-313.
- Arias, I., & Beach, S. (1987). Validity of self-reports of marital violence. *Journal of Family Violence, 2*(2), 139-149.
- Arias, I., & Pape, K. (1999). Psychological abuse: Implications for adjustment and commitment to leave violent partners. *Violence and Victims, 14*(1), 55-67.
- Arias, I., Street, A., & Brody, G. (1996, September). *Depression and alcohol abuse: Women's responses to psychological victimization*. Paper presented

at the American Psychological Association's National Conference on Psychosocial and Behavioral Factors in Women's Health: Research, Treatment, and Service Delivery in Clinical and Community Settings, Washington, DC.

Ascione, F., Weber, C., & Wood, D. (1997). The abuse of animals and domestic violence: A national survey of shelters for women who are battered. *Society and Animals, 5* (3), 205-218.

Babcock, J. C., Waltz, J., Jacobson, N. S., & Gottman, J. M. (1993). Power and violence: The relation between communication patterns, power discrepancies, and domestic violence. *Journal of Consulting and Clinical Psychology, 61* (1), 50.

Baker, C., Cook, S., & Norris, F. (2003). Domestic violence and housing problems: A contextual analysis of women's help-seeking, received informal support, and formal system response. *Violence Against Women, 9* (7), 754-783.

Bennett, L., & Lawson, M. (1994). Barriers to cooperation between domestic-violence and substance-abuse programs. *Families in Society: Journal of Contemporary Human Services, 75*, 277-286.

Bennett, L., Tolman, R., Rogalski, C., & Srinivasaraghavan, J. (1994). Domestic abuse by male alcohol and drug addicts. *Violence & Victims, 9* (4), 359-368.

Berenson, D. (1976). A family approach to alcoholism. *Psychiatric Opinion, 13*,

33-38.

- Bergman, B., Larsson, G., Brismar, B., & Klang, M. (1989). Battered wives and female alcoholics: A comparative social and psychiatric study. *Journal of Advanced Nursing, 14*, 727-734.
- Bernal, G., Rodriguez, C., & Diamond, G. (1990). Contextual therapy: Brief treatment of an addict and spouse. *Family Process, 29*, 59-71.
- Bograd, M. (1984). Family systems approaches to wife battering: A feminist critique. *American Journal of Orthopsychiatry, 54*, 558-568.
- Bograd, M. (1990). Why we need gender to understand human violence. *Journal of Interpersonal Violence, 5*, 132-135.
- Bograd, M. (1992). Values in conflict: Challenges to family therapist's thinking. *Journal of Marital and Family Therapy, 18*, 243-257.
- Bowlby, J. (1973). *Separation: Anxiety & Anger*: Vol. 2 of Attachment and loss. New York: Basic Books.
- Bollerud, K. (1990). A model for the treatment of trauma-related syndromes among chemically dependent inpatient women. *Journal of Substance Abuse Treatment, 7*, 83-87.
- Boszormenyi-Nagy, I. & Spark, G. (1973). *Invisible loyalties: Reciprocity in intergenerational family therapy*. New York: Brunner/Mazel.
- Bowen, M. (1978). *Family therapy in clinical practice*. New York: Aronson.
- Brady, K. T., Killeen, T., Saladin, M. E., Dansky, B., & Becker, S. (1994). Comorbid substance abuse and posttraumatic stress disorder:

- Characteristics of women in treatment. *American Journal of Addictions*, 3 (2), 160-164.
- Brewer, D. D., Fleming, C. B., Haggerty, K. P., & Catalano, R. F. (1998). Drug use predictors of partner violence in opiate-dependent women. *Violence and Victims*, 13 (2), 107-115.
- Browne, A. (1991). The victim's experience: Pathways to disclosure. *Psychotherapy*, 28 (1), 150-156.
- Busby, D. M., Christensen, C., Crane, D. R., & Larson, J. H. (1995). A revision of the Dyadic Adjustment Scale for use with distressed and nondistressed couples: Construct hierarchy and multidimensional scales. *Journal of Marital and Family Therapy*, 21 (3), 289-308.
- Chase, K., O'Farrell, T., Murphy, C., Fals-Stewart, W., & Murphy, M. (2003). Factors associated with partner violence among female alcoholic patients and their male partners. *Journal of Studies on Alcohol*, 64, 137-149.
- Cocco, K., & Carey, K. B. (1998). Psychometric properties of the Drug Abuse Screening Test in psychiatric outpatients. *Psychological Assessment*, 10 (4), 408-414.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: L. Erlbaum Associates.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, N.J.: L. Erlbaum Associates.
- Coker, A., Smith, P., McKeown, R., & King, M. (2000). Frequency and correlates

of intimate partner violence by type: Physical, sexual, and psychological battering. *American Journal of Public Health, 90* (4), 553-559.

Coleman, D., & Straus, M. (1990). Marital power, conflict, and violence in a nationally representative sample of American couples. In M. A. Straus & R. Gelles (Eds.), *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families* (pp. 287-304). New Brunswick, NJ: Transaction.

Coleman, K., Weinman, M., & Hsi, B. P. (1980). Factors affecting conjugal violence. *Journal of Psychology, 105*, 197-202.

Cooley, C., & Severson, K. (1993). Establishing feminist systemic criteria for viewing violence and alcoholism. In M. Hansen and M. Harway (Eds.), *Battering and family therapy* (217-226). Newbury Park, CA: Sage.

Coolidge, F., & Anderson, L. (2002). Personality profiles of women in multiple abusive relationships. *Journal of Family Violence, 17* (2), 117-131.

Collins, J. J., Kroutil, L. A., Roland, E. J., & Moore-Gurrera, M. (1997). Issues in the linkages of alcohol and domestic violence services. In G. Marc (Ed.), *Recent developments in alcoholism, Vol. 13: Alcohol and violence: Epidemiology, neurobiology, psychology, family issues. Recent developments in alcoholism* (pp. 387-405). Plenum Press: New York.

Conger, R. D., Elder, G. H., Lorenz, K. J., Conger, R. L., Simons, R. L., Whitbeck, L. B., Huck, S. & Melby, J. (1990). Linking economic hardship to marital quality and instability. *Journal of Marriage and the Family, 52* (3), 643-



656.

- Covington, S. S., & Kohen, J. (1984). Women, alcohol, and sexuality. In B. Stimmel (Ed.), *Cultural and sociological aspects of alcoholism and substance abuse* (pp. 41-56). Binghamton, NY: Haworth Press.
- Crane, D. R., Middleton, K. C., & Bean, R. A. (2000). Establishing criterion scores for the Kansas Marital Satisfaction Scale and the Revised Dyadic Adjustment Scale. *American Journal of Family Therapy, 28* (1), 53-60.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*, 349-354.
- DeMaris, A. (2001). The influence of intimate violence on transitions out of cohabitation. *Journal of Marriage and the Family, 63* (1), 235-246.
- Downs, W., & Miller, B. (2002). Treating dual problems of partner violence and substance abuse. In C. Wekerle & A. Wall (Eds.), *The violence and addiction equation: Theoretical and clinical issues in substance abuse and relationship violence* (pp. 254-274). New York: Brunner-Routledge.
- Downs, W., Miller, B., & Panek, D. (1993). Differential patterns of partner-to-woman violence: A comparison of samples of community, alcohol-abusing, and battered women. *Journal of Family Violence, 8* (4), 113-135.
- Drapkin, M. L., McCrady, B. S., Swingle, J. M., & Epstein, E.E. (2005). Exploring bidirectional couple violence in a clinical sample of female alcoholics. *Journal of Studies on Alcohol, 66* (2), 213-9.

- Dutton, D., & Hemphill, K. J. (1992). Patterns of socially desirable responding among perpetrators and victims of wife assault. *Violence and Victims, 7* (1), 29-39.
- Dutton, M., Goodman, L., & Bennett, L. (1999). Court-involved battered women's responses to violence: The role of psychological, physical and sexual abuse. *Violence & Victims, 14* (1), 89-104.
- Eberle, P. (1982). Alcohol abusers and non-users: A discriminant analysis of differences between two subgroups of batterers. *Journal of Health and Social Behavior, 23*, 260-271.
- Edwards, M., & Steinglass, P. (1995). Family therapy outcomes for alcoholism. *Journal of Marital and Family Therapy, 10*, 475-509.
- Ellis, D. (1987). Postseparation woman abuse: The contributions of lawyers as "barricudas," "advocates," and "counselors." *International Journal of Law and Psychiatry, 10*, 401-410.
- Epstein, E. E., McCrady, B. S., Miller, K. J., & Steinberg, M. (1994). Attrition from conjoint alcoholism treatment: Do dropouts differ from completers? *Journal of Substance Abuse, 6*, 249-265.
- Fagan, J., Stewart, D., & Hansen, K. (1983). Violent men or violent husbands: Background factors and situational correlates. In D. Finkelhor, R. J. Gelles, G. T. Hotaling & M. A. Straus (Eds.), *The dark side of families: Current family violence research* (pp. 49-68). Beverly Hills, CA: Sage.
- Fagan, R., Barnett, O., & Patton, J. (1988). Reasons for alcohol use in maritally

- violent men. *American Journal of Drug & Alcohol Abuse*, 14 (3), 371-392.
- Federal Registry Notice, (1997). *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity*. Office of Management and Budget. Retrieved July 25, 2006 from <http://www.whitehouse.gov/omb/fedreg/ombdir15.html>
- Feise, R. J. (2002). Do multiple outcome measures require p-value adjustment? *BMC Medical Research Methodology*, 2, 8.
- Feld, S. L., & Straus, M. (1990). Escalation and desistance from wife assault in marriage. In M. Straus & R. Gelles (Eds.), *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families* (pp. 489-505). New Brunswick, NJ: Transaction.
- Feldman, C. M. & Ridley, C. A. (1995). The etiology and treatment of domestic violence between adult partners. *Clinical Psychology: Science and Practice*, 2, 317-348.
- Feldman, C. M., & Ridley, C. A. (2000). The role of conflict-based communication responses and outcomes in male domestic violence toward female partners. *Journal of Social and Personal Relationships*, 17 (4-5), 552-573.
- Follingstad, D., & DeHart, D. (2000). Defining psychological abuse of husbands toward wives. *Journal of Interpersonal Violence*, 15 (9), 891-920.
- Follingstad, D., Rutledge, L., Berg, B., & Hause, E. (1990). The role of emotional abuse in physically abusive relationships. *Journal of Family Violence*, 5 (2), 107-120.

- Fortunata, B., & Kohn, C. S. (2003). Demographic, psychosocial, and personality characteristics of lesbian batterers. *Violence and Victims, 18* (5), 557-568.
- Fox, G. L., Benson, M. L., DeMaris, A. A., & Van Wyk, J. (2002). Economic distress and intimate violence: Testing family stress and resources theories. *Journal of Marriage and Family, 64* (3), 793-807.
- Frieze, I. H., & Schafer, P. C. (1984). Alcohol use and marital violence: Female and male differences in reactions to alcohol. In S. C. Wilsnack & L. J. Beckman (Eds.), *Alcohol problems in women: Antecedents, consequences & interventions* (pp. 260-279). New York: Guilford Press.
- Garson, G. D. (2003). *Statnotes: Topics in multivariate analysis*. Retrieved January 28, 2006 from <http://www2.chass.ncsu.edu/garson/pa765/statnote.htm>
- Gavin, D., Ross, H. & Skinner, H. (1989). Diagnostic validity of the Drug Abuse Screening Test in the assessment of DSM-III drug disorders. *British Journal of Addiction, 84*, 301-307.
- Geffner, R. A. (1997). Family violence: Current issues, interventions and research. In R.A. Geffner, S. Sorenson, P. Lundberg-Love (Eds.) *Violence and sexual abuse at home* (pp. 1-37). Binghamton, NY: Haworth Press.
- Gelles, R. (1974). *The violent home: A study of physical aggression between husbands and wives*. Beverly Hills, CA: Sage.
- Gelles, R. (1976, November). Abused wives: Why do they stay? *Journal of Marriage and the Family, 659-668*.

- Gelles, R., & Straus, M. (1988). *Intimate violence: The causes and consequences of abuse in the American family*. New York: Simon & Schuster.
- Goldberg, M. E. (1995). Substance-abusing women: False stereotypes and real needs. *Socialwork, 40* (6), 789-798.
- Goldner, V. (1998). The treatment of violence and victimization in intimate relationships. *Family Process, 37*, 263-286.
- Goldner, V., Penn, P., Sheinberg, M., & Walker, G. (1990). Love and violence: Gender paradoxes in volatile attachments. *Family Process, 29*, 343-364.
- Goldstein, P. J., Belluci, P. A., Spunt, B. J., & Miller, T. (1989). *Frequency of cocaine use and violence: A comparison between women and men*. New York: Narcotic and Drug Research.
- Gondolf, E., & Foster, R. (1991). Wife assault among VA alcohol rehabilitation patients. *Hospital and Community Psychiatry, 42* (1), 74-79.
- Gondolf, E., Heckert, D., & Kimmel, C. (2002). Nonphysical abuse among batterer program participants. *Journal of Family Violence, 17* (4), 293-314.
- Gormley, B. (2005). An adult attachment theoretical perspective of gender symmetry in intimate partner violence. *Sex Roles, 52* (11/12), 785-795.
- Gortner, E., Berns, S. B., Jacobson, N. S., & Gottman, J. M. (1997). When women leave violent relationships: Dispelling clinical myths. *Psychotherapy: Theory, Research, Practice, Training*. Special Issue: *Psychotherapy: Violence and the family, 34* (4), 343-352.

- Green, S. B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavioral Research, 26*, 499-510.
- Greenfeld, L. A. (1998). *Alcohol and crime: An analysis of national data on the prevalence of alcohol involvement in crime*. Washington, DC: U.S. Dept. of Justice, Bureau of Justice Statistics.
- Gustafson, F., & Scott, C. (2000). *Re-viewing treatment for female addicted victims of domestic violence*. Unpublished Dissertation, Antioch University/New England Graduate School.
- Hale-Carlson, G., Hutton, B., Morse, D., McNutt, L., & Clifford, A. (1996). Physical violence and injuries in intimate relationships: New York, Behavioral Risk Factor Surveillance System, 1994. *Morbidity and Mortality Weekly Report, 45* (35), 765-767.
- Hamberger, L. K., & Hastings, J. E. (1990). Recidivism following spouse abuse abatement counseling: Treatment program implications. *Violence and Victims, 5* (3), 157-170.
- Hamby, S. L. (1996). The Dominance Scale: Preliminary psychometric properties. *Violence and Victims, 11* (3), 199-212.
- Hansen, M. (1993). Feminism and family therapy: A review of feminist critiques of approaches to family violence. In M. Hansen & M. Harway (Eds.), *Battering and family therapy: A feminist perspective* (pp. 69-82). Newbury Park, CA: Sage.
- Hathaway, S. R., & McKinley, J. C. (1983). *The Minnesota Multiphasic Personality*

*Inventory manual*. New York: Psychological Corporation.

- Haver, B. (1986a). Female alcoholics: I. Psycho-social outcome six years after treatment. *Acta Psychiatrica Scandinavica*, *74*, 102-111.
- Haver, B. (1986b). Female alcoholics: II. Factors associated with psycho-social outcome 3-10 years after treatment. *Acta Psychiatrica Scandinavica*, *74*, 597-604.
- Haver, B. (1987). Female alcoholics: IV. The relationship between family violence and outcome 3-10 years after treatment. *Acta Psychiatrica Scandinavica*, *75*, 449-455.
- Hays, R., & Preeto, J. (1992). Old and new MMPI-derived scales and the short-MAST as screening tools for alcohol disorder. *Alcohol and Alcoholism*, *27* (6), 685-695.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511-524.
- Heavey, C., Christensen, A., & Malmuth, N. (1995). The longitudinal impact of demand and withdrawal during marital conflict. *Journal of Consulting & Clinical Psychology*, *63* (5), 797-801.
- Hedlund, J.L., & Vieweg, B.W. (1984). The Michigan Alcoholism Screening Test (MAST): A comprehensive review. *Journal of Operational Psychiatry*, *15*, 55-64.
- Henderson, A., Bartholomew, K., Trinke, S., & Kwong, M. (2005). When loving means hurting: An exploration of attachment and intimate abuse in a

- community sample. *Journal of Family Violence*, 20 (4), 219-230.
- Henning, K., & Klesges, L. (2003). Prevalence and characteristics of psychological abuse reported by court-involved battered women. *Journal of Interpersonal Violence*, 18 (8), 857-871.
- Henton, J., Cate, R., Koval, J., Lloyd, S., & Christopher, S. (1983). Romance and violence in dating relationships. *Journal of Family Issues*, 4, 467-482.
- Hien, D., & Levin, F. R. (1994). Trauma and trauma-related disorders for women on methadone: Prevalence and treatment considerations. *Journal of Psychoactive Drugs*, 426 (4), 421-429.
- Hornung, C., McCullough, B., & Sugimoto, T. (1981). Status relationships in marriage: Risk factors in spouse abuse. *Journal of Marriage and the Family*, 43, 675-692.
- Hotaling, G. T., & Sugarman, D. B. (Eds.). (1984). *An identification of risk factors*. Rockville, MD: Westat.
- Hotaling, G. T., & Sugarman, D. B. (1986). An analysis of risk markers in husband to wife violence: The current state of knowledge. *Violence and Victims*, 1 (2), 101-124
- Hotaling, G. T., & Sugarman, D. B. (1990). A risk marker analysis of assaulted wives. *Journal of Family Violence*, 5 (1), 1-13.
- Jackson, D. N. (1976). *Basic Personality Inventory*. London, Canada: Author.
- Jacob, T., & Bremer, D. A. (1986). Assortative mating among men and women alcoholics. *Journal of Studies on Alcohol*, 47, 219-222.



- Jacobson, N., & Gottman, J. (1998). Anatomy of a violent relationship. *Psychology Today, 31*, 60-69.
- Jacobson, N., Gottman, J., Gortner, E., Berns, S., & Shortt, J. (1996). Psychological factors in the longitudinal course of battering: When do the couples split up? When does the abuse decrease? *Violence & Victims, 11* (4), 371-392.
- Jasinski, J. L., & Williams, L. M. (1998). *Partner violence: A comprehensive review of 20 years of partner violence*. Thousand Oaks, CA: Sage.
- Jones, J. (2006, March 26). Marriage is for white people. *The Washington Post*. B01.
- Jones, N. T., Ji, P., Beck, M., & Beck, N. (2002). The reliability and validity of the Revised Conflict Tactics Scale (CTS2) in a female incarcerated population. *Journal of Family Issues, 23* (2), 441-457.
- Katz, J., Arias, I., Beach, S. R. H., & Brody, G. (1995). Excuses, excuses: Accounting for the effects of partner violence on marital satisfaction and stability. *Violence & Victims, 10* (4), 315-326.
- Kaufman, E. (1984). Family system variables in alcoholism. *Alcoholism: Clinical and experimental research, 8* (1), 4-8.
- Kaufman, M. (1991). Men's violence: A conversation with Michael Kaufman and Eimer O'Neill. *Canadian Women Studies, 11* (4), 28-31.
- Kaufman-Kantor, G. (1993). Refining the brushstrokes in portraits of alcohol and wife assaults. In S. E. Martin (Ed.), *Alcohol and interpersonal violence:*

*Fostering multidisciplinary perspectives* (Vol. 24)(pp. 281-290). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.

Kaufman-Kantor, G., & Asdigian, N. (1997a). Gender differences in alcohol-related spousal aggression. In R. W. Wilsnack & S. C. Wilsnack (Eds.), *Gender and alcohol: Individual and social perspectives* (pp. 312-334). New Brunswick, NJ: Rutgers University Press.

Kaufman-Kantor, G., & Asdigian, N. (1997b). When women are under the influence: Does drinking or drug use by women provoke beatings by men? In M. Galanter (Ed.), *Recent Developments in Alcoholism* (Vol. 13)(pp. 315-336). New York: Plenum Press.

Kaufman-Kantor, G., & Jasinski, J. (1998). Dynamics and risk factors in partner violence. In J. L. Jasinski & L. M. Williams (Eds.), *Partner violence: A comprehensive review of 20 years of research* (pp. 1-43). Thousand Oaks, CA: Sage.

Kaufman-Kantor, G., & Straus, M. (1989). Substance abuse as a precipitant of wife abuse victimizations. *American Journal of Drug and Alcohol Abuse*, 15 (2), 73-189.

Keller, L. E. (1996). Invisible victims: Battered women in psychiatric and medical emergency rooms. *Bulletin of the Menninger Clinic*, 60 (1), 1-21.

Kilpatrick, D. G., Acierno, R., Resnick, H. S., Saunders, B. E., & Best, C. L. (1997). A 2-year longitudinal analysis of the relationships between violent assault and substance use in women. *Journal of Consulting & Clinical*

*Psychology, 65* (5), 834-847.

- Koss, M. P. (1990). The women's mental health research agenda: Violence against women. *American Psychologist, 45*, 374-380.
- Kurz, D. (1996). Separation, divorce, and woman abuse. *Violence Against Women, 2* (1), 63-81.
- Kyriacou, D. N., Anglin, D., Taliaferro, E., Stone, S., Tubb, T., Linden, J. A., Muelleman, R., Barton, E., and Kraus, J. F. (1999). Risk factors for injury to women from domestic violence. *New England Journal of Medicine, 341* (25), 1892-1898.
- Laner, M. R., & Thompson, J. (1982). Abuse and aggression in courting couples. *Deviant Behavior, 3*, 229-244.
- Leonard, K. (1993). Drinking patterns and intoxication in marital violence: Review, critique, and future directions for research. In S. E. Martin (Ed.), *Alcohol and interpersonal violence: Fostering multidisciplinary perspectives* (Vol. 24)(pp. 253-280). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- Leonard, K. (2002). Alcohol and substance abuse in marital violence and child maltreatment. In C. Wekerle & A. Wall (Eds.), *The violence and addiction equation: Theoretical and clinical issues in substance abuse and relationship violence* (pp. 194-219). New York: Brunner-Routledge.
- Leonard, K., Dunn, N., & Jacob, T. (1983). Drinking problems of alcoholics: Correspondence between self and spouse reports. *Addictive Behaviors, 8*,

369-373.

Leonard, K., & Senchak, M. (1993). Alcohol and pre-marital aggression among newlywed couples. *Journal of Studies on Alcohol*, *11* (Sup), 96-108.

Leonard, K., & Senchak, M. (1996). Prospective prediction of husband marital aggression within newlywed couples. *Journal of Abnormal Psychology*, *105* (3), 369-380.

Lindquist, C. U., Sass, L. E., Bottomley, D., Katin, S. M., Maddox, J. D., Ordonez, R. M., and Teofilo, C. N. (1997). Should abused women's reports of partner substance abuse be accepted as valid? *Journal of Family Violence*, *12* (1), 75-83.

Lipsey, M. W. (1990). *Design sensitivity: Statistical power for experimental research*. Newbury Park, CA: Sage.

Lobel, K. (1986). *Naming the violence: Speaking out about lesbian battering*. Seattle: Seal Press.

Locke, H. J., & Wallace, K. M. (1959, August). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living*, *21*, 251-255.

Locke, H. J., & Williamson, R. C. (1958). Marital adjustment: A factor analysis study. *American Sociological Review*, *23*, 562-569.

Madanes, C. (1990). *Sex, love, and violence: Strategies for transformation*. New York: W. W. Norton & Co.

Magruder-Habib, K., Harris, K. E., & Fraker, G. G. (1982). Validation of the

- Veterans Alcoholism Screening Test. *Journal of Studies on Alcohol*, 43 (9), 910-926.
- Margolin, G., John, R., & Foo, L. (1998). Interactive and unique risk factors for husbands' emotional and physical abuse of their wives. *Journal of Family Violence*, 13 (4), 315-344.
- Marshall, L. L. (1992). Development of the Severity of Violence Against Women Scales. *Journal of Family Violence*, 7(2), 103-121.
- Marshall, L. L. (1996). Psychological abuse of women: Six distinct clusters. *Journal of Family Violence*, 11, 369-399.
- Marshall, L. L. (1999). Effects of men's subtle and overt psychological abuse on low-income women. *Violence & Victims*, 14 (1), 69-88.
- McAuley, T., Longabaugh, R., & Gross, H. (1978). Comparative effectiveness of self and family forms of the Michigan Alcoholism Screening Test. *Journal of Studies on Alcohol*, 39 (9), 1622-1627.
- McCullagh, P., & Nelder, J. A. (1992). *Generalized Linear Model*. Norwell, MA: Chapman & Hall.
- McKeganey, N., Neale, J. & Robertson, M. (2005). Physical and sexual abuse among drug users contacting drug treatment services in Scotland. *Drugs: Education, Prevention & Policy*, 12 (3), 223-232.
- Meston, C. M., Heiman, J. R., & Trapnell, P. (1999). Ethnicity, desirable responding, and self-reports of abuse: A comparison of European- and Asian-ancestry undergraduates. *Journal of Consulting and Clinical*

*Psychology*, 67(1), 139-144.

- Miller, B. (1990). The interrelationships between alcohol and drugs and family violence. In M. De La Rosa, E. Lambert, B. Gropper (Eds.), *Drugs and violence: Causes, correlates, and consequences* (pp. 177-207). Rockville, MD: NIDA.
- Miller, B. (1992). *Family violence and children: An overview*. Pittsburgh, PA: Second Annual Center for Education and Drug Abuse Research (CEDAR) Forum.
- Miller, B. (1998). Partner violence experiences and women's drug use: Exploring the connections. In C. L. Wetherington & A. B. Roman (Eds.), *Drug addiction research and the health of women* (pp. 407-416). Rockville, MD: National Institute on Drug Abuse.
- Miller, B., Downs, W., & Gondoli, D. (1989). Spousal violence among alcoholic women as compared to a random household sample of women. *Journal of Studies on Alcohol*, 50, 533-540.
- Mills, R. B., & Malley-Morrison, K. (1998). Emotional commitment, normative acceptability, and attributions for abusive partner behaviors. *Journal of Interpersonal Violence*, 13, 682-699.
- Mudar, P., Leonard, K., & Soltysinski, K. (2001). Discrepant substance abuse and marital functioning in newlywed couples. *Journal of Consulting & Clinical Psychology*, 69(1), 130-134.
- Murphy, C. M., & O'Farrell, T. J. (1994). Factors associated with marital

aggression in male alcoholics. *Journal of Family Psychology*, 8 (3), 321-335.

National Institute of Health (NIH). (Amended, October, 2001). *Policy and guidelines on the inclusion of women and minorities as subjects in clinical research*. Retrieved July 25, 2006 from [http://grants.nih.gov/grants/funding/women\\_min/guidelines\\_amended\\_10\\_2001.htm](http://grants.nih.gov/grants/funding/women_min/guidelines_amended_10_2001.htm)

Neufeld, J., McNamara, J. R., and Ertl, M. (1999). Incidence and prevalence of dating partner abuse and its relationship to dating practices. *Journal of Interpersonal Violence*, 14 (2), 125-137.

North, C. S., Thompson, S. J., Smith, E. M., & Kyburz, L. M. (1996). Violence in the lives of homeless mothers in a substance abuse treatment program: A descriptive study. *Journal of Interpersonal Violence*, 11 (2), 234-249.

Norušis, M. J. (2004). *SPSS 13.0 Advanced Statistical Procedures Companion*. Upper Saddle River, NJ: Prentice Hall.

O'Farrell, T. (1992). Families and alcohol problems: An overview of treatment research. *Journal of Family Psychology* 5 (3), 339-359.

O'Farrell, T., Choquette, K., & Cutter, H. (1998). Couples relapse prevention sessions after behavioral marital therapy for male alcoholics: Outcomes during the three years after starting treatment. *Journal of Studies on Alcohol*, 59 (4), 357-368.

O'Farrell, T., & Murphy, C. (1995). Marital violence before and after alcoholism treatment. *Journal of Consulting and Clinical Psychology*, 63 (2), 256-262.

- O'Leary, K. (1988). Physical aggression between spouses. In V. B. Van Hasselt (Ed.), *Handbook of family violence* (pp. 31-55). New York: Plenum Press.
- O'Leary, K. (1999). Psychological abuse: A variable deserving critical attention in domestic violence. *Violence & Victims, 14* (1), 3-24.
- O'Leary, K., Arias, H., Rosenbaum, A., & Barling, J. (1985). *Premarital physical aggression*. Unpublished manuscript.
- O'Leary, K., & Jouriles, E. (1994). Psychological abuse between adult partners: Prevalence and impact on partners and children. In L. L'Abate (Ed.), *Handbook of developmental family psychology and psychopathology* (pp. 330-349). Hoboken, NJ: John Wiley & Sons.
- O'Neill, M., & Kerig, P. (2000). Attributions of self-blame and perceived control as moderators of adjustment in battered women. *Journal of Interpersonal Violence, 15* (10), 1036-1049.
- Ong, A. D., & Weiss, D. J. (2000). The impact of anonymity of responses to sensitive questions. *Journal of Applied Social Psychology, 30* (8), 1691-1708.
- Pagelow, M. D. (1984). *Family Violence*. New York: Praeger.
- Pan, H. S., Neidig, P. H., & O'Leary, K. D. (1994). Predicting mild and severe husband-to-wife physical aggression. *Journal of Consulting & Clinical Psychology, 62* (5), 975-981.
- Pence, E., & Paymar, M. (1990). *Power and control: Tactics of men who batter*. Duluth, MN: Minnesota Program Development Inc.



- Perneger, T. M. (1998). What's wrong with Bonferroni adjustments, *British Medical Journal*, *316*, 1236-1238.
- Peterman, L., & Dixon, C. (2003). Domestic violence between same-sex partners: Implications for counseling. *Journal of Counseling and Development*, *81*, 40-47.
- Rennison, C. M., & Welchans, S. (2000). *Intimate partner violence* (No. NCJ 178247). Washington, DC: US Department of Justice.
- Renzetti, C. (1993). Violence in lesbian relationships. In M. Hansen and M. Harway (Eds.), *Battering and family therapy* (188-199). Newbury Park, CA: Sage.
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne social desirability scale. *Journal of Clinical Psychology*, *38*, 119-125.
- Rhodes, N. R. (1992). The assessment of spousal abuse: An alternative to the Conflict Tactics Scale. In E. C. Viano (Ed.), *Intimate violence: Interdisciplinary perspectives* (pp. 27-35). Philadelphia: Hemisphere.
- Robinette, R. (1991). The relationship between the Marlowe-Crowne Form C and the Validity scales of the MMPI. *Journal of Clinical Psychology*, *47*(3), 396-399.
- Rodenburg, F. A., & Fantuzzo, J. W. (1993). The Measure of Wife Abuse: Steps toward the development of a comprehensive assessment technique. *Journal of Family Violence*, *8*(3), 203-228.

- Rodriguez, E., Lasch, K. E., Chandra, P., & Lee, J. (2001). Family violence, employment status, welfare benefits, and alcohol drinking in the United States: What are the relations? *Journal of Epidemiology and Community Health, 55*, 172-178.
- Root, M. (1989). Treatment failures: The role of sexual victimization in women's addictive behavior. *American Journal of Orthopsychiatry, 54* (4), 542-549.
- Rosenbaum, A., & O'Leary, K. D. (1981). Marital violence: Characteristics of abusive couples. *Journal of Consulting & Clinical Psychology, 49* (1), 63-71.
- Rotunda, R., & O'Farrell, T. (1997). Marital and family therapy of alcohol use disorders: Bridging the gap between research and practice. *Professional Psychology: Research and Practice, 28* (3), 246-252.
- Sagrestano, L., Heavey, C., & Christensen, A. (1999). Perceived power and physical violence in marital conflict. *Journal of Social Issues, 55*, 65-79.
- Sakett, L., & Saunders, D. (1999). The impact of different forms of psychological abuse on women. *Violence & Victims, 14* (1), 105-116.
- Schafer, J., & Fals-Stewart, W. (1997). Spousal violence and cognitive functioning among men recovering from multiple substance abuse. *Addictive Behaviors, 22* (1), 127-130.
- Schenberg, T. B. (1999). *Children of substance abusers: The relationship of perceived parental rejection to child emotional functioning*. Unpublished Dissertation Abstracts International: Section B: The Sciences &

Engineering, California School of Professional Psychology, San Diego, US.

Schnarch, D. (1997). *Passionate marriage: Sex, love, and intimacy in emotionally committed relationships*. New York: W. W. Norton & Co.

Schubert, E., Protinsky, H., & Viers, D. (2002). Levels of differentiation and marital egalitarianism in men who batter. *Journal of Feminist Family Therapy, 14*(1), 1-19.

Schumacher, J., Slep, A., & Heyman, R. (2001). Risk factors for male-to-female partner psychological abuse. *Aggression and Violent Behavior, 6*, 255-268.

Sedlak, A. J. (1988). Prevention of wife abuse. In V. B. Van Hasselt (Ed.), *Handbook of Family Violence* (pp. 319-358). New York: Plenum Press.

Seligman, M. E. (1975). *Helplessness: On depression, development, and death*. New York, NY: Henry Holt & Co.

Selzer, M. L., Vinokur, A., & Rooijen, L. V. (1975). A self-administered short Michigan Alcoholism Screening Test (MAST). *Journal of Studies on Alcohol, 36*(1), 117-126.

Semmelman, P. S. (1982). *Battered and non-battered women: A comparison*. Unpublished Dissertation, Ohio State University.

Shepard, M. F. (1987). *Intervention with men who batter: An evaluation of a domestic abuse program*. Paper presented at the Third National Family Violence Research Conference, Durham, NH.

Shepard, M. F., & Campbell, J. A. (1992). The Abusive Behavior Inventory: A

measure of psychological and physical abuse. *Journal of Interpersonal Violence, 7*(7), 291-305.

Shields, N. M., & Hanneke, C. R. (1983). Battered wives reactions to marital rape. In D. Finkelhor, R. J. Gelles, G. T. Hotaling, & M. A. Straus (Eds.), *The dark side of families: Current family violence research* (pp. 132-148). Beverly Hills, CA: Sage.

Sigelman, C. K., Berry, C. J., & Wiles, K. A. (1984). Violence in college students' dating relationships. *Journal of Applied Social Psychology, 5*(6), 530-548.

Skinner, H. (1982). The drug abuse screening test. *Addictive Behaviors, 7*(4), 363-371.

Skinner, H., & Goldberg, A. E. (1986). Evidence for a drug dependence syndrome among narcotic users. *British Journal of Addiction, 81*, 479-484.

Sommer, R., Barnes, G. E., & Murray, R. P. (1992). Alcohol consumption, alcohol abuse, personality and female perpetrated spouse abuse. *Personality and Individual Differences, 13*(12), 1315-1323.

Spanier, G. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 15*-28.

Spanier, G., & Filsinger, E. (1983). The dyadic adjustment scale. In E. E. Filsinger (Ed.), *Marriage and family assessment* (pp. 155-168). Beverly Hills, CA: Sage.

Stanton, M. D., & Todd, T. C. (1982). The family therapy of drug abuse and

- addiction. New York: Guilford Press.
- Star, B. (1978). Comparing battered and non-battered women. *Victimology*, 3 (1-2), 32-44.
- Stark, E., Flitcraft, A., Zuckerman, D., Gray, A., Robinson, J., & Frazier, W. (1981). *Wife abuse in the medical setting: An introduction for health personnel*, (No. 7). Washington, DC: Office of Domestic Violence.
- Steinglass, P. (1987). *The alcoholic family*. New York: Basic Books.
- Stets, J. (1990). Verbal and physical aggression in marriage. *Journal of Marriage and the Family*, 52 (2), 501-514.
- Stockdale, S., Klap, R., Belin, T., Zhang, L., & Wells, K. (2006). Longitudinal patterns of alcohol, drug, and mental health need and care in a national sample of U.S. adults. *Psychiatric Services*, 57 (1), 93-99.
- Strahan, R., & Gerbasi, K.C. (1972). Short, homogeneous versions of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 28, 191-193.
- Straight, E., Harper, F., & Arias, I. (2003). The impact of partner psychological abuse on health behaviors and health status in college women. *Journal of Interpersonal Violence*, 18 (9), 1035-1054.
- Straus, M. (1979). Measuring intrafamily conflict and violence: The conflict tactics (CT) scale. *Journal of Marriage and the Family*, 41, 75-88.
- Straus, M., & Gelles, R. (1986). Societal change and change in family violence from 1975 to 1985 as revealed by two national surveys. *Journal of*

*Marriage and the Family*, 48, 465-479.

- Straus, M., & Gelles, R. (1990). *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families*. New Brunswick, NJ: Transaction.
- Straus, M., Gelles, R., & Steinmetz, S. (1980). *Behind closed doors: Violence in the American family*. New York: Anchor.
- Straus, M., Hamby, S., Boney-McCoy, S., & Sugarman, D. (1996). The revised Conflict Tactics Scale (CTS2): Development and preliminary psychometric data. *Journal of Family Issues*, 17(3), 283-316.
- Straus, M., & Sweet, S. (1992). Verbal/symbolic aggression in couples: Incidence rates and relationships to personal characteristics. *Journal of Marriage and the Family*, 54(2), 346-358.
- Strube, M., & Barbour, L. (1983). The decision to leave an abusive relationship: Economic evidence and theoretical issues. *Journal of Marriage and the Family*, 45, 785-793.
- Stuart, G. L., Ramsey, S. E., Moore, T. M., Kahler, C. W., Farrell, L. E., Recupero, P. R., Brown, R. A. (2002). Marital violence victimization and perpetration among women substance abusers: A descriptive study. *Violence Against Women*, 8(8), 934-952.
- Sugarman, D. B., & Hotaling, G. T. (1989). Violent men in intimate relationships: An analysis of risk markers. *Journal of Applied Psychology*, 19(12), 1034-1048.

- Sugarman, D. B., & Hotaling, G. T. (1997). Intimate violence and social desirability: A meta-analytic review. *Journal of Interpersonal Violence, 12* (2), 275-290.
- Swett, C., Cohan, C., Surrey, J., Compaine, A., & Chavez, R. (1991). High rates of alcohol use and history of physical and sexual abuse among women outpatients. *American Journal of Drug and Alcohol Abuse, 17* (1), 49-60.
- Swift, W., Copeland, J., & Hall, W. (1996). Characteristics of women with alcohol and other drug problems: Findings of an Australian national survey. *Addiction, 91* (8), 114-115.
- Szinovacz, M. E. (1983). Using couple data as a methodological tool: The case of marital violence. *Journal of Marriage and the Family, 45*, 633-644.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.
- Taylor, S. P., & Chermack, S. T. (1993). Alcohol, drugs, and human aggression. *Journal of Studies on Alcohol* (Suppl. 11), 78-88.
- Telch, C. F., & Lindquist, C. U. (1984). Violent versus nonviolent couples: A comparison of patterns. *Psychotherapy, 21* (2), 242-248.
- Testa, M., & Leonard, K. E. (2001). The impact of husband physical aggression and alcohol use on marital functioning: Does alcohol "excuse" the violence? *Violence & Victims, 16* (5), 507-516.
- Testa, M., Livingston, J., & Leonard K. E. (2003). Women's substance use and experiences of intimate partner violence: A longitudinal investigation

- among a community sample. *Addictive Behaviors*, 28, 1649-1664.
- Tolman, R. (1989). The development of a measure of psychological maltreatment of women by their male partners. *Violence & Victims*, 4 (3), 159-177.
- Tolman, R. (1999). The validation of the Psychological Maltreatment of Women Inventory. *Violence & Victims*, 14 (1), 25-37.
- Uitenbroek, D. G. (1997). SISA Binomial. Retrieved January 28, 2006 from <http://home.clara.net/sisa/bonhlp.htm>
- Urban Institute (2002). *National Survey of America's Families*. Retrieved February 2, 2006 from <http://www.urban.org/center/anf/nsaf.cfm>
- U.S. Census Bureau (2004). *American Community Survey*. Retrieved February 2, 2006 from <http://factfinder.census.gov>
- Vandeleur, C. L., Fenton, B. T., Ferrero, F., & Preisig, M. (2003). Construct validity of the French version of the Dyadic Adjustment Scale. *Swiss Journal of Psychology*, 62 (3), 161-175.
- Violence Against Women Act of 1994, P.L. 103-322, 103d Cong., 2nd Sess. (1994).
- von der Pahlen, B., Ost, B., Lindfors, B., & Lindman, R. (1997). Early antecedents of spouse abuse. *Aggressive Behavior*, 23, 239-243.
- Walker, L. E. (1979). *The battered woman*. New York: Harper & Row.
- Walker, L. E. (1984; 2000). *The battered woman syndrome* (Rev. ed.). New York: Springer Publishing Co.



- Watson, C., Barnett, M., Nikunen, L., Schultz, C., Randolph-Elgin, T., Mendez, C. (1997). Lifetime prevalences of nine common psychiatric/personality disorders in female domestic abuse survivors. *Journal of Nervous and Mental Disease, 185* (10), 645-647.
- Watt, M. G. (2000). *The Veterans Alcoholism Screening Test (VAST) and the Drug Abuse Screening Test-Adapted (DAST-A) in outpatient treatment: According to direct and significant other/family information sources*. Unpublished Dissertation Abstracts International: Section B: The Sciences & Engineering, Seattle Pacific University.
- White, J. W., & Koss, M. P. (1991). Courtship violence: Incidence in a national sample of higher education students. *Violence and Victims, 6*, 247-256.
- Wilson, M., & Daly, M. (1993). Spousal homicide risk and estrangement. *Violence & Victims, 9* (3), 287-296.
- Yaffe, J., Jenson, J., & Howard, M. C. (1995). Women & substance abuse: Implications for treatment. *Alcoholism Treatment Quarterly, 13* (2), 1-15.
- Zook, A., & Sipps, G. (1985). Cross-validation of a short form of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 41* (2), 236-238.

Appendix A  
BDAP Letter-of-Solicitation

Director  
Bureau of Drug and Alcohol Programs  
Pennsylvania Department of Health  
132 Kline Plaza, Suite B  
Harrisburg, PA 17104

Dear Director,

I am seeking approval from the Bureau of Drug and Alcohol Programs to conduct a research study about recent partner physical and psychological abuse against women in treatment for substance abuse. A copy of the Study Participant Consent Form is enclosed, as is a proposed letter-of-solicitation to clinical directors of inpatient and outpatient treatment facilities offering services specifically for women in Pennsylvania. No client-identifying information will be gathered for this study.

Research Affiliation

This research is for my doctoral dissertation as part of a Ph.D. in Marriage and Family from the Department of Professional Psychology and Family Therapy, College of Education and Human Services, Seton Hall University, South Orange, New Jersey.

### Study Design

The goal of this study is to see how many female substance abusers have experienced recent physical and psychological abuse from their partners and which risk factors might be associated with this abuse. The term "partner" will refer to a male or female romantic partner with whom the female participant has been involved for at least three months of the past year. Consenting participants will receive a survey packet containing eight short paper-and-pencil questionnaires.

To be part of the study, research participants will need to be at least eighteen years old and attending substance-abuse treatment for at least the past week with no reported use of alcohol or other drugs during this time. Participation will also be limited to those who have been in recovery for less than six months. Similarly, those who have been incarcerated for more than six months during the past year will be excluded. Prospective participants will also need to have completed any medically necessary detoxification.

BDAP-licensed treatment providers will give prospective female participants the attached Study Participant Consent Form and explain that the study is completely voluntary with no negative consequences if they choose not to participate. Research participants will need to understand that this study is not part of their treatment and that their responses to the questionnaires will not be shared with their treatment provider or anyone else. Research participants will always remain anonymous, even to this researcher. If prospective

participants are willing to be involved with the study, a staff member will contact this researcher to arrange a meeting at the agency. If the treatment agency prefers greater client confidentiality, a staff member from the agency will be trained (Appendix D) to answer participant questions about the study, ensure informed consent by participants, administer the questionnaires, address any follow-up concerns of participants, and distribute the informational handout (Appendix N). Participants will then seal their survey questionnaires into pre-stamped envelopes and mail these to the researcher.

#### Duration

It should take about ten minutes to introduce the research project to prospective research participants, distribute the Research Participant Consent Form again, clarify the voluntary and anonymous nature of participation, and address any questions or concerns prospective research participants might have. Those who consent to participate will need about forty-five to sixty minutes to answer the survey questions. Following administration of the questionnaires there will be an opportunity for research participants to discuss any reactions they might have had while taking the surveys. A Domestic Violence Informational Handout will also be distributed. Research participants will be encouraged to discuss their responses at greater length with their treatment provider if they choose.

### Survey Procedure

Consenting participants will receive a packet containing a background demographic form (for example, "What was the last grade of school you completed?") plus seven other brief questionnaires--the Short Michigan Alcohol Screening Test (for example, "Are you always able to stop drinking when you want to?"), the Short Michigan Alcohol Screening Test for Significant Others (for example, "Has your partner been in trouble at work because of drinking?"), the Drug Abuse Screening Test (for example, "Are you always able to stop using drugs when you want to?"), the Drug Abuse Screening Test for Significant Others (for example, "Has your partner lost a job because of drug abuse?"), the Marlowe-Crowne Scale Form-C (for example, "On a few occasions, I have given up doing something because I thought too little of my own ability"- True or False or "It is sometimes hard for me to go on with my work if I am not encouraged"-- True or False), the Revised Dyadic Adjustment Scale (for example, "How often do you and your partner quarrel? --All of the time? Most of the time? More often than not? Occasionally? Rarely? Never ?"), and the Abusive Behavior Inventory-Partner Form (for example, "Has your partner threatened to hit or throw something at you during the past year?").

Research participants will seal completed surveys into the envelope and hand this back to the researcher or, if the questionnaires were distributed by a staff member, simply mail the sealed, pre-stamped envelopes to the researcher. Research participants will keep a copy of the Study Participant Consent Form

(Appendix E) which includes a contact number and address at Seton Hall University. A Domestic Violence Informational Handout (Appendix N) will also be distributed illustrating the "Cycle of Violence" described by Dr. Lenore Walker, guidelines for making a personal "Safety Plan", and a list of phone numbers for local domestic violence shelters and national hotlines in case this information is needed for future reference.

#### Voluntary Participation

Study participation is completely voluntary and clients should not feel any pressure to be involved. Prospective research participants will be informed that the study would not be part of their substance-abuse treatment, and no negative consequences will result if they choose not to participate or decide not to complete the questionnaires.

#### Anonymity

Since no client-identifying information will ever be gathered, research participants will always remain anonymous--even to this researcher. As an additional safeguard, research participants will not sign an informed consent form, but will signify consent to participate simply by returning their completed questionnaires.

### Confidentiality

Research participants and their responses to the questionnaires will always be confidential since no client-identifying information will be gathered. As a result, study participants and their partners will never be at risk for disclosure. Completed surveys will be kept in a locked file cabinet for three years and then destroyed. Research participants need to understand that their responses will not be shared with their treatment providers or anyone else.

### Institutional Review

Once BDAP approval is secured, this project will be submitted for review to the Seton Hall University Institutional Review Board for Human Subjects Research. The IRB will examine all research procedures to make sure these adequately safeguard the subject's privacy, welfare, civil liberties, and rights. The Chairperson of the IRB may be reached at (973) 275-2977 or 313-6314. No research will be conducted without final approval of the IRB.

Hopefully, this study will clarify some of the underlying factors associated with recent partner violence and psychological abuse against substance-abusing women. Results could also help to improve screening and treatment efforts on behalf of women seeking substance-abuse treatment in the future.

If you have further questions regarding this study or the protocol, please call me at 971-761-9451 and leave a message. You may also contact my advisor, Dr. Robert Massey, at 973-761-9591. Thank you for your help. I look forward to



hearing from you soon.

Sincerely,

Scott Buchanan, M.S.Ed., Ph.D. Candidate

Professional Psychology and Family Therapy Department  
College of Education and Human Services, Seton Hall University  
400 South Orange Ave.  
South Orange, New Jersey, 07079

Appendix B  
Treatment Provider Letter-of-Solicitation

Dear Clinical Director,

I am seeking treatment agencies willing to help with a research study about relationship issues and conflicts with romantic partners as reported by women in treatment for alcohol and drug problems. Female participants will remain anonymous throughout the study (even to me) and no client-identifying information will ever be gathered. Volunteers will be asked to fill out eight short questionnaires which take about 45 to 60 minutes to complete. The study has been approved and endorsed by the Pennsylvania Bureau of Drug and Alcohol Programs (BDAP).

#### Research Affiliation

This project is part of my doctoral dissertation towards a Ph.D. in Marriage and Family from the Professional Psychology and Family Therapy Department of the College of Education and Human Services at Seton Hall University in South Orange, New Jersey.

#### Study Design

All women who meet the following criteria are asked to be involved. Female participants will need to be at least eighteen years old and attending outpatient or inpatient substance-abuse treatment. Participation will also be limited to those who have been currently "in recovery" for less than six months. Similarly, participation will be limited to those who have not been incarcerated

for more than six months of the previous year. Any medically-needed detoxification will also have to have been completed with no use of alcohol or drugs-of-abuse during the week prior to taking the questionnaires. Only women who have been romantically or sexually involved with a male or female partner for at least three months of the past year are asked to participate.

Agency staff will be asked to give their female clients who meet these criteria a Study Participant Consent Form explaining the voluntary nature of the study and that no negative consequences will result if they decide not to participate. The consent form also clarifies that this study is not a part of their substance abuse treatment. Their responses to these questionnaires will not be shared with your agency or anyone else. The consent form also states that participants will remain anonymous throughout the study, even to the researcher.

Once prospective volunteers have indicated willingness to be involved, agency staff will call to arrange a time at your agency when I can explain the study and administer the questionnaires to all those who are willing to participate. If you would prefer, I can also train a staff member from your agency to read a description of the study, answer participant questions, ensure informed consent, administer the questionnaires, address any follow-up concerns of the participants, and distribute the informational handout (see the attached Guidelines and Introductory Script for Agency Staff). After completing the

survey, participants will seal their questionnaires into the pre-stamped envelope and mail this envelope or give it directly to the researcher.

### Duration

It will probably take about ten minutes to introduce the study to prospective participants, re-distribute the consent form, explain the voluntary and anonymous nature of participation, and address any questions or concerns prospective participants might have. Those who agree to be involved will then need about forty-five to sixty minutes to answer the eight brief questionnaires. Anyone who decides not to complete the questionnaires can decide to stop at any time without consequences. Once finished, participants will seal their survey responses into the pre-stamped envelope and either mail or give these envelopes directly to the researcher.

After finishing the questionnaires, participants will be given a brief opportunity to talk with the researcher or the trained staff member administering the questionnaires about their responses. They will also be referred to their agency counselor should they wish to discuss these issues at greater length. An informational handout will then be distributed explaining the "Cycle of Violence" as described by Dr. Lenore Walker, some guidelines for making a personal "Safety Plan," and a list of phone numbers for local domestic violence shelters and national hotlines in case this information is needed in the future.

### Survey Procedure

Consenting participants will receive a packet containing a background demographic form (for example, "What was the last grade of school you completed?"), plus seven other brief questionnaires--the Short Michigan Alcohol Screening Test (for example, "Are you always able to stop drinking when you want to?"), the Short Michigan Alcohol Screening Test for Significant Others (for example, "Has your partner been in trouble at work because of drinking?"), the Drug Abuse Screening Test (for example, "Are you always able to stop using drugs when you want to?"), the Drug Abuse Screening Test for Significant Others (for example, "Has your partner lost a job because of drug abuse?"), the Marlowe-Crowne Scale Form-C (for example, "On a few occasions, I have given up doing something because I thought too little of my own ability"- True or False or "It is sometimes hard for me to go on with my work if I am not encouraged"- True or False), the Revised Dyadic Adjustment Scale (for example, "How often do you and your partner quarrel? --All of the time? Most of the time? More often than not? Occasionally? Rarely? Never?"), and the Abusive Behavior Inventory-Partner Form (for example, "Has your partner threatened to hit or throw something at you during the past year?").

### Voluntary Participation

Participation must be completely voluntary and clients should not feel under any pressure to be involved. Participants will need to understand that the

study is not part of their substance-abuse treatment and there will not be any direct benefit to themselves for participating, but that their responses could help to improve treatment services for other women with substance abuse issues in the future. Participants will also need to understand that there are no negative consequences if they choose not to participate or decide not to complete the questionnaires even once they get started.

### Anonymity

Since no client-identifying information will ever be gathered participants will always remain anonymous, even to this researcher. As an additional safeguard, participants will not be asked to sign an informed consent form, but will signify consent to participate simply by returning their completed questionnaires.

### Confidentiality

Participants and their responses to the questionnaires will always be confidential since no client-identifying information will ever be gathered. As a result of this anonymity, study participants and their partners will never be at risk for any disclosure. Completed questionnaires will be kept in a locked file cabinet for three years and then destroyed. Participants need to understand that none of their survey answers will ever be shared with their treatment provider or anyone else. Results from all study participants will be combined for analysis and

only these summarized, anonymous findings will ever be published.

### Institutional Review

Once treatment agencies willing to help with this project have been found and letters-of-consent from the agencies are gathered, the study protocol will be submitted to the Seton Hall University Institutional Review Board (IRB) for Human Subjects Research. The IRB will examine whether the research procedures adequately safeguard the subjects' privacy, welfare, civil liberties, and rights. The Chairperson of the IRB may be reached at (973)-275-2977 or (973)-313-6314 if you have any questions in this regard. Participants will be able to keep a copy of the Consent Form which includes the contact number and address at Seton Hall University in case they want to contact the Institutional Review Board, the researcher or my research advisor in the future.

The protocol for this study has been designed to safeguard the anonymity and confidentiality of all participants in keeping with both federal and state drug-and-alcohol confidentiality statutes as well as HIPAA requirements. This study has already been approved by the Pennsylvania Department of Health, Bureau of Drug and Alcohol Programs (BDAP). If you have any questions or concerns about this aspect, you can contact BDAP at 1-717-783-8675. As a substance abuse counselor and intake specialist working in southeastern Pennsylvania over the last 18 years, I have seen firsthand the high rates of relationship conflict experienced by many women entering treatment for substance abuse. I believe a



better understanding of the nature of these conflicts could help us improve future treatment efforts on their behalf.

If you are willing to help with the study, or have further questions, please call me at 973-761-9451 and leave a message. I will get back to you as soon as possible.

Thank you very much.

Sincerely,

Scott Buchanan, M.S.Ed, Ph.D. Candidate

Professional Psychology and Family Therapy Department

College of Education and Human Services, Seton Hall University

400 South Orange Ave.

South Orange, New Jersey, 07079

P.S. A short letter from you on agency letterhead will be needed for the IRB review This letter can be sent to me at the address above and should state

1. Your agency's understanding of the study protocol and
2. Your consent to participate.

Appendix C

BDAP and Provider Endorsement Letters

**DEPARTMENT OF  
HEALTH**

...in pursuit of good health

(717) 783-8200

January 29, 2004

Mr. Scott Buchanan  
Seton Hall University  
College of Education and Human Services  
Department of Professional Psychology and Family Therapy  
400 South Orange Avenue  
South Orange, New Jersey 07079-2685

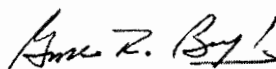
Dear Mr. Buchanan:

I am in receipt of your letter dated December 15, 2003 requesting approval to conduct a research study about recent partner physical and psychological abuse against women in treatment for substance abuse. I apologize for the delay, but I wanted to discuss your request with Legal Counsel before responding.

After reviewing the material you submitted, the Bureau of Drug and Alcohol Programs (BDAP) does not feel that your study will breach any state or federal confidentiality regulations, since no client identifying information will be obtained. In addition, participants will remain anonymous, even to the researcher. Therefore, BDAP is approving your request to proceed with your study. It should be noted, however, that the decision to participate in this study rests solely at the discretion of the individual facility directors.

If you have any questions or require additional information, please don't hesitate to contact me at the above referenced phone number. Good luck with your project.

Sincerely,



Gene R. Boyle  
Director  
Bureau of Drug and Alcohol Programs



## WHITE DEER RUN

*Committed to Excellence*

Devitt Camp Road  
PO Box 97  
Allenwood PA 17810-0097

(570) 538-2567  
(800) 255-2335  
(570) 538-5303 (Fax)  
Web Site [www.whitedeerrun.com](http://www.whitedeerrun.com)  
E-Mail [admin@whitedeerrun.com](mailto:admin@whitedeerrun.com)

250

August 27, 2004

Scott Buchanan, Ph.D. Candidate  
Professional Psychology and Family Therapy  
College of Education and Human Services  
400 South Orange Avenue  
South Orange, NJ 07079-2685

Re: Surveys for Women and Relationships

Dear Mr. Buchanan,

I am writing to inform you that White Deer Run of Allenwood would be happy to assist you in your research regarding women who abuse substances and their experiences with relationships.

Please forward the surveys you would like to have distributed to our clients and the method of distribution you require. We will follow your instructions to protect the integrity of the data. Please be advised that as a substance abuse facility, confidentiality is at the forefront of our services; therefore patient identifying information is prohibited and surveys must not ask patient names or other identifying information (i.e., social security numbers, etc.). I must also advise that patients will only participate if they chose to do so voluntarily and this may limit the number of surveys being completed; however, in my experience, our patients are generally quite willing to offer data as long as their confidentiality is ensured. A cover page explaining how their confidentiality will be ensured and the purpose of the survey would be helpful.

We would be very interested in the results of your survey as they may relate to modification of our program as we are always looking for ways to improve our services. If you could send us a summary of your findings at the conclusion of your study, this would be appreciated.

If you have any questions, I can be reached at 800-255-2335, ext 610.

Sincerely,

Jeffrey A. Thomas, MHS, LPC, CAC/DP  
Regional Administrator  
White Deer Run, Inc.



GAUDENZIA, Inc. 106 West Main Street, Norristown, PA 19401 (610) 239-9600  
Fax: (610) 239-9195 Fax: (610) 277-7025

A United Way Donor Option Agency

Robert P. Kelly  
*Chairman of the Board*

Michael Harle, M.P.S.  
*President/Executive Director*

Scott Buchanan, PhD candidate  
College of Education and Human Services  
Department of Professional Psychology and Family Therapy  
400 South Orange Avenue  
South Orange, New Jersey 07079-2685

Dear Mr. Buchanan,

This letter is to inform you that your research study was reviewed by our Executive staff here at Gaudenzia, Inc. and was approved. We will be pleased to participate in your study and wish you well in your pursuit to obtaining your PhD.

Best regards,

George Davis,  
E.R. D&A Division Director  
Gaudenzia, Inc.

Helping people help themselves since 1968

A copy of the official registration and financial information may be obtained from the Pennsylvania Department of State by e-filing toll free, within Pennsylvania, 1-800-732-0999. Registration does not imply endorsement.

**DISCOVERY HOUSE**  
THE CENTER FOR RECOVERY & HOPE

Thursday, June 24, 2004

Scott Buchanan, MS.Ed  
Professional Psychology and Family Therapy Dept.  
College of Education and Human Services  
Seton Hall University  
400 S. Orange Ave.  
South Orange, NJ., 07079

Dear Mr. Buchanan:

This letter is to inform you that we are willing to participate in this project and fully understand the protocol that you presented.

Sincerely,



Mark Besden  
Program Director

---

**Our Mission**

To provide comprehensive services for persons affected by addiction through community awareness, quality and holistic clinical services in an efficient, safe, and fiscally sound environment.



Commission on Accreditation  
of Rehabilitation Facilities

---

329 East County Line Road  
Hatboro, PA 19040  
(215) 675-8882 • Fax: (215) 675-9139  
1-888-DOORWAY • [www.discoveryhouse.com](http://www.discoveryhouse.com)



313 East King Street • York, PA 17403  
717-848-5454 • FAX: 852-9416  
E-Mail: [atkinshouse@desupernet.net](mailto:atkinshouse@desupernet.net)

May 20, 2004

Scott Buchanan, M.S. Ed., Ph.D. Candidate  
Professional Psychology and Family Therapy Department  
College of Education and Human Services  
Seton Hall University  
400 South Orange Ave.  
South Orange, New Jersey 07079

Dear Mr. Buchanan:

Atkins House is willing to participate in your study for women who are attending outpatient substance abuse treatment and who have been romantically involved with a male or female partner for at least three of the last twelve months.

I understand that participation in the survey is entirely voluntary on the part of our clients.

Thank you for the opportunity for our clients to be a part of this survey. Our staff here at Atkins House see the very real effects of conflicts with domestic partners on our clients and feel your study may help in resolving some of these conflicts.

Sincerely,

A handwritten signature in cursive script that reads "Susan Baugh".

Susan Baugh  
Executive Director

A copy of the official registration and financial information may be obtained from the Pennsylvania Department of State by calling toll free, within Pennsylvania, 1-800-732-0999. Registration does not imply endorsement.

**"A Chance for Change"**

Appendix D

Guidelines and Introductory Script for Agency Staff



Please read this statement to participants before distributing any surveys:

"This is a research study looking at some of the relationship issues and conflicts experienced by women in treatment for alcohol and drug issues. There is no compensation and your participation is completely voluntary. The study is not part of your treatment and your treatment provider does not require you to participate. Your answers will not be given to your treatment agency. If you would rather not be involved or change your mind once you start the questionnaires, there are no negative consequences. You would always remain completely anonymous if you decide to participate so please don't put your name on the survey. In order to maintain your anonymity, returning the questionnaires will be taken as your consent to participate rather than asking you to sign a consent form. To participate you will need to meet the following qualifications: be at least 18 years of age, be in treatment and free from alcohol and drugs-of-abuse for at least the past seven days, not be taking detox medications (except methadone), be currently in recovery for less than six months, and not have been incarcerated for more than six months during the past year. Since this study looks at relationship issues, you also are asked to participate only if you have been in a romantic or sexual relationship (with a male or female) for at least three months during the past year. If you were involved with more than one partner, please pick the one you were with for the longest period of time during the past year and answer the survey just in terms of your relationship with this one person.

If you are willing to participate, please answer every question as honestly as you can. Try not to leave any blank answers, even if you have to guess. If you have any questions while taking the survey, use your own judgment –there are no “right or wrong” answers. You can also ask me or the staff member for clarification of a word you don't know. There is no time limit for answering the questions. When you are done, seal your survey into the pre-stamped envelope and mail this back to the researcher. Remember, you can stop at any time if you want and your survey won't be included in the study. If you have any other questions or would like to learn about the results of the study, the address and phone numbers to contact me or my advisor are on the Study Participant Consent Form. Thanks for helping with this study. Your participation could help other women in the future.”

1. Please read the Study Participant Consent Form and ask for clarification if you have any questions about the consent or study procedures. I can be reached by leaving a message at 215-896-5378.
2. Please make sure each participant has a copy of the Study Participant Consent Form and has had a chance to read it over and ask any questions.
3. Participants will need to understand that their participation is completely voluntary with no negative consequences if they decide not to participate. They should also understand that they will remain completely anonymous throughout the study even to me. They should understand that the study

is not part of their treatment, is not required for treatment, and that their responses on the questionnaires will never be shared with your agency.

Participants also need to understand that they can change their mind and stop even after they have started the questionnaires and their surveys will not be included in the study. You can still give them the informational handout even if this happens.

4. To participate in the study, women will need to a) be in outpatient or inpatient substance abuse treatment for at least the past week, b) report no alcohol or drug abuse during the previous week, c) not be receiving any medications (except methadone) to detox from alcohol or drugs, d) be at least 18 years of age, e) have had a romantic/ sexual relationship with a male or female partner or spouse for at least three months during the past year, f) be "in recovery" less than six months, and g) not have been incarcerated for more than six months during the past year.
5. If her partner is no longer living, but they were a couple for at least three months during the past year, this relationship can still be included. It is also not necessary to have lived together to be considered a couple.
6. The survey questions ask the woman to pick one partner with whom she was most involved during the past year and answer all survey questions just in terms of this one partner. If there was more than one partner, she should pick whomever she was most involved with for the longest period during the past year and answer the questions in terms of this same

partner relationship.

7. Please do not explain or help participants answer questions that are unclear to them except to clarify the meaning of a particular word. If more than one woman is filling out the questionnaires at the same time, please ask that they not discuss or help each other while taking the surveys. You can explain that there are no "right" or "wrong" answers and that each should use her own judgment to answer the questions. It is also important that every question be answered if at all possible. Participants are asked to make a best guess even if unsure of their answer rather than leaving the answer blank.
8. Each survey packet contains eight short questionnaires and a pencil. There is no specific time limit. Once a participant is finished she should seal her questionnaire into the pre-stamped envelope and mail this back to the researcher. Please do not attempt to read any of the surveys or observe too closely while the questionnaires are being answered.
9. Please remind participants not to put names on any of the survey packets.
10. Participants who are interested in the outcome of the study or have other concerns can call or write me or my advisor, Dr. Robert Massey, at 973-761-9451. Our mailing address is the Professional Psychology and Family Therapy Department, College of Education and Human Services, Seton Hall University, 400 South Orange Ave., South Orange, New Jersey, 07079. Participants can also call the Seton Hall University Institutional

Review Board at (973) 275-2977 or (973) 313-6314. Participants who decide to contact me, my advisor, or the SHU Institutional Review Board can maintain their anonymity by using a fictitious name such as Jane Doe.

11. Once participants have decided they are finished and sealed the surveys into the mailing envelope, please give them the Domestic Violence Informational Handout and check whether they are feeling emotionally upset as a result of taking the questionnaires. If so, please offer appropriate support and encourage them to talk further with their individual counselor at your agency. Point out that they can also call the Domestic Violence hotlines and other resources included in the handout. Also remind them to be careful about discussing the survey or their responses with any potentially violent partner.
12. In discussing her response to the questionnaires with a participant, be careful about criticizing the partner. Battered women may care for their partners and become defensive or shut down if the partner is criticized. Avoid labeling the woman's survival strategies or other behaviors as co-dependency or enabling. Language focusing instead on empowerment may help her develop the tools to stay safe and sober by emphasizing her strengths and healthy decision-making abilities.
13. If you have any concerns about a participant's immediate safety, have her call a hotline or shelter from your office. Remind her again to avoid discussing her participation with a potentially violent partner. At no point

should you provide any information to the participant's partner.

14. Please remind participants to mail their surveys back to the researcher as soon as possible and not to leave the envelope where someone might open and read it.

If you have any questions or concerns about your role in the study, please do not hesitate to call me-- (973) 761-9451

Thanks again for your help.

Scott Buchanan, M.S.Ed., Ph.D. Candidate

Appendix E  
Study Participant Consent Letter

Dear Potential Research Participant,

You are being asked to help with a short research survey of women in treatment for substance abuse. The study is focused on the relationship issues and conflicts with romantic partners as reported by women in treatment for alcohol and drug problems. Your participation is completely voluntary, and there will be no consequences if you decide not to be involved. You will always remain anonymous (even to me) because no client-identifying information will ever be asked. Those who participate are asked to fill out eight short questionnaires which should take between 45 and 60 minutes to complete.

After completing the questionnaires, you will have an opportunity to share any strong feelings that came up for you. You can also talk with your agency counselor at greater length if you like, but your specific answers will not be shared with your treatment provider. The study has been approved and endorsed by the Pennsylvania Bureau of Drug and Alcohol Programs (BDAP).

#### Researcher Affiliation

This project is for my doctoral dissertation as part of a Ph.D. in Marriage and Family from the Professional Psychology and Family Therapy Department of the College of Education and Human Services at Seton Hall University in South Orange, New Jersey.

#### Purpose

The goal of the study is to examine some of the relationship issues and



conflicts women in treatment for substance abuse have experienced with their romantic, sexual partners. For this study, the term "partner" refers to the male or female you have been most involved with in a romantic, sexual relationship for at least three months during the past year--whether you were living together, dating, married, separated, divorced or are now widowed. Based on your responses to the survey questionnaires, it may be possible to develop better treatment interventions to help other women in treatment for substance abuse with their relationship issues.

#### Duration

It should take about ten minutes for me or the agency staff member to introduce the study, clarify the voluntary and anonymous nature of participation, and address any questions or concerns you might have. If you do consent to participate, it will probably take between forty-five and sixty minutes to answer all of the survey questions. Once you have finished, there will be an opportunity for you to discuss any reactions you might have had while taking the questionnaires. After you are done, an informational handout will be given to you, even if you did not finished the survey.

#### Procedure

All participants need to be at least eighteen years old, attending substance-abuse treatment for at least the past seven days, not have used any

alcohol or drugs-of-abuse for the past seven days, not be receiving medications for detoxification (except methadone), be currently "in recovery" from alcohol or drugs-of-abuse for less than six months, and not have been incarcerated for more than six months during the past twelve months. Participants also need to have been in a romantic/ sexual relationship with a male or female partner for at least three months during the past year. If you agree to participate, you will be given a survey packet containing a pencil and eight short questionnaires. There is no time limit to answer the questions. Please try to answer every question. When finished, seal up your survey questionnaires in the envelope and return this envelope to me or the agency staff member. Your name and your partners' names will never be asked. Don't write any names on the questionnaires or the envelope. Responses will not be given to your treatment provider.

### Questionnaires

The survey packet includes a brief background demographic form (for example, "What was the last grade of school you completed?"), plus seven other short questionnaires--the Short Michigan Alcohol Screening Test (for example, "Are you always able to stop drinking when you want to?"), the Short Michigan Alcohol Screening Test for Significant Others (for example, "Has your partner been in trouble at work because of drinking?"), the Drug Abuse Screening Test (for example, "Are you always able to stop using drugs when you want to?"), the Drug Abuse Screening Test for Significant Others (for example, "Has your

partner lost a job because of drug abuse?"), the Marlowe-Crowne Scale Form-C (for example, "On a few occasions, I have given up doing something because I thought too little of my own ability"- True or False or "It is sometimes hard for me to go on with my work if I am not encouraged"-- True or False), the Revised Dyadic Adjustment Scale (for example, "How often do you and your partner quarrel? -Pick one--All of the time? Most of the time? More often than not? Occasionally? Rarely ? Never ?"), and the Abusive Behavior Inventory-Partner Form (for example, "Has your partner threatened to hit or throw something at you during the past year?)

### Voluntary

Your participation is completely voluntary, and you should not feel under any pressure to be involved. You need to understand that this study is not part of your treatment and that none of your answers will ever be shared with your treatment provider. If you decide not to participate, or change your mind once you start the questionnaires, there will be no negative consequences for you or your treatment.

### Anonymity

Since no information that could identify you will be asked, you will always remain completely anonymous--even to me. As an additional safeguard, you will not be asked to sign a consent form, but will signify your consent to participate

simply by returning your completed questionnaires. If you need to contact me, my advisor, or the Seton Hall University Institutional Review Board for any reason you can maintain your anonymity by leaving a fictitious name, such as Jane Doe.

### Confidentiality

Because no identifying information will be asked, your identity and your responses to the questionnaires will always remain anonymous and, therefore, confidential. No one, including me, will be able to identify you or your partner at any point. As a result, you and your partner will not be at any risk of future disclosure.

### Records

All questionnaire packets will be kept in a locked file cabinet for three years after completion of the study and then destroyed. No one will have access to the questionnaires except me.

### Risks/discomforts

Since the surveys might bring up some difficult feelings, you will have a chance to discuss your reaction to the questionnaires afterwards. You should also feel free to talk over any issues from the survey with your primary counselor. Please remember, however, to be careful about discussing your

answers with any potentially violent spouse or partners. If you need further help dealing with any domestic violence or abuse you can also call the National Domestic Violence Hotline at 1-800-799-7233 to talk with a domestic abuse counselor and get assistance for yourself and your family. An informational handout with local resources and phone contacts will also be provided after you have completed all of the questionnaires.

### Benefits

Since this study is completely separate from your treatment, there will not be any immediate benefit to you from participating in the study, but your responses could help us improve treatment efforts to assist other women in the future. Even though your answers will not be shared with your treatment provider, you are encouraged to discuss your reactions to the survey questions with your primary counselor if you like.

### Compensation

There is no monetary compensation for participating in this study.

### Alternative Procedures

You are free to decide not to participate in this study. Even though this study is not part of your treatment, you are welcome to discuss your reactions to the survey questions with your primary counselor, but this is entirely up to you.

### Contact Information

If you have any further questions or concerns about the study or would like to learn about the results of the research, I can be reached by writing to Scott Buchanan, Professional Psychology and Family Therapy Department, College of Education and Human Services, Seton Hall University, 400 South Orange Ave., South Orange, New Jersey, 07079 or by calling 973-761-9451 and leaving a message.

### Video/Audiotapes

No audio or videotapes will be made for this study.

### Copy of Consent Form

You are encouraged to keep this Consent Form and the Informational Handout in case you have any questions about this study or need further assistance at a later date.

### Institutional Review

This project has been reviewed and approved by the Seton Hall University Institutional Review Board for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties, and rights. The Chairperson of the IRB may be reached at (973) 275-

2977 or 313-6314.

Consent

Instead of a signature, you will indicate your consent to participate by returning the enclosed questionnaires in the sealed envelope.

With your assistance, we may be able to better understand the relationship issues and conflicts faced by women seeking treatment for alcohol and drug problems. This could help improve treatment services for other women in the future. If you would be willing to help with this study or have other questions, let your counselor or agency director know and they will contact me.

Thanks for your help.

Sincerely,

Scott Buchanan, M.S.Ed., Ph.D. Candidate

Professional Psychology & Family Therapy Dept.

College of Education and Human Services

Seton Hall University

400 S. Orange Ave.

S. Orange, NJ 07079

Appendix F  
Demographic/Background Information



*Demographic/Background Information*

1. How old are you? \_\_\_\_\_
2. What was the last grade of school you completed? \_\_\_\_\_
3. What if any education did you receive beyond high school? \_\_\_\_\_
4. How would you describe your ethnic background? \_\_\_\_\_
5. During the past year were you generally  
 unemployed\_\_\_\_ working part-time\_\_\_\_ working full-time\_\_\_\_  
 working more than one job\_\_\_\_ retired\_\_\_\_ in school\_\_\_\_  
 keeping house\_\_\_\_ disabled\_\_\_\_ incarcerated \_\_\_\_\_
6. If you were incarcerated in the past year, how many months was this? \_\_\_\_\_  
 How long ago were you released? \_\_\_\_\_
7. Which of these groups best describes your total family income before taxes during the past year? Please include your own income and the income of everyone who was living with you during this time. Also include any other income you may have had during this period such as welfare payments, food stamps, social security checks, invests, etc.  
 None\_\_\_\_ \$10,000 or less\_\_\_\_ \$10,001-20,000\_\_\_\_ \$20,001-30,000\_\_\_\_  
 \$30,001-40,000\_\_\_\_ \$40,001-50,000\_\_\_\_ \$50,001-60,000\_\_\_\_  
 \$60,001-70,000\_\_\_\_ \$70,001-80,000\_\_\_\_ \$80,001-90,000\_\_\_\_  
 \$90,001-100,000\_\_\_\_ over \$100,000\_\_\_\_ not sure\_\_\_\_
8. How many children & adults were usually living with you during the past year? \_\_\_\_\_

9. Do you feel you have had problems with alcohol?(Circle One) Yes No
10. Do you feel you have had problems with drugs? Yes No
- If yes, which drugs? \_\_\_\_\_
11. How long have you been in this current treatment for substance abuse? \_\_\_\_\_
12. How long has it been since you last used alcohol or drugs-of-abuse? \_\_\_\_\_
13. Are you currently on any medications for detox? Yes No
- Are you receiving long-term methadone treatment? Yes No
14. Are you in treatment because a judge or parole agent required this? \_\_\_\_\_
15. Are you in outpatient or residential treatment? \_\_\_\_\_
16. Would you say you were physically abused as a child? Yes No
17. Would you say you were sexually abused as a child? Yes No
18. Would you say you were psychologically or  
emotionally abused as a child? Yes No
19. Did you ever have a partner who was physically abusive to you? Yes No
20. Did you ever have a partner who was sexually abusive to you? Yes No
21. Did you ever have a partner who was psychologically or  
emotionally abusive to you? Yes No
22. During the past year, were you romantically or sexually involved  
with a particular male or female partner or spouse  
for at least three months? Yes No

If Yes, please refer just to this SAME PARTNER when answering all of the remaining survey questions.

23. In the past year, were you and this partner living together but not married?

Yes No

-If yes, how long have you been living together with this partner? \_\_\_\_\_

24. Are you currently married to this partner?

Yes No

-If yes, how long have you been married to this partner? \_\_\_\_\_

25. Are you currently separated and not living with this partner?

Yes No

-If yes, how long have you been separated from this partner? \_\_\_\_\_

26. Are you currently divorced from this partner?

Yes No

-If yes, how long have you and this partner been divorced? \_\_\_\_\_

-How long were you and this partner married before divorcing? \_\_\_\_\_

27. Are you currently a widow of this partner?

Yes No

-If yes, how long have you been a widow of this partner? \_\_\_\_\_

-How long were you married before this partner died? \_\_\_\_\_

28. How old is this partner? \_\_\_\_\_

29. Is this partner male or female?

(Circle one) Male Female

30. What is the last grade of school your partner completed? \_\_\_\_\_

31. What if any education did your partner receive after high school? \_\_\_\_\_

32. How would you describe the ethnic background of your partner? \_\_\_\_\_

33. Has your partner ever had problems with alcohol?

Yes No

34. Has your partner ever had problems with drugs?

Yes No

-If yes, which drugs? \_\_\_\_\_

35. Is your partner still drinking? Yes No
36. Is your partner still using drugs of abuse? Yes No
37. During the past year, was your partner generally  
unemployed\_\_\_ working part-time\_\_\_ working full-time\_\_\_  
working more than one job\_\_\_ retired\_\_\_ in school\_\_\_  
keeping house\_\_\_ disabled\_\_\_ incarcerated \_\_\_\_\_
38. Was your partner incarcerated during the past year? Yes No
- if yes, how many months were they incarcerated during the year? \_\_\_\_\_
- Is your partner still incarcerated? Yes No
- If not, how long ago was your partner released? \_\_\_\_\_

Appendix G

Brief Marlowe-Crowne Scale Form C

*Brief Marlowe-Crowne Scale Form C*

DIRECTIONS: Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the item is true or false as it pertains to you personally.

Circle One

- |   |     |
|---|-----|
| 39. It is sometimes hard for me to go on with my work if I am not encouraged.   | T F |
| 40. I sometimes feel resentful when I don't get my own way.   | T F |
| 41. On a few occasions, I have given up doing something because I thought<br>too little of my own ability.                  | T F |
| 42. There have been times when I felt like rebelling against people in authority<br>even though I knew that they were right | T F |
| 43. No matter who I am talking to, I'm always a good listener.  | T F |
| 44. There have been some occasions when I took advantage of someone.  | T F |
| 45. I'm always willing to admit it when I make a mistake.   | T F |
| 46. I sometimes try to get even rather than forgive and forget.   | T F |
| 47. I am always courteous, even to people who are disagreeable.   | T F |
| 48. I have never been irked when people expressed ideas very different<br>from my own.                                      | T F |
| 49. There have been times when I was quite jealous of the good fortune of others.   | T F |
| 50. I am sometimes irritated by people who ask favors of me.  | T F |
| 51. I have never deliberately said something that hurt someone's feelings.  | T F |

Appendix H  
Revised Dyadic Adjustment Scale





		Every Day	Almost Every Day	Occa- sionally	Rarely	Never
63. Do you and your partner engage in outside interests together?		_____	_____	_____	_____	_____

How often would you say the following events occur between you and your partner?

	All the time	Most of the time	More often than not	Occa- sionally	Rarely	Never
64. Have a stimulating exchange of ideas?	_____	_____	_____	_____	_____	_____
65. Work together on a project?	_____	_____	_____	_____	_____	_____
66. Calmly discuss something?	_____	_____	_____	_____	_____	_____

Appendix I  
Abusive Behavior Inventory

## Abusive Behavior Inventory

Here is a list of behaviors that many women report have been used by their partners or former partners. Please estimate how often these behaviors occurred during the past year. Your answers are strictly confidential.

CIRCLE a number for each of the items listed below to show your closest estimate of how often it happened in your relationship with your partner or former partner during the past year.

1 = Never 2 = Rarely 3 = Occasionally 4 = Frequently 5 = Very Frequently

- |  |           |
|--|-----------|
| 67. Called you a name and/or criticized you  | 1 2 3 4 5 |
| 68. Tried to keep you from doing something you wanted to do<br>(examples: going out with friends, going to meetings)                                       | 1 2 3 4 5 |
| 69. Gave you angry stares or looks   | 1 2 3 4 5 |
| 70. Prevented you from having money for your own use   | 1 2 3 4 5 |
| 71. Ended a discussion with you and made the decision himself/herself  | 1 2 3 4 5 |
| 72. Threatened to hit or throw something at you  | 1 2 3 4 5 |
| 73. Pushed, grabbed, or shoved you   | 1 2 3 4 5 |
| 74. Put down your family and friends   | 1 2 3 4 5 |
| 75. Accused you of paying too much attention to someone or something else  | 1 2 3 4 5 |
| 76. Put you on an allowance  | 1 2 3 4 5 |
| 77. Used your children to threaten you (examples: told you that you would lose custody, said he or she would leave town with the children)                 | 1 2 3 4 5 |
| 78. Became very upset with you because dinner, housework, or laundry was not ready when he or she wanted it or done the way he or she thought it should be | 1 2 3 4 5 |

1 = Never 2 = Rarely 3 = Occasionally 4 = Frequently 5 = Very Frequently

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 79. Said things to scare you (examples: told you something "bad" would happen, threatened to commit suicide)  | 1 | 2 | 3 | 4 | 5 |
| 80. Slapped, hit or punched you   | 1 | 2 | 3 | 4 | 5 |
| 81. Made you do something humiliating or degrading (example: begging for forgiveness, having to ask his permission to use the car or to do something) | 1 | 2 | 3 | 4 | 5 |
| 82. Checked up on you (examples: listened to your phone calls, checked mileage on your car, called you repeatedly at work)                            | 1 | 2 | 3 | 4 | 5 |
| 83. Drove recklessly when you were in the car   | 1 | 2 | 3 | 4 | 5 |
| 84. Pressured you to have sex in a way that you didn't like or want   | 1 | 2 | 3 | 4 | 5 |
| 85. Refused to do housework or childcare  | 1 | 2 | 3 | 4 | 5 |
| 86. Threatened you with a knife, gun or other weapon  | 1 | 2 | 3 | 4 | 5 |
| 87. Told you that you were a bad parent   | 1 | 2 | 3 | 4 | 5 |
| 88. Stopped you or tried to stop you from going to work or school   | 1 | 2 | 3 | 4 | 5 |
| 89. Threw, hit, kicked, or smashed something  | 1 | 2 | 3 | 4 | 5 |
| 90. Kicked you  | 1 | 2 | 3 | 4 | 5 |
| 91. Physically forced you to have sex   | 1 | 2 | 3 | 4 | 5 |
| 92. Threw you around  | 1 | 2 | 3 | 4 | 5 |
| 93. Physically attacked the sexual parts of your body   | 1 | 2 | 3 | 4 | 5 |
| 94. Choked or strangled you   | 1 | 2 | 3 | 4 | 5 |
| 95. Used a knife, gun, or other weapon against you  | 1 | 2 | 3 | 4 | 5 |

Appendix J

Short Michigan Alcohol Screening Test

## Short Michigan Alcohol Screening Test

- |   |     |    |
|---|-----|----|
| 96. Do you feel you are a normal drinker? (By normal we mean you drink less than or as much as most other people)                       | yes | no |
| 97. Does your partner, a parent, or other near relative ever worry or complain about your drinking?                                     | yes | no |
| 98. Do you ever feel guilty about your drinking?  | yes | no |
| 99. Do friends or relatives think you are a normal drinker?   | yes | no |
| 100. Are you always able to stop drinking when you want to?   | yes | no |
| 101. Have you ever attended a meeting of Alcoholics Anonymous?  | yes | no |
| 102. Has your drinking ever created problems between you and your partner, a parent, or other near relative?                            | yes | no |
| 103. Have you ever gotten into trouble at work because of drinking?   | yes | no |
| 104. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?       | yes | no |
| 105. Have you ever gone to anyone for help about your drinking?   | yes | no |
| 106. Have you ever been in a hospital because of drinking?  | yes | no |
| 107. Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages? | yes | no |
| 108. Have you ever been arrested, even for a few hours, because of other drunken behavior?  | yes | no |

Appendix K

Drug Abuse Screening Test-20

*Drug Abuse Screening Test-20*

- |  |     |    |
|--|-----|----|
| 109. Have you used drugs other than those required for medical reasons?  | yes | no |
| 110. Have you abused prescription drugs?   | yes | no |
| 111. Did you abuse more than one drug at a time?   | yes | no |
| 112. Can you get through the week without using drugs?<br>(Other than those required for medical reasons)                              | yes | no |
| 113. Are you always able to stop using drugs when you want to?   | yes | no |
| 114. Have you had "blackouts" or "flashbacks" as a result of drug use?   | yes | no |
| 115. Have you felt bad about your drug use?  | yes | no |
| 116. Did your spouse/ partner or parents complain about your drug use?yes  | no  |    |
| 117. Has your drug abuse created problems between you<br>and your spouse/ partner (or your parents)?                                   | yes | no |
| 118. Have you lost friends because of your use of drugs?   | yes | no |
| 119. Have you neglected your family or missed work because of<br>your use of drugs?  | yes | no |
| 120. Have you been in trouble at work because of drug abuse?   | yes | no |
| 121. Have you lost a job because of drug use?  | yes | no |
| 122. Have you gotten into fights when under the influence of drugs?  | yes | no |
| 123. Have you engaged in illegal activities in order to obtain drugs?  | yes | no |
| 124. Have you been arrested for possession of illegal drugs?   | yes | no |
| 125. Have you experienced withdrawal symptoms as a result of<br>heavy drug intake?   | yes | no |
| 126. Have you had medical problems as a result of your drug use?<br>(For example: memory loss, hepatitis, convulsions, bleeding, etc.) | yes | no |
| 127. Have you gone to anyone for help for a drug problem?  | yes | no |
| 128. Have you been involved in a treatment program specifically<br>related to drug use?  | yes | no |



Appendix L

Short Michigan Alcohol Screening Test-Significant Other

*Short Michigan Alcohol Screening Test-Significant Other*

- |   |     |    |
|---|-----|----|
| 129. Do you feel your partner is a normal drinker? (By normal we mean<br>drinks less than or as much as most other people)                            | yes | no |
| 130. Have you, a parent, or another near relative ever worried or<br>complained about your partner's drinking?  | yes | no |
| 131. Does your partner ever feel guilty about his/ her drinking?  | yes | no |
| 132. Do friends or relatives think your partner is a normal drinker?  | yes | no |
| 133. Is your partner able to stop drinking when he/she wants to?  | yes | no |
| 134. Has your partner ever attended a meeting of Alcoholics Anonymous (AA)?   | yes | no |
| 135. Does your partner's drinking ever create problems between you?   | yes | no |
| 136. Has your partner been in trouble at work because of drinking?  | yes | no |
| 137. Has your partner ever neglected his/ her obligations to family or work<br>for two or more days in a row because he/she was drinking?             | yes | no |
| 138. Has your partner ever gone to anyone for help about his/her drinking?  | yes | no |
| 139. Has your partner ever been in a hospital because of drinking?  | yes | no |
| 140. Has your partner ever been arrested for drunken driving, driving while<br>intoxicated, or driving under the influence of alcoholic beverages?yes |     | no |
| 141. Has your partner ever been arrested, even for a few hours,<br>because of other drunken behavior?   | yes | no |

Appendix M

Drug Abuse Screening Test-20-Significant Other

*Drug Abuse Screening Test-20-Significant Other*

- |  |     |    |
|--|-----|----|
| 142. Has your partner used drugs other than those required<br>for medical reasons?                                 | yes | no |
| 143. Has your partner abused prescription drugs?   | yes | no |
| 144. Did your partner abuse more than one drug at a time?  | yes | no |
| 145. Can your partner get through the week without using drugs?<br>(Other than those required for medical reasons) | yes | no |
| 146. Is your partner always able to stop using drugs when he/she wants?  | yes | no |
| 147. Has your partner had "blackouts" or "flashbacks" as a result of drug use?                                     | yes | no |
| 148. Does your partner ever feel bad about his/her drug use?   | yes | no |
| 149. Did you ever complain about your partner's drug use?  | yes | no |
| 150. Has your partner's drug abuse ever created problems between you<br>and your partner?                          | yes | no |
| 151. Has your partner ever lost friends because of his/her use of drugs?   | yes | no |
| 152. Has your partner ever neglected the family or missed work because of<br>his/her use of drugs?                 | yes | no |
| 153. Has your partner ever been in trouble at work because of drug abuse?  | yes | no |
| 154. Has your partner lost a job because of drug abuse?  | yes | no |
| 155. Has your partner gotten into fights when under the influence of drugs?  | yes | no |
| 156. Has your partner engaged in illegal activities in order to obtain drugs?                                      | yes | no |
| 157. Has your partner ever been arrested for possession of illegal drugs?  | yes | no |
| 158. Has your partner ever experienced withdrawal symptoms as a result<br>of heavy drug intake?                    | yes | no |

159. Has your partner had medical problems as a result of drug use?  
(For example: memory loss, hepatitis, convulsions, bleeding, etc.)      yes      no
160. Has your partner ever gone to anyone for help for a drug problem?      yes      no
161. Has your partner ever been involved in a treatment program specifically  
related to drug use?      yes      no

Appendix N

Domestic Violence Informational Handout

## Domestic Violence Informational Handout

the "Cycle of Violence"

adapted from Dr. Lenore Walker

### **Violent Outburst!**

(Physical, Sexual, or Emotional)

#### **Tension builds**

Abuser starts getting angry  
Victims try to keep abuser calm  
Breakdown in communication  
Victims start "walking on eggshells"

#### **Making-up**

Abuser apologizes for abuse  
Abuser promises "no more abuse"  
Abuser denies or minimizes the abuse  
Abuser blames victims for causing abuse

#### **Calm**

Abuser acts like abuse never happened  
Promises made during "making-up" kept  
Abuser gives gifts to the victims  
Victims hope the abuse is over

#### **How to Make A Personal Safety Plan:**

1. Tell others you trust about your situation. Ask a neighbor to call 9-1-1 if they ever hear any screams or unusual noise coming from your house or apartment.
2. Identify safe locations where you can go and how to get there. Practice escape routes with your children and pets. Take them with you if you need to escape.
3. Put together an emergency bag containing extra car keys, clothes, money, checks, ATM and credit cards, medicines, phone numbers and important papers- copies of birth certificates, school records, social security cards, immigration documents, medical cards, bank statements and a protection-from-abuse order if you have one.

4. Open a bank account for yourself in case you ever need money in an emergency.
5. Take photos of any bruises or injuries and try to include your face in the picture to be able to prove your identity. Make sure to date the photos.
6. Keep all evidence of abuse like ripped clothing or broken furniture in case you ever need to get legal assistance or fight for custody of your children. Do not keep these items at your house where the abuser could find them.
7. If possible remove any weapons from the house and avoid using a weapon to defend yourself.
8. Call the police whenever you feel threatened even if you have already called many times in the past. Teach your children to call 9-1-1 by themselves in an emergency. Let police know about any guns or weapons so they can remove these from the home.
9. If you feel threatened trust your instincts and get to safety. Move away from any kind of weapon towards an emergency exit. If necessary give your abuser whatever they want just to keep them calm -- then escape.
10. If you or your children are injured go to the nearest emergency room and tell them what happened. Have them document your visit and injuries. You have the right to be seen by a doctor without the abuser present. If your pet is injured or killed have the vet document this.
11. Call a domestic violence hotline to get guidance or shelter. You don't have to wait for a crisis to call for help. Many agencies have groups for women who are still living in the community with their abuser and these groups can provide important guidance and support for you to find the best solution for the future.
12. If you leave the abuser, tell neighbors, close friends, co-workers, and relatives about your situation and ask them to tell you immediately if they see the abuser around your house, workplace, or car.
13. If possible, move to a location where the abuser will not know how to find you. If you leave the abuser and take your children with you notify the Prosecutor's Office so no one can claim you were kid-napping them.
14. Change the locks where you are staying if the abuser has a key. Install outside lighting, get a security system, window bars and door wedges.



16. Screen calls with an answering machine that does not use your name or your voice. Arrange for mail to be sent to a post office box. Change your daily routines.
17. Let co-workers, supervisors and security staff know to watch for your abuser and prevent entry into the building. Give them a copy of a photo of the abuser and point out any features that might be noticeable like tattoos or long hair. Also describe the color and type of car the abuser is likely to be driving.
18. Make a plan with your children in case the abuser attempts to injure or abduct them. Notify school personnel and childcare providers that your children are not to be allowed to leave with the abuser.
19. Keep a detailed diary of all interactions with the abuser and include dates, times, and as much information as possible. You should also describe how you felt at the time. This may be critical for legal and custody issues later.
20. Do not initiate any contact or communication with the abuser if there is a restraining order against them. This could jeopardize enforcement by the police in the future.

--Adapted from Ayuda, Inc., Washington, D.C. with additional help from P. Fackina

Local Domestic Violence Assistance:

A Woman's Place (Bucks County)	800-220-8116
Women In Crisis (Berks County)	610-372-9540
Domestic Violence Center of Chester County	888-711-6270
Domestic Violence Project of Delaware County	610-565-4590
Laurel House Shelter & Services (Montgomery County)	800-642-3150
Women's Center (Montgomery County)	800-773-2424
Women Against Abuse (Philadelphia)	215-386-7777
Lutheran Settlement House- Bilingual Violence Project (Phila.)	215-739-9999
Women in Transition (Phila)	215-751-1111
Congreso De Latinos Unidos (Phila.)	215-291-8742

National Domestic Violence Assistance:

National Domestic Violence Hotline	800-799-7233
Rape, Abuse & Incest National Network (RAINN)	800-656-HOPE

In an emergency always Dial 9-1-1

Appendix O  
Lesbian Subsample Analyses

### *Lesbian Subsample Analyses*

Seventeen female respondents reported a primary lesbian relationship during the past year. Lobel (1986) as well as Peterman and Dixon (2003) argued that the dynamics of interpersonal violence are different between same-sex couples and heterosexual couples. As a result, survey results from lesbian respondents were examined separately from the heterosexual sample. The small size of this sample severely limits the reliability and external validity of the results that follow.

The homosexual sample and the heterosexual training sample were compared in terms of respondent age, respondent education, respondent ethnicity -Caucasian or All Other Races, respondent past-year incarceration, childhood physical abuse, childhood sexual abuse, childhood emotional abuse, methadone maintenance, treatment type, mandated treatment, partner age, partner education, partner ethnicity and partner incarceration during the past year using Mann-Whitney  $U$  tests. Eight of the 17 homosexual respondents described themselves as African American (47.1%), 3 were (17.6%), and the remainder did not indicate their ethnic backgrounds (35.3%). The proportion of African American to Caucasian respondents was significantly different from that of the heterosexual sample  $*(Z = 2.37, p = .026, \text{exact two-tail})$ . Similarly, the proportion of African American ( $n = 8$ ) to Caucasian ( $n = 4$ ) respondents was significantly different from that of the heterosexual sample  $*(Z = 2.37, p = .026, \text{exact two-tail})$ . One lesbian partner was also reported to be Latina (5.9%) with

the ethnic background of four partners (23.5%) unreported. Nine lesbian respondents (52%) indicated they were incarcerated during the past year ( $Z = 3.34, p = .002$ , exact two-tail), which was a significantly greater percentage than the heterosexual sample. No other significant differences in these demographic variables were found at the .05 two-tailed level.

Comparisons were made using Mann-Whitney  $U$  tests between the homosexual sample and the heterosexual training sample in terms of socially desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, the logarithm of socioeconomic resources, and relationship adjustment. None of the homosexual couples described themselves as being married. The homosexual sample was found to have significantly lower levels of socioeconomic resources ( $Z = 3.146, p = .001$ , exact two-tailed). There were no other significant differences in terms of these other predictor variables at the .05 one-tail level.

Comparisons using Mann-Whitney  $U$  tests between the homosexual sample and the heterosexual training sample in terms of the incidence of partner violence ( $Z = .207, p = .836$ , two-tail) and partner emotional abuse ( $Z = 1.8, p = .72$ , two-tail) revealed no significant differences.

Comparing the 13 respondents in the homosexual sample who reported partner violence with the 83 heterosexual respondents who reported partner violence in terms of the logarithm of partner violence frequency also revealed no significant differences between the groups ( $Z = .402, p = .693$ , exact two-tail).

Comparison using Mann-Whitney  $U$  tests between the 15 homosexual respondents and the 109 heterosexual respondents who reported emotional abuse also showed no significant difference at the two-tail .05 level in terms of the frequency of partner emotional abuse ( $Z = .609$ ,  $p = .693$ , exact two-tail).

Spearman correlations between the incidence of partner violence and socially desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, logarithm of socioeconomic resources, and relationship adjustment were examined for the homosexual sample. The only significant correlation at the .05 one-tail level was between the incidence of partner violence and elevated respondent drug abuse ( $r_s = .443$ ,  $p = .047$ , exact one-tail).

Spearman correlations between the incidence of partner violence and respondent age, respondent education, childhood physical abuse, childhood sexual abuse, childhood emotional abuse, methadone maintenance, treatment type, mandated treatment, partner age, partner education, partner ethnicity and partner incarceration during the past year were examined. At the .05 two-tail level, the only significant correlation for the homosexual sample was the incidence of partner violence and African American partner ethnicity ( $r_s = .822$ ,  $p = .014$ , exact two-tail), however, only 13 of the 17 lesbian respondents reported their partner's ethnicities.

Spearman correlations between the logarithm of partner violence frequency and socially desirable responding, partner alcohol abuse, partner drug

abuse, respondent alcohol abuse, respondent drug abuse, logarithm of socioeconomic resources, and relationship adjustment were examined for the 13 respondents in the homosexual sample who reported partner violence. There were no significant correlations at the .05 one-tail level.

Spearman correlations between the logarithm of partner violence frequency respondent age, respondent education, childhood physical abuse, childhood sexual abuse, childhood emotional abuse, methadone maintenance, treatment type, mandated treatment, partner age, partner education, partner ethnicity and partner incarceration during the past year were examined for the 13 respondents in the homosexual sample. The only significant correlation was between the logarithm of the frequency of partner violence and a history of childhood sexual abuse ( $r_s = .626$ ,  $p = .031$ , exact two-tail).

Spearman correlations between the incidence of partner emotional abuse and socially desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, logarithm of socioeconomic resources, and relationship adjustment were examined for the homosexual sample. The only significant correlations were between the incidence of partner emotional abuse and elevated partner drug abuse ( $r_s = .45$ ,  $p = .044$ , exact one-tail), elevated respondent drug abuse ( $r_s = .47$ ,  $p = .04$ , exact one-tail), and a lower logarithm of socioeconomic status ( $r_s = .495$ ,  $p = .027$ , exact one-tail).

Spearman correlations between the incidence of partner emotional abuse and respondent age, respondent education, childhood physical abuse, childhood

sexual abuse, childhood emotional abuse, methadone maintenance, treatment type, mandated treatment, partner age, partner education, partner ethnicity and partner incarceration during the past year were examined for the homosexual sample. There were no significant correlations at the .05 two-tail level.

Spearman correlations between the frequency of partner emotional abuse and socially desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, logarithm of socioeconomic resources, and relationship adjustment were examined for the 15 respondents in the homosexual sample who reported partner emotional abuse. There were no significant correlations at the one-tail .05 level.

Spearman correlations between the frequency of partner emotional abuse and respondent age, respondent education, childhood physical abuse, childhood sexual abuse, childhood emotional abuse, methadone maintenance, treatment type, mandated treatment, partner age, partner education, partner ethnicity and partner incarceration during the past year were examined for the 15 respondents in the homosexual sample who reported emotional abuse. There were no significant correlations at the .05 one-tail level.

### *Summary*

Given the small number of respondents who reported homosexual relationships, these statistical findings must be regarded as extremely tentative, and no multivariate analyses were conducted for this reason. It seems worth

noting that no significant differences were found between the homosexual and heterosexual samples in terms of the incidence and frequency of partner physical abuse as well as the incidence and frequency of partner emotional abuse, as has been reported by Fortunata and Kohn (2003) based on a general population sample of lesbian women.

The homosexual sample in the current study generally had significantly lower economic resources, greater likelihood of recent incarceration, and were more likely to be African American than the heterosexual sample. In terms of risk markers, elevated respondent drug abuse was significantly correlated with the incidence of both emotional and physical abuse by the partner. It is of interest that respondent drug abuse and partner drug abuse were highly correlated ( $r_s = .625, p = .009$ , exact two-tail) among the homosexual sample. In the heterosexual sample, the correlation between respondent drug abuse and partner drug abuse was also significant, but less pronounced ( $r_s = .357, p < .000$ , two-tail). As Fortunata and Kohn (2003) found, elevated partner alcohol and drug abuse were not significant predictors for partner violence for the lesbian women in this sample.

These observations must be reexamined with larger samples of lesbian respondents, however, before any firm conclusions can be drawn.



Appendix P

Cohabitation and marriage as a combined risk marker  
for physical and psychological abuse.

As marriage rates decline (U.S. Census, 2004) and cohabitation becomes more commonplace (Jones, 2006), research on rates of domestic violence among unmarried couples who live together may need to be grouped with married couples in terms relationship satisfaction and distinguished from couples who have separated or divorced as done in studies by Jasinski and Williams (1998) and Stockdale, Klap, Belin, Zhang, and Wells (2006). To test whether this demarcation produced a more powerful risk marker to predict partner emotional and physical abuse, respondent couples in the current study who were married ( $n = 16$ ) or cohabiting ( $n = 35$ ) were re-categorized into "conjoint" couples ( $n = 51$ ) as opposed to the separated ( $n = 58$ ) and divorced couples ( $n = 3$ ) who were categorized as "estranged" ( $n = 61$ ).

Spearman rho correlations between this new variable, referred to as "estranged," and the incidence and frequency of partner emotional and psychological abuse were then examined. The correlations between "estranged" and the incidence of partner violence ( $r_s = .155$ ,  $p = .077$ , one-tail,  $n = 112$ ) as well as the incidence of partner emotional abuse ( $r_s = .07$ ,  $p = .23$ , one-tail,  $n = 112$ ) were not significant at the .05 one-tail level. There was, however, a significant correlation at the .05 one-tail level between "estranged" and an elevated log of the frequency of partner violence ( $r_s = .21$ ,  $p = .028$ , one-tail,  $n = 83$ ) among those couples reporting partner violence. As a result, "estranged" was included in an ordinal regression to see if the prediction of an elevated log

of the frequency of partner violence would be significantly improved. "Estranged" did not contribute, however, to the multivariate prediction model (Wald statistic = .002,  $df = 1$ ,  $p = .962$ ) beyond the variance already associated with elevated partner alcohol abuse, low relationship adjustment, and African American partner ethnicity.

There was also a significant correlation between "estranged" and an elevated frequency of partner emotional abuse ( $r_s = .209$ ,  $p = .014$ , one-tail,  $n = 109$ ). As a result, "estranged" was included in a re-analysis of the ordinal regression predicting the frequency of partner emotional abuse to see if a stronger model would result. "Estranged" did not contribute significantly to the multivariate prediction of an elevated frequency of partner emotional abuse at the one-tail.05 level ( $Wald = .019$ ,  $df = 1$ ,  $p = .892$ ) beyond the variance already predicted by elevated partner drug abuse and low relationship adjustment.

In summary, grouping married and cohabiting couples did not significantly improve the univariate prediction of the incidence of partner violence and emotional abuse. While "estranged" was associated with an elevated log of the frequency of partner violence and an elevated frequency of emotional abuse among those who reported such abuse, this modification failed to make significant contributions to the multivariate prediction of these two criterion variables. This suggests cohabitation may be a risk marker for domestic violence in contrast to marriage as reported by Hotaling and Sugarman (1990). Analysis with larger samples is necessary to clarify this possibility with more certainty.

Appendix Q

Partner Emotional Abuse as Predictor for Partner Physical Abuse

While not originally hypothesized and not studied in earlier research on risk markers, data analysis suggested partner emotional abuse was a very strong predictor of partner physical abuse and vice versa. A post-hoc examination of partner emotional abuse as a predictor for partner physical abuse, therefore, seemed appropriate.

Based on a Spearman rho correlation, the incidence of partner emotional abuse was significantly correlated with the incidence of partner violence ( $r_s = .281, p = .003, n = 112$ ). Every respondent among those who reported partner violence indicated at least one episode of partner emotional abuse, resulting in a perfect correlation between these two variables.

An elevated frequency of partner emotional abuse was also found to be significantly correlated with both the incidence of partner violence ( $r_s = .570, p = .000, n = 112$ ) as well as an elevated log of the frequency of partner violence ( $r_s = .577, p = .000, n = 83$ ) at the two-tail .05 level.

When the frequency of partner emotional abuse was added to the final logistic regression model predicting the incidence of partner violence, relationship adjustment no longer made a significant contribution. This new model, which included elevated partner alcohol abuse and partner drug abuse, lower respondent age and elevated partner emotional abuse frequency produced a significant improvement in the prediction of the incidence of partner violence, with the model log-likelihood reaching 63.303. This model accounted for approximately 64.5% of the total variance in the incidence of partner violence

based on the Nagelkerke  $R^2$  value. This new model represented the strongest prediction model for the incidence of partner violence in this study, with partner emotional abuse frequency being the strongest predictor within this multivariate context.

The frequency of partner emotional abuse was added to the final ordinal regression model for predicting and elevated logarithm of the frequency of partner violence. This model, which included partner drug abuse, relationship adjustment, and partner emotional abuse frequency did not produce a significant improvement in the model log-likelihood of 282.537, however, and accounted for only approximately 35.2% of the total variance based on the Nagelkerke  $R^2$  value, less than the variance accounted for with only partner drug abuse and relationship adjustment as predictors. Even though partner emotional abuse frequency was the strongest predictor in this multivariate context, partner emotional abuse frequency did not add significantly to the overall prediction of the log of partner violence frequency. This result could suggest that an elevated frequency of partner emotional abuse might help some partners diffuse tension and anger that otherwise may emerge as an elevated rate of physical violence. Abusive partners who employ verbal or emotional abuse might be less violent after ventilating but this notion is speculative and calls for further study.

Appendix R

Partner Substance Abuse as Grouping Variable

Some women probably fail to disclose partner substance-abuse problems when entering treatment. In order to predict which partners are likely to be substance abusers, post-hoc univariate and multivariate analyses were conducted.

Respondent couples were grouped into female-only (discordant) and both-partner (concordant) substance-abusing couples using the recommended cut-score of 3 and above for the Partner Version of the SMAST or 5 and above on the Partner DAST to form a dichotomous partner alcohol-or-drug-abuse grouping variable (PAOD).

Mann-Whitney U tests comparing the discordant ( $n = 34$ ) and concordant ( $n = 101$ ) couples were examined for respondent age, respondent education, respondent ethnicity, respondent past-year incarceration, childhood physical abuse, childhood sexual abuse, childhood emotional abuse, methadone-maintenance, treatment type, mandated treatment, partner age, partner education, partner ethnicity, and partner incarceration during the past year. Among the concordant couples, significant differences at the .05 two-tail level included elevated rates of respondent childhood emotional abuse ( $Z = 2.383$ ,  $p = .022$ , exact two-tail) and partner incarceration during the past year ( $Z = 2.864$ ,  $p = .005$ , exact two-tail) plus fewer years of partner education ( $Z = 1.992$ ,  $p = .046$ , exact two-tail). Respondent childhood physical abuse ( $Z = 1.820$ ,  $p = .051$ , exact one-tail) was almost significantly different at the .05 level, with higher rates among concordant couples.



Mann-Whitney U tests comparing the discordant and concordant couples were examined for socially desirable responding, partner alcohol abuse, partner drug abuse, respondent alcohol abuse, respondent drug abuse, logarithm of socioeconomic resources, and relationship adjustment, and marital status. Socially desirable responding was significantly lower among concordant respondents ( $Z = 2.019$ ,  $p = .022$ , exact one-tail), which could suggest discordant respondents were not completely forthcoming regarding their partner's substance-abuse problems. By definition, partner alcohol abuse ( $Z = 6.514$ ,  $p < .000$ , exact one-tail) and partner drug abuse ( $Z = 7.79$ ,  $p < .000$ , exact one-tail) were both significantly higher among the concordant couples. Respondent alcohol abuse was not significantly different ( $Z = .364$ ,  $p = .359$ , exact one-tail), but respondent drug abuse was significantly elevated among the concordant couples ( $Z = 1.99$ ,  $p = .023$ , exact one-tail). The logarithm of socioeconomic resources ( $Z = 2.63$ ,  $p = .004$ , exact one-tail) was significantly lower among the concordant couples. Low relationship adjustment ( $Z = 1.61$ ,  $p = .054$ , exact one-tail) and unwed marital status ( $Z = 1.685$ ,  $p = .08$ , exact one-tail) were not significantly different, although relationship adjustment almost met the .05 one-tail level-of-significance ( $p = .054$ ), with concordant couples showing lower average adjustment. It should be noted that marital status *was* significantly different ( $Z = 1.944$ ,  $p = .04$ , exact one-tail) when cohabiting couples were grouped with married couples (see Appendix P) resulting in concordant couples showing a greater likelihood of being estranged.

Mann-Whitney U tests comparing the discordant and concordant couples were examined for the incidence and frequency of partner violence and the incidence and frequency of partner emotional abuse. No significant difference was found in terms of partner emotional abuse incidence, but the incidence of partner violence ( $Z = 5.143, p < .000$ , exact one-tail) as well as the log of the frequency of partner violence ( $Z = 4.793, p < .000$ , exact one-tail) were significantly elevated among the concordant couples at the .05 one-tail level. The frequency of partner emotional abuse was also significantly elevated among the concordant couples ( $Z = 3.302, p < .000$ , exact one-tail).

A simultaneous logistic regression analysis employing backward likelihood-ratio elimination was conducted using significant univariate correlates of the dichotomous partner alcohol-or-drug-abuse (PAOD) grouping variable. Partner alcohol abuse and partner drug abuse were not included as separate variables for this analysis. The significant univariate correlates included socially desirable responding, respondent drug abuse, the log of socioeconomic status, estranged relationship status, relationship adjustment, respondent childhood emotional abuse, partner education, partner past-year incarceration, the incidence of partner violence, the log of partner violence frequency, and the partner emotional abuse frequency. Relationship adjustment and respondent childhood physical abuse were also included since this was an exploratory analysis and these two variables approached statistical significance ( $p = .054$  and  $p = .08$ , respectively). The four variables that emerged in the final prediction model to

identify concordant couples were more respondent childhood emotional abuse, less partner education, more partner part-year incarceration, and a higher log of the frequency of partner violence. The model log-likelihood was 99.214 accounting for 38.2% of total variance based on the Nagelkerke  $R^2$  value. The model demonstrated a reliable fit  $\chi^2(4, n = 120) = 35.746, p = .000$ . The Hosmer and Lemeshow goodness-of-fit test was also still acceptable with  $\chi^2(7, n = 120) = 7.037, p = .425$ . The probability of a heterosexual female substance abuser being in a relationship with a male substance-abusing partner  $p = 1 / (1 + e^{-z})$  can be calculated based on this final model using the following regression equation with CEMO = respondent childhood emotional abuse, PEDU = partner years-of-education, PJAIL = partner past-year incarceration, LgPVF = the log of the frequency of partner violence:

$$z = 4.45 + .88 \cdot (\text{CEMO}) - .19 \cdot (\text{PEDU}) - 1.17 \cdot (\text{PJAIL}) - 7.28 \cdot (\text{LgPVF}).$$

This formula accurately classified 93.3% of the concordant couples, and 50% of the discordant couples, for an overall prediction rate of 82.5 percent. The odds of a female heterosexual respondent having a male substance-abusing partner increased 58.7% if the respondent reported childhood emotional abuse, decreased 16.8% for every year her partner attended school, increased 83% if her partner spent time in jail during the past year, and increased 66% per unit rise in the cumulative frequency of partner violence as measured with the Abusive Behavior Inventory.