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EXAMINING THE ROLE OF SOCIAL SUPPORT IN THE RELATIONSHIP BETWEEN
INTIMATE PARTNER VIOLENCE AND DEPRESSION

by

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Abstract

The purpose of the current study was to assess perceived social support as a moderator of the association between intimate partner violence (IPV) and depression. An additional facet of the current study included examination of how IPV measurement might impact results. Participants included 151 racially diverse female survivors of IPV. Two separate path analyses were conducted to assess social support as a moderator of the association between IPV measured both as a unitary construct and as three subtypes (physical IPV, sexual IPV, and psychological IPV) and depression. We expected that differences in findings would emerge based on how IPV was measured, such that social support would influence the relationship between IPV measured as a unitary construct, but not between each IPV subtype and depression. When assessed as a unitary construct, the model examining whether perceived social support moderated the association between IPV and depression was not significant. When assessed as subtypes, the model examining whether perceived social support moderated the association between each type and depression was significant. Results indicated that social support moderated the association between sexual IPV and depression. At low levels of social support, lower levels of depression were noted at low levels of sexual IPV compared to high levels of sexual IPV. This association was not significant at higher levels of social support. Social support did not moderate the association between physical IPV or psychological IPV and depression. These findings suggest that perceived social support, more specifically low perceived social support, may be particularly relevant with regard to sexual IPV. The current findings also suggest that stratifying IPV by type rather than as a unitary construct may be relevant in understanding which variables impact the association between IPV and negative mental health outcomes.

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Examining the Role of Social Support in the Relationship Between Intimate Partner Violence and Depression

Intimate partner violence (IPV) is a major social and health problem in the United States. The Centers for Disease Control and Prevention (CDC) define IPV as "physical violence, sexual violence, stalking, and psychological aggression by a current or former intimate partner" (Breiding et al., 2015, pg. 11). According to the CDC, approximately 35% of women and 28% of men will experience IPV at least once in their lifetime (Black et al., 2011). Though rates are similar between men and women, women are at a higher risk of developing negative psychological effects compared to men. As such, IPV is associated with poor individual functioning and mental health problems including depression (Beydoun et al., 2012; Dutton, 2009; Golding, 1999; Mechanic et al., 2008), posttraumatic stress disorder (PTSD; Dutton, 2009; Golding, 1999), anxiety (Dutton, 2009), suicidal ideation (Kaslow et al., 1998), and substance use (Costa & Gomes, 2018). In the past decade, research on IPV has increased, and the serious effects of IPV on mental and physical health have begun to be documented. However, factors that impact the relationship between IPV and mental health conditions deserve greater attention. The current study focused on depression, a mental health condition that has been reported by approximately 48% of IPV survivors (Golding, 1999). Perceived social support was examined as a variable that may impact the relationship between IPV and depression, to determine if social support moderates the relationship between IPV and depression. An additional component of this study involved examining IPV both as a unitary construct and as subtypes, to determine if the method of operationalizing IPV impacts the obtained results.

IPV is not measured in a uniform way in the literature (Saltzman, 2004; Waltermaurer,

2005). One approach to quantifying IPV has been as a unitary construct; some investigators have relied on dichotomous coding (abuse/no abuse) while others have computed a total abuse severity or frequency score based on a psychometric measure. Separately, some authors have focused on specific subtypes of IPV, in particular physical abuse, sexual abuse, stalking, and psychological abuse (also referred to as emotional abuse and psychological aggression). The CDC defines physical violence as acts such as hitting, punching, pushing, choking, kicking, or using a weapon; sexual violence is defined as forced sexual acts against the victim's will; stalking is defined as unwanted contact, i.e. repeated phone calls and messages, that provokes fear of one's own or other's safety; and psychological abuse is defined as using tactics to harm the victim mentally or emotionally, such as verbal threats and verbal abuse (Breiding et al., 2015). Examining IPV as a unitary construct may not capture the impact of each individual type of abuse. In particular, some authors have discussed that imposing a broad, conceptual definition of IPV on victims may not capture each individuals' experiences (Follingstad & Ryan, 2013) or lead to victims' IPV experiences being misclassified (Dougé et al., 2014). Examining IPV as individual types of abuse may be relevant in understanding the differential impact of each type of IPV. This issue has not been examined empirically in the context of depression, which was one of the goals of the current study.

Considering the subtypes of IPV, it is notable that research is mixed concerning the relative effects of each subtype. Psychological abuse is the most frequently type of abuse experienced by women; approximately 48% of women in the United States have reported experiencing psychological aggression in their lifetime (Black et al., 2011). In the past decade or so, findings in the literature suggest that psychological abuse may be just as detrimental as physical abuse to women's mental health, especially when considering depression. However,

there are some mixed findings. For example, many researchers have found that psychological abuse was as deleterious to mental health as physical abuse (Ludermir et al., 2008; Pico-Alfonso et al., 2006) and sexual abuse (Canady & Babcock, 2009; Mburia-Mwalili et al., 2010) in samples of IPV survivors. More specifically, in a sample of women from a battered women's shelter, Mechanic and colleagues (2008) found that psychological abuse accounted for 12% of the variance in depression; with psychological abuse controlled, neither physical nor sexual abuse was a significant predictor. However, in a sample of older indigenous male and female survivors of IPV, only physical abuse was related to depressive symptoms, not psychological or sexual abuse (Roh et al., 2016). Interestingly, in one study by Pico-Alfonso et al. (2006), sexual abuse was only associated with more depressive symptoms in co-occurrence with physical and psychological abuse, but it did not independently predict depressive symptoms. Given the mixed findings in the literature, it is important that additional work is conducted, exploring the association of specific forms of IPV and depression.

Depression following trauma exposure is one of the most reliable findings in the literature (Beydoun et al., 2012; Golding, 1999). The diagnostic criteria for depression, per the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), involve either depressed mood or loss of interest or pleasure in usual activities, along with significant weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, loss of energy or fatigue, feelings of worthlessness or guilt, indecisiveness, and recurrent thoughts of death or suicide (American Psychiatric Association, 2013). Depression is especially prevalent following IPV exposure. In one meta-analysis, the average prevalence of depression across 18 studies was approximately 48% (95% CI = [45, 50]) among abused women (Golding, 1999). In a more recent meta-analysis assessing major depressive disorder, postpartum depression, and depressive

symptoms following IPV, Beydoun et al. (2012) found a positive association across 37 studies; rates of diagnosable depression and depressive symptoms were approximately three times higher in women who had experienced IPV compared to women who had not experienced IPV. Of the 37 studies included in this meta-analysis, the pooled risk ratio was 1.87 (95% CI = [1.42, 2.46]). Population attributable risk percentages were 27.7% (95% CI = [20.6%, 34.8%]) for major depressive disorder, 16.9% (95% CI = [13.7%, 20.1%]) for depressive symptoms, and 9.0% (95% CI = [4.7%, 13.4%]) for postpartum depression. Depression following IPV is associated with numerous other negative outcomes, such as low self-esteem, low perceived social support, and low quality of life (Beck et al., 2014). Depression may also co-occur with posttraumatic stress disorder following trauma (Mechanic et al., 2008; Pico-Alfonso, 2006), potentially making mental health conditions more severe for women who experience IPV. Due to the prevalence of depression following trauma and the impact that depression has, it is important to further explore factors that are associated with depression following IPV.

Social support has been shown in the literature to potentially buffer against depression following IPV (e.g., Carlson et al., 2002; Coker et al., 2002). Social support has been defined by Shumaker and Brownell (1984) as "an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (p. 13). Coker and colleagues (2002) found that in a sample of female IPV survivors, those who reported experiencing more social support were less likely to experience depression (*aRR* 0.6, 95% CI = [0.5, 0.8]). In addition, in a longitudinal study of women who were dwelling in domestic violence shelters, those who reported higher levels of social support at the initial assessment reported fewer depressive symptoms at a second assessment 12 months later, suggesting that social support may aid in recovery from depression (Mertin & Mohr, 2002). This

suggestion was supported in a longitudinal study by Blasco-Ros and colleagues (2010), in which perceived social support contributed to recovery from depression in a sample of women who experienced IPV ($\beta = 0.40, p = 0.001$). Some authors have suggested that social support may contribute to more positive mental health outcomes by having another person help the individual reinterpret the stressful event in a more positive way (Thoits, 1995) and by having resources that help the victim to problem solve and cope (Heaney & Israel, 2008; Cohen & Wills, 1985). Social support is often conceptualized as either functional (the perceived availability or helpfulness of social support) or structural (actual received support or size of support network). Though each conceptualization of social support may be contextually important (Charuvastra & Cloitre, 2008), Wethington and Kessler (1986) found that perceived social support was more important to recovery from experienced stress than actual received social support. Thus, this finding implies that social support may be best conceptualized and captured by measuring perceived social support.

Many theoretical models have emerged to further conceptualize and understand the role of social support in the relationship between trauma and poor mental health outcomes, including the main direct model (Berkman & Glass, 2000), the mediation model, and the moderation model, also referred to as the buffering model (Cohen & Wills, 1985). The moderation model in particular has some conflicting findings in the literature (Levendosky et al., 2004). The moderation model assumes that social support influences the relationship between trauma and a specific outcome, such as that it acts as a buffer from stress (Cohen & Wills, 1985). For example, high levels of perceived social support may interact with IPV and act as a buffer, reducing depressive symptoms. However, lower levels of perceived social support may not provide that same buffering effect. Some findings in the literature have supported the moderation effect of

social support in the relation between IPV and PTSD. With PTSD as an outcome variable following trauma, Babcock, Roseman, Green, and Ross (2008) found that social support moderated the relationship between psychological abuse and PTSD symptoms. Additionally, when looking at suicidality, Kaslow et al. (1998) found that social support moderated the relationship between IPV and suicidality. Based on these findings, one would expect to see the same pattern emerge with depression.

Findings regarding social support as a moderator between IPV and depression, however, are especially mixed. For example, Dougé et al. (2014) found that social support moderated the association between IPV and depressive symptom severity (OR, 5.24; 95% CI = [2.95–9.31]), which is similar to findings by Costa and Gomes (2018), in which social support moderated the association between IPV and depression ($t = 7.81, p < .001$). However, Beeble and colleagues (2009) did not find a moderation effect for social support between physical or psychological abuse and depression. The most notable difference between the studies that found a moderation effect (Dougé et al., 2014; Costa & Gomes, 2018) and the study that did not find a moderation effect (Beeble et al., 2009) is how IPV was defined and measured. Dougé and colleagues (2014) and Costa and Gomes (2018) assessed IPV as a unitary construct, wherein any type of IPV constituted as IPV. In contrast, Beeble and colleagues (2009) assessed IPV by type: sexual and physical abuse constituted physical abuse, and psychological abuse constituted psychological abuse. This difference is important because it highlights the potential relevance of how IPV is conceptualized and measured.

In light of the previous literature and contrasting findings regarding IPV and depression, the first aim of this study was to address the question: Does social support moderate the relationship between IPV as a unitary construct and depression? To examine this aim, we

conceptualized IPV as a unitary construct by creating a composite IPV score and assessed perceived social support as a moderator between IPV and depression. The second aim of this study addressed the question: Does social support moderate the relation between specific types of IPV (physical, sexual, and psychological abuse) and depression? To examine this aim, we separated IPV into three subtypes: physical abuse, sexual abuse, and psychological abuse and assessed social support as a moderator between each subtype and depression. We expected that social support would moderate the relationship between the IPV composite score and depression, based on previous findings (see Dougé et al., 2014; Costa & Gomes, 2018). However, based on findings by Beeble and colleagues (2009), we expected that social support would not moderate the association between each IPV subtype and depression.

Method

Participants

Potential participants included 533 English-speaking female survivors of IPV over the age of 18 who were seeking mental health resources from a university mental health research clinic. Participants were recruited via outreach events at health fairs and community events, as well as fliers around college campuses, churches, health centers, and community resource centers. Participants were excluded from the current study if they had not experienced IPV ($n = 3$; assessed by the interviewer), exhibited psychotic symptoms ($n = 7$; assessed by the interviewer), or were cognitively impaired ($n = 20$; assessed with the Montreal Cognitive Assessment, see below), or were inconsistent in their reporting ($n = 9$; assessed by the interviewer). Additionally, participants were excluded if they still lived with their most recent abuser or were in an ongoing romantic relationship with their most recent abuser ($n = 90$). These participants were excluded because IPV often includes social isolation, which may impact

perceptions of social support. Participants were also excluded if they had item-level missing data that exceeded 25% on one or more measures ($n = 253$) in order to conduct a complete case analysis.¹

After excluding participants, the final sample included 151 females who had experienced IPV whose mean age was 38 ($SD = 12.94$). The current sample was racially diverse and well educated. Approximately 76% of the current sample experienced physical abuse; 50% of the current sample experienced sexual abuse; and 94% of the current sample experienced psychological abuse. See Table 1 for complete sample characteristics.

Measures

Selection measures

Cognitive impairment. The Montreal Cognitive Assessment (MOCA; Nasreddine et al., 2005) was used to assess cognitive impairment. Participants who had ever lost consciousness during IPV experiences were assessed with the MOCA. The MOCA takes approximately 10 minutes to administer and includes various tasks that target different aspects of cognitive functioning. Participants were excluded from the current study if they scored a 20 or less, suggesting mild cognitive impairment, as previous research suggests that 20 is an appropriate cutoff score for this particular population (Waldron-Perrine & Axelrod, 2012).

Current relationship status. Two items from a semi-structured IPV interview, developed for a larger study, were used to assess if participants were still living with their most recent abuser or were in an on-going relationship with their most recent abuser. The first question is, "*Do you still live with your most recent abusive partner?*" If participants indicated that they were still living with their most recent abusive partner, they were excluded from the

¹ A complete case analysis utilizes listwise deletion of missing data and allows comparability across analyses.

current study. The second question is, "*Which of the following best describes your relationship with your most recent abusive partner?*" Answer choices for the second question are (1) *on-going with no intention of breaking up*, (2) *on-going with intention of breaking up*, (3) *in the process of breaking up with some chance of getting back together*, and (4) *in the process of breaking up with no chance of getting back together*. If the participant indicated that they were in an on-going relationship with their most recent abuser, they were excluded from the current study.

Measures of intimate partner violence

Physical abuse. A modified subscale of the Revised Conflict Tactics Scale-2 (CTS-2; Straus et al., 1996) was used to measure the frequency of physical abuse. For the current study, the physical abuse subscale of the CTS-2 was modified to only include items related to the most recent abuser's behavior. Items related to the victim's behavior such as, "*I twisted my partner's arm or hair*" and, "*I choked my partner*" were removed from the measure. The modified physical abuse subscale of the CTS-2 consists of 12 self-report items such as, "*My partner beat me up*" and "*My partner slapped me*". Each item is rated on a scale from 0 (*this has never happened*) to 6 (*more than 20 times*). Averages for each response were summed. For example, if "6" was selected, the 6 was recoded as "25". Scores range from 0 to 300; higher scores indicate higher frequencies of physical abuse. The unmodified physical abuse subscale exhibits good internal consistency (Cronbach's $\alpha = .86$) and good construct validity (Straus et al., 1996). In the current study, there was good internal consistency for the modified physical abuse subscale (Cronbach's $\alpha = .93$).

Sexual abuse. A subscale of the Revised Conflict Tactics Scale-2 (CTS-2; Straus et al., 1996) was used to measure the frequency of sexual abuse, modified in a similar fashion as the

physical abuse subscale. The modified sexual abuse subscale of the CTS-2 consists of 7 self-report items such as, "*My partner made me have sex without a condom*" and "*My partner used threats to make me have sex.*" Each item is rated on a scale from 0 (*this has never happened*) to 6 (*more than 20 times*). Averages for each response set were summed. For example, if "6" was selected, the 6 was recoded as "25". Scores range from 0 to 175; higher scores indicate higher frequencies of sexual abuse. The unmodified sexual abuse subscale exhibits good internal consistency (Cronbach's $\alpha = .87$) and good construct validity (Straus et al., 1996). In the current study, there was good internal consistency for the modified sexual abuse subscale (Cronbach's $\alpha = .83$).

Psychological abuse. The Psychological Maltreatment of Women Inventory- Short Version (PMWI-SF; Tolman, 1989) was used to measure psychological abuse. The PMWI-SF is a measure of psychological maltreatment that consists of two 7-item, self-report subscales: dominance/isolation and verbal/emotional abuse. Examples of items from the verbal/emotional subscale are, "*My partner called me names*" and "*My partner swore at me.*" Examples of items from the dominance/isolation subscale are, "*My partner tried to keep me from doing things to help myself*" and "*My partner restricted my telephone use.*" Each item is rated on a scale from 1 (*never*) to 5 (*very frequently*), or 0 (*not applicable*). For the current study, the two subscales were summed to create a total score. Total scores range from 0 to 70; higher scores indicate higher levels of psychological abuse. The PMWI-SF demonstrates good psychometric properties, such as good reliability and factorial validity (Tolman, 1999). In the current study, there was good internal consistency for the summed subscales (Cronbach's $\alpha = .90$).

IPV composite. An IPV composite score was created by standardizing and summing the physical abuse CTS-2 subscale, sexual abuse CTS-2 subscale, and the PMWI sum score. Song

and colleagues (2013) suggest that data must be continuous and normally distributed in order to create composite scores. Scores for each scale were standardized into z-scores, then summed to create a composite score. Each scale is continuous, with higher scores indicating higher levels of abuse. For the composite score, higher scores indicate higher levels of IPV frequency. In the current study, there was good internal consistency for the composite measure (Cronbach's $\alpha = .94$).

Depression measure

The Beck Depression Inventory-II (BDI-II; Beck et al., 1996) was used to measure depression. The BDI-II is a 21-item self-report measure of depression in which items are rated on a scale from 0 to 3. For example, one group of statements reflects "sadness", which is rated from 0 (*I do not feel sad*) to 3 (*I am so sad or unhappy that I can't stand it*). Another group of statements reflects "self-dislike", which is rated on a scale from 0 (*I feel the same about myself as ever*) to 3 (*I dislike myself*). Scores range from 0 to 63; higher scores indicate higher levels of depressive symptoms. The BDI-II exhibits good psychometric properties, such as high convergent, discriminant, and construct validity (Beck et al., 1996). In the current study, there was good internal consistency for the BDI-II (Cronbach's $\alpha = .94$).

Social support measure

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) was used to measure perceived social support. The MSPSS is a 12-item self-report measure of perceived social support with three subscales (perceived social support from (1) a significant other, (2) family members, and (3) friends) and a total score. For the current study, the total score was used to measure social support. Items are rated on a scale from 1 (*strongly disagree*) to 7 (*very strongly agree*). Some examples of items include, "*There is a special person who is around*

when I am in need," "My friends really try to help me," and "My family is willing to help me make decisions." Scores range from 1 to 7; higher scores indicate higher levels of perceived social support. The MSPSS demonstrates good psychometric properties, such as good internal reliability, convergent validity, and content validity (Zimet et al., 1988; Zimet et al., 1990; Clara et al., 2003). In the current study, there was good internal consistency for the MSPSS total score (Cronbach's $\alpha = .89$).

Procedure

All procedures were approved by the university's Institutional Review Board. Following informed consent, participants were interviewed by a trained graduate student or a Ph.D. level clinical psychologist. The interviews consisted of semi-structured clinician interviews, as part of larger study, as well as questionnaire packets, which included the CTS-2, PMWI, MSPSS, and BDI-II. The assessment consisted of about three sessions; each session took approximately three hours. If the participant experienced distress at any time, resources were provided. If the participant was suicidal, the trained interviewer administered a thorough suicide risk assessment and entered a means of restriction agreement with the participant. At the completion of the assessment, participants were provided with the results of their evaluation, as well as individually-tailored resources.

Analytic Approach

Missing Data

Prior to scoring each measure, missing data for the CTS subscales, PMWI, and BDI-II were imputed with the individual's mean if less than 25% of their items were missing. Following item level imputation, 60% of the data for the CTS-2 were missing ($n = 251$); 38% of the data on the PMWI were missing ($n = 158$); 30% of the data for the MSPSS were missing ($n = 126$); and

7% of the data for the BDI-II were missing ($n = 32$). Next, missing data were assessed via Little's MCAR test. Little's MCAR test chi-square statistic was significant ($p = .001$), indicating there was a significant difference between individuals with missing data and individuals without missing data. To follow up the significant MCAR test, the data were probed via separate variance t tests in order to assess if data were missing at random (MAR) or if data were missing systematically.

Separate variance t tests indicated that participants with missing data on the MSPSS had significantly higher scores on the BDI-II ($M = 32.27$) compared to those without missing data on the MSPSS ($M = 27.67$), $t(192.5) = -3.3$, $p = .001$. Additionally, participants with missing data on each CTS subscale had significantly lower scores on the PMWI ($M = 47.34$) compared to those without missing data on the CTS ($M = 54.71$), $t(170.4) = 3.3$, $p = .001$. Lastly, participants with missingness on the PMWI had significantly higher scores on the BDI-II ($M = 32.29$) compared to those without missing data on the PMWI ($M = 27.12$), $t(299.9) = -3.9$, $p < .001$. Because some of the missingness is related to BDI-II scores (the outcome variable), the mechanism of missing data utilized was missing not at random (MNAR).

Missing data were handled with listwise deletion in order to run a complete case analysis. Multiple imputation methods were not used to impute missing total scores because most of the missing data involved the CTS-2, followed by the PWMI then MSPSS. It may be inappropriate to use multiple imputation methods for these measures because the estimates would be derived from a small sample ($n = 151$), and they would be imposed on a larger sample ($n = 253$). One potential reason for the amount of missing data with regard to the CTS-2, PMWI, and MSPSS is that they are located in the last questionnaire packet that participants fill out. Approximately 50% of our sample withdrew from the study before they could complete all of the questionnaires. In

the current sample, individuals who were younger, were lower income, and had higher level of depression and PTSD symptoms were more likely to withdraw (Peter et al., in press).

Data Screening and Preparation

Univariate outliers were assessed via z-score values. All standardized values for each measure fell within range of $[-3.29, 3.29]$, thus there were no univariate outliers. Mahalanobis distance was calculated to check for multivariate outliers, which indicated that no multivariate outliers were present. Skew and kurtosis coefficients were assessed for abnormal distributions. Skew coefficients for the PMWI and both subscales of the CTS-2 were greater than $|1|$. Square root transformations were performed to achieve a normal distribution. Following the transformations, skew coefficients for the PMWI and CTS-2 subscales were in acceptable range. Linearity and homoscedasticity were assessed via bivariate scatter plots, Q-Q, and detrended plots of linear regression residuals.

Analytic Strategy

Two separate path analyses were conducted using MPlus (version 8). The first analysis was conducted to assess the moderation effect of social support in the relationship between composite IPV and depression. Exogenous variables included composite IPV and social support, as well as an interaction variable that was created for social support and composite IPV. Each exogenous variable was centered prior to creating the interaction variables to address multicollinearity. Depression was the endogenous variable. This measurement model has 6 estimated parameters and 6 observations, which makes it a just-identified model, as the model degrees of freedom is equal to zero. As such, model fit was not assessed. This model was estimated using maximum likelihood with robust standard errors (MLR). Direct effects and

interaction effects were examined. Significant interactions were probed via a simple slopes analysis (Aiken & West, 1991).

A second path analysis was conducted to examine if social support moderated the association between each type of abuse and depression. Exogenous variables included physical abuse, sexual abuse, psychological abuse, and social support, as well as interaction variables that were created for social support and each type of abuse variable. Variables were centered prior to creating the interaction variable to address multicollinearity. The endogenous variable was depression. The model had 28 estimated parameters and 28 observations; thus, it is just-identified, and model fit was not assessed. This model was estimated using MLR, with interpretation of direct effects and interactions and follow-up analyses conducted similarly as in the first model.

Results

Assessing social support as a moderator between IPV as a unitary construct and depression

The first model (see Figure 1), examining social support as a moderator in the association between the IPV composite variable and depression, was not significant ($p = .08$, $R^2 = 0.07$).

Assessing social support as a moderator between each subtype and depression

The second model (see Figure 2) assessing social support as a moderator in the relationship between each subtype and depression was statistically significant and predicted 18% of the variance in depression ($p = .002$, $R^2 = 0.18$). There was a significant interaction between sexual abuse and social support ($B = -0.52$, $\beta = -0.23$, $p = .005$; 95% CI [-.87, -.16]). This interaction was probed using simple slopes in SPSS. Sexual abuse was significantly positively associated with depression only at low levels of social support ($B = 1.33$, $\beta = .38$, $p = .001$). Specifically, a significant effect was noted at low levels of social support such that high levels of

sexual IPV were associated with significantly higher levels of depression relative to low levels of sexual IPV ($p = .001$). No significant effects were noted for high levels of social support ($p = .597$; see Figure 3). There were no other significant main effects or interaction effects in the model.

Discussion

The current study examined whether social support moderated the association between IPV and depression, operationalizing IPV in two fashions. In the first analysis, IPV was operationalized as a unitary construct. In the second analysis, IPV was operationalized as three separate subtypes: physical, sexual, and psychological abuse. Only the second model was significant. The interaction between social support and sexual abuse was significantly associated with depression. Simple slopes revealed a significant effect at low levels of social support, such that higher levels of sexual IPV were associated with higher levels of depression, relative to low levels of sexual IPV. At high levels of social support, no significant association between sexual IPV and depression emerged. This finding suggests that higher levels of social support might act as a buffer against depression following sexual IPV, although the current results cannot be interpreted as causal. Social support did not moderate the association between physical or psychological abuse and depression. These findings suggest that specific types of IPV may differentially interact with social support in their effect on depression. Differences in the findings between the two models suggest that when assessing the role of social support in the relationship between IPV and depression, taking a more comprehensive approach to measuring IPV might be more insightful. More specifically, examining contributions of each type of IPV separately may shed light on more complex processes by which social support influences levels of depression following IPV.

We hypothesized that the two models would return different results based on how IPV was conceptualized and measured. Specifically, we expected social support to only moderate the association between IPV as a unitary construct and depression; however, social support did not moderate the association between the IPV composite variable and depression. Our hypothesis that there would be differences in results based on how IPV was measured was not supported, as social support did not moderate the association between the IPV composite variable and depression, nor did social support moderate the association between either physical abuse or psychological abuse and depression. Overall, the results of the current study were contrary to our hypothesis, as well as findings by other studies. For instance, social support did not moderate the association between physical or psychological abuse, which is in concurrence with Beeble and colleagues (2009); however, an interaction between social support and sexual IPV emerged in the current study. Social support did not moderate the association between the IPV composite variable and depression, which contrasts previous studies by Dougé and colleagues (2014), as well as Costa and Gomes (2018). There are a number of methodological differences in the current study compared to previous studies that could have contributed to these discrepant results, including how IPV was measured, as well as sample differences.

The current study employed two different conceptualizations of IPV. In particular, sexual IPV and physical IPV were considered as two separate entities in one model, which differs from how Beeble and colleagues (2009) conceptualized IPV. Specifically, Beeble and colleagues (2009) combined physical IPV and sexual IPV into one "physical abuse" variable. In addition, the current study utilized a composite IPV score, measuring the frequency of abuse ever experienced, which is similar to Costa and Gomes (2018) but slightly different than Dougé and colleagues (2014) measurement of IPV. Dougé and colleagues (2014) employed a dichotomous

(yes/no) measurement of IPV, grouping victims into "recent" or "lifetime" exposure groups. Costa and Gomes (2018) used the same IPV measure as the current study (CTS-2); however, the psychological aggression subscale from the CTS-2 was used, wherein the current study the PMWI in place of the CTS-2 psychological aggression subscale. In addition to differences in measurement, differences in samples could have also contributed to the discrepancy in findings. Dougé and colleagues (2014) included a sample of 16,106 women who had and had not experienced IPV that was derived from the Behavioral Risk Factors Surveillance Survey, which is a telephone survey. As such, participants were not mental health help-seeking, which is a characteristic of the sample in the current study. In addition, the sample was quite large compared to the sample size of the current study, which would lead to more power for the analysis. Overall, differences in the findings from the current study compared to the aforementioned studies highlight the issue of how constructs are measured, specifically IPV, as well as sample differences.

A notable finding in the current study is that social support influenced the impact of sexual abuse on depression, and not physical abuse or psychological abuse. These findings support the notion posited by Pico-Alfonso and colleagues (2006) that taking into account each type of IPV is relevant to understanding how IPV is related to mental health outcomes and various factors. More specifically, our results suggest that social support may be especially relevant when considering depression following IPV, particularly with exposure to sexual IPV. Social support may be particularly relevant with regard to sexual abuse due to the stigma associated with sexual assault, especially when perpetrated by an intimate partner. Perhaps having lower levels of perceived social support is more detrimental to mental health when women experience high levels of sexual abuse compared to other forms of abuse. This suggests

that the influence social support has on the relationship between IPV and depression is unique to sexual abuse. Though sexual abuse and physical abuse are often assessed as one construct in the literature, the current results suggest the importance of separate quantification of these two types of IPV and suggest that physical abuse and sexual abuse are in fact separate entities. As noted, social support did not moderate the association between physical or psychological IPV and depression. To our knowledge, this is the first study that has used a path analysis to examine the role of social support in the relationship between IPV, specifically each subtype of IPV, and depression. As such, using a statistical model that takes into account each type of abuse provides a more realistic context of IPV and how it relates to mental health (Streiner, 2005). Testing each type of abuse in the same model is an addition to the current literature because there is often overlap in the types of abuse women experience (Black et al., 2011). Thus, future research should attempt to replicate these findings, perhaps with an eye towards tangible resources (Goodkind, Gillum, Bybee, & Sullivan, 2003), such as being offered a place to stay, and self-esteem (Mechanic et al., 2008), as these factors may be more likely to influence the relationship between physical IPV and psychological IPV and depression.

Implications

Overall, these findings suggest that stratifying IPV by subtype may be relevant in understanding how factors such as social support impact mental health outcomes following this form of interpersonal trauma. As such, the experience of specific types of IPV may uniquely interact with specific risk or protective factors. Clinically, this is relevant to person-centered approaches to treatment, as most women report multiple forms of abuse (Black et al., 2011). Additionally, these findings suggest that the field could be served by measuring IPV subtypes in an effort to understand the unique association of each type on mental health conditions. Lastly,

researchers may wish to reach a consensus with regard to measuring IPV, as it is quantified in a number of different ways. Differences in measurement and conceptualization could potentially be one of the contributing factors to conflicting findings in the literature.

Limitations

The current study is not without limitations. First, this study was cross sectional in nature, thus no causality can be inferred. It is possible that depression and social support could have a bidirectional relationship. Second, missing data were removed listwise, which reduces statistical power. Additionally, data were not missing at random, as participants who were excluded owing to missing data were more likely to report higher levels of depression and to have experienced higher levels of psychological abuse. As such, the current sample was likely to have lower levels of depressive symptoms and may not represent women who experience high levels of psychological abuse. The current sample was also comprised of females over the age of 18. As such, the findings in the sample may not be generalizable to men or adolescents. Lastly, the analysis of the current study may have been underpowered, as the sample size was quite small. The current study utilized a ratio of five participants to one estimated parameter (Bentler & Chou, 1987), though a 10:1 ratio is preferred (Kline, 2011).

Future Directions

In light of the limitations of the current study, future research should examine the role of perceived social support on the relationship between IPV and depression longitudinally to establish temporal precedence. Additionally, because the model examining if social support impacts the relationship between each type of IPV and depression only explained 18% of the variance in depression, perhaps future studies should examine how other factors, such as tangible resources or self-esteem, might impact this relationship. Future research should also include

individuals who identify as male, as rates of IPV are similar between males and females. Lastly, future research should replicate the current study in a larger sample.

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Table 1.

Sample Description

	<i>n</i>	%
Race		
Caucasian	78	51.7
African-American	57	37.7
Hispanic	5	3.3
Asian	1	0.7
Other or no answer	10	6.6
Educational background		
Elementary school	1	0.7
High school	17	11.3
Attended or completed college	108	71.5
Attended or completed graduate school	23	15.2
No answer	2	1.3
Household income		
Below \$10,000	21	13.9
\$10,000 to \$20,000	26	17.2
\$20,000 to 30,000	23	15.2
\$30,000 to \$40,000	12	7.9
\$40,000 to \$50,000	19	12.6
Above \$50,000	32	21.2
No answer	18	12.0
Type of IPV experienced		
Physical abuse	115	76.2
Psychological abuse	142	94.0
Sexual abuse	75	49.7

Table 2.

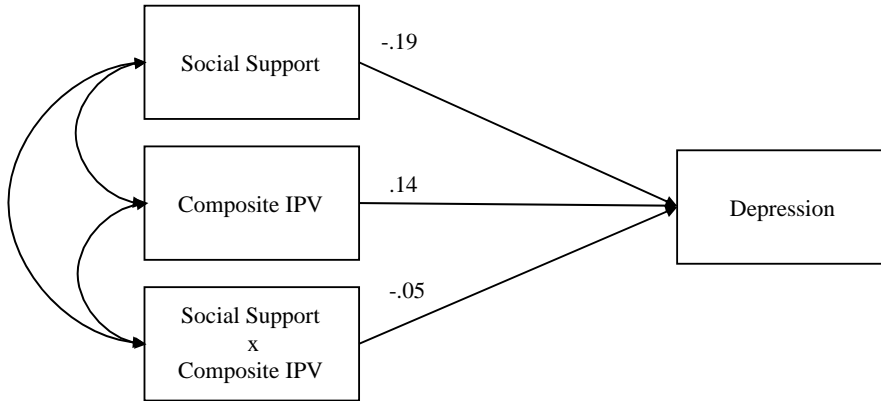
Pearson Correlations, Means, and Standard Deviations

	1	2	3	4	5	6	<i>M</i>	<i>SD</i>
1 Social Support	-						4.73	1.50
2 Physical IPV	-.14	-					6.99	4.95
3 Sexual IPV	-.12**	.57**	-				5.31	3.99
4 Psychological IPV	.02	-.50**	-.44**	-			3.66	1.74
5 IPV composite	-.16	.71**	.75	.04	-		.00	1.51
6 Depression	-.12**	.29**	.24**	-.26**	.18	-	27.39	13.84

Note. **p < .001

Figure 1.

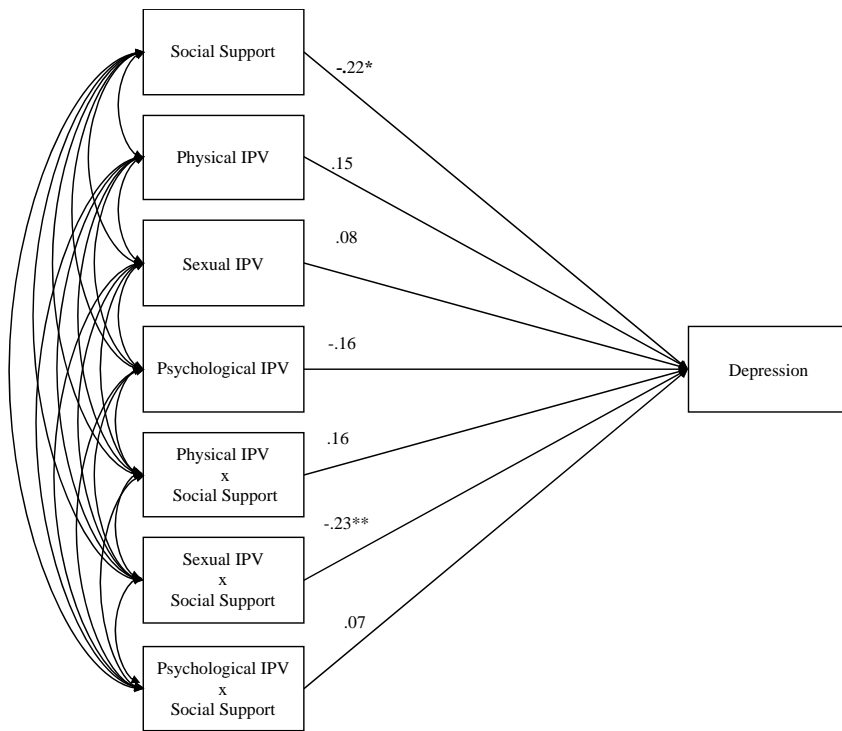
Path analysis model 1: Examining the interaction of social support and composite IPV



Note. Standardized beta coefficients were reported to ease interpretability.

Figure 2.

Path analysis model 2: Examining the interaction of social support and each type of IPV



Note. Standardized beta coefficients were reported for ease of interpretability.

* $p < 0.05$

** $p < 0.01$

Figure 3.

Simple Slopes: Social Support x Sexual IPV

