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Physical Health and Posttraumatic Stress Disorder Symptoms in Women Experiencing Intimate Partner Violence

Stephanie J. Woods, RN, PhD [Professor],
The University of Akron College of Nursing, Akron, OH.

Rosalie J. Hall, PhD [Associate Professor],
The University of Akron Department of Psychology, Akron, OH.

Jacquelyn C. Campbell, RN, PhD, FAAN [Professor], and
The Johns Hopkins University, School of Nursing, Baltimore, MD

Danielle M. Angott, BA [Project Director]
The University of Akron, College of Nursing, Akron, OH.

Abstract

This correlational-predictive study addresses the associations between intimate partner violence (IPV) and physical health and posttraumatic stress disorder (PTSD) symptoms, including: 1) detailed physical health symptoms reported and health care sought by women in intimate abusive relationships, 2) relationships between physical health symptoms, IPV, and PTSD, and 3) unique predictors of physical health symptoms. An ethnically diverse sample of 157 abused women was recruited from crisis shelters and the community. The women averaged almost 34 years of age and had been in the abusive relationship for slightly more than 5 years. The women experienced physical health symptoms falling into 4 groups: neuromuscular, stress, sleep, and gynecologic symptoms. Women experiencing more severe IPV reported more physical health and PTSD symptomatology. PTSD avoidance and threats of violence or risk of homicide uniquely predicted physical health. More than 75% of the women had sought treatment from a health care professional in the previous 9 months. Implications for practice are discussed.

Keywords

domestic violence; women's health; intimate partner violence; posttraumatic stress disorder

INTRODUCTION

As many as one in three women will experience some form of abuse from a family member or intimate partner during her lifetime.¹ Intimate partner violence (IPV) leads to serious physical health problems^{2–4} and mental health consequences for abused women, including symptoms of posttraumatic stress disorder (PTSD).^{5–7} This may explain observations of increased health care visits and costs among women who have experienced IPV.⁸ This paper examines: 1) detailed physical health symptoms women experience in intimate abusive relationships and health care treatment sought, 2) relationships between groupings of physical health symptoms, IPV, and PTSD, and 3) unique predictors of physical health symptoms.

BACKGROUND AND SIGNIFICANCE

This research was guided by the concepts of allostasis and allostatic load. Allostatic load is the cost to the body when adapting to adverse and repeated psychosocial and physical stressors, including interpersonal relationships, lifestyle, and environmental factors.⁹ Allostatic load can lead to excess exposure to neural, endocrine, and immune stress mediators that may negatively affect body chemistry, structure, and function over time.⁹ IPV is an acute source of stress, which may lead to experiencing both physical health and PTSD symptoms, all three of which can then continue to function as chronic, prolonged stressors, which may further adversely impact overall physiologic balance and well-being. This view implies the development of a consistent pattern of positively correlated relationships among these three sets of variables. Because of the joint actions of underlying stress mediators, more severe levels of IPV may be linked to higher levels of physical and mental health symptoms. In turn, these symptom levels may be distressing enough for women to seek assistance from health care professionals. A review of related research follows.

IPV is a significant risk factor for a variety of physical health problems,^{3,4,10} with both direct and indirect effects on women's health.¹¹ For instance, Campbell et al.,⁴ in a multisite case-control study of 2005 health maintenance organization enrollees, found that abused women experienced: 1) gynecologic problems, including sexually transmitted diseases, urinary tract and vaginal infections, and painful sexual intercourse; 2) central nervous system problems, such as back pain, headaches, fainting, and seizures; and 3) chronic stress-related health problems, including hypertension, loss of appetite, abdominal pain, and increased susceptibility to viral and bacterial infections. Similar outcomes have been replicated in several well controlled and designed studies both in the United States^{3,10} and internationally.² The results reported in the literature underscore the acute and long-term physical health effects of IPV. However, the relationship between physical health and PTSD symptoms in women experiencing IPV was not examined in these studies.

This issue is important because PTSD may be both an acute and long-term effect of IPV,^{6, 12–14} lasting even after the woman has left the abusive relationship.⁷ Golding⁵ conducted a meta-analysis of 11 studies and reported that 31% to 84.4% of women who experienced IPV met PTSD criteria (weighted mean prevalence = 63.8%). The relationship between IPV and PTSD appears to hold across physical, emotional, and sexual abuse, threats of violence, and risk of homicide, with more severe abuse associated with more severe symptoms.¹⁵

Female trauma survivors experiencing moderate to severe PTSD symptoms also have more physical health problems^{16,17} and are at increased risk of morbidity and mortality.^{18,19} A higher lifetime prevalence of chronic pain and cardiovascular, respiratory, gastrointestinal, musculoskeletal, and infectious diseases has been associated with chronic PTSD across different types of trauma survivor groups.^{16,20–24} Alterations in immune function have been reported in research with women experiencing intimate abuse and PTSD symptoms.^{25,26} Moreover, research has shown that the more severe the PTSD symptoms, the greater the physical health problems experienced by trauma survivors in general, and for those surviving sexual assault in particular.^{16,17,19,27}

In addition, there is a need to follow the trend established by some researchers who have begun a more detailed examination of the effects of specific PTSD symptom clusters of re-experiencing, avoidance, and increased arousal on physical health. Re-experiencing symptoms include intense feelings of distress or physiologic reactivity to reminders of the trauma, disturbed sleep, and/or painful intrusive memories. PTSD avoidance or numbing consists of avoiding thoughts, feelings, activities, people, or discussions related to the trauma, decreased interest in activities, detachment from others, and/or restricted affect. Symptoms of increased

arousal may include hypervigilant behaviors, exaggerated startle responses, irritability, and/or impaired concentration. PTSD hyperarousal symptoms significantly predicted physical health problems in female war veterans and battered women.^{16,28} In contrast, re-experiencing or intrusive symptoms explained a significant portion of the variance in physical health of female victims of sexual assault when controlling for depression and negative life events.²⁷ The variation in these findings, particularly with exposure to different traumatic experiences, suggest that additional research is needed to examine the effect of specific PTSD symptom clusters on a wide range of physical health symptoms in women currently experiencing abuse, a void this study addresses. Such information may assist practitioners in focusing interventions for this population. In addition, this study explores the differential predictive ability of specific types of IPV for physical health symptoms.

Thus, the following research questions were examined in this paper:

1. What types of physical health symptoms do women currently in an intimate abusive relationship report experiencing, and how often do they seek health care for those symptoms?
2. What relationships exist between IPV, posttraumatic stress symptoms, and physical health symptoms in intimately abused women?
3. What are the unique predictors of physical health symptoms in intimately abused women?

METHODS AND PROCEDURES

A convenience sample of 157 currently abused women was recruited over 9 months through bulletin board postings, pamphlets, and weekly visits to three crisis battered women's shelters and community agencies providing domestic violence services in three counties in a Midwestern state. The study used a correlational-predictive design. Following explanation of the study by the principal investigator or a member of the research team, and after obtaining informed consent, the women completed a questionnaire booklet containing multiple self-report instruments. Participants received a monetary acknowledgement in appreciation for their participation. The study was approved by the Institutional Review Board for the Protection of Human Research Participants at The University of Akron.

MEASURES

Intimate Partner Violence

Five types of IPV were assessed. Physical violence, sexual violence, and threats of violence by an intimate abusive partner were measured by the 46-item, 4-point Likert-type Severity of Violence Against Women Scales (SVAWS).²⁹ Higher scores on these dimensions indicate greater violence within the intimate relationship. Marshall,²⁹ in a sample of 707 female college students and a follow-up community sample, reported coefficient alphas ranging from 0.89 to 0.96 for the SVAWS dimensions.

The Index of Spouse Abuse nonphysical subscale (ISA-NP) was used to measure emotional abuse. The ISA-NP is an 18-item, 5-point Likert-type subscale designed to assess the magnitude of nonphysical or emotional abuse experienced by women in intimate abusive relationships.³⁰ The reliability and validity of the ISA-NP have been well established, including across ethnic groups.^{30,31}

The risk of homicide was measured using the Danger Assessment scale (DA),³² a 20-item instrument in which respondents answer yes or no to items that assess for risk of homicide. More yes responses indicate a greater risk of homicide. Campbell^{32,33} reviewed seven studies

using the DA in a variety of clinical and community settings and reported internal consistencies of 0.60 to 0.86. In a large national case control study, the predictive validity for attempted homicide was 0.90.³²

Posttraumatic Stress Disorder Symptomatology

PTSD symptomatology was assessed using the PTSD Symptom Scale (PSS, self-report version).³⁴ The PSS, a 17-item, 4-point Likert-type inventory, was used to assess PTSD symptom severity and its three symptom clusters of posttraumatic intrusion or re-experiencing, avoidance, and arousal symptoms during the past month. Each item corresponds to a PTSD diagnostic criterion, and higher scores indicate greater symptom intensity. Reliability and validity of the PSS has been established with female rape victims and battered women.^{25,34} Internal consistency of the PSS overall severity score and each of the PTSD subscales was supported in this sample by Cronbach's alphas ranging from 0.80 to 0.90.

Physical Health Symptoms and Health Care Visits

Physical symptoms were assessed using a modified version of the Pennebaker Inventory of Limbic Languidness (PILL).^{35,36} The original PILL is a 54-item, 6-point Likert-type scale that assesses the frequency of common physical symptoms and sensations.³⁵ The PILL was modified by selecting only those items applicable to the study population and by adding specific health symptoms cited within the literature for women who experience IPV. The modified 60-item scale (M-PILL) reflects empirical evidence of physical health problems experienced by abused women⁴ and addresses limitations regarding the limited number of gynecologic-related items on health symptom inventories noted in a review of nursing research on IPV and women's health.³⁷ To assess physical health symptoms in this study, participants were asked to rate the frequency within the past 9 months with which they have experienced each symptom, using a scale of 0 (not at all) to 5 (more than once a day). The total scale scores obtained for frequency of occurrence were summed to obtain overall physical health symptoms. An additional item was added to the M-PILL that asked the respondents if they had been treated by a health care professional for each symptom within the past 9 months. Zoellner et al.,²⁷ using a previously modified version of the PILL, reported a Cronbach's alpha of 0.94 for the scale with 76 female victims of sexual assault suffering from chronic PTSD.

Analysis of Data

Pearson correlations were used to determine the associations between IPV, physical health symptoms, and PTSD symptomatology. Groups of related physical health symptoms were determined using exploratory factor analysis (principal axis factoring, promax rotation with Kaiser normalization) of the M-PILL items. The impact of demographics, health behaviors, IPV, and PTSD symptomatology on physical health was evaluated via stepwise regression analyses using a forward entry criterion of $P < .05$ for change in R^2 , so that variables which did not significantly and uniquely contribute were not included. For each analysis, step 1 entered the demographics and health behaviors of age, education, annual income, body mass index (BMI), and current smoking, alcohol, and drug use. Age was always included as a covariate at step 1, regardless of statistical significance. Step 2 entered the five different types of IPV and length of abusive relationship. Finally, step 3 entered the PTSD symptom clusters of re-experiencing, avoidance, and increased arousal.

To capture the multidimensionality of physical health symptoms while still having a manageable number of variables for analysis, a series of factor analyses was performed on the 60 M-PILL symptom responses. The results of these factor analyses then guided the creation of a set of scale scores for groupings of related symptoms. The initial factor solution had nine eigenvalues greater than one, suggesting the potential for up to nine underlying latent factors. However, a careful inspection of factor solutions of different dimensionalities showed that

increasing the number of factors to greater than four resulted in solutions that had uninterpretable factors, many of them with only a single highly loading item. Thus, the four-factor solution, which explained 52% of the variance in the pool of items, was used. Symptoms which did not cluster reliably with others, as indicated by their low loadings (e.g., values < 0.30) on the primary factors, were dropped from further analysis.

The final rotated factor matrix yielded four underlying factors that explained the interrelations among the majority (41 of 60) of the physical health symptoms. The four symptom scales were: 1) neuromuscular (13 primary items with loadings ranging from 0.37 to 0.84, and fatigue, with a cross-loading of 0.29); 2) stress (15 items with loadings ranging from 0.42 to 0.93); 3) sleep (seven items with loadings ranging from 0.38 to 0.87); and 4) gynecologic (six items with loadings ranging from 0.47 to 0.66). With the exception of fatigue, which loaded significantly on both the neuromuscular and sleep scales, each symptom was included in only one scale score.

FINDINGS

Sample

The average age of the women in this sample was 33.7 years (standard deviation [SD] = 9.52; range, 8–64 years). Forty-seven percent ($n = 74$) of the abused women were African American, 46% ($n = 72$) were white, and the remaining 7% ($n = 11$) were Hispanic, American Indian, or Alaskan Native, or other race/ethnicity. Forty-seventy percent of the women ($n = 71$) had a high school education, 24% ($n = 36$) had between an eighth- and eleventh-grade education, 25% ($n = 37$) had a partial college or technical education, and 4% ($n = 6$) had a college degree. The average annual household income fell between \$10,000 and \$15,000 (range, <\$10,000 to >\$50,000). On average, the women in this sample had between two and three children. The average length of the abusive relationship was 5.35 years (SD = 6.7 years; range, <1 month to 34 years).

In terms of general health behaviors, 71% of the women reported smoking, with most of these (89%) smoking a pack or less per day. However, the majority of the women did not currently use alcohol (82%) or drugs (75%). The median BMI was 28.26 (range, 17.79–54.81; four women in the sample had extremely high BMI values). Finally, 40% of the women had received some type of mental health counseling while in the abusive relationship.

Physical Health Symptoms

The average number of physical health symptoms (out of 60 possible) reported by women in this sample as occurring at least “every month or so” was 19.40 symptoms (SD = 13.25; range, 0–52). Table 1 presents the symptom content of the four newly created physical health symptom scales and the proportion or frequency of women in the sample who reported experiencing the symptom at least 3 to 4 times per year or more. Three of the four physical health symptom scale scores—neuromuscular, stress, and sleep—showed strong interrelationships, with correlations ranging from 0.64 to 0.79 ($P < .001$). The gynecologic scale score correlated significantly with the other three physical symptom scale scores, but not as strongly, with correlations ranging from 0.33 to 0.48 ($P < .001$).

More than three-quarters (76.4%) of the women in this sample sought treatment at least once during the previous 9 months for physical health symptoms. More specifically, slightly more than half of the women visited a health care professional at least once with one or more neuromuscular symptoms (56.7%). Similarly, 53.5% visited with one or more stress symptoms and 54.1% with one or more sleep symptoms. A little more than a third of the women (35%) visited a health care professional with one or more gynecologic symptoms during the past 9

months. Some women sought treatment for symptoms falling into more than one of the physical health symptom groups.

Relationships Between Intimate Partner Violence, Physical Health Symptoms, and PTSD

Descriptive and correlational analyses of the measures of IPV, physical health symptom scales, and PTSD symptomatology are presented in Table 2. The mean values show that the women in this sample experienced substantial physical violence, emotional abuse, sexual violence, threats of violence, and risk of homicide in their current intimate relationships. They also demonstrated high levels of PTSD symptom severity—92.4% met criteria for clinical diagnosis. Internal consistency for all measures was supported by Cronbach's alphas. Alphas for the IPV measures ranged from 0.81 to 0.94, for the PSS measures ranged from 0.80 to 0.90, and for the physical health symptom measures ranged from 0.74 to 0.92.

Correlations among IPV types and PTSD symptoms indicated significant positive relationships, ranging from 0.23 to 0.47 ($P < .01$ or better). In other words, higher levels of IPV were associated with more severe PTSD symptomatology. There were also significant positive relationships between all types of IPV and neuromuscular, stress, sleep, and gynecologic symptoms. Women experiencing more severe intimate abuse reported more physical health symptoms, as indicated by correlations ranging from 0.16 to 0.35. Finally, significant positive relationships between overall PTSD symptom severity and all four physical health symptom groups (neuromuscular, stress, sleep, and gynecologic) indicated that more severe PTSD symptomatology was associated with greater physical health symptoms. The significant correlations ranged from 0.17 to 0.40.

In contrast, health behaviors tended to have weak or nonsignificant relationships with PTSD symptomatology and physical health symptoms. PTSD symptom severity and the PTSD symptom cluster of increased arousal positively related to smoking (r 's = .16 and .17; $P < .05$, respectively). There were no relationships between PTSD symptoms and current alcohol or drug use. The correlation between overall PTSD symptom severity and receiving counseling while in the abusive relationship was 0.20 ($P < .05$). Self-reported current drug use positively related to neuromuscular symptoms ($r = .18$; $P < .05$); smoking related to stress and sleep symptoms (r 's = .17; $P < .05$).

Predictors of Physical Health Symptoms

The results of all stepwise regression analyses are presented in Table 3; values of betas are not reproduced in the following text. In the first regression model, demographics, health behaviors, types of IPV and length of abusive relationship, and PTSD symptom clusters were examined as predictors of overall physical health symptoms. The final 4-predictor model was significant ($F [4, 140] = 6.45$; $P < .001$), explaining 16% of the variance in physical health. Although current drug use was significant at step of entry, only risk of homicide and PTSD avoidance uniquely predicted physical health in the final model.

The next regression model examined predictors of neuromuscular symptoms. The final 3-predictor model was significant ($F [3, 141] = 6.63$; $P < .001$), explaining 12% of the variance. Threats of violence and PTSD avoidance uniquely predicted neuromuscular symptoms.

The third regression model examined predictors of stress symptoms. The final 3-predictor model was significant ($F [3, 141] = 8.45$; $P < .001$), explaining 15% of the variance. Risk of homicide and PTSD avoidance uniquely predicted stress symptoms.

The fourth regression model examined predictors of sleep symptoms. The final 4-predictor model was significant ($F [4, 140] = 7.49$; $P < .001$), explaining 18% of the variance. Although

risk of homicide and emotional abuse were significant at step of entry, PTSD avoidance was the only significant unique predictor of sleep symptoms in the full model.

Finally, the last regression model examined predictors of gynecologic symptoms. The final 3-predictor model was significant ($F [3, 141] = 5.62; P < .001$), explaining 11% of the variance. Age, threats of violence, and PTSD avoidance uniquely predicted gynecologic symptoms.

DISCUSSION

The results from this study illustrate the dynamic body–mind connection and are consistent with an allostatic load perspective. All types of IPV experienced by women (physical, emotional and sexual abuse, threats of violence, and risk of homicide) are significantly associated with increased reports of physical health and posttraumatic stress symptoms. A substantial proportion of the battered women in this sample reported physical health symptoms falling into four major areas: neuromuscular, stress, sleep, and gynecologic symptoms. This finding is consistent with previous research indicating the broad range of physical health symptoms experienced by battered women.^{3,7,28} Importantly, the physical symptoms reported most frequently by this study sample tend to be vague or nonspecific, and include low back pain, fatigue, muscle weakness, pounding or racing heart, lightheadedness, stomach cramps, and sleep difficulties. Moreover, many of the women report a relatively large number of symptoms that cross diagnostic boundaries.

Although all types of IPV were related to physical health, threats of violence uniquely predicted neuromuscular and gynecologic symptoms, and the risk of homicide uniquely predicted stress symptomatology. However, this study finding needs to be viewed with caution because of the strong relationships between all five types of IPV measured. Yet these results highlight the need for safety assessments and interventions.

Most of the women in our sample meet diagnostic criteria for PTSD, yet there was still variability in symptom severity. This result is consistent with research in other trauma groups, which also show associations between PTSD symptom severity and extent of physical health symptoms and problems in women.^{16,17,19,27} In the current sample, the three PTSD symptom clusters of re-experiencing, avoidance, and increased arousal demonstrated similar patterns and magnitudes of relationships with physical health symptoms. However, the results suggested avoidance may be particularly important as it was the sole cluster from PTSD symptomatology to uniquely predict physical health in the neuromuscular, stress, sleep, and gynecologic symptom groupings.

Green and Kimerling³⁸ note that persons who experience trauma and who have or are experiencing PTSD may be more likely to seek health care treatment in primary care settings. This is consistent with the current study results. Despite their relatively young average age (almost 34 years), more than three-quarters of the women in this sample had sought treatment for at least one physical health symptom during the previous 9 months.

As seen in this sample, women in a current intimately abusive relationship are likely experiencing a broad range of physical health symptoms and moderate to severe PTSD symptomatology. These findings demonstrate an empirical relationship between the mind and body and are consistent with frameworks that posit interactions between the neural, endocrine, and behavioral systems as previously documented in the literature.⁹ It may be that these interactions and changes ultimately contribute to the increased morbidity often seen in persons who experience trauma and violence.

IMPLICATIONS AND LIMITATIONS

The study findings have significant implications for practice. Health care providers need to be aware that the course of physical health symptoms and illness and treatment adherence is influenced by past and current trauma and by trauma-related stress.¹⁹ The current study shows that battered women present to health care practitioners with a broad range of physical health symptoms. This highlights the importance of holistic assessment rather than a focus on a single symptom or single system. In addition to assessing physical health and past and current history of intimate violence, practitioners in all settings need to routinely screen for PTSD symptomatology.

Given that avoidance is uniquely predictive of physical health symptoms, establishing a safe environment and sustaining trust in the therapeutic relationship are critical for supporting the healing process. Active and compassionate listening is important, because women who have experienced IPV tend to have difficulty naming and expressing their thoughts and feelings. Every physical and psychological symptom has meaning even if it does not fit neatly into a specific diagnostic category. Listening, and truly hearing, a woman's story of violence and abuse is courageous—and difficult. Practitioners need to be aware of any issues, biases, or feelings that arise within themselves that may influence how they view the woman, what and how they hear her story or symptoms, and the care provided.

Many of the most frequently reported physical health symptoms by women in this sample are common as part of the normal aging process. The practitioner may need to consider whether the pattern of symptoms is related to perimenopause or menopause or whether it is instead linked to some other physiologic, stress, or behavioral process. Assessment and intervention is more challenging because of the time constraints within the current health care delivery system. An inclusive health history or some other means of tracking physical and mental health symptoms over time would be helpful in capturing the patterns or interrelationships of symptoms.

Referrals to other practitioners based on physical or mental health care needs may be required. Reviewing options and informing women of community services, such as local domestic violence services, counseling, and safety planning, is necessary. In addition to traditional psychotherapeutic interventions, self-care, relaxation, and other mind–body therapies, such as mindfulness meditation and breathing techniques, may ease the intensity of both physical and posttraumatic stress symptoms and reduce the persistent stress response patterns the women experience.^{39,40}

Several limitations to this study are noted. A large proportion of this sample was recruited from crisis shelters, so as a group, these women may have been more open to approaching professionals for help. However, this potential bias seems unlikely to have influenced the number of health symptoms the women reported. Future researchers may wish to address some of the limitations posed by variables not collected in the current study. For example, women in the current study were not asked about ease of access to care or availability of personal resources for direct and indirect health care costs. Financial challenges may impact the woman's ability to obtain, and maintain, the health care needed. The women's means of coping was also not assessed.

Women in intimately abusive relationships experience a broad range of physical health and posttraumatic stress symptoms. PTSD avoidance and threats of violence or risk of homicide predict physical health symptoms in women currently experiencing intimate abuse. Therapeutic presence and interventions can support the woman as she seeks to restore health and regain balance.

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Table 1

Symptom Content of Four Physical Health Symptom Scales, Showing Proportion of Women Reporting Each Symptom^a (N = 157)

Neuromuscular Symptoms (n = 14)	%	Stress Symptoms (n = 15)	%
Joint pain	40.1	Tightness in chest	36.9
Swollen joints	18.5	Pains in chest	52.2
Arthritis	30.6	Feel heart pounding	63.7
Stiff and/or sore muscles	52.2	Feel heart racing	63.1
Muscle weakness	61.1	Dizziness and/or lightheadedness	59.9
Muscle tremors and/or spasms	48.4	Feels like fainting	30.6
Trembling or shakiness in hands	45.2	Difficulty breathing and/or shortness of breath	51.6
Leg cramps	47.1	Indigestion	37.6
Numbness and/or tingling of arms and/or legs	51.6	Heartburn	44.6
Neck pain	51.6	Stomach cramps	60.5
Jaw pain	26.8	Constipation	42.0
Low back pain	77.7	Diarrhea	52.2
Abdominal pain	48.4	Itchy eyes or skin	40.1
Fatigue ^b	63.1	Ringin in ears	40.8
		Choking sensation	15.3
Sleep Symptoms (n = 7)	%	Gynecologic Symptoms (n = 6)	%
Difficulty staying asleep	70.1	Difficult and/or painful sexual intercourse	25.5
Difficulty falling asleep	73.9	Yeast and/or vaginal infections	27.4
Sleeps poorly	70.1	Vaginal bleeding	17.8
Waking up early	63.7	Bleeding between periods	23.6
Nervousness	69.4	Sexually-transmitted diseases	15.3
Headaches	83.4	Excessive bleeding during periods	35.0
Fatigue ^b	63.1		

^a Four scales were derived following factor analysis of the modified Pennebaker Inventory of Limbic Languidness (PILL). Percentages indicate proportion of respondents who reported experiencing the symptom.

^b Fatigue loads on 2 factors, and is therefore included in both the neuromuscular and sleep scales.

Table 2

Descriptive and Correlational Analysis of Intimate Partner Violence Measures, PTSD Symptomatology, and Physical Health Symptom Scales in a Sample of 157 Women

Variables	Intimate Partner Violence					PTSD Symptoms				Physical Health Symptoms			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Intimate Partner Violence													
1. Physical violence (SVAWS)	—												
2. Emotional abuse (ISA-NP)	.49 ^a	—											
3. Sexual violence (SVAWS)	.40 ^d	.37 ^a	—										
4. Threats violence (SVAWS)	.74 ^d	.61 ^a	.36 ^a	—									
5. Risk of homicide (DA)	.56 ^d	.60 ^d	.43 ^a	.62 ^a	—								
PTSD (PSS)													
6. Symptom severity	.40 ^d	.47 ^a	.36 ^a	.45 ^a	.45 ^a	—							
7. Re-experiencing	.37 ^a	.37 ^a	.39 ^a	.36 ^a	.37 ^a	.83 ^a	—						
8. Avoidance	.32 ^a	.42 ^a	.23 ^b	.39 ^a	.37 ^a	.90 ^d	.60 ^d	—					
9. Increased arousal	.33 ^a	.40 ^a	.32 ^a	.41 ^a	.39 ^a	.81 ^a	.51 ^a	.59 ^a	—				
Physical Health Symptoms													
10. Neuromuscular	.23 ^b	.26 ^a	.25 ^b	.33 ^a	.30 ^a	.34 ^a	.25 ^b	.30 ^a	.29 ^a	—			
11. Stress	.22 ^b	.26 ^a	.25 ^b	.30 ^a	.33 ^a	.36 ^a	.29 ^d	.34 ^a	.27 ^d	.77 ^d	—		
12. Sleep	.23 ^b	.34 ^a	.28 ^a	.30 ^a	.35 ^a	.40 ^a	.28 ^a	.36 ^a	.36 ^a	.64 ^d	.65 ^a	—	
13. Gynecologi ^c	.16 ^c	.20 ^c	.16 ^c	.19 ^c	.21 ^b	.17 ^c	NS	.22 ^b	NS	.39 ^d	.46 ^d	.35 ^d	—
Mean	53.09	63.03	11.32	54.61	9.79	33.49	9.38	13.35	10.76	1.56	1.35	2.66	.48
SD	15.39	18.56	5.42	13.26	4.09	10.58	3.98	5.07	3.54	1.28	1.14	1.56	.67

DA = Danger Assessment Scale; ISA-NP = Index of Spouse Abuse nonphysical subscale; NS = not significant; PSS = posttraumatic stress symptomatology; PTSD = posttraumatic stress disorder; SD = standard deviation; SVAWS = Severity of Violence Against Women Scales.

Note. The mean value for neuromuscular and stress symptoms approximate symptoms occurring "about every month or so." The sleep mean approximates symptoms occurring about "every week or so." The gynecologic scale mean approximates symptoms occurring about "3 to 4 times a year."

^a $P < .001$.

^b $P < .01$.
^c $P < .05$.

Table 3

Regression Analysis Predicting Physical Health Symptoms from Demographics, Health Behaviors, Intimate Partner Violence Measures, and PTSD Symptomatology in a Sample of 157 Women

Predictor	Value at Step of Entry			Value in Final Model			
	ΔR^2	ΔF (df)	P	B	seB	β	P
Analysis Predicting Total Physical Health Symptoms							
Age	0.00	0.17 (1, 143)	NS	0.04	0.12	0.03	NS
Current drug use	0.03	4.49 (1, 142)	.036	4.83	2.56	0.15	.062
Risk of homicide	0.09	13.90 (1, 141)	<.001	0.81	0.29	0.23	.006
PTSD: avoidance	0.04	6.12 (1, 140)	.015	0.60	0.24	0.20	.015
Analysis Predicting Neuromuscular Symptoms							
Age	0.01	1.83 (1, 143)	NS	0.01	0.01	0.08	NS
Threats of violence	0.07	10.75 (1, 142)	<.001	0.02	0.01	0.21	.014
PTSD: avoidance	0.04	6.68 (1, 141)	.011	0.06	0.02	0.21	.011
Analysis Predicting Stress Symptoms							
Age	0.00	0.02 (1, 143)	NS	0.00	0.01	0.00	NS
Risk of homicide	0.09	14.73 (1, 142)	<.001	0.06	0.02	0.22	.007
PTSD: avoidance	0.06	9.71 (1, 141)	.002	0.06	0.02	0.26	.002
Analysis Predicting Sleep Symptoms							
Age	0.00	0.00 (1, 143)	NS	0.00	0.01	-0.01	NS
Risk of homicide	0.10	15.93 (1, 142)	<.001	0.06	0.04	0.17	.079
Emotional abuse	0.03	4.18 (1, 141)	.043	0.01	0.01	0.13	NS
PTSD: avoidance	0.05	8.41 (1, 140)	.004	0.08	0.03	0.24	.004
Analysis Predicting Gynecologic Symptoms							
Age	0.03	5.05 (1, 143)	.026	-0.02	0.01	-0.21	.010
Threats of violence	0.04	6.77 (1, 142)	.010	0.01	0.01	0.16	.056
PTSD: avoidance	0.03	4.54 (1, 141)	.035	0.03	0.01	0.18	.035

β = standardized regression coefficient; ΔF = F-test for the significance of the increment in R^2 ; ΔR^2 = increment in the proportion of variance accounted for by a given predictor at the step it enters the model; B = nonstandardized regression coefficient; NS = not significant; P = probability for significance test of the increment in R^2 or the regression coefficient; seB = standard error of the regression coefficient.

Note. Predictors are listed in order of step of entry into the model.