Interpersonal Style and PTSD Symptoms in Female Victims of Dating Violence

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Abstract

Symptoms of posttraumatic stress disorder (PTSD) are some of the most common mental health symptoms women experience following exposure to dating violence (DV). However, not all women who experience DV exhibit PTSD symptoms. One factor that may influence whether or not women exhibit PTSD symptoms in the aftermath of DV exposure is interpersonal style, often operationalized in terms of two orthogonal dimensions, warmth and dominance. In this study, we examined the main and moderating effects of warmth and dominance on the association between DV and PTSD symptoms using latent moderating structural equation modeling in a sample of 303 female college students who reported DV exposure in the past year. Results indicated that warmth exerted a main effect predicting fewer PTSD symptoms. In addition, dominance moderated the association between DV and PTSD symptoms such that at high levels of DV, women who were high on dominance reported fewer PTSD symptoms than did women who were low on dominance. These findings suggest that aspects of interpersonal style may promote resilience to symptoms of posttraumatic stress following DV exposure. Directions for future research are also discussed.

Keywords: dating violence, PTSD, interpersonal style, warmth, dominance

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Dating violence (DV; defined here as physical, psychological, and/or sexual violence perpetrated by a male towards his female dating partner) is a pernicious problem that affects over a third of young adult women (e.g., Eshelman & Levendosky, 2012; Halpern et al., 2009; Smith, White, & Holland, 2003). Violence between romantic partners is associated with a number of adverse mental health outcomes, including symptoms of posttraumatic stress disorder (PTSD; for reviews, see Dutton et al., 2006; Golding, 1999). However, not all women who experience DV develop PTSD symptoms. Differences in the presence of PTSD symptoms may be in part attributable to interpersonal style, which can be defined as how a person interacts with and understands himself/herself in relation to others. Interpersonal style may influence how victims understand and respond to their experience of DV (Yalch, Bernard, & Levendosky, 2015), although this has not yet been demonstrated empirically with respect to PTSD symptoms. Therefore, in this study we examined the direct effect of interpersonal style on PTSD symptoms and the moderating effect of interpersonal style on the association between DV and PTSD symptoms.

PTSD and DV

PTSD is a condition observed in approximately 10% of people who have undergone one or more traumatic life experiences (Breslau, 2009). Symptoms of PTSD include re-living the experience (e.g., through flashbacks, nightmares, and intrusive thoughts), feeling numb and avoiding reminders of the experience, and exhibiting increased physiological arousal, especially when reminded of the experience (American Psychiatric Association [APA], 2000, 2013). Although a wide variety of experiences can result in PTSD symptoms, some experiences are more closely associated with PTSD than others (e.g., Kaminer, Grimsrud, Myer, Stein, &

Williams, 2008). In particular, traumatic experiences that are repetitive, experiences that cause the victim to fear for his or her life, and/or experiences that involve interpersonal betrayal are especially predictive of PTSD symptom development (Becker-Blease & Freyd, 2005; DePrince, 2001; Ozer, Best, Lipsey, & Weiss, 2003).

Contemporary trauma theorists propose that PTSD is a disorder of shattered beliefs in which the traumatic experience challenges assumptions people have about themselves and their environment, and undermines their well-being (Janoff-Bulman, 1992; Freyd & Birrell, 2013; Park, 2010). DV is an exemplar of a traumatic stressor that is often repetitive, entails interpersonal betrayal, and can be life-threatening. Perpetration of DV may also violate women's expectations of romantic relationships, as they are abused by people they expect would provide support (Burton, Halpern-Felsher, Rankin, Rehm, & Humphreys, 2011; Levendosky, Lannert, & Yalch, 2012; Yalch et al., 2015). DV is also often chronic and occurs in multiple forms (physical, psychological, and sexual), factors which further increase the likelihood of developing PTSD symptoms. It is thus unsurprising that PTSD symptoms are common among women in violent romantic relationships (Golding, 1999; Jones, Hughes, & Unterstaller, 2001; Pico-Alfonso et al., 2006).

The degree to which women exposed to DV exhibit PTSD symptoms varies across women. Part of this likely has to do with the nature of the violence they experience. Namely, more frequent and more severe experiences of DV are associated with more PTSD symptoms (Dutton et al., 2006; Woods, 2000; Yalch, Levendosky, Bernard, & Bogat, 2017). However, variability in the abuse does not explain all of the variability in outcomes, suggesting that additional factors may contribute to differences in PTSD symptoms across exposed women (e.g., Coker, Weston, Creson, Justice, & Blakeney, 2005). Recent research has examined the role of

individual differences in the development of PTSD in general (e.g., Kramer, Polusny, Arbisi, & Krueger, 2014; Lommen, Engelhard, Sijbrandij, van den Hout, & Hermans, 2013) and the role of individual differences in women's response to DV specifically (e.g., Sabina & Ho, 2014; Yalch, Lannert, Hopwood, & Levendosky, 2013).

DV and Interpersonal Style

One individual difference that may influence how women respond to DV is interpersonal style. Interpersonal style is the totality of a person's characteristic behavior with other people and thoughts about the self in relation to other people. This includes one's own attributes with respect to others (interpersonal traits), how one wants to be viewed by others (interpersonal values), and how one actually behaves in the presence of others (interpersonal strengths and weaknesses) (Carson, 1969; Horowitz, 2004; Pincus, Lukowitzsky, & Wright, 2010; Sullivan, 1953; Wright, Perez, & Johnson 2010). Interpersonal style is often quantified in terms of two orthogonal dimensions, warmth and dominance (Wiggins, 1991). Warmth is the motivation to affiliate with others to gain a sense of belonging and security. Dominance is the motivation to fulfill one's potential and is important in the development of self-efficacy.

Research suggests that warmth and dominance underlie the interpersonal aspects of other personality trait models such as the Five Factor Model (Wiggins & Trapnell, 1996). There is a small but growing literature suggesting that interpersonal style influences response to trauma in different ways from other kinds of personality traits. For example, research suggests that profiles of warmth and dominance influence the chronicity of PTSD symptoms whereas profiles of other kinds of personality trait profiles influence type of PTSD symptoms (e.g., internalizing vs. externalizing forms of PTSD; see Thomas et al., 2012). Recent research has also examined levels of warmth and dominance in survivors of DV specifically. Results suggest that high warmth is

associated with fewer symptoms of affective, cognitive, and physiological dysregulation in general, and symptoms of anxiety and depression in particular (Yalch et al., 2013, 2015). This research further suggests that dominance buffers the effect of DV on these mental health outcomes.

There are several reasons why high warmth and dominance may be protective against PTSD for women exposed to DV. Women who are warmer tend to have better social support systems, which are in turn associated with increased well-being and better mental health (Coker et al., 2002; Rutter, 1990; for review see Nugent, Amstadter, & Koenen, 2011). Coker and colleagues (2002) further suggest that increased social support may lead to better coping skills, which may in turn help to decrease the feelings of fear and helplessness that contribute to the development of PTSD symptoms. In addition, increased warmth may be specifically beneficial to victims of DV. Through better social support, warmer women may have increased feelings of security and decreased feelings of helplessness by virtue of increased salience of alternatives to the DV relationship (Coker et al., 2002). This increased connectivity and security may be particularly important for women who experience more severe DV, who may be at greater risk of feeling emotionally isolated by their experience, as well as physically isolated by their perpetrator. Recent research also suggests that high warmth is associated with increased likelihood of seeking out interpersonal support in the form of psychotherapy in the aftermath of experiencing DV (Yalch, Schroder, & Dawood, 2017). There may thus be multiple ways through which increased warmth and interpersonal connectedness may help to decrease feelings that are commonly associated with both DV and PTSD symptoms.

Like warmth, dominance may also be associated with fewer PTSD symptoms because individuals who are more dominant may feel more self-efficacious and in control (Wiggins,

1991). Dominance may be important in women exposed to DV by influencing women's appraisals of DV. Research suggests that high dominance among women exposed to DV is associated with less alienated, betrayed, fearful, self-blaming, and shameful appraisals of themselves following DV (Yalch & Levendosky, 2015). These appraisals are in turn associated with fewer symptoms of PTSD (DePrince, Chu, & Pineda, 2011; Street & Arias, 2001; Walker 1977/1978). Thus, through more adaptive appraisals of the self, women who have high levels of dominance may be less likely to develop mental health problems following exposure to DV, a pattern demonstrated in several studies (Filson, Ulloa, Runfola, & Hokoda, 2010; Wright et al., 2010; Yalch et al., 2013). It may be that these women are less likely to have their beliefs shattered because the experience of DV does not cause them to question their assumptions about who they are. Dominance may thus be particularly beneficial for women in the context of more severe and/or more frequent DV. In other words, as DV increases in severity and/or frequency, higher levels of dominance may be increasingly helpful in protecting against the increased risk of making maladaptive self-attributions, feeling fearful, and feeling helpless.

Recent research has highlighted the role of interpersonal style on women's response to DV as well as possible mechanisms of interpersonal style's effects. The main and moderating effects of warmth and dominance have been demonstrated with respect to a number of mental health outcomes common among women exposed to DV (e.g., symptoms of anxiety, depression). However, research has not yet examined the influence of interpersonal style on exposed women's response to PTSD symptoms in particular.

Current study

In this study, we examined the main and moderating effects of warmth and dominance on the association between DV and PTSD symptoms in a sample of young adult women exposed to

DV, thus extending the nascent but growing research on the influence of interpersonal style on women's response to DV. We hypothesized that warmth and dominance would have main effects on PTSD symptoms over and above the effects of DV, with women who were warmer or more dominant exhibiting fewer PTSD symptoms. We also hypothesized that warmth and dominance would moderate the effect of DV on PTSD symptoms, such that in the context of high DV, women who were warmer or more dominant would have fewer PTSD symptoms than women lower in warmth and dominance.

Method

Participants

Participants in this study were 303 young adult women drawn from a larger study of women's health at a large Midwestern public university ($N = 565$; see Yalch et al., 2013). Women were included in this study if they endorsed exposure to physical and/or sexual DV within the past year. Because of how common psychological IPV is among college-aged women (see Yalch, Levendosky et al., 2017) and in order to ensure a more severe sample, women who endorsed psychological DV only were not included in the present sample. The ethnic demographics of the sample were consistent with those of the university (White, 76%; Black, 13%; Asian/Pacific Islander, 6%; Latina, 2%; other, 3%). The sample was almost entirely (99%) between the ages of 18 and 25. The sample used in this study did not differ in terms of ethnicity or age from the broader sample from which it was selected.

Measures

The constructs of interest were assessed using a battery of reliable and valid measures. Psychometric information for these measures is listed in Table 1. Scores were calculated for each

scale using the average of all items endorsed within each scale. Variables were standardized prior to the analysis ($M = 0.00$, $SD = 1.00$).

Dating violence. Physical and sexual DV were measured using the physical and sexual victimization sub-scales of the *Revised Conflict Tactics Scales* (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). The CTS2 is 78-item questionnaire measuring violent behaviors and threats experienced with an intimate partner within the past year. Examples of items include “My partner punched or hit me with something that could hurt” and “My partner used force (like hitting, holding down, or using a weapon) to make me have oral or anal sex.” Women rated their experience of physical and sexual DV on a 6-point Likert-type scale ranging from “Never” to “More than 20 times.”

We measured psychological DV using the short version of the *Psychological Maltreatment of Women Inventory* (PMWI-S; Tolman, 1999). The PMWI-S is a 14-item questionnaire measuring psychological aggression experienced with an intimate partner within the past year that provides a more comprehensive assessment of psychological aggression than the psychological subscale of the CTS2. Examples of items include “My partner yelled and screamed at me” and “My partner called me names.” We augmented our measurement of psychological DV with six additional items accounting for control of online and social media that are not assessed via the PMWI-S or other traditional measures of DV (see Appendix 1). Women rated their experience of psychological DV on a 5-point Likert-type scale ranging from “Never” to “Very frequently.”

Interpersonal style. We measured warmth and dominance using the *International Personality Item Pool – Interpersonal Circumplex* (IPIP-IPC; Markey & Markey, 2009). The IPIP-IPC is a 32-item questionnaire measuring interpersonal style. Women rated aspects of their

interpersonal style on a 5-point Likert-type scale ranging from “Strongly Disagree” to “Strongly Agree.” Examples of items include “I demand attention” and “I am quiet around strangers.” Each item in the IPIP-IPC loaded onto one of eight octant scales of interpersonal behavior assessing a combination of warmth and dominance (warmth, coldness, dominance, submissiveness, warm dominance, cold dominance, warm submissiveness, cold submissiveness). We calculated vector scores for warmth and dominance from these octant scores using formulae provided by Markey and Markey (2009). In order to confirm the psychometric adequacy of these scores, we performed a randomization test to verify circumplex structure, evaluating the degree to which observed correlations among the octants conform to predictions based on their circular arrangement (e.g., scales predicted to be adjacent should more strongly correlate than scales predicted to be orthogonal). The RANDALL (Tracey, 1997) computer program revealed a Correspondence Index of .93 ($p < .05$), indicating that these predictions were overwhelming met, and supporting the reliability and structural validity of the IPIP-IPC in this study.

PTSD symptoms. We measured PTSD symptoms using the civilian version of the *PTSD Checklist* (PCL-C; Ruggiero, Del Ben, Scotti, & Rabalais, 2003). The PCL-C is a 17-item questionnaire measuring diagnostic symptoms of PTSD from the *Diagnostic and Statistical Manual of Mental Disorders-IV-TR* (DSM-IV-TR; APA, 2000). Research suggests that although the PCL-C was based on diagnostic criteria for PTSD in DSM-IV-TR, it can also be used to approximate PTSD diagnoses in DSM-5 (Rosellini et al., 2015). Women rated how much each PTSD symptom bothered them on a 5-point Likert-type scale ranging from “Not at all” to “Extremely.” Of note, participants were asked to rate only those PTSD symptoms that they specifically associated with their DV experience.

Procedures

Questionnaires were administered online after the completion of a consent form. All procedures of the study were approved by the university Institutional Review Board. Women received course credit for participating in the study.

Results

Psychometric statistics and correlations between variables are listed in Table 1. Bivariate effects ranged from small to large in size. Correlations were largest between forms of DV (physical, sexual, and psychological) and between each of these forms and PTSD symptoms. In general, there were no statistically significant associations between warmth, dominance, and DV exposure; the exception to this was a small-sized negative correlation between dominance and psychological DV ($r = -.18, p < .05$).

Prior to testing our main hypotheses, we performed a preliminary confirmatory factor analysis (CFA) in order to confirm the viability of our latent assessment of DV. We conducted this and subsequent latent variable analyses using robust maximum likelihood estimation in Mplus (version 6; Muthén & Muthén, 2010). There was substantial skew and kurtosis in the data (see Table 1), which can introduce bias in latent variable models (Tomer & Pugeseck, 2003). In order to account for this, we augmented this and subsequent analyses using Monte Carlo simulation (Mooney, 1997), which research suggests helps to address non-normality (Bandalos & Leite, 2013).

In the preliminary CFA, we derived our latent measurement of DV using indicators of physical, sexual, and psychological DV, setting the variance of physical DV in the model to 1.00. The overall fit of the CFA was excellent (RMSEA = .00, CFI = 1.00, SRMR = .00). The χ^2 test of model fit was statistically significant ($\chi^2 = 104.26, df = 3, p < .05$); however, given other fit

indices, this may most accurately be interpreted as being due to the large size of the sample rather than an indication of poor model fit.

After confirming the validity of our latent measurement of DV, we constructed a model testing the relative effects of DV, warmth, and dominance on PTSD symptoms. As with the previous model, overall model fit was excellent (RMSEA = .06, CFI = .95, SRMR = .04), although again the χ^2 test of model fit was statistically significant ($\chi^2 = 205.72$, $df = 8$, $p < .05$). The results of this model indicated that warmth provided a negative main effect on PTSD symptoms. Dominance did not exhibit a statistically significant main effect on PTSD symptoms.

We estimated the moderating effects of warmth and dominance on the association between DV and PTSD symptoms using latent moderating SEM (LMS; Klein & Moosbrugger, 2000). The LMS method offers an advantage over other approaches to testing moderation by providing a moderation term without introducing additional non-normality common in interaction variables (Klein & Moosbrugger, 2000; Marsh, Wen, Hau, & Nagengast, 2013). Although LMS models do not yield indices of approximate fit (e.g., RMSEA, CFI), the LMS model exhibited adequate comparative fit ($\Delta AIC = -1.25$). The results of this model indicated that dominance (but not warmth) significantly moderated the association between DV and PTSD symptoms, buffering the effect of DV on PTSD symptoms (see Figure 1). Specifically, at high levels of DV, less dominant women exhibited more PTSD symptoms than more dominant women (see Figure 2). This effect provided an incremental influence over the main effects of DV and warmth.

Discussion

In this study we examined the main and moderating effects of warmth and dominance on the association between DV and PTSD symptoms. Results indicated that warmth was associated

with fewer PTSD symptoms over and above DV exposure, and dominance served as a buffer against PTSD symptoms among women with high levels of DV exposure.

These findings are consistent with previous research suggesting that women who are warmer are less likely to develop internalizing problems, such as anxious or depressive symptoms (Yalch et al., 2013). Thus, increased warmth may be protective against mental health problems. However, warmth did not moderate the effect of DV exposure as we hypothesized, which suggests that being warm and having good social support are beneficial regardless of how much DV women have experienced. In other words, women exposed to low levels of DV may still benefit from feeling supported by and connected to others, in the same way that someone exposed to high levels of DV might. Although not hypothesized, this finding is consistent with long-standing interpersonal thought regarding the psychological benefits of being able to affiliate warmly with others (e.g., Blatt, 2008).

In contrast, results suggest that high dominance may be specifically protective against PTSD symptoms for women who have experienced more severe DV. Women who are more dominant may feel less negatively about themselves following exposure to DV, which may help to counteract the damaging effect of DV on self-concept. In addition, women who are more dominant may feel more in control than women who are less dominant, leading them to feel less helpless and more agentic. This is consistent with evidence suggesting that women exposed to DV who are more dominant perceive the violence they experience less negatively (e.g., less likely to feel betrayed, blame themselves, feel fearful, alienated, angry, and ashamed) (Yalch & Levendosky, 2016). For these reasons, dominance may reduce women's distress following DV and promote more active coping strategies, in turn leading to fewer PTSD symptoms. This is consistent with previous research indicating that people with PTSD stemming from a variety of

stressors (i.e., not limited to DV) who had more dominant interpersonal profiles had PTSD with shorter duration than those with less dominant profiles (Thomas et al., 2012). Dominance may be less beneficial at low levels of violence because women may not be as likely to blame themselves, feel alienated, or feel helpless when DV is less severe and perhaps less traumatic. In other words, there may be fewer instances in which a woman would need to engage in dominant behavior to protect herself (either psychologically or physically) from less severe violence.

The attenuating effect of dominance on women's psychological response to DV exposure in this and previous studies sheds some light on the possible mechanisms by which DV exerts its effects on exposed women. This finding is consistent with the view proposed by many scholars of dating and other intimate partner violence that a primary mechanism by which violence between romantic partners has an influence on women's mental health is by undermining their agency (e.g., Johnson, 2008; Levendosky et al., 2012; Walker, 1977/1978, 1979). In other words, these findings suggest that DV is associated with symptoms of anxiety, depression, and PTSD because DV exposure makes women feel helpless and weak and thus more likely to experience psychological distress. Future research on the interpersonal nature of DV (e.g., women's perception of DV and themselves in the context of DV) can examine this issue further.

The results of this study extend previous research on the association between interpersonal style and the psychological consequences of DV (e.g., Yalch & Levendosky, 2016; Yalch et al., 2013, 2015) to PTSD symptoms, which are common in survivors of DV. Future research should further extend the findings of this study to other psychological outcomes associated with DV (e.g., hazardous substance use, dissociation). In addition, future research should examine the influence of other kinds of individual differences on the association between DV and mental health symptoms. For example, although warmth and dominance constitute the

primary dimensions of *interpersonal* style, they do not capture meaningful variance associated with individual differences in *affective* style, which is independent of, but interacts with, dimensions of interpersonal style to produce psychological experience (see Hopwood, Zimmermann, Pincus, & Krueger, 2015). There is a small but growing body of work examining the influence of affective style on women's response to DV (Yalch, Levendosky et al., 2017; Yalch & Levendosky, 2018), but research examining how affective and interpersonal style interact in the context of DV remains limited. Future research examining the interaction between affective, interpersonal, and other kinds of individual differences on the psychological responses of DV survivors may thus also be valuable.

In contrast to previous studies, we examined effects in this study using a latent variable modeling approach, which recent research suggests may yield more accurate estimates of effects than non-latent approaches to effect estimation (e.g., multiple regression; see Westfall & Yarkoni, 2016). Our latent measurement of DV included an augmented measure of psychological violence incorporating aspects of violence not captured in conventional assessments of DV or partner violence more generally. Future research should continue to take advantage of these and other methodological innovations, both statistical and psychometric.

There were also several limitations of this study. For example, all participants were college students, which may constrain the generalizability of study results to other demographics of women exposed to DV. Specifically, college women's experiences of DV may differ from those of other women in that college women may be less financially dependent on their partners and less likely to cohabitate with their partners. In addition, they may have better support and/or feel less isolated due to regular social contact in classes and resources provided by universities. Thus, the effect of warmth may be less pronounced in this study of students than it might be for

other women exposed to DV, because students may have more resources and social support readily available to them. The results of this study should thus be replicated in different samples of women exposed to DV. Another limitation of this study is that we did not measure and control for other constructs that are relevant to PTSD/DV (e.g., environmental conditions like community violence, other forms of mental illness that often co-occur with PTSD like substance use). Finally, this study was cross-sectional, which constrains the causal interpretation of our findings. Future research should thus also examine the main and moderating influence of warmth and dominance on the association between DV and PTSD symptoms in different samples of women exposed to DV, measure a broader range of relevant constructs, and use a longitudinal design.

In this study we examined the association between interpersonal style and PTSD symptoms in female survivors of DV. We extended previous research on interpersonal style and DV, and found that warmth was associated with fewer PTSD symptoms in general and that dominance buffered the effect of DV on PTSD symptoms. This study provides an additional step towards understanding the role of individual differences in interpersonal style in resilience and mental health following DV.

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Table 1. *Correlations between variables.*

	1	2	3	4	5	6
1. Physical DV	(.86)					
2. Sexual DV	.46*	(.71)				
3. Psychological DV	.57*	.38*	(.95)			
4. Warmth	-.10	.01	-.03	—		
5. Dominance	-.06	-.02	-.18*	.04	—	
6. PTSD symptoms	.31*	.22*	.35*	-.18*	-.09	(.93)
Skew	3.34	2.38	1.41	-.25	-.06	1.10
Kurtosis	14.69	7.89	1.66	.28	.46	.68

Notes: * indicates statistically significant at $p < .05$; Cronbach's alpha on diagonal in parentheses.

Figure 1. *Graphical representation of SEM depicting main and moderating effects of warmth, dominance, and DV on PTSD symptoms.*

Figure 2. *Graphical depiction of moderating effect of dominance on association between DV and PTSD symptoms.*

Appendix 1:
Items added to PMWI-S

My partner restricted my use of social networking sites (Facebook, Myspace, Twitter, etc.).

My partner monitored who you communicated with online.

My partner made me give him/her my online passwords to monitor my e-mail/Facebook/etc.

My partner checked my computer browsing history

My partner checked my call and text history on my phone.

My partner read my e-mail or other personal communications without my permission and/or knowledge.