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A MULTIVARIATE APPROACH TO THE DYNAMIC OF VIOLENCE
WITHIN INTIMATE RELATIONSHIPS:
AN APPLICATION OF THEORY OF COERCIVE POWER IN
EXCHANGE.

by

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B.S. University of Central Florida, 1997

A thesis submitted in partial fulfillment of the requirements
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ABSTRACT

This study, drawing from theories of structural power and exchange, verified the hypotheses that the mechanisms, dynamics, and direction of violence in intimate relationships depend on the resources of each partner, the ratio of such resources, and their summative effects. Specifically, this study developed a framework that integrates the factors found related to domestic violence and defined as resources, and took into account their reward power, with reference to the status quo of the partners, to determine each partner's power within the relationship. The resources considered have included variables from four domains, individual, relational, social structural, and sociocultural. Existing gender-based and race-based theories have been challenged with the belief that a unidimensional representation of victims and perpetrators does not exist. Building on Molm's Theory of Coercive Power in Exchange, couple data from the National Survey of Family and Households, Wave 1, were used to test the hypothesis that the probability of a partner's initiation of coercive power depends on his/her power disadvantage in the relationship. The results showed a 75.3 % accurate prediction of the presence of violence and an 84% accurate prediction of the direction of violence and supported the hypotheses of this study. The findings suggest the usefulness of utilizing couple data and multiple predictors from different domains.

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INTRODUCTION

Review of recent literature on family violence has revealed attempts to integrate different perspectives into models able to account for both the multifaceted and dynamic nature of the phenomenon (McKenry, Julian, and Gavazzi, 1995). The great importance of including simultaneously biological, psychological, and social factors has been extensively demonstrated. McDaniel, Hepworth and Doherty (1993) have utilized the term, biopsychosocial system model, to describe a framework that asserts multiplicative relationships among biological, psychological, and social factors. Similarly, Julian and Gavazzi (1995) have developed a model that "incorporates salient predictors from biological, psychological, and social domains that traditionally have been associated with domestic violence" (p. 308). Various attempts to integrate different methodological and theoretical approaches have also been made to investigate the etiology of domestic violence. Anderson (1997), for example, suggested a theoretical integration of the Feminist and Family Violence approaches, which emphasizes gender and status incompatibility between male and female. Lawler and Yoon (1996), building on Emerson's theory of power-dependence, have developed a theory of relational cohesion that predicts when "the structure of power, in terms of power-dependence, fosters a cohesive relation and commitment " (p.89). While Emerson has proposed that structural relations of dependency among partners determine behavioral patterns, regardless of intentionality and awareness, Molm (1991) has suggested that "coercive

exchange provides reward in exchange for the other's withholding of expected punishment and can be used strategically, creating contingencies that produce predictable consequences" (p.113). Criminological literature has suggested that antisocial behavior increases the likelihood of aggression toward a partner and has roots in inept parenting, such as harsh discipline and ineffective monitoring (Simons, Wu, Johnson and Conger, 1995). However, it has also been argued that domestic violence is not a subset of general violent behavior, although a common set of predisposing circumstances has been identified (Simons, Wu, Johnson and Conger, 1995). Studies on gender have found gender roles and attitudes to be related to violence but whether individuals maintaining traditional or egalitarian roles are at greater risk is unclear. Specifically, Anderson (1995) suggested the study of "interrelationships of sociodemographic factors and structures of gender and power to facilitate an integrated sociological theory of violence within intimate relationships" (p. 668). In addition, he has shown that an adequate understanding of gender relations must entail concurrent analyses of power structures formed around ethnicity, social class, and sexuality (Anderson, 1997). Finally, the influence of social network on domestic violence has been investigated. Umberson, Chen, House, Hopkins and Slaten (1996), for example, assessed the effect of form and quality of social interactions on psychological functioning and found, using measures of social integration and relational content, gender differences in the ways and degrees of utilization of social relationships as support systems.

PARADIGMS

Research on domestic violence revealed controversy on the etiology of this problem, but showed agreement on the existence of causes at different levels of analyses, and with multiple determinants (Carlson, 1984). Consequently, the need to focus on a wider range of relationship types, variables, and dimensions has been recognized. (Umberson, Chen, House, Hopkins, and Slaten, 1996; Bersani, Chen, Pendleton, and Denton, 1992). The current study states that the way personal, relational, social structural, and sociocultural variables, considered as resources, interact creating structural power and power inequality within intimate relationships greatly influences the use of interpersonal violence and the direction of the violence. In particular, I focus on each partner's resources brought into the intimate relationship, the reward power such resources provide, and the power advantage and disadvantage they generate, as incentives or deterrents of the use of coercive power. Drawing from theories of structural power and exchange, this study has tested the assertion that the mechanisms, dynamics, and direction of violence in intimate relationships depend on the resources of each partner, the ratio of such resources, and their summative effects. Specifically, I developed a framework that integrates factors related to domestic violence, and defined as resources, and takes into account their reward power, with reference to the status quo of the partners, to determine each partner's power within the relationship. The resources considered included variables from four domains - individual, relational, social structural, and sociocultural, as described by Carlson (1984). I explored the "conditions under which particular

combinations of the same causal factors might produce qualitatively and quantitatively different patterns of violent behavior " (Johnson, 1995). Building on Molm's Theory of Coercive Power in Exchange (1997), couple data from the National Survey of Family and Households (NSFH) have been used to test the hypothesis that the probability of a partner's initiation of coercive power increases proportionally to his/her power disadvantage in the relation. In support of this hypothesis, studies have suggested forms of coercion to be more common among individuals who are disadvantaged on reward power and lack other means of influencing those on whom they depend for rewards (Molm, 1997).

THEORETICAL ASSUMPTIONS

Power-dependence theory predicts that the structural relations of dependence among actors determine behavioral patterns of exchange. The simplest form of social exchange occurs between two individuals, and the mutual dependence of the actors on each other for rewards provides the structural basis for their exchange with one another and for their power over each other. Each actor's capacity to reward the other represents the actor's RESOURCE in that relation. Each actor is dependent on the other to the extent that the outcomes by one actor are contingent on exchange with the other. As an application of Molm's Theory of Coercive Power in Exchange to intimate heterosexual partners living together, this study has accepted the following assumptions (see Molm 1997 for reference):

1. The intimate relationships between two partners living together represent a social exchange in which both partners are dependent on each other for rewards;
2. The intimate relationship between two partners living together is a mutually beneficial exchange relationship (albeit an unequal one) in which partners have the capacity to both reward and punish each other (i.e., the use of reward and coercive power is voluntary);

3. Other exchange partners (exchange network) outside the intimate relationship, as potential sources of equivalent rewards, are considered to reduce the dependence of a partner from the other;
4. Within the intimate relationship each partner's dependence and power can vary independently of the other's, and their relational (joint) dependence is described by two dimensions: AVERAGE POWER and POWER IMBALANCE. The first represents the average of the two partner's dependencies on each other and is a measure of the absolute strength of the actors' power over each other, the second represents the difference between the two partners' dependencies on each other and is a measure of their relative power over each other;
5. In an intimate relationship which is power-imbalanced, the less dependent and more powerful partner has a power advantage in the relationship and the more dependent partner has a power disadvantage;
6. Each partner's resources are considered in terms of the capacities to perform behaviors that produce valued outcomes for the other and are assumed to have only opportunity costs;
7. As the partners are sharing the same household they can cease exchanging with each other but cannot avoid the rewards or punishments;
8. Rewards and punishments are defined in relation to the partner's current relationship.

RESEARCH DESIGN

Data

This study used data from the first wave of the National Survey of Families and Households (NSFH1), a nationally-representative survey of U.S. adults which includes life-history information and marital and cohabiting experiences of primary household respondents and their partners. In an effort to produce a valid sample and control for complex household situations that could influence the dynamic of the intimate relationship under study, the analytic sample has been limited to intimate couples (2,096 spouses and 13 cohabiting partners) [SECTYPE=1 or 2] with no children or other individuals (relatives or friends) living in the same household [M2NUM=2, CHKPTA=1, CKPTCNUM=0] for a total of 2,109 cases. However, the invalid or missing responses on the questions concerning the frequency of physical arguments were 164 (7.8%). The sample size for the prediction model, with reference to the presence of violence, was consequently 1,945 cases. As in 94.4% of these cases (n=1,835) no physical arguments were reported, the prediction model for the direction of the violence could only be tested on the remaining 109 cases (5.6%) where violence was acknowledged.

A self-reported section of the questionnaire in NSFH contains data on couple relationship which includes frequency and areas of disagreements with reference to physical acts of violence. Six questions from the self-enumerated questionnaire of the NSFH explicitly measured couple violence and injury. The

first two questions asked about how disagreements were handled: *When you have a serious disagreement with your husband/wife/partner, how often do you end up hitting or throwing things at each other ?* and *Sometimes arguments between partners become physical. During the last year has this happened in arguments between you and your husband/wife/partner ?* The middle two questions asked about violent acts: *During the past year, how many fights with your partner resulted in YOU hitting, shoving, or throwing things at him/her ?* and *During the past year, how many fights with your partner resulted in HIM/HER hitting, shoving, or throwing things at you ?* The last two questions asked about injurious outcomes: *Have YOU ever been cut, bruised, or seriously injured in a fight with your partner ?* and *Has your partner ever been cut, bruised, or seriously injured in a fight with you ?* The last two sets of questions were connected to the question of how often disagreements became physical and were supposed to be answered only if “physical fights” were reported. Although this measure of domestic violence is not historical, it is suitable for this study as the dimensions of power considered, in terms of rewards and punishments, are defined in relation to the partners’ current situation (Van Houten, 1983). However, it may seem questionable to use a measure of physical violence to indicate strategically induced power use. While it is true that physical violence within an intimate relationship represents a punitive behavior, it is only one coercive strategy typically attempted to increase the partner’s rewarding, but unfortunately it is the only measure available in the NSFH data. The questions related to physical violence had a positive response rate (i.e., violence had occurred) of about 5.6% for both male and female respondents. The NSFH data were used to investigate

the dynamic of the relationship among the primary respondent and his/her current partner living in the same household, and to predict the presence and the direction of violence. The self-reported information given by respondents about the presence and the direction of violence within the relationship were used to verify the accuracy of the prediction.

Measures

Dependent variables

Two questions from the self-enumerated questionnaire on the NSFH measured couple open disagreements and physical arguments. They were both used to identify the presence of violence (VLNC) within the dyad. Four connected questions from the self-enumerated questionnaire of the NSFH explicitly measured couple violence indicating who performed the violence (the respondent or the partner), the frequency of the event and the presence of injurious outcomes. The frequency variable was recoded as a dichotomous variable. Although coercive power is more effective when used more frequently, frequency per se is a poor measure of coercion (Molm, 1997) and, in NSFH, the frequency variations are not statistically significant. Only two dependent variables, therefore, were used for each partner indicating whether (value 1) or not (value 0) violent behavior had been perpetrated (RPRPTR and PPRPTR) and/or reported (RVCTM and PVCTM), and whether injuries occurred (value 2). These measures represent each partner's contingent punishment of the other and were analyzed as an indicator of no coercion (0), low coercion (1) and high coercion (2). Differences in marital conflict perception, as reflected by the discrepancy

between partners' answers to the four questions concerning physical violence, were not investigated. Previous studies (for example Anderson, 1997 and Szinovacz and Egley, 1995) on the effects of reporting biases, based on a similar subsample of the NSFH, revealed considerable underreporting of marital violence. However, the interpretation of discrepancies as underreporting or overreporting "can only be indirectly inferred from trends in the relationships with other variables" (Szinovacz and Egley, 1995, p. 1001). In this study I chose not to examine such differences.

Independent variables

To limit the purpose and length of this study, I selected two variables for the individual and the sociocultural domain and four variables for the sociostructural and relational domain (Figure 1). The relational variables were used as control variables in those cases where the prediction was inaccurate. As the literature suggested, general happiness (*Taking things all together, how would you say things are these days ?*) and global health (*Compared with other people your age how would you describe your health?*) were considered resources at the individual level (see for example Ellington and Marchall, 1997; Hamberger, Lohr, Bonge and Tolin, 1996; Bersani, Heuy, Chen, Pendleton, and Denton, 1992). The NSFH, in the respondent's and his/her partner's self-administered portion of the survey, scored the happiness measure on a 7-point Likert scale and the health measure on a 5-point scale. The answers ranged between 1 (very unhappy) and 7 (very happy), and 1 (very poor) and 5 (excellent), respectively.

Measures of the quality of the relationship such as global quality (*Taking things all together, how would you describe your relationship ?*), time spent together (*During the past month about how often did you and your partner spend time alone with each other talking or sharing activities?*), and sexual frequency (*About how often did you and your partner have sex during the past month ?*) were considered as relational variables. All three variables for each partner were added to obtain a dyad's measure of relationship quality (QRLTN) with higher scores indicating a higher quality of relationship. In addition, a measure of the dyad's agreement on the relationship's quality (ARLTN), obtained by adding the differences between partners' scores on all three relational variables, with higher scores indicating higher disagreement, was used.

Income (*What is your gross salary before deduction at your current job?*), years of education (summary measures of education), employment status (*Are you currently working for pay in any job? What type of work are you doing in your current job? What is your job title? What are your main activities/duties at this job?*) and social class (*What was the highest grade of school your father completed? What was the highest grade your mother completed?*) were analyzed as sociostructural resources (Umberson, Chen, House, and Slatem, 1996). Finally, social network and social support were included as sociocultural resources. The NSFH provides information on the respondents' level of social activity and amount of actual material and emotional support received. For level of social activity, the respondents were administered a self-report 22-item survey. This study used only one item concerning the frequency of social activity, with friends and various other groups, coded on a 5-point scale (never, several times

a year, about once a month, about once a week, several times a week). The multiple answers were summed to obtain RCTVTY, with a higher score indicating a greater level of social activity and participation in informal networks, following Zlotnick, Kohn, Petersons and Pearlstein (1998). Social support was measured in NSFH by asking respondents who they would turn to for help if they had an emergency in the middle of the night, if they had to borrow \$200 for a few weeks for an emergency, and if they had a problem and were feeling depressed and confused about what to do. Response categories were no one (0), friend or relatives (1-5), or multiple sources (6). All items measuring social support were summed to obtain RSPPERT, with a higher score indicating greater sources of support. All independent variables were measured as continuous variables.

Couple Data

Data from respondents and spouses or cohabiting partners were combined to arrive at intimate partners' scores. Because the measures of social activity and social support were only available for the primary respondent, the primary respondent's means were substituted for missing scores for the secondary respondents. Means were substituted for missing values within responses to the same question in previous studies (see Szinovacz and Egley, 1995) although a dummy variable for missing responses was added to the analysis. Considering that primary respondent (partner A) and secondary respondent (partner B) were randomly selected in NSFH and appear equally distributed across gender in the subsample used in this study, I assumed the

means to be quite similar except for data collection biases. As reported by Szinovacz and Egley (1995), in fact, data collection methods for the main respondents to the NSFH and their partners differ. One randomly selected partner served as the "primary respondent" and completed a lengthy interview as well as a series of self-administered questionnaires, while the other partner was designated as the "secondary respondent" and filled out the self-administered questionnaires without being interviewed. Szinovacz and Egley (1995) utilized a dummy variable for data source to adjust and test for potential data collection bias. Their findings suggested a significant data collection method effect on the dependent variables, the four questions concerning physical violence.

Structural Power

Two bases of power are defined structurally: forms of power based on control over positive outcomes (reward power) or negative outcomes (coercive power) which are parallel and are both conceptualized in terms of dependency. However, power can also be defined strategically (Yamagishi, 1995) as the power to create contingencies that produce predictable consequences for their partner's behavior. This study counted each partner's resource as gain (reward) for the other if it improved the partner's current resource level (the status quo) and as loss (punishment) if it worsened it. Each partner, therefore, was compared on the same resource measure (i.e., each independent variable in the resource list) to create a measure of each partner's *referent dependence* on the other [according to each partner's ability to provide rewards that increase the other partner's status quo]. The measure of referent dependency for each partner was derived by

adding a +1 for each gain (or reward), as status quo improvement, obtained as a result of the exchange with the other partner. Each partners' dependencies were, then, used to calculate the probability they will initiate coercion against each other. Specifically, the difference between each partner's referent dependency (PWRDF) was used to determine either a situation of power balance (no difference) or power imbalance (some difference) within the relationship. The partner with the higher dependency was, consequently, identified as the disadvantaged partner. A situation of power imbalance predicted the presence of violence while the direction of the violence (disadvantaged toward advantaged) was determined by the disadvantaged partner.

INDIVIDUAL VARIABLES

Global Health: 1 (not very good)
5 (excellent)

Happiness: 1 (very unhappy)
7 (very happy)

SOCIOCULTURAL VARIABLES:

Social activity: 0 (never)
4 (several times a week)

Social Support 0 (no one)
6 (more than one code)

SOCIOSTRUCTURAL VARIABLES

Income: (amount in \$)

Education: 00 -25 (years)

Occupation: census occupation codes

Social class:*

* based on both parents' years of education (summed) and father's occupation

RELATIONAL VARIABLES

Sexual frequency: 0 (0 times)
8 (23+ times)

Quality of relationship: 01 (very unhappy)
07 (very happy)

Time spent together: 01 (never)
06 (almost every day)

Figure 1. NSHF1 variables of interest

Control variables

Gender, ethnicity (*Which of the groups on this card best describes yourself ?*) and age are not of theoretical interest in this study. However, gender and ethnicity are included for control purposes and are considered as "status values", that is, nominal characteristics possessed by individuals that significantly impact the property and positions of power attained in society. According to Ridgeway (1991), in fact with status value, nominal characteristics such as gender and ethnicity become cultural prestige dimensions operating as part of the society's stratification system. Specifically, this study has determined the effects of gender and ethnicity with the distribution and differences in exchangeable resources within heterosexual intimate relationships. Power disadvantage/advantage, obtained from differences in resource levels between the partners, is the only variable assumed to affect the presence and direction of violence. In fact, this study drawing from Miller (1992) challenges the limits of existing gender-based and race-based theories and models used in intimate violence research, believing that a unidimensional representation of victims and perpetrators does not exist. Dutton (1988) has argued that gender and race do not directly cause domestic violence and that more complex dynamics are involved. Moreover, he stated that an unequal power distribution in relationships is a power matter and not a gender matter as the same elements of hierarchy of power, ownership, entitlement and control exist in homosexual relationships. Integrated, gender-neutral theories which take into account the context of the relationships to determine the motivation and power dynamics that activate the violent acts are necessary (Miller, 1991).

Hypotheses

Based on the theoretical issues outlined above, the following research questions have been addressed: Do selected partner's characteristics, when they interact creating structural power and power inequality, influence the use of interpersonal violence and the direction of the violence within intimate relationships ? Are there relationships between partners' reporting of violence and power structures within dyads ? Do couple data differ from one-partner data in the prediction of violence ? Are there gender and ethnical differences in power structures ? Specifically, this study tested the following hypotheses:

- H1: Partner A will initiate coercive power against partner B or partner B will initiate coercive power against partner A more frequently when the power imbalance within the dyad is higher than when the power imbalance is lower or when there is no imbalance. (PRESENCE OF VIOLENCE)
- H2: Partner A will initiate coercive power against partner B more frequently when there exists a power disadvantage within the dyad in the direction A-B than when there exist a power disadvantage in the direction B-A. (DIRECTION OF VIOLENCE AB).
- H3: Partner B will initiate coercive power against partner A more frequently when there exists a power disadvantage within the dyad in the direction B-A then when there exists a power disadvantage within the dyad in the direction A-B. (DIRECTION OF VIOLENCE BA).

ANALYSIS

Six SAS programs were written to construct all working variables and all measures of power (see appendix B). All the statistical analyses were performed utilizing SAS/ASSIST's Data Analysis, Interactive Data Analysis and Data Exploration Tools. All independent variables (except the relational ones) were used as resources, to obtain the measures of power needed for the analysis. Apart from descriptions of prevalence rates, correlation and regression analysis, which were simply addressed in this study, the main focus of the analysis concerns the ability to predict violence from power differences in resources within dyads. Specifically, the analysis aims (a) to identify situations of power balance and imbalance and partners who are disadvantaged in reward power within dyads, (b) to explore whether individuals' characteristics identified by previous research as personal, relational, sociostructural and sociocultural variables, are direct predictors of violence or whether their predictive ability depends on the reward power they generate in the context of the relationship and the power structures they determine, and (c) to investigate whether differences in resources can predict the presence and the direction of violence within intimate dyads.

Dependence, risk for coercion, and power.

To investigate the first issue (a), the partners were compared on each of their eight resources to calculate their *referent dependency*, i.e., how much they

rely on each other for rewards (as an increase in status quo), with scores ranging from 0 to 8. For each primary (GAINR) and secondary (GAINP) respondent, a resource was considered a gain if it increases the status quo, that is if the partner's measure is higher, and vice versa. The respondent's (partner A) dependence on his/her partner (partner B), DAB, was defined as being equal to the respondent's gains in the relationship (GAINR) while his/her partner's (partner B) dependency on the respondent (partner A), DBA, was defined as being equal to the secondary respondent's gains (GAINP). The difference between partners' dependencies (if any) determined a situation of power balance (no risk for violence) or imbalance (risk for violence), in favor of one of the partners (the advantaged one). When such difference was below 4 (in the range 1-8), a situation of low risk for violence was determined (PWR=1), while a difference equal or greater than 4 indicated a situation of high risk for violence (PWR=2).

The context in which violence occurs and power structures.

According to Kahneman and Tversky (1979), exchange outcomes can be evaluated by a value function that has three main characteristics: referent dependence, diminishing sensibility, and loss aversion. First, referent dependence refers to exchange outcomes as gains (rewards) if they improve an actor's current outcome level (status quo) and as losses (punishments) if they worsen it. Second, diminishing sensibility represents the marginal value of gains and losses that decreases with their distance from the status quo as reference point. Third, loss aversion states that the negative subjective value of a loss is greater than the positive subjective value of an equivalent gain.

To investigate the second issue (b), this study tested Molm's (1997) assumption that the probability that partner B will initiate a coercive power strategy to influence A increases as B's reward-power disadvantage in the relationship increases, taking into account the loss aversion. Reward-power disadvantage provides the motivation to use coercion to improve one's outcomes from exchange. In contrast, partners who are advantaged on reward power have little need to use coercion to get what they want.

Furthermore, according to Molm (1997), the positive effect of reward power disadvantage on the incentive to use coercive power will constrain partner B's use of coercion against partner A unless the proportion, P , of opportunities on which A rewards B, multiplied by the coefficient for loss aversion, C , is less than $1-P$, that is $PC < (1-P)$. Below that threshold, B's use of coercive power should increase. As researchers suggested (Kahneman, Knetsch, and Thaler, 1991; Tversky and Kahneman, 1991) the coefficient for loss aversion has been set in the range of 2 to 2.5. This value indicates that the slope of the value function for losses is roughly twice the slope for gains over the same range, in contrast with most exchange theories' implicit assumption that rewards and losses carry equal weight.

Based on these studies, I tested whether partner B is unlikely to use coercion against partner A unless A's rewards power (toward B) falls below .3 (e.g. $C=2$, $P=.33$ and if $C=2.5$, $P=.29$). This analysis implies that coercion becomes probable only when a partner's reward dependence is so low and the power imbalance so high that it's difficult to sustain any pattern of mutual exchange, even a highly asymmetrical one. Traditionally, this analysis has been

tested only in experimental settings and has involved money exchanges. However, because exchange theorists assume that the domain values do not affect theoretical predictions (i.e. actors behave in similar ways to obtain the outcomes they value, whether those outcomes are money, approval, prestige or something else), what is important is not the type of outcomes (or benefits-rewards) used in the exchange but the fact that they are valued by the partners.

Finally, according to Lawler and Yoo (1996), a nonzero-sum conception of power suggests that the relative power in a dyad and the total (or average) power across actors are two distinct dimensions of structural power. By contrast, a zero-sum conception indicates an inverse relation between actors' capabilities and focuses on the differentiating, coercive and divisive effects of power. Lawler and Yoo's (1996) theory of relational cohesion has found that higher total power produced more frequent agreements and equal, compared to unequal, power produced more frequent agreements. They have also found the interaction effect of relative power and total power not to be significant, showing the effect for total power and relative power to be additive, not multiplicative. Building on their study, I labeled A's power capability in relation to B as "PAB" and B's capability in relation to A as "PBA". By definition, PAB is determined by B's dependence on A (DBA) and PBA is determined by A's dependence on B (DAB). Given each partner power's (or dependence) in the relation, relative power has been labeled as "RP" and defined as the ratio of high to low power (PAB/PBA), and the total power "TP", as the sum of A's and B's power ($PAB+PBA$).

Prediction of violence from measures of power.

Analyses of the third issue (c) - whether differences in resources can predict violence and its direction - were based on a subsample of 109 couples reporting physical violence. Once a situation of power balance or imbalance was identified, it was compared to the dependent variables reporting the presence of physical violence within the dyad to verify the prediction (VPRDCTN). Furthermore, once the disadvantaged partner has been identified, the dependent variables, indicating whether or not such partner reported being violent toward his/her partner or his/her partner reported being the victim of physical violence, were compared with his/her advantage or disadvantaged position in the relationship to verify the goodness of the direction of the prediction (DPRDCTN). Special attention was devoted to cases where both partners reported acting violently and where the prediction about the presence and/or direction of violence was inaccurate. The relational variables concerning quality of the relationship (QRLTN and ARLTN), total power (TP) and relative power (RP) were used to test for their effects in an attempt to explain and improve the prediction.

RESULTS

Violence estimates for couple data

As might be expected, rates based on couple's responses did vary significantly across different violence measures, with a rate of 94.4% (n=1836) for reports of no physical violence, and 5.6% (n=109) for reports of physical violence. When physical violence was reported (VLNC=1), the rate for no perpetration of aggression was 13.51%, 58.11% for aggression without injury and 28.38% for aggression with injury (calculated as average on partner A's and partner B's scores). The rate for victimization reports was 12.50% for no victimization, 54.16% for victimization without injury and 33.33% for victimization with injury (calculated as average on partner A's and B's scores). In 41 cases, the couple's physical arguments were not reported (VLNC=0), but physical aggression and/or victimization scores were available (31 cases without injuries, 10 cases with injuries) for at least one partner. Although the meaning of such reports is questionable, the data were used in the prediction model for violence direction and all statistical analyses on violence. To estimate reporting differences, I analyzed the items differentiating aggressors and victims separately.

Violence estimates for aggression.

In terms of reporting differences across partners for physical aggression, and with reference to their position as respondents (A) or partners (B), the

missing rate was higher for partner B (66.6%, n=72) than for partner A (1.83%, n=2). However, the response rate for the measure of no violence is significantly higher for partner A (45.87%) than for partner B (3.67 %). This difference progressively decreases for both the measure of violence without injury (39.45% and 20.18%) and the measure of violence with injury (12.84% and 10.09%) (see Table 1).

Table 1. Respondent's aggression (RPRPTR) by Partner's aggression (PPRPTR).

Frequency Percent	Miss.	No Aggress.	PARTNER A		Total
			Aggression without injury	Aggression with injury	
<hr/>					
PARTNER B					
Missing	2 1.83	0 0.00	0 0.00	0 0.00	2 1.83
No Aggression	44 40.37	0 0.00	4 3.67	2 1.83	50 45.87
Aggression without injury	22 20.18	4 3.67	14 12.84	3 2.75	43 39.45
Aggression with injury	4 3.67	0 0.00	4 3.67	6 5.50	14 12.84
<hr/>					
Total	72 66.06	4 3.67	22 20.18	11 10.09	109 100.00

Violence estimates for victimization.

For victimization, the missing rate for partner B is higher (66.06%) than for partner A (5.50%) and does not differ from the aggression responses. The response rate for the measure of no violence once again significantly differs (45.87 % and 2.75%) with a higher rate for A. Such difference decreases progressively for the measure of violence without injury (33.03% and 20.18%) and the measure of violence with injury (15.60% and 11.01%) (see Table 2).

Table 2 Respondent's Victimization (RVCTM) by Partner's Victimization (PVCTM).

Frequency Percent	PARTNER A				Total
	Miss.	No Victim. injury	Victim. without injury	Victim. with	
PARTNER B					
Missing	5 4.59	1 0.92	0 0.00	0 0.00	6 5.50
No Victimization	43 39.45	0 0.00	6 5.50	1 0.92	50 45.87
Victimization without injury	19 17.43	1 0.92	11 10.09	5 4.59	36 33.03
Victimization with injury	5 4.59	1 0.92	5 4.59	6 5.50	17 15.60
Total	72 66.06	3 2.75	22 20.18	12 11.01	109 100.00

The analysis of gender differences reported, for aggression (see Table 4) and victimization (see Table 3), across measures of violence for both partner A's and B's positions, revealed a significant difference in the case of victimization for the measures of no violence and violence with injury. Females reported to be victim of severe violence more frequently (2.11%) than males (1.78%) and reported no violence more frequently (6.51%) than males (5.72%). In the case of perpetration of aggression, significant differences were also found on all measures of violence, but in a different direction than victimization. Females, in fact, reported a higher rate of aggression with injury (2.11%) than males (1.32%), but a lower rate of aggression without injury (4.21%) than males (5.07%) and reported no aggression more frequently (8.24%) than males (6.66%). These findings confirm a gender effect in reporting of violence in the same direction as previous research (for example Szinovacz and Egley, 1995) for severe violence and underestimation of violence incidents. They also support earlier research, showing higher violence estimates for couple data. Similarly, the data collection bias identified by Szinovacz and Egley (1995) seems to find support for the measure of no violence, where the respondents reported higher rates than their partners both in aggression (8.21% versus 5.69%) and victimization (7.88% versus 4.36%). For the measure of violence (without and with injury), the respondents reported on average lower rates than their partners both in aggression (2.65% versus 3.65%) and victimization (2.61% versus 3.60%). All summary statistics for the measures of power are reported in Table 3 for physical victimization and Table 4 for physical aggression.

Table 3. Variables by Degree of Physical Victimization (Respondent-RVCTM)
and by Gender.

Variable		No Physical Victimization		Physical Victimization Without Injury		Physical Victimization with Injury	
		M	(SD)	M	(SD)	M	(SD)
HEALTH:	Females	4.06	(1.35)	4.00	(.84)	3.84	(1.81)
	Males	4.21	(1.27)	4.09	(.81)	3.6	(1.67)
HAPPINESS:	Females	1.58	(2.28)	1.60	(1.29)	3.46	(2.69)
	Males	1.00	(1.97)	1.13	(1.78)	1.6	(1.51)
EDUCATION	Females	11.5	(3.11)	14.13	(2.47)	12.30	(2.59)
	Males	12.9	(3.62)	13.2	(2.33)	12.40	(1.51)
CLASS	Females	14.10	(10.51)	21.46	(7.58)	22.07	(8.25)
	Males	17.67	(9.13)	22.09	(6.61)	14.20	(4.49)
INCOME	Females	192523.00		250754.00		186846.67	
		(164986.12)		(93784.77)		(177376.74)	
	Males	267409.75		262734.88		16003.00	
		(198870.50)		(176781.13)		(.)	
ACTIVITY	Females	6.43	(4.59)	8.26	(2.25)	7.30	(3.44)
	Males	7.37	(4.07)	8.90	(3.81)	8.60	(4.97)
SUPPORT	Females	6.17	(3.02)	7.93	(2.31)	7.15	(3.89)
	Males	5.75	(3.28)	7.31	(3.16)	5.00	(2.54)
TIME	Females	9.34	(19.3)	5.66	(.48)	5.0	(1.29)
	Males	5.43	(.98)	9.00	(19.49)	22.80	(40.93)
SEX	Females	28.08	(40.53)	9.00	(3.98)	17.38	(26.47)
	Males	16.18	(29.96)	30.50	(38.43)	29.00	(40.81)
QUALITY	Females	1.23	(19.16)	5.80	(1.08)	4.23	(1.48)
	Males	16.27	(29.22)	10.13	(19.20)	41.40	(51.22)
QRTN	Females	25.54	(6.15)	28.13	(6.42)	22.30	(7.23)
	Males	25.75	(6.23)	25.40	(5.33)	20.80	(6.57)
ARTN	Females	-.52	(6.40)	1.13	(4.38)	-.07	(6.62)
	Males	-.27	(5.73)	-.18	(3.09)	-1.4	(9.28)
Power measures :							
TP	Females	6.54	(.93)	6.86	(1.30)	6.84	(1.28)
	Males	7.1	(1.12)	6.54	(1.01)	7.60	(.54)
RP	Females	.66	(.47)	.90	(.55)	1.09	(1.27)
	Males	.94	(.67)	1.00	(1.24)	.75	(.25)
PAB	Females	2.34	(1.09)	3.00	(1.46)	2.84	(1.40)
	Males	3.08	(1.32)	2.86	(1.45)	3.20	(.83)
PBA	Females	4.19	(1.16)	3.86	(1.18)	4.00	(1.63)
	Males	4.02	(1.23)	3.68	(1.46)	4.40	(.54)

Table 4. Variables by Degree of Physical Aggression (Respondent-RPRPTR).

Variable		No Physical Aggression (0)		Physical Aggression Without Injury (1)		Physical Aggression with Injury (2)	
		M	(SD)	M	(SD)	M	(SD)
HEALTH	Females	3.83	(1.13)	4.00	(1.47)	4.55	(1.87)
	Males	4.09	(1.30)	4.04	(1.07)	4.0	(1.00)
HAPPINESS	Females	3.83	(2.43)	2.13	(2.41)	2.33	(2.59)
	Males	.09	(1.86)	1.33	(2.19)	1.6	(1.51)
EDUCATION	Females	11.16	(2.76)	13.47	(2.50)	13.66	(2.78)
	Males	12.80	(3.67)	12.90	(2.36)	12.60	(1.51)
CLASS	Females	11.72	(8.46)	13.47	(7.31)	20.80	(10.61)
	Males	17.23	(9.32)	23.47	(7.31)	23.44	(4.81)
INCOME	Females	287504.00		201115.40		186846.67	
		(17677.67)		(137537.78)		(177376.74)	
	Males	329428.70		157895.00		15503.00	
		(167849.70)		(162199.81)		(707.10)	
ACTIVITY	Females	6.29	(3.97)	7.82	(3.40)	8.55	(.83)
	Males	7.47	(3.89)	8.47	(4.68)	11.20	(4.47)
SUPPORT	Females	6.16	(3.05)	7.65	(2.85)	6.77	(3.07)
	Males	5.52	(3.15)	7.38	(3.30)	6.20	(3.70)
TIME	Females	8.60	(17.78)	5.60	(.89)	5.4	(.72)
	Males	5.28	(1.08)	9.14	(19.96)	23.80	(40.36)
SEX	Females	19.66	(38.61)	14.17	(19.92)	12.77	(10.13)
	Males	22.56	(33.59)	33.61	(42.21)	37.00	(35.58)
REL. QUALITY	Females	7.54	(12.64)	9.78	(19.50)	5.00	(1.65)
	Males	14.92	(27.64)	14.66	(27.56)	23.40	(40.60)
<i>qrln</i>	Females	24.98	(6.20)	26.39	(6.89)	25.88	(4.98)
	Males	26.09	(6.25)	23.47	(5.07)	25.80	(5.35)
<i>arln</i>	Females	-.61	(3.62)	.17	(7.91)	3.22	(9.09)
	Males	.23	(2.74)	-.38	(3.21)	-6.6	(16.19)
Power measures :							
TP	Females	6.38	(.91)	7.04	(1.14)	7.11	(1.26)
	Males	7.0	(1.12)	6.80	(1.12)	7.20	(.83)
RP	Females	.77	(.78)	.82	(.48)	.85	(.47)
	Males	.84	(.63)	1.08	(1.28)	.86	(.50)
PAB	Females	2.34	(1.23)	2.95	(1.22)	3.00	(1.22)
	Males	2.85	(1.33)	3.04	(1.46)	3.20	(1.30)
PBA	Females	4.03	(1.30)	4.08	(1.08)	4.11	(1.36)
	Males	4.19	(1.32)	3.76	(1.60)	4.00	(.70)

Dependence, risk for coercion, and power (a)

The results on the first issue (a) showed that of the 2,109 dyads examined, 13.7% (n=288) were in a situation of power balance and, therefore, at no risk for domestic violence, while 86.3% (n=1,821) were in a situation of power imbalance, and consequently at risk for domestic violence. Within the situations of power imbalance, 61.6% (n=1,299) were at low risk (a small difference between partners' resources) while 24.8% (n=522) were at high risk (a great difference between partners' resources) (see Table 5).

Table 5 . The risk and use of coercion in exchange.

Low coercion		No coercion		High coercion	
+ 3	+ 5	+ 4	+ 4	+ 0	+ 8
A <-----> B		A <-----> B		A <-----> B	
- 5	- 3	- 4	- 4	- 8	- 0

The numbers represent the number of points that actors can gain (+) or lose (-) from the exchange relation . Potential gains are shown on the upper side of the diagram, and potential losses on the lower side.

In terms of power direction, in 74.1% of the total cases, partner A had greater resources than partner B (PAB) while in 25.9% of the cases, partner B had greater resources than partner A (PBA). The coefficient of loss aversion, when introduced into the model, did not improve the accuracy of the direction of violence and was, therefore, excluded from the analysis. A possible explanation

could be the limited range of scores available to each partners (0-9).

Predictors of violence

To analyze the second issue of interest in this study (b), the predictive ability of selected independent variables, their combined effect from the four domains considered - individual, relational, sociostructural, and sociocultural - on the dependent variables and the constructed measures of power were tested and compared with previous research. However, limited results are reported as each of the independent variables in this study has exclusively been used to construct power measures for the dyad.

Relationship between reporting of violence and selected partners' characteristics.

Individual variables.

Examining whether degrees of physical aggression and victimization were related to the global health and happiness for both partners, a series of multiple regression analyses and analyses of variance were performed. For each regression the independent variables were the individual factors, health and happiness, and the dependent variable each of the four measures of physical violence (RPRPTR, PPRPTR, RVCTM and PVCTM) . While there was no significant relationship between the individual characteristics of partner A and all physical violence measures, there was a strong statistical relationship between partner's B individual characteristics and B's reporting of both aggression [PPRPTR: $F(2,134)=6.16$, $MSE=.48$, $p<.05$] and victimization [PVCTM:

$F(2, 119)=5.65$, $MSE=.49$, $p<.05$]. Furthermore, there was a strong statistical relationship between individual characteristics and physical victimization [RVCTM: $F(3, 134)=4.67$, $MSE=.47$; $p<.05$] and between partner's B individual characteristics and B's aggression [PPRPTR: $F(3, 133)=4.54$, $MSE=.48$, $p<.05$]. Research has found that physical aggression is more common among cohabiting couples compared to married couples, producing speculation that cohabitators are more likely to be socially isolated than married persons. It has also been argued that cohabitators have a demographic profile that makes them particularly prone to aggressive behavior. A study by Stets (1991) on the role of social isolation on cohabiting and marital aggression utilized the same NSFH1 variables of this study, social activity and social support, and found these social factors to intervene in the relationship between marital status and aggression. Her results showed that cohabitators are more and not less likely than married persons to be tied to informal networks such as family and friends and that gender did not significantly interact with aggression. Stets reported a correlation of .05 ($p<.01$) between social activity and inflicting aggression and a correlation of .03 ($p<.05$) between social support and aggression. Similarly, Zlotnick and others (1998) examined the level of social activity and amount of actual material and emotional support received and found no significant relationship between degree of physical victimization and the level of social activity nor social support. Although the current study did not analyze marital status differences, because of the small number of cohabiting couples available in the sample, I found a correlation of .16 between social support and aggression and a correlation of .21 between social activity and aggression. Both sociocultural measures had a correlation of

.13 with the measure of physical victimization. For these variables, only one partner's data, the primary respondent's, were available.

Sociocultural variables.

Examining whether degrees of physical aggression and victimization were related to social activity and social support for partner A (only the respondents), a series of multiple regression analyses were performed. For each regression the independent variables were the sociocultural factors social support (RSPPT) and social activity (RCTVTY), and the dependent variable each of the four measures of physical violence (RPRPTR, PPRPTR, RVCTM and PVCTM). Sociocultural variables were related to the measure of aggression by partner A (only the individual effects of the predictor variables were significant) [RPRPTR: $F(3, 151)=4.54$, $MSE=0.40$, $p<.05$].

Sociostructural variables

Examining whether degrees of physical aggression and victimization were related to income, level of education, occupation and social class for both partners, a series of multiple regression analyses and analyses of variance were performed. For each regression the independent variables were the sociostructural factors income, education, occupation, and social class (RCLSS and PCLSS) and the dependent variable each of the four measures of physical violence (RPRPTR, PPRPTR, RVCTM and PVCTM). There was a strong relationship between sociostructural variables and degrees of physical aggression and victimization for both partner A [RVCTM: $F(21, 116)=1.65$,

MSE=.46; RPRPTR: $F(21,133)=1.75$, MSE=.03; $p<.05$] and partner B [RVCTM: $F(28,109)=2.49$, MSE=.39; RPRPTR: $F(28,126)=2.04$, MSE= .36; PPRPTR: $F(28,108)=2.13$, MSE=0.43; $p< .05$] except victimization for partner B (PVCTM) and aggression for partner B (PPRPTR). Previous studies (see for example Stets, 1991) on a similar sample of NSFH, Wave1, data correlated sociostructural variables to measures of aggression and found a correlation of -.01 between education and inflicting aggression with a probability of .038. Similarly, Anderson (1997) investigated the influence of sociodemographic indicators of structural inequality on domestic violence using NSFH, Wave 1, data. His results indicated that income and educational status are differentially associated with domestic violence perpetrated by women and men and that structural characteristics influence violent behavior within families. I found, for partner A, a correlation of .19 between level of education and aggression (perpetrated by A), a correlation of .16 between level of education and partner's B victimization, and a correlation of .09 between education and partner's A victimization.

Relational variables

Examining whether degrees of physical aggression and victimization were related to relationship quality, time spent together and sexual frequency, a series of multiple regression analyses were performed. For each regression the independent variables were the constructed variables relationship quality (QRLTN) and relationship agreement (ARLTN) and the dependent variable each of the four measures of physical violence (RPRPTR, PPRPTR, RVCTM and

PVCTM). No statistical evidence was found that the relationship variables were related to the measures of physical violence.

Control variables

Past research has modeled aggression separately for men and women, showing that different gender dynamics are involved in being aggressive. This study, as did previous research on NSFH1 data (Zlotnick et al., 1997), found that gender did not interact significantly with degrees of physical victimization. Similarly, Stets (1991) found no gender differences when modeling risk factors for violence such as depression, social support and alcohol use. However, Anderson (1998) suggested that "although gender, per se, is not a significant predictor of violence in national data, risk factors for domestic violence may differ by gender " (p. 662). The current study found a strong statistical relationship between control variables and aggression [PPRPTR: $F(7, 129)=4.96$, $MSE=.044$; RPRPTR: $F(8, 146)=13.59$, $MSE=.26$; $p<.05$] and between control variables and partner's A victimization [R: $F(8, 129)=9.23$, $MSE=.35$, $p<.05$]. The summary statistics for all variables utilized in this study is reported in Table 6.

Relationship between power structures and selected partners' characteristics

Individual variables

Examining whether the five constructed measures of power (PWR, PAB, PBA, RT, TP) were related to the global health and happiness for both partners, a series of multiple regression analyses and analyses of variance were performed. For each regression the independent variables were the individual factors health and happiness, and the dependent variable each of the five measures of power. The individual characteristics of both partners were related significantly to all the four measures of power but power balance/imbalance (PWR) measure [PAB: $F(10,2098)=7.88$, $MSE=1.86$; TP: $F(10,2098)=9.69$, $MSE=1.04$; RP: $F(10,2097)=8.93$, $MSE=.78$; $p < .05$].

Sociocultural variables

Examining whether the five constructed measures of power (PWR, PAB, PBA, RT, TP) were related to social activity and social support for partner A (only the respondents), a series of multiple regression analyses were performed. For each regression the independent variables were the sociocultural factors social support (RSPPERT) and social activity (RCTVTY), and the dependent variable each of the five measures of power. Sociocultural variables were

Table 6. Variables means and standard deviations by gender.

Variable	FEMALES		MALES		FEMALES		MALES	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
	PARTNER A				PARTNER B			
Individual:								
HEALTH	4.21	(1.36)	4.20	(1.43)	4.10	(1.06)	4.12	(1.19)
HAPPINESS	1.32	(2.12)	.99	(1.99)	6.00	(1.29)	5.96	(1.34)
Sociostructural:								
EDUCATION	12.74	(5.17)	12.60	(6.09)	14.51	(13.14)	14.45	(14.20)
CLASS	15.66	(9.69)	16.40	(9.73)	17.73	(8.98)	16.91	(9.16)
INCOME	8321991.05		8078214.30		819062.61		784068.58	
	(3703327.54)		(3881046.53)		(381216.28)		(405280.46)	
n	1,044		1,065		1,044		1,065	
Sociocultural:								
SOCIAL ACTIVITY	7.55	(4.26)	7.69	(4.54)				
SOCIAL SUPPORT	6.57	(3.34)	6.07	(3.51)				
Relational:								
TIME TOGETHER	8.42	(15.84)	9.69	(18.94)	5.67	(1.11)	5.67	(1.05)
SEX. FREQUENCY	28.90	(40.54)	29.40	(40.53)	26.66	(39.58)	29.64	(40.86)
REL. QUALITY	9.96	(18.24)	11.99	(22.16)	8.80	14.73)	9.78	(17.47)
n	1,044		1,065		1,044		1,065	
Dependent:								
ARGUMENTS*	.06	(.24)	.04	(.21)				
n	956		989					
AGGRESSION	.47	(.67)	.45	(.63)	.72	(.77)	.71	(.67)
n	87		68		66		71	
VICTIMIZATION	.55	(.77)	.50	(.64)	.77	(.69)	.84	(.76)
n	74		64		59		63	
Power measures:								
TOTAL POWER	6.70	(1.04)	6.74	(1.04)				
RELATIVE POWER	.87	(.91)	.87	(.88)				
PAB	2.62	(1.38)	2.68	(1.38)				
PBA	4.08	(1.34)	4.06	(1.29)				
QRLTN	26.42	(5.94)	26.23	(5.84)				
ARLTN	.10	(6.40)	-.24	(7.62)				
n	1,044		1,065					

*This measure combined partner A's and partner B's responses on physical arguments.

significantly related to all measures of power [TP: $F(3,2105)=7.66$, $MSE=1.07$; RP: $F(3,2104)=146.0$, $MSE=0.67$; PWR: $F(3,2105)=9.95$, $MSE=.12$; $p<.05$; PAB: $F(3,2105)=201.0$, $MSE=1.49$; PBA: $F(3,2105)=158.9$, $MSE=1.42$; $p<.05$] (in all models, main effects and interactions were significant) (only the individual effects of the predictor variables were significant).

Sociostructural variables.

Examining whether the five constructed measures of power (PWR, PAB, PBA, RT, TP) were related to income, level of education, occupation and social class for both partners, a series of multiple regression analyses and analyses of variance were performed. For each regression the independent variables were the sociostructural factors income, education, occupation, and social class (RCLSS and PCLSS) and the dependent variable each of the five measures of power. There was a strong relationship between the sociostructural variables and all measures of power [PWR: $F(91,2017)=1.44$, $MSE=.11$; PBA: $F(91,2017)=7.97$, $MSE=1.33$; PAB: $F(91,2017)=10.32$, $MSE=1.37$; RP: $F(91,2016)=7.09$, $MSE=0.64$; TP: $F(91,2017)=6.18$, $MSE=.88$; $p<.05$].

Relational variables

Examining whether the five constructed measures of power (PWR, PAB, PBA, RT, TP) were related to relationship quality, time spent together and sexual frequency, a series of multiple regression analyses were performed. For each

regression the independent variables were the constructed variables relationship quality (QRLTN) and relationship agreement (ARLTN) and the dependent variable each of the five measures of power. There exists a strong relationship between the computed quality measure and B's power over A [PBA: $F(3,2105)=10.28, MSE=1.72, p<.05$], relative power [RP: $F(3,2104)=3.86, MSE=.81, p<.05$] and total power [TP: $F(3,2105)=8.9, MSE=1.07, p<.05$].

Control variables

The current study found no statistical relationship between control variables and the five measures of power. The summary statistics for all variables utilized in this study are reported in Table 6.

Prediction of violence from measures of power

Analyses of the third issue (c) - whether differences in resources can predict violence and its direction - were based on a subsample of 109 couples reporting physical violence. Once a situation of power balance or imbalance was identified, it was compared to the dependent variables reporting the presence of physical violence within the dyad to verify the prediction (VPRDCTN). Furthermore, once the disadvantaged partner has been identified, the dependent variables, indicating whether or not such partner reported being violent toward his/her partner or his/her partner reported being the victim of physical violence, were compared with his/her position of advantage or disadvantage in the relationship to verify the goodness of the direction of the prediction (DPRDCTN). Finally, the number of correct predictions was divided by the number of total

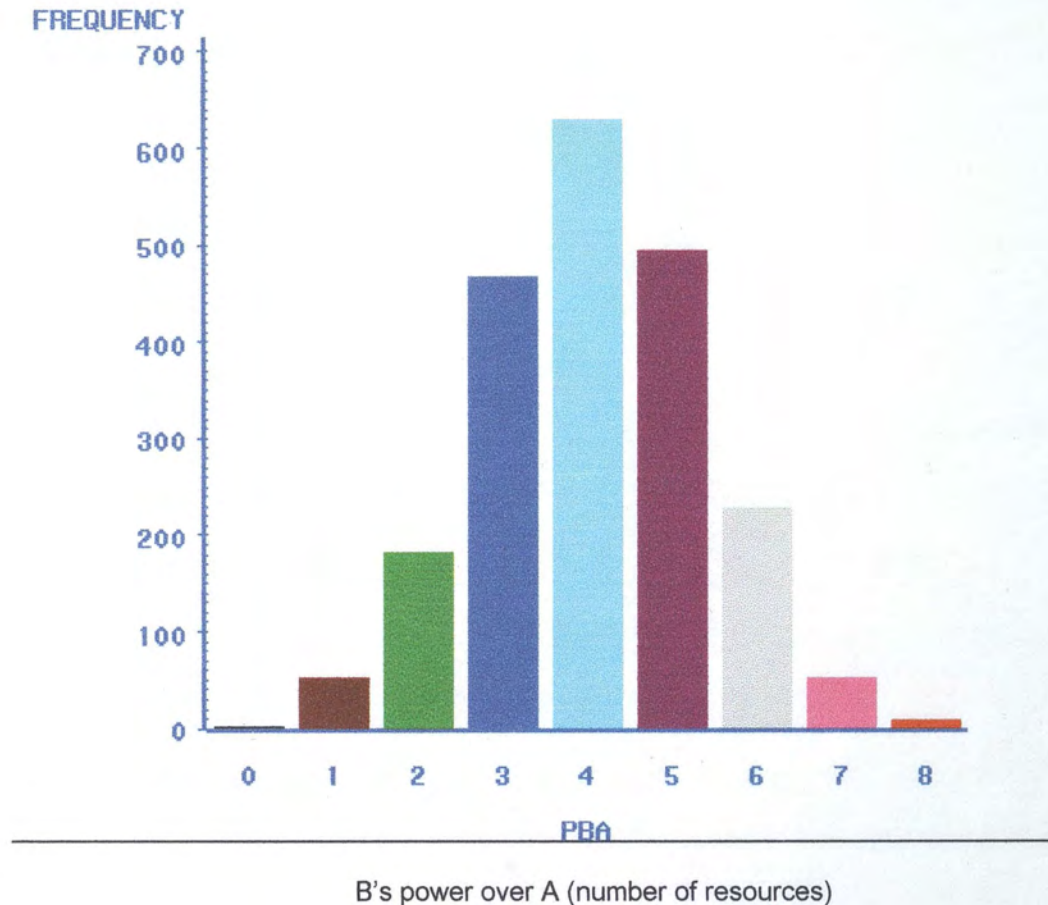
cases analyzed (n) to determine its probability. Special attention was devoted to cases where both partners reported acting violently and where the prediction about the presence and/or direction of violence was inaccurate. The relational variables concerning quality of the relationship (QRLTN and ARLTN), total power (TP) and relative power (RP) were used to test for their effects in an attempt to explain and improve the prediction.

The prediction model

The main research question of this study concerns the ability to predict the presence of violence and its direction from power differences in resources within the dyads (c). Specifically, three hypotheses were tested, about the presence of violence, its direction, i.e., partner A versus partner B, and partner B versus partner A. The percentages of cases predicted correctly was 75.3% (n=1,464) for the presence of violence. These findings support the hypothesis (H1) that coercive power is initiated within a intimate dyad more frequently when power imbalance is higher than when it is lower or there is no imbalance.

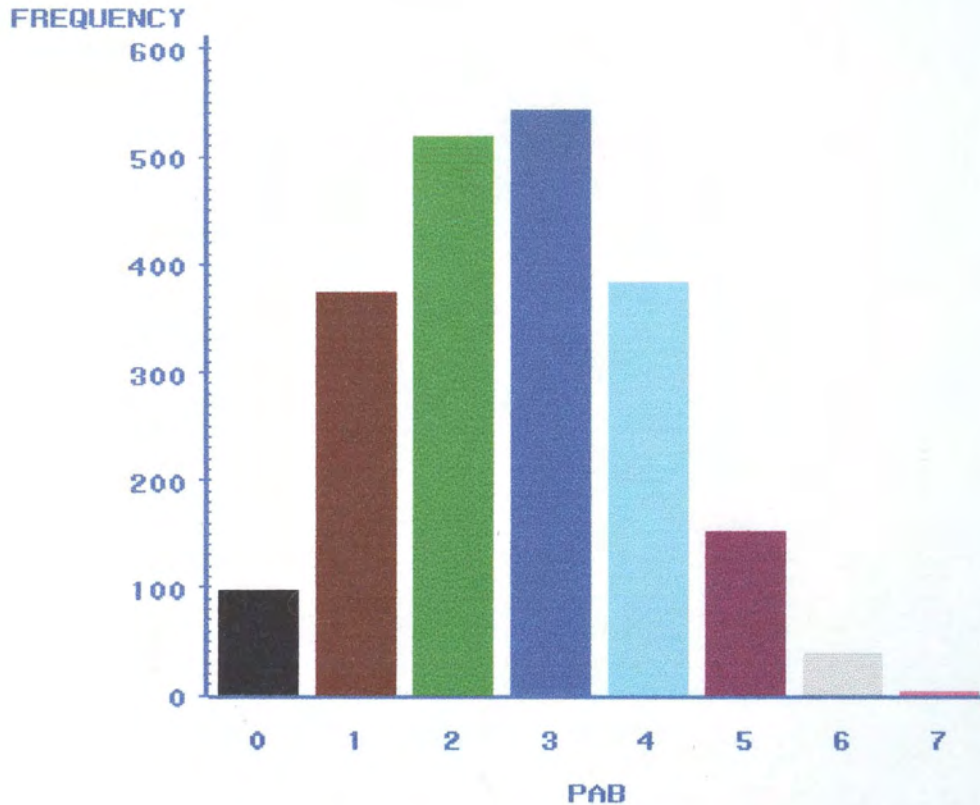
The percentage of cases predicted correctly for the direction of violence was 84.5 % (n= 87). These results support the hypotheses (H2 and H3) that each partner initiates coercive power toward the other more frequently when he/she is in a power disadvantage position within the dyad than when he/she is in a power advantage position.

Table 7. Distribution of reward power among partners B.
(PBA=Reward Power of B over A).



The distribution of the resources within the dyads, that is the partners' comparative scores on the nine independent variables, was normal for PBA (B's power over A) (see Table 7) but skewed for PAB (A's power over B's). (see Table 8).

Table 8. Distribution of reward power among partners A.
(PAB=Reward Power of A over B).



A's power over B (in number of resources)

Among the cases of inaccurate prediction for the presence of violence (n=481, 24.7%) , 16 cases (3.33%) referred to the presence of violence in a situation at no risk (power balance), while the remaining 465 cases (96.67%) referred to a lack of violence reports in a situation at high risk (high power

imbalance). An analysis of these cases revealed a relationship quality similar to the mean for the sample (26.24 versus 26.42 respectively) and a lower relationship disagreement (-.39) than the mean for the sample (-.02). When comparing inaccurate predictions and accurate predictions for means significant differences, a t-test analysis revealed no significant difference for relationship quality but a significant one for relationship disagreement [$F(1479,464)=1.80$, $p<.01$]. Moreover, a significant means difference was found for differences in resources among partners [PWRDF: $F(1479,464)=1.37$, $p<.01$], with a higher mean for the inaccurate predictions (4.70) than the accurate ones (1.55), and for total power [TP: $F(1479,464)=1.20$, $p<.05$]. Finally, while there was no difference for gender, there was a significant difference for ethnicity [RACE: $F(1479,464)=13.45$, $p<.01$].

The cases of inaccurate prediction for the direction of violence ($n=16$, 15.5 %, of the 109 cases), were distributed across the risk for violence (the difference in resources) with the higher rate (81.25%, $n=13$) at low risk and a rate of 18.75% ($n=3$) at high risk, with a similar distribution between A versus B (56.25%) and B versus A (43.75%) directions. An analysis of these cases revealed a relationship quality of 25.5, which is below the relationship quality mean for the sample (26.42) and a relationship disagreement of .06 which is higher than the mean for the sample (-0.2). When comparing inaccurate predictions and accurate predictions, a t-test analysis revealed no significant difference for both relationship quality and disagreement. There was a significant difference only for ethnicity [RACE: $F(15,86)=7.39$, $p<.01$].

These findings seem to show that relationship quality could not explain a presence and direction of violence different from the one predicted, while the disagreement on the relationship quality could offer a valid explanation for the presence of violence. However, the best explanatory factor seems to be the power difference between partners and the total power for the prediction of the direction of violence.

Differences in reporting between partners and the choice of utilizing either partner's report made in this study could also explain the inaccurate predictions. Such inaccuracy, in fact, could be attributed to reporting bias. Moreover, the percentage of respondents who reported physical violence was low and the sample for the prediction was reduced to only 109 cases. Finally, the use of different data collection methods for main respondents and their partners could have confounded the violence measures.

Although more sophisticated data analyses strategies could assess whether the model adopted in this study predicts violence better than models relying on one-partner data, and gender-based and race-based models, the findings demonstrate the importance of including characteristics of both partners in explanatory models of intimate relationships' violence. The analysis in this study focuses on both the usefulness of couple data and multiple predictors from different domains and suggests that couple data are essential to obtain more accurate estimates and to test for reporting bias effects on sensitive couple behaviors. In particular, the findings suggest that violence is used by individuals to gain power when they lack other means as proposed by Resource Theory and that integrated, gender-neutral and race-neutral models which take

into account the context of the relationship, can help in determining the motivation and power dynamics that activate physical violence. An important feature of this research is that the analytic sample included only couples with no children and no other individual sharing the same household and that the study captured individuals and relational dimensions which have not been examined in combination with measures of power before. Future studies should examine the individual influence of gender and ethnicity, as status values, on the power measures utilized in this study and on the accuracy of the prediction. Future research will also need to calculate the measures of power on a higher number of resources, that is, include a greater number of independent variables, to improve the prediction's accuracy and should investigate further the relationships between individual degrees of power differences (rather than the categories of "no", "low" and "high" risk) and the presence and direction of domestic violence. Finally, violence data from Wave 2 of NSFH could help verify the prediction model of this study on a more extensive time frame.

CONCLUSIONS

Literature on domestic violence has usually argued that offenders and victims have distinctive motives, psychological profiles, and behavioral patterns and that they can be characterized in terms of gender, age, race, social class or other background variables (Lowney and Best, 1995). This analytic focus typifies the nature of the problem with reference to the individual rather than the dyad too often depicting female blameless victims and male responsible offenders.

Intimate relationships represent the most common context in which interpersonal aggression occurs. (Leonard and Roberts, 1998). The results of this study may have implications for the understanding of the dynamic of intimate relationships and may help focus more attention on the transactional nature of such relationships. In particular, this study may highlight the importance of "multiple pathways as well as multiple risk factors in the development of family violence" (Emery and Laumann-Billings, 1998, p. 127) and the need for a focus on dyads rather than on single individuals. The dynamic of intimate relationships, in terms of power imbalance, is the main key factor in understanding the presence of violence, despite and above any "typification" or "categorization" of the individuals involved. Further research is needed with several different samples to verify the validity of the findings. Finally, the NSFH, Wave 1, interview schedule referred to violence in the context of disagreements and, therefore, failed to consider violence without a precipitating event, sexual

violence, and argumentative techniques used to intimidate and dominate in the relationship. No specific question exists in NSFH about who initiated the violence. Consequently, this study has been unable to fully explain the case of both partners acting violently, and to distinguish between coercion and retaliation.

APPENDIX A

NATIONAL SURVEY OF FAMILY AND HOUSEHOLD, WAVE 1, VARIABLES

Variable	Primary Respondent	Secondary Respondent
Individual:		
HEALTH	E207	S158
HAPPINESS	E202E	S157
DEPRESSION	E201	constructed mean
Sociostructural:		
INCOME	M549A	S194A
EDUCATION		S175
OCCUPATION	M540A/B	S189A/B
CLASS	M501+M502	S166+S167
Sociocultural:		
SOCIAL ACTIVITY	E216A1+E216A2+ E216A3+E216A4+ E216B+E216C+ E216D	constructed mean
SOCIAL SUPPORT	E215A+E215B+ E215C	constructed mean
Relational:		
TYPE	Marr./Cohab.	Marr./Cohab.
QUALITY	E701 / E606	SECTYPE S67 / C68
TIME TOGETHER	E704 / E608	S70 / S70
SEXUAL FREQ.	E705 / E609	S71 / C71
Violence:		
PERPETRATOR1*	Marr./Cohab. E709 / E613	Marr./Cohab. S75 / C75
VICTIM1	E710 / E614	S76 / C76
PERPETRATOR2*	E712 / E616	S78 / C78
VICTIM2	E711 / E615	S77 / C77
Control Variables:		
RACE	M484	S170
GENDER	M2DP01	

Note: The set of two variables PERPETRATOR/VICTIM refers to the primary respondent (1) and his/her intimate partner (2) reports.

CONSTRUCTED VARIABLES:

NSFH1 Variables	Respondent	Partner
Social support*: E215A,E215B,E215C	RSPprt	PSPprt
Social activity*: E216A1,E216A2,E216A3, E216A4,E216B,E216C, E216B	RCTVTY	PCTVTY
Social origin*: M501,M502 S166,S167	RCLSS	PCLSS
Physical arguments: E707D/E708 or E611D/E612		**VLNC (value 0,1)
Violence inflicted: without injuries: E709 or E613 S75 or C75	RPRPTR (value 0,1)	PPRPTR (value 0,1)
with injuries: E712 or E616 S78 or C78	RPRPTR (value 2)	PPRPTR (value 2)
Violence taken (?): without injuries: E710 or E614 S76 or C76	RVCTM (value 0,1)	PVCTM (value 0,1)
with injuries: E711 or E615 S77 or C77	RVCTM (value 2)	PVCTM (value 2)

*the constructed variables are obtained by summing the NSFH variables listed.

** is a couple's data

APPENDIX B

SAS SYSTEM PROGRAMS FOR VARIABLES CONSTRUCTION AND DATA MANIPULATION

/* CONSTRUCTED VARIABLES - DOMESTIC VIOLENCE*/

```
options nodate pageno=1 linesize=80 pagesize=54 nocenter;
libname assign "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\NSFH1DATA\SMPLWK02";
data assign.CNSTRC01;
set ASSIGN.SMPLWK02;
```

/* RECODING OF DEPENDENT VARIABLES FOR RESPONDENT/PARTNER */

/* 1. PERPETRATORS */

/* NO PHYSICAL VIOLENCE (0=none, 1-4=yes)*/

```
IF V45 = 0 THEN RPRPTR = 0;
IF V37 = 0 THEN RPRPTR = 0;
IF V54 = 0 THEN PPRPTR = 0;
```

/* PHYSICAL VIOLENCE */

```
IF (V45 > 0 AND V45 < 6) OR (V37 > 0 AND V37 < 6)
  THEN RPRPTR = 1;
IF V54 > 0 THEN
  IF V54 LT 6 THEN PPRPTR = 1;
```

/* PHYSICAL VIOLENCE W/ INJURIES (1=yes,2=no) */

```
IF V48 = 1 OR V40 = 1 THEN RPRPTR = 2;
IF V57 = 1 THEN PPRPTR = 2;
```

/* 2. VICTIMS */

/* NO PHYSICAL VIOLENCE (0=none,1-4=yes) */

```
IF V46 = 0 THEN RVCTM = 0;
IF V38 = 0 THEN RVCTM = 0;
IF V55 = 0 THEN PVCTM = 0;
```

/* PHYSICAL VIOLENCE */

```
IF (V46 > 0 AND V46 < 6) OR (V38 > 0 AND V38 < 6)
  THEN RVCTM = 1;
IF V55 > 0 THEN
  IF V55 LT 6 THEN PVCTM = 1;
```

/* PHYSICAL VIOLENCE W/ INJURIES (0=no,2=no) */

```
IF V47 = 1 OR V39 = 1 THEN RVCTM = 2;
IF V56 = 1 THEN PVCTM = 2;
```

RUN;

/* CONSTRUCTED VARIABLES - SOCIAL SUPPORT, SOCIAL ACTIVITY, SOCIAL CLASS*/

```
options nodate pageno=1 linesize=80 pagesize=54 nocenter;
```



```

libname assign "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\WORK\CNSTRC01";
data assign.CNSTRC02;
set assign.CNSTRC01;

```

```

/* RECODING OF INDEPENDENT VARIABLES FOR RESPONDENT/PARTNER */

```

```

/* 1. SOCIAL SUPPORT */

```

```

/* RESPONDENT */

```

```

RSPprt = 0;
IF V23 < 7 THEN RSPprt = RSPprt + V23;
IF V24 < 7 then rspprt = Rspprt + V24;
if V25 < 7 then rspprt = rspprt + V25;

```

```

/* 2. SOCIAL ACTIITY */

```

```

/* RESPONDENT */

```

```

rctvty = 0;
IF V26 < 7 THEN RCTVTY = RCTVTY + V26;
IF V27 < 7 then rctvty = Rctvty + V27;
IF V28 < 7 THEN RCTVTY = RCTVTY + V28;
IF V29 < 7 then rctvty = Rctvty + V29;
IF V30 < 7 THEN RCTVTY = RCTVTY + V30;
IF V31 < 7 then rctvty = Rctvty + V31;
IF V32 < 7 THEN RCTVTY = RCTVTY + V32;

```

```

/* 3. SOCIAL origin */

```

```

/* RESPONDENT */

```

```

rclass = 0;
pclss = 0;
IF V12 < 96 then rclass = Rclass + V12;
IF V13 < 96 then rclass = Rclass + V13;
IF V60 < 96 then pclss = pclss + V60;
if V61 < 96 then pclss = pclss + V61;

```

```

RUN;

```

```

/* CONSTRUCTED VARIABLES - POWER MEASURES */

```

```

options nodate pageno=1 linesize=80 pagesize=54 nocenter;
libname assign "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\WORK\CNSTRC02";
data assign.CNSTRC03;
set assign.CNSTRC02;

```

```

/* REFERENT DEPENDENCY - RESPONDENT'S AND PARTNER'S GAINS */

```

/* 1. GAINS FOR RESPONDENT (A) AND PARTNER (B) */

/* individual variables */

GAINP = 0;

GAINR = 0;

/* HEALTH E207/S158 */

IF V22 LT 9 THEN

IF V22 > v59 THEN GAINP = GAINP + 1;

IF V22 LT 9 THEN

IF V22 < V59 THEN GAINR = GAINR + 1;

/* HAPPINESS E202E/S157 */

IF V21 LT 9 THEN

IF V21 > V58 then GAINP = GAINP + 1;

IF V21 LT 9 THEN

IF V21 < V58 THEN GAINR = GAINR + 1;

/* sociocultural variables */

IF RSPprt > 7.7 THEN GAINP = GAINP + 1;

IF RSPprt < 7.7 THEN GAINR = GAINR + 1;

IF RCTVTY > 6.47 THEN GAINP = GAINP + 1;

IF RCTVTY < 6.47 THEN GAINR = GAINR + 1;

/* sociostructural variables */

/* INCOME M549A/S194A */

IF V17 LT 999996 THEN

IF V17 > v65 then gainp = GAINP + 1;

IF V17 LT 999996 THEN

IF V17 < v65 then gainR = GAINR + 1;

/* EDUCATION EDUCAT/S175 */

IF EDUCAT > V62 THEN GAINP = GAINP + 1;

IF EDUCAT < V62 THEN GAINR = GAINR + 1;

/* OCCUPATION M540A/B - S189A/B */

/* the lowest the code, the higher the social status */

/* (e.g. 004=chief executives, 875=garbage collectors)*/

IF V14 LT 999 OR V15 LT 999

THEN RCCPTN = V14 + V15;

IF V63 LT 9999 OR V64 LT 9999

THEN PCCPTN = V63 + V64;


```

IF RCCPTN < PCCPTN THEN GAINP = GAINP + 1;
IF RCCPTN > PCCPTN THEN GAINR = GAINR + 1;

IF RCLSS > PCLSS then GAINP = GAINP + 1;
IF RCLSS < PCLSS then GAINR = GAINR + 1;

/* REL. QUALITY E701/S67 AND E606/C68 */

IF V42 > V51 OR V34 > V67 then GAINP = GAINP + 1;
IF V42 < V51 OR V34 < V67 then GAINR = GAINR + 1;

RUN;

/* CONSTRUCTED VARIABLES - POWER MEASURES */

options nodate pageno=1 linesize=80 pagesize=54 nocenter;
libname assign "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\WORK\CNSTRC03";
data ASSIGN.CNSTRC04;
set assign.CNSTRC03;

/* REFERENT DEPENDENCY - RELATIVE POWER */

/* P'S DEPENDENCE ON R'S (B DEPENDENCE ON A) */

DBA = GAINP;

/* R'S DEPENDENCE ON P'S (A DEPENDENCE ON B) */

DAB = GAINR;

/* R'S POWER CAPABILITY IN RELATION TO P (A TO B) */

PAB = DBA;

/* P'S POWER CAPABILITY IN RELATION TO R (B TO A) */

PBA = DAB;

/* RELATIVE POWER */

IF PBA > 0 THEN
RP = PAB / PBA;

/* TOTAL POWER */

TP = PAB + PBA;

```

```

/* MEASURE OF RELATIONSHIP'S QUALITY COMPUTED ADDING ALL THREE */
/* RELATIONAL VARIABLE: QUALITY, TIME TOGETHER, SEX FREQUENCY */
/* FOR BOTH PARTNERS (A COUPLE'S MEASURE) */
/* (higher scores = better relationship) */

```

```

/* E701+S67 OR E606+C68
*/

```

```

QRLTN = 0;
ARLTN = 0;
IF V42 LT 9 THEN QRLTN = QRLTN + V42;
IF V51 LT 9 THEN QRLTN = QRLTN + V51;
IF V34 LT 9 THEN QRLTN = QRLTN + V34;
IF V67 LT 9 THEN QRLTN = QRLTN + V67;

```

```

/* E704+S70 OR E608+S70
*/

```

```

IF V43 LT 9 THEN QRLTN = QRLTN + V43;
IF V52 LT 9 THEN QRLTN = QRLTN + V52;
IF V35 LT 9 THEN QRLTN = QRLTN + V35;

```

```

/* E705+S71 OR E609+C71
*/

```

```

IF V44 LT 9 THEN QRLTN = QRLTN + V44;
IF V36 LT 9 THEN QRLTN = QRLTN + V36;
IF V53 LT 9 THEN QRLTN = QRLTN + V53;

```

```

/* MEASURE OF DYAD'S AGREEMENT ON RELATIONSHIP'S QUALITY */
/* COMPUTED AS THE ADDED DIFFERENCE BETWEEN RESPONDENTS AND */
/* PARTNERS RELATIONAL VARIABLES */
/* (higher scores = higher disagreement) */

```

```

IF (V42 < 96 ) AND (V51 < 96) THEN ARLTN = ARLTN + (V42-V51);
IF (V34 < 96 ) AND (V67 < 96) THEN ARLTN = ARLTN + (V34-V67);

```

```

IF (V43 < 96 ) AND (V52 < 96 ) THEN ARLTN = ARLTN + (V43-V52);
IF (V35 < 96 ) AND (V52 < 96 ) THEN ARLTN = ARLTN + (V35-V53);

```

```

IF (V44 < 96 ) AND (V53 < 96 ) THEN ARLTN = ARLTN + (V44-V53);
IF (V36 < 96 ) AND (V53 < 96 ) THEN ARLTN = ARLTN + (V36-V53);

```

```

RUN;

```

```

/* CONSTRUCTED VARIABLES - HYPOTHESIS TESTING
*/

```

```

options nodate pageno=1 linesize=80 pagesize=54 nocenter;
LIBNAME ASSIGN "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\WORK\CNSTRCV4";
data ASSIGN.CNSTRCV5;
set assign.CNSTRCV4;

```


/*1. HYPOTHESIS TESTING

*/

/* DETERMINATION OF POWER BALANCE(PWR=0) AND IMBALANCE (PWR=1) */
/* WITHIN THE DYAD */

PWRDF = ABS(PAB-PBA);

/* NO RISK

*/

IF PAB EQ PBA THEN PWR = 0;

/* LOW RISK

*/

IF PWRDF NE 0 THEN

IF PWRDF LT 4 THEN PWR = 1;

/* HIGH RISK

*/

IF PWRDF GE 4 THEN PWR = 2;

/* DETERMINATION OF THE DIRECTION OF THE POWER IMBALANCE

*/

/* WITHIN THE DYAD (RESPONDENT-PARTNER OR A-B)

*/

IF PAB > PBA THEN PWRDR = "BA";

IF PAB < PBA THEN PWRDR = "AB";

/* 2. VERIFICATION OF VIOLENCE'S PREDICTION (1=right,0=wrong)

*/

/* POWER BALANCE -----> no violence

*/

IF PWR = 0 AND VLNC = 0

THEN VPRDCTN = 1;

/* POWER IMBALANCE -----> violence

*/

IF PWR = 1 AND VLNC = 1

THEN VPRDCTN=1;

IF PWR = 2 AND VLNC = 1

THEN VPRDCTN=1;

/* POWER BALANCE W/ violence AND POWER IMBALANCE W/ no violence */

IF PWR = 0 AND VLNC = 1

THEN VPRDCTN=0;

IF PWR = 1 AND VLNC = 0

```

THEN VPRDCTN=1;

IF PWR = 2 AND VLNC = 0
  THEN VPRDCTN=0;

RUN;
QUIT;

```

```

/* CONSTRUCTED VARIABLES - HYPOTHESIS TESTING

```

```

*/

```

```

options nodate pageno=1 linesize=80 pagesize=54 nocenter;
LIBNAME ASSIGN "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\WORK\CNSTRCV5";
data ASSIGN.CNSTRV5A;
set assign.CNSTRCV5;

```

```

/* 3. VERIFICATION OF VIOLENCE'S DIRECTION (1=right,0=wrong) */
/* predicted coercion B --> A is correct if B perpetrator or A victim */

```

```

IF (PWRDR = "AB" AND RPRPTR > 0)
  THEN DPRDCTN = 1;

```

```

IF PWRDR = "AB" AND PVCTM > 0
  THEN DPRDCTN = 1;

```

```

/* predicted coercion A --> B is correct if A perpetrator or B victim */

```

```

IF PWRDR = "BA" AND PPRPTR > 0
  THEN DPRDCTN = 1;

```

```

IF PWRDR = "BA" AND RVCTM > 0
  THEN DPRDCTN = 1;

```

```

/* PREDICTED COERCION INACCURATE */

```

```

IF PWRDR = "AB" AND PPRPTR > 0
  THEN IF DPRDCTN NE 1
    THEN DPRDCTN = 0;

```

```

IF PWRDR = "AB" AND RVCTM > 0
  THEN IF DPRDCTN NE 1
    THEN DPRDCTN = 0;

```

```

IF PWRDR = "BA" AND RPRPTR > 0

```



```

    THEN IF DPRDCTN NE 1
    THEN DPRDCTN = 0;

    IF PWRDR = "BA" AND PVCTM > 0
    THEN IF DPRDCTN NE 1
    THEN DPRDCTN = 0;

    RUN;
    QUIT;

/* CONSTRUCTED VARIABLES - HYPOTHESIS TESTING */

options nodate pageno=1 linesize=80 pagesize=54 nocenter;
LIBNAME ASSIGN "C:\SAS\NSFH1DATA";
filename indat "C:\SAS\WORK\CNSTRC03";
data ASSIGN.CNSTRC06;
set assign.CNSTRC05;

/* COEFFICIENT OF LOSS AVERSION */

/* Proportion of opportunities on which A rewards B */

    POA = GAINP / TP;

/* Proportion of opportunities on which B rewards A */

    POB = GAINR / TP;

/* Probability of use of coercion calculated including the
/* coefficient for loss aversion */

    COERCION = "NO";
    IF POA < .3
    THEN COERCION = "AB";

    IF POB < .3
    THEN COERCION = "BA";

/* predicted VIOLENCE correct (1), wrong (0) */

    IF COERCION = "NO" AND (RPRPTR = 0 AND PPRPTR = 0 AND RVCTM = 0 AND PVCTM =
0)
    THEN VPRDCTN1 = 1;

    IF COERCION = "NO" AND (RPRPTR > 0 OR PPRPTR > 0 OR RVCTM > 0 OR PVCTM > 0)

```

```

    THEN VPRDCTN1 = 0;

/* predicted coercion A --> B is correct if A perpetrator or B victim */

IF COERCION = "BA" AND RPRPTR > 0
    THEN DPRDCTN1 = 1;

IF COERCION = "BA" AND PVCTM > 0
    THEN DPRDCTN1 = 1;

/* bilateral violence A-B and B-A

if COERCION = "AB" AND RPRPTR > 0
    THEN DPRDCTN1 = 0;

if COERCION = "AB" AND PVCTM > 0
    THEN DPRDCTN1 = 0;

IF COERCION = "BA" AND PPRPTR > 0
    THEN DPRDCTN1 = 0;

IF COERCION = "BA" AND RVCTM > 0
    THEN DPRDCTN1 = 0;

RUN;
QUIT;

```


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