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Intimate partner violence and health: The roles of social support and communal mastery in five American Indian communities

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Despite impressive efforts from tribal communities to support and improve tribal members' health, disparities in multiple physical, mental, and behavioral health outcomes among American Indian and Alaska Native (AI/AN or Native) populations persist, including disproportionate risk of experiencing intimate partner violence (IPV; Rosay, 2016). Broadly defined, IPV can include physical violence, sexual violence, stalking, and psychological aggression by a current or former intimate partner – a spouse, boyfriend/girlfriend, dating or ongoing sexual partner (Breiding, Basile, Smith, Black, & Mahendra, 2015). In the most recent and largest national survey reporting data on IPV among Native peoples, researchers found that Native women were 1.6 times more likely to have experienced intimate partner physical violence and 1.3 times more likely to have experienced psychological aggression by an intimate partner compared to non-Hispanic Whites (Rosay, 2016). Similarly, Native men were 1.4 times more likely to have experienced intimate partner physical violence and psychological aggression by an intimate partner in their lifetimes in comparison to non-Hispanic White men (Rosay, 2016). While the vast majority of research indicates that AI/AN populations experience more IPV when compared to non-Native groups, much of this work does not discern regional and tribal differences among AI/AN people in the United States. When data from AI/AN individuals representing diverse regions and tribes are combined, it may mask differences relevant to prevention and intervention efforts. Moreover, many tribal nations lack epidemiological data specific to their region or tribe. One aim of this study is to offer data from a particular region to build a body of evidence on the impact of IPV among tribal nations in the United States.

Intimate Partner Violence and Health

Physical health outcomes associated with IPV include injury, chronic pain, gastrointestinal issues, activity limitations, stroke, and chronic disease (Campbell, 2002; Centers for Disease Control and Prevention [CDC], 2008; Coker et al., 2002a). Increased rates of depression and depressive symptoms, chronic mental illness, and post-traumatic stress disorder have been

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noted among women and men who report experiencing IPV (Bonomi et al., 2006; Campbell, 2002; Coker et al., 2002a). Increased health risk behaviors such as smoking, substance use, heavy or binge drinking, are also associated with IPV (CDC, 2008; Coker et al., 2002a; Nemeth, Bonomi, Lu, Lomax, & Wewers, 2016). Little empirical research has documented these associations among AI/AN women and to our knowledge, researchers have not examined health outcomes of IPV for AI/AN men. We examine associations between IPV and health status among a sample of Ojibwe women and men in the upper Midwest diagnosed and living with type 2 diabetes. We also aim to contribute to the current knowledge of culturally-relevant stress buffers that may reduce negative health outcomes among those who experience IPV.

Indigenist Stress-Coping Model

Stress-coping models generally seek to understand the pathways whereby stressors and negative health outcomes are mediated or moderated by internal or external factors (Dinges & Joos, 1988). The indigenist stress-coping model incorporates social, historical, and structural contexts in the interpretation of epidemiological evidence of AI/AN health disparities – drawing attention to differential exposures and impact of stressors in this population rooted in the settler colonial history of the United States. For example, in work examining AI women’s attitudes toward domestic violence, Tehee and Esqueda (2008) pointed out that many tribes were matrilineal and matrilocal. The authors described the many powers Native women held within families and communities, describe historical community responses to domestic violence, ultimately suggesting that the introduction of European legal and educational systems stripped Native women of much of this power and eliminated traditional practices that discouraged domestic violence (Tehee & Esqueda, 2008). While AI/AN women retain family and community power and esteemed roles within tribal communities, analyses such as Tehee and Esqueda’s (2008) detail impacts of settler colonialism on Indigenous communities in the United States and remind us to consider this context in understanding disproportionate rates of victimization among this population. The moderation model tested in this article is conceptually guided by the indigenist stress-coping model which suggests that health outcomes among AI/AN populations may be moderated by tribally-specific collective and personal factors to buffer the effects of traumatic stressors such as IPV (Walters & Simoni, 2002; Walters, Simoni, and Evans-Campbell, 2002). Using a modified indigenist stress-coping model (Figure 1), we tested the potential buffering effects of communal mastery and social support on relationships between IPV and negative health outcomes.

Communal Mastery and American Indian Communities

Mastery can be broadly understood as the extent to which people believe they can or do control circumstances or forces in their lives, often in the context of responding to stressors or overcoming life challenges (Hobfoll, Jackson, Hobfoll, Pierce, & Young, 2002; Pearlin, Menaghan, Lieberman & Mullan, 1981). In contrast to self-mastery, which focuses on individuals’ real or perceived abilities to overcome obstacles or control life circumstances based on individual efforts, communal-mastery has been defined as the real or perceived sense by individuals that they can overcome challenges because of their location within a

social network or community (Hobfoll et al., 2002). Research on communal mastery measures the level to which one believes that being part of a community results in successful navigation of life's challenges.

Collectivist cultures, including many AI/AN cultures, have been described as those which emphasize and promote relationships between individuals and promote reliance on the social group (Hobfoll et al., 2002). Community connectedness has long been theorized as an important aspect of Indigenous cultures and a potential protective factor in mental and behavioral health research (Hill, 2009; Schultz et al., 2016). In previous research examining connectedness (defined as the "interrelated welfare" of the individual with their family, community, and natural environment) as a culturally-based protective factor for Alaska Native youth, researchers reported that the measure of connectedness was highly correlated with a measure of communal mastery (Mohatt, Fok, Burket, Henry, & Allen, 2011). In a study of Native women in Montana, researchers found communal mastery to be associated with lower depressive mood, particularly in high stress circumstances (Hobfoll et al., 2002). Consistent with the indigenist stress-coping model call for identifying culturally-specific stress buffers, communal mastery may be a culturally-relevant measure for identifying aspects of community connectedness as protective factors among AI/AN populations. This work examines communal mastery as a possible moderator in the relationships between IPV exposure and health outcomes.

Social Support

Social support – the emotional and instrumental efforts offered to individuals during their life – has been extensively documented as a general protective factor or buffer in cases of adult IPV (Branch, 2008; Carlson, McNutt, Choi & Rose, 2002; Coker, Watkins, Smith & Brandt, 2003; Klein & Milardo, 2000; Kocot & Goodman, 2003; Larance & Porter, 2004). Research has suggested that women with more friends are more likely to disclose abuse (Browning, 2002) and those with more social support have more resources when deciding to leave abusive relationships (Van Wyk, Benson, Fox, & DeMaris, 2003). Research has also suggested that social support may be more effective in buffering impacts of lower level abuse when compared to higher levels of abuse (Carlson et al., 2002; Beeble, Bybee, Sullivan & Adams, 2009). In other findings, receiving social support from family members was associated with lower prevalence and less severe IPV, while social support from friends was related to more severe IPV but demonstrated no relationship to prevalence of IPV (Wright, 2015). This work further suggests the effect of social support may be weakened in areas of high disadvantage (Wright, 2015). These compelling but sometimes discordant findings suggest the need for more research on the relationship between social support and IPV.

Social support has been shown to reduce and/or mitigate health problems associated with violent relationships. In a study examining well-being among IPV survivors, social support was negatively associated with depression, positively related to quality of life, and moderated the impact of IPV on quality of life (Beeble et al., 2009). Other research has demonstrated better physical and mental health and lower psychological distress and depression for participants reporting higher levels of social support compared to participants

reporting lower level of social support among women utilizing IPV services (Kamimura, Parekh, & Olson, 2013). Similarly, researchers from another study reported that among women reporting any lifetime IPV, those who reported low or moderate social support were more likely to be depressed than women who reported high levels of social support (Mburia-Mwalili, Clements-Nolle, Lee, Shadley, & Yang, 2010).

A smaller body of work has examined social support among AI/AN populations and findings mirror those among non-AI/AN populations such that greater social support was associated with a variety of better health outcomes. Although not specific to IPV, researchers examining health outcomes among Indigenous Canadians found that social support was a strong determinant of thriving health, particularly for women (Richmond, Ross, & Egeland, 2007). Greater social support has also been associated with lower levels of substance use disorders among AI women (Oetzel, Duran, Jiang, & Lucero, 2007). We seek to further this line of research by examining the role social support plays in the relationships between IPV and health outcomes in the communities under study.

Present Study

Primary objectives of the study were to (a) determine if IPV was significantly associated with three health outcomes – mental health (using a measure of depressive symptoms), physical health (health conditions frequently co-occurring with type 2 diabetes), and substance misuse (drug abuse); (b) determine associations between IPV, health outcomes, social support, and communal mastery; and (c) assess whether relationships between IPV and health outcomes were moderated by social support or communal mastery. Guided by the literature, we hypothesized that (a) experiencing IPV would be related to higher depressive symptoms, poorer physical health, and more drug abuse; (b) higher social support and communal mastery would be associated with less IPV, fewer depressive symptoms, better physical health, and fewer drug abuse; and (c) social support and communal mastery would buffer the effects of IPV on associated health outcomes.

Research Design and Methods

Data Sources and Procedures

Data are from the Maawaji' idi-oog Mino-ayaawin (Gathering for Health) study, a mixed-method community-based participatory research collaboration between five Ojibwe communities and research partners at the University of Minnesota, University of Nebraska-Lincoln, and Oklahoma State University. All five communities provided tribal government resolutions and tribal clinics granted letters to support the project. Project planning and implementation was done collaboratively between university research and community research councils in place at each participating site. The study received approval from the University of Minnesota and Indian Health Service National Institutional Review Boards. Overall goals of the Gathering for Health study were to improve the measurement and understanding of stress processes among Ojibwe adults, as well as the understanding of interactions between stress processes, health outcomes and health behaviors including type 2 diabetes treatment adherence and disease management. Data are from the baseline

quantitative phase of the study collected from surveys administered by computer-assisted personal interviews.

Study Sample

Each of the five tribal communities partnering in this research have reservation health care facilities. At the beginning of four sequential 6-month recruitment periods from 2013 to 2015, trained clinic staff at each site randomly selected patients from clinic records. Clinic staff established a sampling frame by creating a list of individuals 18 or older with a diagnosis of diabetes documented in the electronic medical record within the last 2 years. Additional inclusion criteria included self-identification as American Indian. A total of 344 individuals were sampled. Of those sampled, 43 did not meet inclusion criteria, 11 were unable to be contacted, and 96 declined participation. The baseline study response rate was 67%, with 194 providing consent to participate; the current study includes data from the 192 participants from which survey interviews were completed.

Clinic staff mailed a study invitation letter, study brochure, and both telephone and prepaid mail-in options for refusal to randomly selected patients. Interviewers contacted non-refusing individuals to screen for study eligibility. Participants underwent a formal consent process and completed HIPAA authorization forms to permit clinical chart reviews. Surveys were administered in a location of the participants' choice, and each participant received a \$50 incentive for completion of the survey. Consistent with cultural norms, a small traditional gift of wild rice was also provided. Interviewers transmitted the encrypted survey data electronically to secure servers, where it was converted to data files and cleaned by university partners.

Measurement

All survey measures in this research underwent a review process with Community Research Council (CRC) members and adaptations were made to ensure items were relevant to community members with diabetes and culturally appropriate. Three major dependent variables were included in the analyses. *Depressive symptoms* were assessed using a continuous scoring of the Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke & Williams, 1999), a widely used 9-item screener of depressive symptoms experienced in the past 2 weeks. Cronbach's alpha for the PHQ-9 in this sample = .88. *Comorbidities* are a measure of physical health conditions frequently co-occurring with type 2 diabetes. Participants were asked to self-report co-occurring cardiovascular (e.g., high blood pressure, angina, history of heart attack, etc.), ocular (e.g. retinopathy, macular degeneration, etc.), urinary (e.g., kidney failure, protein in urine, etc.) or circulatory (e.g., gangrene, peripheral vascular disease, foot ulcers, etc.) problems. In addition to self-reports, diagnoses for these same conditions were documented through clinical chart reviews. The variable comorbidities is scored such that an affirmative indication of diagnosis from either survey or chart reviews for each category of comorbidities was scored 1, and a negative response scored 0. As such, the final variable for comorbidities in the current analyses includes a possible range from 0 to 4. The last dependent variable, *Drug abuse*, was measured using the DAST-10 (Skinner, 1982) which includes 10 items assessing drug abuse/misuse and social, legal, or medical problems related to drug use during the past 6 months. Each item of the index was coded 0

for ‘no’ responses and 1 for ‘yes,’ with a possible range from 0 – 10 where higher values represent more severe drug related problems; Cronbach’s alpha for this measure = .67.

Intimate partner violence was measured using an adaptation of the Composite Abuse Scale (Hegerty, et al., 2005), a comprehensive measure of current or most recent (for those not currently in a relationship) partner abuse. Physical, sexual, and emotional abuse domains are represented in the measure with 13 individual items coded 0 for ‘never’ or 1 for ‘at least once’ answers, then summed for a continuous measure of current/recent IPV used in bivariate and multivariate analyses (Cronbach’s alpha = .86). Following the three abuse domains outlined in the original scale, we categorized the 13 items into physical, sexual, and emotional abuse categories for descriptive analyses.

Two potential protective factors were also assessed. *Social support* was assessed by 8 items adapted from the two-way social support scale, utilizing those items indicating receipt of perceived emotional and instrumental support (Shakespeare-Finch & Obst, 2011). Responses are coded so that higher values correspond to more support received (Cronbach’s alpha = .89). *Communal mastery* includes four items from the multicultural mastery scale (Fok, Allen, Henry & Mohatt, 2012) indicating degree of agreement with items assessing problem solving through social and familial networks. Likert-type response options were coded to range from 0 (strongly disagree) to 3 (strongly agree), with higher values thus indicative of a stronger sense of communal mastery (Cronbach’s alpha = .78).

Given robust evidence of gender disparities in mental health (e.g., Eaton et al., 2012), established associations between education and health (e.g., Phelan, Link, & Tehranifar, 2010), and because older participants would likely report higher prevalence and more advanced health issues, we also controlled for three demographic factors. Age was assessed by self-report age in years, gender was coded 0 = male, 1 = female, and educational attainment was coded such that 0 = less than high school diploma, 1 = high school diploma or GED, 2 = some college, and 3 = college graduate or advanced degree. Although most research on IPV has focused on women, given the disproportionate risk of IPV among AI/AN men in comparison to non-Hispanic White men (Rosay, 2016) and to be mindful of sample size, men and women were included in the analysis.

Data Analysis

Data were analyzed in SPSS (v. 24). Descriptive statistics (means, standard deviations) were generated for all study variables and Pearson correlation coefficients were calculated to identify bivariate associations among variables. Ordinary Least Squares (OLS) regression models were employed for multivariate models. We ran numerous diagnostic tests to assess possible violations of regression assumptions for these models. Most of the correlations between variables were quite modest in effect size, and all VIF values were less than 10 indicating no issues with multicollinearity. Examination of scatterplots of residuals revealed possible heteroscedasticity for one outcome (comorbidities); thus, we used a robust estimator for those models using Stata (v. 13). Multiplicative interaction terms were created for IPV \times social support and IPV \times communal mastery for tests of moderation (buffering).¹

Results

Table 1 displays frequency of IPV across physical, sexual and emotional abuse domains by gender. A little over 45% of the total sample (48% women; 43% men) reported at least one IPV experience with their current or most recent partner. While women reported more IPV than men across all abuse categories, this gender difference was statistically significant only in the case of physical abuse ($p < .10$; two-tailed test).

Over half of the study sample was female (55.7%) and the mean age of participants was 46.3 years. The mean value of 1.55 for education indicates that most participants had earned between a high school diploma or GED and some college completion. Additional descriptive statistics and bivariate correlations for all study variables are displayed in Table 2. Participants who were older were more likely to report physical health comorbidities and females more likely to report depressive symptoms than males. Higher IPV scores were positively associated with depressive symptoms, comorbidities, and drug abuse. Intimate partner violence was negatively associated with social support and communal mastery. Receiving social support was negatively associated with depressive symptoms and drug abuse, and communal mastery and depressive symptoms were inversely correlated.

Results of ordinary least squares regression analyses are displayed in Table 3. After controlling for age, gender, and educational attainment, IPV was positively related to adverse health status across all three dependent variables (depressive symptoms, comorbidities, and drug abuse). Social support was negatively associated with depressive symptoms and drug abuse. Communal mastery was not significantly related to any of the outcomes in these multivariate models. Adjusted R^2 values demonstrate that the models explained between 7% and 27% of the variance in outcomes, with the greatest proportion of variance explained for depressive symptoms.

One of the multiplicative interaction effects was significant in the regression models ($p < .01$). In Model 1, social support moderated the effects of IPV on depressive symptoms and is plotted in Figure 2. As can be seen, depressive symptoms were greatest for those reporting higher levels of IPV and low levels of social support. Regardless of IPV exposure, those participants reporting high levels of social support displayed fewer depressive symptoms than those with lower social support.

Discussion

This is the first study of which we are aware to examine IPV, health outcomes, and social support and communal mastery among a sample of Ojibwe adults. It is one of the few studies of IPV prevalence among AI/AN populations to include men and offers regionally-specific findings that contribute to our knowledge of tribal and regional differences in IPV prevalence and health outcomes. Findings support previous research among non-Ojibwe populations by demonstrating relationships between IPV and adverse health outcomes among Ojibwe women and men. As expected, higher levels of IPV were significantly

¹Based on statistical power calculations prior to launching the study suggesting that $N = 200$ cases were needed to perform more advanced analyses with multiple variables, we believe our sample size is sufficiently powered for these basic regression analyses.

associated with higher depressive symptoms, more comorbidities and greater drug abuse. Additionally, IPV prevalence was inversely associated with social support and communal mastery. Our hypotheses that social support would moderate relationships between IPV and health outcomes was supported only for the relationship between IPV and depressive symptoms. However, a stratified analysis by social support was beyond the scope of this study. Communal mastery demonstrated no buffering effect in any of the models.

Intimate Partner Violence and Health Outcomes

While variability in sampling strategies and measures warrant caution in comparisons with other studies, a comparison of IPV prevalence reported by participants' in their current or most recent relationships and lifetime rates of IPV reported by AI/AN women and men in in the latest national survey suggest that participants in this study may be at lower risk of IPV than in other communities (Rosay, 2016). This is also true when compared to community or reservation-based samples – lifetime estimates of IPV in published studies using community-based samples range from 59 – 87% prevalence (Bohn, 2003; Duran et al., 2009; Malcoe, Duran & Montgomery, 2004; Wood & Magen, 2009).

The impact of IPV on AI survivors' lives has wide reaching implications. Results of this study suggest that IPV, as a traumatic stressor, lessens the quality of life among our population. Increased depression, health conditions associated with type 2 diabetes (cardiovascular, ocular, urinary and circulatory) and drug abuse are indicators that the impact of IPV extends beyond the acts of violence in their lives.

Social Support and Communal Mastery

While communal-mastery implies that one's ability to confront life challenges and individual efficacy is rooted in involvement with the social group, social support relates to reported attachment to the social group (Hobfoll et al., 2002). Although related, these concepts differ slightly (e.g. an individual can rely heavily on social support from a group while simultaneously reporting low levels of personal efficacy) and may help us understand the differential effects of social support and communal mastery within this population. Lower social support or communal mastery may be found among individuals at higher risk for IPV and experiencing IPV may result in feelings of diminished communal mastery. Individuals may be more likely to draw on social support networks following victimization if those networks are considered available and helpful. Alternately, individuals may avoid or disengage from social networks because of shame, stigma, or perceived unavailability and unhelpfulness.

Another possible explanation for our findings may be related to the social conditions of participants' communities. As noted in the introduction, AI/AN communities live within a unique sociohistorical context with attendant social and health disadvantages due to ongoing settler colonialism. Previous research has suggested that social support may be mitigated depending on a survivor's neighborhood context such that survivors in disadvantaged neighborhoods may be more likely to live within a landscape of social isolation and greater tolerance of violence (Wright, 2015). Indeed, Wright (2015) found the effect of social support on IPV was diminished in more disadvantaged neighborhoods and suggests that

social support is less relevant in disadvantaged areas. While our findings suggest overall positive relationships between social support and health outcomes, if “disadvantage” is conceptualized as the social and health challenges facing tribal communities due to contemporary disruptions to tribal health behaviors, protective factors, and healing practices, we may see similar effects in this and other tribal populations. Communal mastery was associated with less IPV and fewer depressive symptoms and social support was associated with less IPV and fewer depressive symptoms and drug abuse. These findings suggest that communal mastery and social support may protect individuals from some of the negative health outcomes associated with IPV, but not strengthen or weaken the relationships between IPV and all health outcomes as suggested by moderation effect in the current study.

Limitations

Given that participants were sampled from a group of individuals seeking care for type 2 diabetes, this sample may be (a) skewed toward individuals aware of and seeking to improve their health status or (b) individuals at higher risk for poor negative health outcomes related to living with type 2 diabetes. Furthermore, we cannot be certain that these IPV rates are reflective of other members of these tribal communities. The study sample is limited to Ojibwe reservations in the northern Midwest so national generalizability is limited due to the diversity of tribal communities in the United States. Another potential limitation related to sample size is the inability to examine men and women’s experiences separately beyond bivariate analyses. As with most research on sensitive subjects such as IPV or substance misuse there is a risk of participant unwillingness to be truthful about their experiences or behaviors. This may result in underreporting and underestimation of associations in the current study. Furthermore, because the measure of IPV asked about experiences with a current or most recent partner we cannot capture differential effects on outcomes or relationships to other variables based on if the IPV has occurred in their current relationship or a relationship in the recent or long ago past. We are also unable to assess for frequency or duration of IPV to identify differential effects or associations with outcomes and moderators.

Implications for Services

The development of Post-Traumatic Stress Disorder and other mental health or psychiatric disorders such as depression or anxiety are highly correlated with IPV (Bonomi et al., 2006; Campbell, 2002; Coker et al., 2002a) and with risk factors for developing type 2 diabetes such as cardiovascular disease (Libby, Orton, Novins, Beals, & Manson, 2005). Stress has been associated with both the onset of type 2 diabetes (Surwit, Schneider, & Feinglos, 1992) and worse diabetes-related outcomes including reduced capacity for disease management, increased risk of complications and comorbidities, and reductions in metabolic control and quality of life (Jiang et al., 2008; Walders-Abramson et al., 2014). Among respondents in the national Nurses Health Study II, the experience of physical IPV more than one time was associated with an 18% increase in type 2 diabetes and severe psychological IPV was associated with an almost 80% increased risk in type 2 diabetes (Mason et al, 2013). This study demonstrated a buffering effect of social support on depressive symptoms – therapeutic and interventive services for IPV or diabetes should include efforts to increase social support. Given the disproportionate burden of diabetes in AI/AN communities, medical services should integrate treatment options for IPV to reduce associated health

burdens that may complicated diabetes onset and care. Finally, our findings support prior recommendations for increased and better IPV screenings in clinical care settings (Mason et al., 2013).

Directions for Future Research

Future research should examine the interplay of social support and communal mastery to investigate how they converge or diverge on their respective influence on both risk for IPV and the ability to buffer effects of traumatic stressors on health outcomes. Examinations of the various mechanisms whereby social support or communal mastery exert influence are nascent among this population and attention to the unique settler colonial context of AI/AN health should be prioritized in this research. Collective and intergenerational experiences of trauma should be examined in concert with individual or family level violence such as IPV to examine for differential relationships to social support and community mastery. Of particular importance to the population of this study, more research on the mechanisms by which IPV may influence type 2 diabetes risk should be explored as well as research on the long-term effects of IPV on this and other chronic diseases. Given the negative effects of IPV on all health outcomes in this study, the identification of stress buffers other than social support should be investigated in future research to develop more effective IPV services. Due to the lack of significant moderating effects of social support and communal mastery on most health outcomes in the current study, other theoretical perspectives on social connectedness among this population should be explored in future work.

Most research on IPV among AI/AN populations has focused on women, although some studies suggest elevated risk among AI/AN men when compared to the general population (Rosay, 2016). However, findings suggesting gender parity in IPV prevalence has been controversial. While most studies have found that women are more likely to be victimized, injured, and fearful as a result of IPV (Hamberger & Larsen, 2015; Rosay, 2016; Tjaden & Thoennes, 2000), and that men are far more likely to perpetrate violence (Hamby, 2014), others have called for more work on bidirectional violence within intimate relationships (Bates, 2016). Indeed, this study found that although women reported more IPV across types, the only statistically significant gender difference was for physical abuse. Future research should examine gender differences in the prevalence of IPV, consequences of IPV, and roles of social support and communal mastery among this and other AI/AN populations and among those not currently living with type 2 diabetes.

Conclusion

This works builds on a body of work specific to American Indian populations that examines the ways in which individual's health may be influenced by social connectedness, as measured through social support and communal mastery. Our findings suggest that social support may be protective against negative health outcomes among this population and corroborates previous scientific literature on the negative health outcomes related to IPV. Interventions seeking to increase social support may be an area in which to focus preventive and treatment efforts. Furthermore, preventive and interventive measures should be

coordinated across multiple service areas including diabetes care, trauma treatment, and mental health services.

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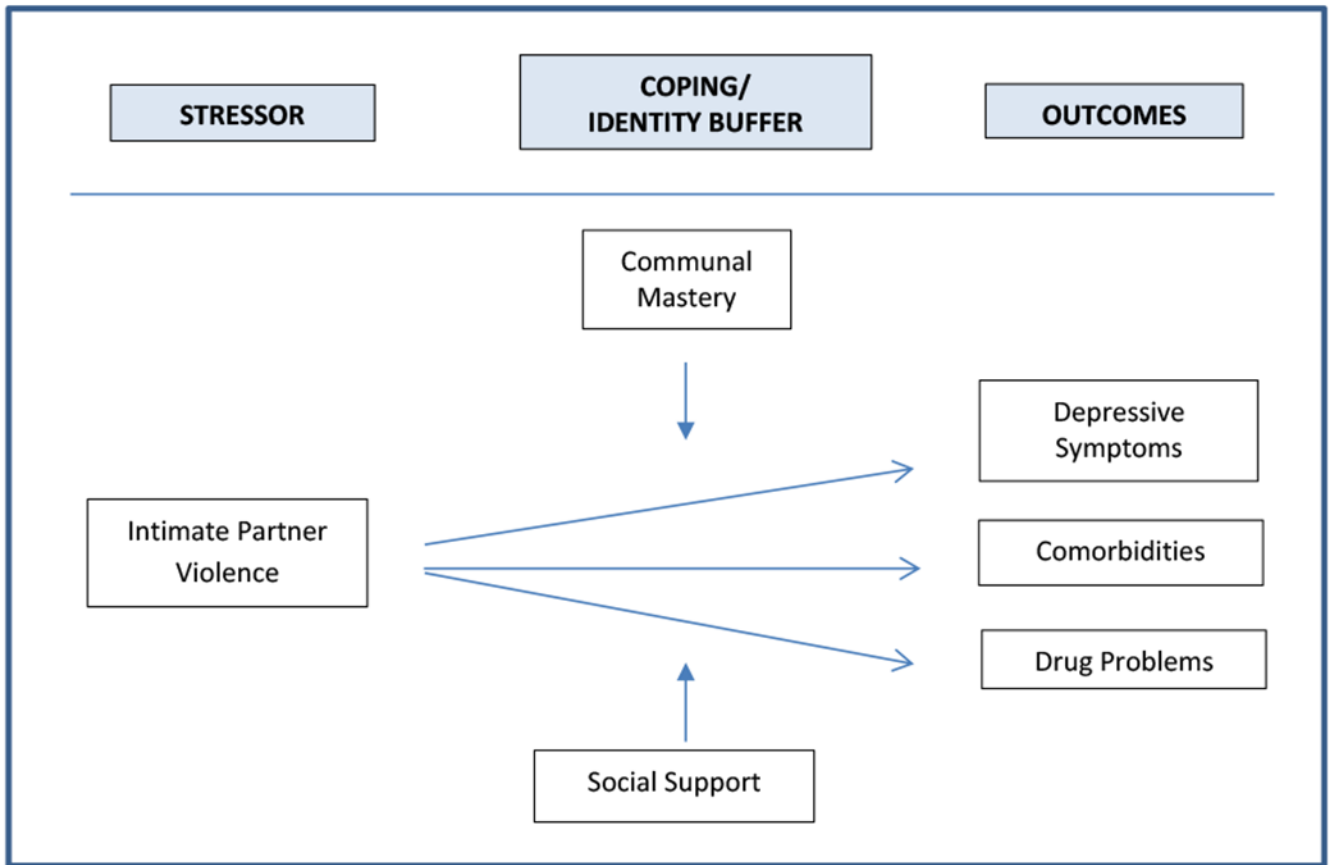


Figure 1. Modified Indigenist Stress-Coping Model (Walters, Simoni, & Evans-Campbell, 2002)

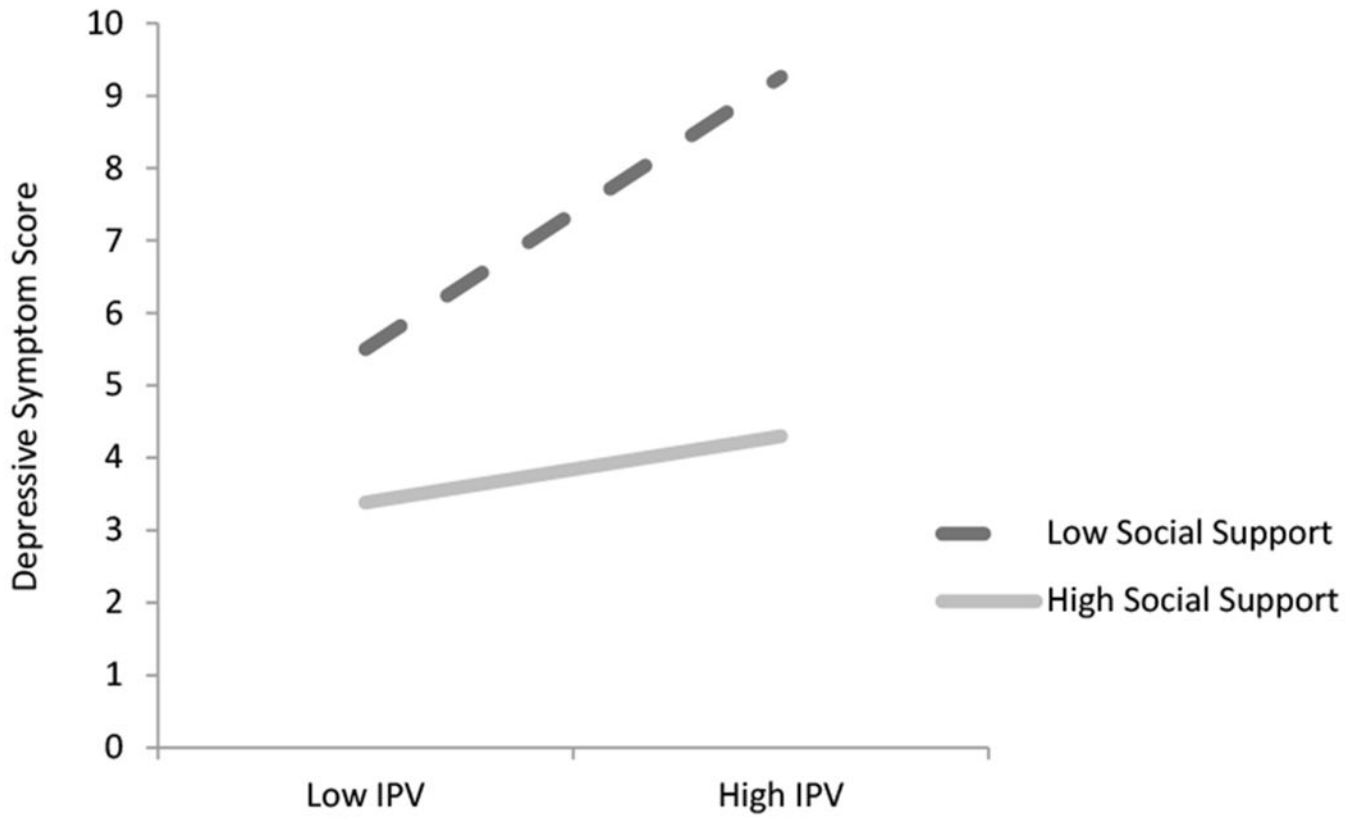


Figure 2.
Depressive Symptom Scores by IPV and Social Support Status

Table 1.

Frequency of Self-Reported Intimate Partner Violence (Current/Most Recent Partner)

	Total	Male	Female
	% (N)	% (N)	% (N)
Physical Abuse	22.5 (39)	16.0 (12)	27.6* (27)
Sexual Abuse	2.9 (5)	1.3 (1)	4.1 (4)
Emotional Abuse	44.3 (77)	42.1 (32)	45.9 (45)
Any of the Above	45.9 (80)	43.4 (33)	47.9 (47)

* Difference between men and women;

p = .07; two-tailed test

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Table 2.

Descriptive Statistics and Bivariate Associations for All Study Variables

	1	2	3	4	5	6	7	8	9
1. Age	1								
2. Gender (Female = 1)	.03	1							
3. Education	.11	.13	1						
4. IPV ^a	-.05	.12	.07	1					
5. Depressive Symptoms	-.09	.19**	-.04	.33***	1				
6. Comorbidities	.26***	.05	.17*	.23**	.11	1			
7. Drug Problems	-.11	-.14	.00	.22**	.14	-.02	1		
8. Social Support	-.00	.08	.16*	-.20**	.39***	-.06	-.21**	1	
9. Communal Mastery	.00	.08	.18*	-.18*	-.23**	-.11	-.12	.42***	1
Mean (S.D) %	46.3 (12.2)	55.7% %	1.55 (.91)	3.22 (5.5)	5.27 (5.6)	1.44 (.82)	.52 (1.3)	2.24 (.68)	2.24 (.53)

p </.001;

**
p </.01;

*
p </.05;

two-tailed tests; values are Pearson's correlation coefficients;

^aintimate partner violence

Table 3: Ordinary Least Squares Regression of Adverse Health Status on Intimate Partner Violence Exposure and Protective Factors

	Depressive Symptoms			Comorbidities			Drug Problems		
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β	
(Constant)	5.61		.41	.27***	.40	.27***	1.30	1.32	
Age (years)	-.03 (.03)	-.06	.02* (.01)	.02***	0.02 (.00)	.02***	-.01 (.01)	-.01 (.01)	
Gender	2.23 (.76)	.20***	.02 (.12)	.01	.03 (.12)	.02	-.46 (.21)	-.42 (.21)	
Educational Status	-.28 (-.43)	-.05	.10 (.06)	.11	.11 (.06)	.12	.07 (.11)	.05 (.12)	
Intimate Partner Violence	0.21 (.07)	.20***	0.03 (.01)	.23***	0.03 (.01)	.22**	0.05 (.02)	0.05 (.02)	
Social Support	-2.61 (.57)	-.32*	-.01 (.09)	-.01			-.41 (.16)		
Communal Mastery									
IPV \times Social Support	-.19 (-.07)	-.18**	-.01 (.01)	-.04			.03 (.02)		
IPV \times Communal Mastery									
R^2	0.30		0.15		0.001 (.02)	.004	0.12	-.03 (.03)	
Adjusted R^2	0.27		0.11		0.12		0.09	0.10	
								0.07	

p </.001

**
p </.01

*
p </.05;

two-tailed tests; B = unstandardized coefficient; β = Beta; SE = standard error