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Reciprocal Pathways Between Intimate Partner Violence and Sleep in Men and Women

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Abstract

Toward explicating associations and directionality of effects between relationship processes and a fundamental facet of health, we examined cross-sectional and longitudinal associations between the perpetration of intimate partner violence (IPV) and men and women's sleep. During two assessments, a diverse community sample of couples reported on their perpetrated acts of psychological and physical IPV and their sleep quality. Cross-sectional associations between IPV and sleep were evident for both partners, in particular between psychological IPV and sleep. A dyadic path analysis controlling for the autoregressive effects and within-time correlations revealed longitudinal links between men's perpetration of IPV and their sleep quality. Even though high levels of stability in all IPV and sleep measures were observed over time, results indicated that sleep problems predicted increases in the perpetration of psychological IPV over time for both men and women. Cross-partner effects emerged for men, revealing that men's sleep problems were strongly affected by their partner's earlier perpetration of IPV and sleep difficulties. Findings illustrate the significance of contemporaneous, dyadic assessments of relationship processes and sleep for a better understanding of both facets of adaptation, and have implications for those wishing to understand the etiology and consequences of the perpetration of IPV for both men and women.

Keywords

sleep; intimate partner violence perpetration; dyadic analyses

Sleep problems are highly prevalent in the U.S. adult population, with rates ranging from 30% to 40% (Hossain & Shapiro, 2002; Roth, 2007). Given the deleterious effects of sleep disturbances on a wide range of mental and physical health problems (Dew et al., 2003), identification of variables that may function as risk factors for poor sleep is warranted. There has been a growing recognition of the importance of environmental variables (Krueger & Friedman, 2009), including interpersonal dynamics (Troxel, Robles, Hall, & Buysse, 2007), for the quality and amount of a fundamental biological process, namely, sleep. Similarly, it is pivotal to examine not only predictors of poor sleep quality but also sequelae of such problems on various facets of family functioning (El-Sheikh, 2011). Examining reciprocal associations between relationship and biological processes is thus critical for a better understanding of individuals' well-being. We examined cross-sectional, as well as longitudinal and bi-directional, relations between couples' sleep problems in relation to their perpetration of both psychological and physical intimate partner violence (IPV). Given the high prevalence of IPV and its negative consequences on families (Vickerman & Margolin,

2008), identifying sleep as a potential antecedent of these behaviors could be important for the prevention of IPV, as it is more readily amenable to intervention than previously identified antecedents (e.g., socioeconomic deprivation; Magdol, Moffitt, Caspi, & Silva, 1998). Similarly, examining how individuals' interpersonal behaviors affect not only their own but also their partner's sleep is essential for understanding how the social environment impacts such an important facet of biological regulation.

A growing literature suggests that even partial sleep deprivation can have significant ramifications for an individual's mood (Dinges, Rogers, & Baynard, 2005; Galambos, Dalton, & Maggs, 2009), with sleep-deprived individuals reporting mood ratings over 3 standard deviations worse than those of non-sleep-deprived individuals (Pilcher & Huffcutt, 1996). Yoo, Gujar, Hu, Jolesz, and Walker (2007) found sleep deprivation may produce greater variability in mood due to its effects on the amygdala, with the effects most pronounced in response to negative stimuli. Sleep deprivation also appeared to impair functional connectivity between the amygdala and the medial prefrontal cortex, a region implicated as having strong inhibitory signals to the amygdala (Walker & van der Helm, 2009). Thus, not only do sleep problems negatively impact how an individual feels, they may shape the way he or she interacts with others through their effects on emotion regulation and impulsivity (El-Sheikh & Bagley, in press; Ireland & Culpin, 2006). For example, Clinkinbeard, Simi, Evans, and Anderson (2011) found adolescents who slept 5 or fewer hours reported more violent behavior than those who slept 8 to 10 hours. The authors suggested sleep loss might diminish a person's ability to cope with stress, leading them to respond to aversive stimuli in an aggressive manner. Similarly, Killgore and colleagues (2008) found sleep deprivation produced significant declines in adults' ability to relate well to others.

Whether sleep disturbances might affect an individual's likelihood to engage in IPV, however, remains unknown. Of the few studies examining the effects of sleep on intimate relationships, there is cross-sectional evidence that for those individuals who are less satisfied with their relationship, sleep problems are evident (Troxel et al., 2007), but it is difficult to ascertain whether marital unhappiness was in fact a result or a cause of the sleep problems. Preliminary longitudinal support for the importance of sleep for relationships comes from Hasler and Troxel's (2010) study of 29 couples. The authors found men's poorer sleep predicted the likelihood of having a negative interaction with their wives on the following day, but women's sleep was unrelated to their later interpersonal functioning. The authors suggested that women might have greater interpersonal skills than men, which makes their interpersonally relevant processes less susceptible to the effects of sleep disruption or loss than men's. Taken together, these studies suggest that sleep problems may have both short- and long-term consequences for how couples treat each other. The literature on adolescent sleep deprivation and aggression certainly suggests that this treatment may take the form of psychological, and potentially even physical, IPV, as psychological IPV has been found to precipitate couples' physical IPV (O'Leary & Slep, 2006). The high prevalence of IPV, coupled with the negative health ramifications of being the recipient of this IPV, underscore the importance of determining whether sleep has a role in the potential etiology of both psychological and physical IPV for men and women.

As to the effects of IPV on sleep, there is cross-sectional support, mostly from studying women in domestic violence shelters, that past relationships characterized by severe physical violence disrupt women's sleep (Humphreys & Lee, 2005; Rasmussen, 2007). However, empirical assessments of the effects of more normative and prevalent forms of IPV on the sleep of both men and women are scarce. To our knowledge, there has only been one published study of links between partner psychological abuse and sleep, which is based on the same sample used in the present investigation (Rauer, Kelly, Buckhalt, & El-Sheikh,

2010). Growth curve analyses indicated receiving higher initial levels of psychological abuse, and increases in that abuse over time, predicted greater sleep problems later for both men and women. As to the perpetration of IPV, hyperarousal in men (high resting heart rate and increased reactivity from baseline conditions) is associated with perpetration of IPV (e.g., pushing, slapping; Babcock, Green, Webb, & Yerington, 2005). Similarly, hyperarousal in men suffering from posttraumatic stress disorder is linked with IPV (Savarese, Suvak, King, & King, 2001). This physiological hyperreactivity may result in increased stress and discomfort that can last for extended durations (Margolin, Gordis, Oliver, & Raine, 1995), and stress has detrimental effects on sleep (Hicks & Garcia, 1987). Thus, given that downregulation and low levels of arousal are important for both initiating and maintaining high quality sleep (Dahl & Lewin, 2002), it is likely that individuals who perpetrate IPV against their partners will exhibit sleep problems.

Explication not only of the effects of relationship dynamics on sleep but also of sleep on relationship dynamics is thus of significance. Accordingly, we build on and extend the literature through examining reciprocal links between the perpetration of both physical and psychological IPV and sleep problems; this is the first such examination in the extant literature. Specifically, we assessed reciprocal pathways to determine the direction of associations between sleep problems and IPV over 1 year, using a path analysis that estimated both the autoregressive effects and within-time correlations. To account for the linked nature of intimate partners, as well as findings that individuals are more likely to aggress against their partners if they themselves are the victims of IPV (Leonard & Senchak, 1996), we examined partners simultaneously using the Actor-Partner Interdependence Model (APIM; Kashy & Kenny, 2000). We hypothesized that IPV perpetrated by both the person and his or her partner would be associated with increased sleep problems over time. Further, because sleep problems can impact emotion regulation and exacerbate irritability and aggression (e.g., Clinkinbeard et al., 2011), we expected that an individual's own sleep problems at Time 1 (T1) would be associated with increases in their perpetration of both psychological and physical IPV against their partner 1 year later.

Method

Participants and Procedures

Data in this paper are drawn from a larger study and only relevant procedures are discussed. Two hundred and fifteen couples from a semirural community in the southeastern United States participated at T1. Eligibility criteria included couples living together for at least two years and having at least one school-aged child in the second or third grade. Families were recruited from school systems; 37% of those contacted participated. Women's and men's mean ages were 33.40 years ($SD = 6.02$) and 36.38 years ($SD = 6.62$), respectively. The average cohabiting period was 10 years ($SD = 6.65$). Most couples were married (88%) or had been cohabiting for a long time ($M = 9.99$ years, $SD = 5.67$); 23% of women and 22% of men were remarried. Consistent with community representation, 64% were European American and 36% were African American. Families represented a wide range of economic backgrounds (median income \$35,000 to \$50,000) and SES backgrounds, based on Hollingshead's (1975) criteria: Level 1 or 2 (unskilled or semiskilled laborers; 25%), Level 3 (skilled labor; 34%), and Level 4 or 5 (professional; 41%).

At T2, 183 of couples participated (85% retention), with an average of 11.34 months ($SD = 1.62$) between waves. The rate of retention is good, given the diversity in ethnicity and SES in the sample (Farrington, Gallagher, Morley, St. Ledger, & West, 1990). Compared with the retained sample, couples lost to attrition had men who perpetrated more psychological IPV, $t(161) = -1.54$, $p < .05$, and reported greater depression at T1, $t(221) = -1.99$, $p < .05$. Women from the retained sample had greater sleep problems at T1 than those from the

dropped sample, $t(205) = 2.17, p < .05$. There was no difference between couples in the retained and dropped sample on any of the other control variables (i.e., race, age, income).

Participating couples visited our laboratory during both waves of data collection. Men and women completed questionnaires in separate rooms (identical at T1 and T2) to enhance privacy and valid reporting, and were compensated independently for their participation.

Measures

Intimate partner violence (IPV)—At T1 and T2, couples completed the 8-item Psychological/Verbal Aggression subscale and the 12-item Physical Aggression subscale of the Revised Conflict Tactics Scale (CTS2; Straus, 1995). Men and women rated the frequency of various aggressive tactics used against their partners within the last year. Likert response choices included (0) never happened, (1) 1 time, (2) 2 times, (3) 3–5 times, (4) 6–10 times, (5) 11–20 times, and (6) more than 20 times in the past year. Items were summed for each scale. Coefficient α s ranged from .80 to .83 for psychological IPV and from .91 to .93 for physical IPV. A wide range of IPV was observed: 79% of men and 93% of women reported perpetrating at least one act of psychological IPV during at least one study wave. Rates of physical IPV were lower: 16% of men and 31% of women reported at least one act of physical IPV.

Sleep—At T1 and T2, participants reported on sleep problems experienced within the past month via the 19-item Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). The PSQI has demonstrated very good psychometric properties for the assessment of sleep problems within the normative range (Buysse et al., 1989). The overall global sleep composite (range 0 to 21) was calculated based on various indicators of sleep, such as quality, latency, duration, disturbances, and habitual sleep efficiency; a higher score reflects poorer sleep quality. Alphas ranged from .80 to .86. A global scale score greater than 5 is suggestive of significant sleep problems (Buysse et al., 1989). Reflective of the wide range of sleep quality in the sample, 50% of men and 53% of women exhibited significant sleep problems at T1; at T2, 57% of men and 53% of women had significant sleep problems.

Controls—For a conservative examination of our research questions, we controlled for variables known to influence IPV and/or sleep: participant's race (Troxel, Buysse, Hall, & Matthews, 2009), age (Morin & Gramling, 1989), income (Krueger & Friedman, 2009), and depression (Campbell, 2002). For depression, partners reported their symptoms over the preceding 2 weeks using the 13-item subscale of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1983); $\alpha = .80$ to .93. Unconditional growth models revealed no change over time in depressive symptoms, and thus an average score across study waves was used in analyses.

Results

Means, standard deviations, and intercorrelations among study variables are presented in Table 1. Only two significant gender differences emerged and were both observed at T1: in comparison with men, women reported that they perpetrated psychological and physical IPV against their partners more often than did men, $t(150) = 4.58, p < .01$, and $t(150) = 2.01, p < .05$, respectively. No such differences were found at T2. As shown in Table 1, perpetration of IPV, in particular psychological IPV, and sleep were correlated concurrently and over time for both men and women, and these measures were often correlated between partners.

To determine the reciprocal effects of partners' perpetration of IPV and their sleep, we estimated the autoregressive effects and within-time correlations between IPV and sleep

using the APIM (Kashy & Kenny, 2000) in Mplus Version 5.0, which allows for the inclusion of participants with missing data by using full information maximum likelihood (FIML) estimation (Muthén & Muthén, 2007). The model examining the reciprocal pathways between partners' perpetration of IPV and sleep demonstrated good fit, $\chi^2(48) = 108.37, p < .05$; CFI = .95; RMSEA = .07; SRMR = .06 (see Figure 1). Looking at the within-person correlations (not depicted in the figure), psychological IPV and physical IPV remained significantly correlated at T1 and T2 for both partners, even after controlling for all other model variables (for men: $r = .61, p < .01$, at T1, $r = .36, p < .01$, at T2; for women: $r = .64, p < .01$, at T1, and $r = .63, p < .01$, at T2). We found more consistent evidence when looking at cross-partner correlations. Partners' perpetration of psychological IPV was concurrently linked at both T1 and T2, $r = .30, p < .01, r = .37, p < .01$, respectively. Similarly, partners' perpetration of physical IPV was also concurrently linked at T1, $r = .41, p < .01$. Further, men's physical IPV was significantly concurrently correlated with women's psychological IPV at T1, $r = .22, p < .01$. Finally, men's psychological IPV was linked concurrently with greater sleep problems for women at T2, $r = .20, p < .01$.

Turning next to the within-person effects, analyses revealed substantial stability in both the perpetration of IPV and sleep over time for both men and women (see Figure 1). Controlling for autoregressive effects, consistent evidence for a longitudinal association between sleep and IPV emerged, whereby both men and women who reported more sleep difficulties at T1 were more likely to report engaging in increasing levels of psychological IPV over time. We also found men who engaged in more physical IPV at T1 were more likely to engage in psychological IPV at T2. Despite preliminary correlations analyses revealing similar longitudinal links for women, as well as longitudinal links between men's physical IPV and their sleep (see Table 1), we did not find these paths to be significant in the full model, once the controls were taken into account.

Several longitudinal partner effects emerged (see Figure 1), underscoring the interdependence of partner's experiences. One's partner perpetrating physical IPV at T1 was associated with increases in one's own perpetration of physical IPV a year later for both men and women. Though this was the extent to which we saw effects of men's earlier experiences on women's later IPV and sleep, women's earlier experiences were related to men's later IPV and sleep problems. Men whose partners experienced greater sleep problems at T1 reported increases in their own sleep problems at T2. Finally, men reported a decline in their sleep problems at T2 if their partners reported more psychological IPV at T1.

Discussion

Toward explicating relations between sleep and relationship processes, we examined cross-sectional and longitudinal relations between IPV and sleep problems in men and women. Strong evidence was found for cross-sectional links between one of the two facets of IPV examined (psychological) and sleep problems in men and women during both waves. Even though high levels of stability in all IPV and sleep measures were observed, sleep problems predicted increases in the perpetration of psychological IPV over time for both men and women. A slightly different pattern of cross-partner effects emerged, one revealing that men's sleep problems were strongly affected by their partner's earlier relationship behaviors and sleep difficulties. Finally, consistent with previous work (Leonard & Senchak, 1996), higher levels of perpetration by one's partner at Time 1 was related to increase in one's own perpetration a year later, highlighting the potential for escalation of IPV in couples. These findings build on the scant but growing literature emphasizing the interdependence of sleep and relational processes both between and within partners (Hasler & Troxel, 2010), and highlight the importance of considering sleep when examining the antecedents of intimate relationship processes.

Findings support recent models suggesting reciprocal links between sleep and relationship processes (Troxel, 2010; Troxel et al., 2007) and have important implications for both theory and practice. As expected, we found evidence linking men and women's sleep disturbances to increases in their perpetration of psychological IPV over time. Wilcox and King (1999) found that increased sleep disturbances in female caregivers were associated with experiencing greater anger. Given the links between anger and the perpetration of psychological IPV (Eckhardt, Barbour, & Stuart, 1997), it may be that individuals' disrupted sleep affects their emotion regulation (Dinges et al., 2005; Galambos et al., 2009), in particular, their expressions of anger directed toward their partner. Because some of the studies on the links between sleep and aggression focused on high-risk individuals who are more likely to engage in violence (e.g., incarcerated males; Ireland & Culpin, 2006), it may also be that in community samples, psychological IPV is more likely to be expressed in the context of sleep disruptions than physical IPV. This is especially concerning in light of recent work suggesting that psychological IPV may be just as damaging, if not more, to the victim's mental health than physical violence in community samples (Lawrence, Yoon, Langer, & Ro, 2009).

Contrary to our hypotheses, we did not find evidence of a bidirectional relationship between sleep and IPV for men or women. Though we found evidence linking sleep problems to later partner IPV, we did not find links between one's own acts of IPV and increases in sleep problems over time. However, we did find women's perpetration of psychological IPV was linked to men's later sleep problems. Men whose wives reported engaging in more psychological IPV toward them showed decreases in their sleep problems a year later. Somewhat counterintuitive, in light of previous work linking the receipt of psychological IPV and sleep problems in men (Rauer et al., 2010), it is not clear why this link emerged. A tentative explanation may involve men's tendency to turn to alcohol to cope with stress (Aneshensel, Rutter, & Lachenbruch, 1991), which has been thought to mitigate the hyperarousal-IPV link, if frequently consumed, albeit in low quantities (Savarese et al., 2001). Of course, this explanation is speculative pending further examination of alcohol and hyperreactivity in the context of sleep and IPV.

It is interesting that men appeared to be more sensitive to their partner's behaviors and sleep than women, which is in contrast to theories suggesting women are more attuned to their partners (Helgeson, 1994). Suggesting the assumption of differential sensitivity of men and women to relationships may not be well founded (Umberson, Chen, House, Hopkins, & Slaten, 1996) was that women's sleep difficulties at T2 were not predicted by either their own or their partner's acts of IPV at T1. Of course, sleep is influenced by many variables, and one pertinent avenue for research may relate to the sleep environment itself. For example, the cosleeping that characterizes most couples' sleep environments may come at a cost, as many individuals, women in particular, report that their partners' sleep problems adversely affect not only their own sleep but also their relationships (Hasler & Troxel, 2010; National Sleep Foundation, 2005). Consideration of the interdependence of couples' behaviors and sleep may illuminate how partners affect each other during the day and the night. Further, it may be harder to detect direct partner effects for women, as the links between IPV and their sleep have been found to be moderated by other risk factors (e.g., anxiety), whereas the links are more uniform for men (Rauer et al., 2010).

With respect to practice, these findings are promising for those who wish to intervene with couples at risk of engaging in IPV. Of the risk factors identified to date for the perpetration of IPV, many are far more intractable and therefore less amenable to prevention and treatment than are sleep problems (e.g., history of family violence, socioeconomic deprivation; Leonard & Senchak, 1996; Magdol et al., 1998). Beyond the many successful advances in the treatment of sleep problems (Schmidt-Nowara et al., 1995), recent evidence

suggests educational programs can be quite effective in improving the quality of individuals' sleep. In a double-blind experimental study, Brown, Buboltz, and Soper (2006) found that students who listened to a 30-min presentation, complete with handouts, on topics such as sleep hygiene and the effects of caffeine showed significant improvement in their sleep. Including such psychoeducational materials on sleep in premarital education and therapy settings could be a relatively cost- and time-effective but potentially impactful step toward reducing incidents of IPV. Further, sleep loss may act as an amplifier of other risk factors for the perpetration of IPV (e.g., hostility, impulsivity; Ireland & Culpin, 2006; Leonard & Senchak, 1996), through its critical role in the affective modulation of brain functioning (Walker & van der Helm, 2009; Yoo et al., 2007). Therefore, future investigation into the role of sleep problems in the etiology of IPV and the potential of sleep education programs for promoting the functioning and connectivity between the neural bases of these behaviors is clearly warranted.

Several limitations should be considered when interpreting these findings. Our reliance on a subjective sleep measure, albeit a well-established one (Buysse et al., 1989), limits our ability to examine how relationship processes may be linked to more objective sleep indices. Further, though our longitudinal assessment constitutes an advance in this field, examinations of sleep and relationship processes over a narrower time frame and with more assessments (e.g., diary or ecological momentary assessment methods) may better explicate the nature of associations among variables. Even though both IPV and sleep patterns showed stability over time, the disparate time frames of our measures is a limitation. Finally, an important question not addressed in this study relates to mechanisms that might explain links between sleep and relationship processes. Clarification of vulnerability and protective factors in the connection between these processes is warranted to shed light on individual differences and contextual conditions that could exacerbate or protect against risk for either sleep problems or IPV.

Despite these limitations, this study makes an important advance in clarifying links between the perpetration of IPV and the sleep of men and women. It is the first demonstration in the literature of both links between perpetration of IPV and sleep problems and directionality of effects between the two important facets of individuals' well-being. Findings illustrate that sleep problems may precede psychological IPV for both men and women, and for men, sleep problems are themselves predicted by their partner's earlier acts of psychological IPV. These findings highlight the importance of adequate sleep for interpersonal processes and have clear implications for those wishing to understand the etiology and consequences of the perpetration of IPV. The importance of this line of inquiry is augmented by an Institute of Medicine Report that identified insufficient sleep as a serious public health concern (Colten & Altevogt, 2006). Of the 50 to 70 million Americans who suffer from problems associated with sleep and wakefulness, the overwhelming majority of these are undiagnosed. Findings from the current study certainly add to the call for greater recognition of sleep problems and their costs for individuals and their relationships. Perhaps most concerning is that based on the current study and our previous work (Rauer et al., 2010), sleep problems and IPV may continue to exacerbate each other, thus creating and maintaining a negative cycle of IPV. It is our hope that these results will prompt future assessments of sleep parameters within relationship contexts and encourage researchers, practitioners, and policymakers alike to consider the very real long-term consequences for individuals and their families of not getting a good night's sleep.

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Figure 1.

Reciprocal pathways between couples' perpetration of psychological and physical intimate partner violence and sleep. Path coefficients are standardized. Significant pathways are presented, while nonsignificant pathways and cross-sectional correlations are not shown to improve the clarity of presentation. ** $p < .01$. * $p < .05$. $\chi^2(48) = 108.37, p < .05$; CFI = .95; RMSEA = .07; SRMR = .06.

Table 1
Descriptive Statistics and Correlations Among Study Variables for Men and Women

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Race (AA = 1, EA = 0)	—																	
2. M age	.13*	—																
3. W age	.25*	.72**	—															
4. Family income	.35**	.27*	.35**	—														
5. M depression	.03	.04	-.04	-.14*	—													
6. W depression	.03	.01	.04	-.17*	.11	—												
7. M psych IPV T1	.04	-.13	-.12	-.13	.37**	.33	—											
8. M psych IPV T2	-.12	-.12	-.03	-.09	.37**	.44**	.64**	—										
9. W psych IPV T1	-.04	-.04	-.10	-.12	.05	.40**	.28*	.35**	—									
10. W psych IPV T2	-.06	-.13	-.04	-.17*	.17*	.37**	.33**	.51**	.61**	—								
11. Mphys IPV T1	-.18*	-.09	-.06	-.15	.23*	.34**	.67**	.64**	.03	.06	—							
12. M phys IPV T2	-.25*	-.11	-.03	-.17*	.25*	.29*	.54**	.66**	.27*	.27*	.88**	—						
13. W phys IPV T1	-.07	-.03	-.07	-.04	.01	.14	.15	.36**	.36**	.36**	.22*	.48**	—					
14. W phys IPV T2	-.20*	-.15	-.09	-.14	.02	.15*	.20*	.32*	.56**	.56**	.32*	.62**	.53**	—				
15. M sleep T1	-.07	.12	-.03	-.06	.54**	.02	.15*	.16*	.11	.11	.07	.05	-.01	-.01	—			
16. M sleep T2	-.07	.01	.02	.00	.57**	.17*	.22*	.24*	-.06	.07	.24*	.18*	-.01	.08	.53**	—		
17. W sleep T1	.08	.10	.22*	-.03	.03	.46**	.07*	.17*	.18*	.24*	.06	.09	.05	.11	.02	.16*	—	
18. W sleep T2	.07	.12	.26*	-.04	.06	.43**	.10	.21*	.15*	.22*	.04	.05	.02	.07	.09	.16*	.73**	—
M	.36	36.4	33.4	3.92	4.85	7.87	5.30	5.30	9.02	5.83	1.13	1.56	3.10	0.88	5.48	6.42	5.56	5.56
SD	—	6.62	6.02	1.45	5.05	8.35	6.55	7.24	9.10	6.73	6.44	6.48	8.87	4.20	3.97	4.33	3.49	3.37

Note. M = men; W = women; Psych IPV = perpetration of psychological intimate partner violence; Phys IPV = perpetration of physical intimate partner violence; T1 = data collected at Time 1; T2 = data collected at Time 2.

*
p .05.

**
p .01.