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Posttraumatic Stress Disorder and Extent of Trauma Exposure as Correlates of Medical Problems and Perceived Health Among Women with Childhood Abuse

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Abstract

This study examined the relative contributions of Post-traumatic Stress Disorder (PTSD) symptoms and the extent of trauma exposure as factors contributing to the current health status of childhood abuse survivors. Sixty-seven women with a history of familial childhood abuse (sexual and/or physical) and twenty-nine women with no abuse history were assessed on two distinct aspects of health status: reported number of medical problems and perceptions of overall health. Women with abuse were found to have a greater number of medical problems and poorer perceived physical well-being than the no abuse comparison group. Regression analyses of the women with abuse histories revealed that trauma exposure was a stronger predictor than PTSD symptoms of medical problems. PTSD symptoms, however, were better predictors of the experience of physical well-being than trauma exposure. These results suggest that the nature of a traumatic exposure, especially when there is repeated, cumulative trauma may be more significant to medical problems than the psychological symptoms of PTSD. Perceived health, however, appears to be predominantly influenced by psychological factors, suggesting the importance of these variables in the quality of life of multiply traumatized women.

Keywords

Childhood abuse; PTSD; women; health

There is substantial evidence that women with child abuse histories experience poorer physical health in respiratory, gastrointestinal, musculoskeletal, neurological and gynecological categories and that they utilize health services at relatively higher rates than women who have not been victimized (Felitti, 1991; Koss & Heslet, 1992; Lechner, Vogel, Garcia-Shelton, Leichter, & Steibel, 1993; McCauley et al., 1997; Moeller, Bachmann, & Moeller, 1993; Springs & Friedrich, 1992; Walker, Gelfand, Gelfand, Koss, & Katon, 1995, Walker et al., 1992). Although knowledge of the deleterious health effects of child abuse has grown, little research has been conducted on the mechanisms that may contribute to or mitigate this phenomenon.

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Research with veteran populations has found that the extensiveness of trauma exposure and the presence of Posttraumatic Stress Disorder (PTSD) symptoms are factors associated with health status. Several studies of male veterans have found that compared to those without PTSD, those with the disorder reported more cardiovascular symptoms, neurological symptoms, GI symptoms, audiologic symptoms, headaches, and low back pains (Litz, Keane, Fisher, Marx, & Monaco, 1992; Shalev, Bleich, & Ursano, 1990) and exhibited higher use of inpatient medical services after discharge (Ford, Fisher, & Larson, 1997). Findings with this population have also supported a significant relationship between the severity of combat exposure and perceived health (Beckham et al., 1988). Male and female veterans of the Vietnam War with high war zone exposure reported poorer health and greater chronic medical problems than veterans with low war zone exposure (Kulka et al., 1990). A study of Vietnam combat veterans reported that even when PTSD symptoms were controlled for, greater war zone exposure was associated with more complaints of poor health (Eisen, Goldberg, True, & Henderson; 1991).

The relationship between PTSD symptoms, exposure to trauma, and health status has been studied in women although to a lesser extent. Wolfe and colleagues (Wolfe, Schnurr, Brown, & Furey, 1994) reported that among female veterans in the Gulf War, both combat exposure and PTSD independently predicted negative health outcomes (as measured by general health ratings and report of number of medical problems), however, PTSD symptoms were stronger contributors to poor health than the extent of war exposure. In a recent extension of these findings, Kimerling, Clum, and Wolfe (2000) assessed 52 women who served in the Vietnam era for war-zone exposure, traumatic life events, PTSD, and self-reported health status. Their results also supported symptoms of PTSD, particularly hyperarousal, as mediators in the relationship between traumatic exposure and subsequent health problems. Consistent with the above findings, Wagner and colleagues (Wagner, Wolfe, Rotnitsky, Proctor, & Erikson, 2000) found in a large sample (n = 2301) that PTSD symptomotology was predictive of self-reported health problems over time for both male and female Gulf War veterans, even after the effects of combat exposure were removed from the analyses.

Although there are several studies that have identified PTSD symptoms and exposure to trauma as contributors to the health status of trauma victims, none of them have focused on their unique contributions in women with childhood abuse, a population in which rates of PTSD and repeated trauma exposure are high. Various studies consistently report high rates of PTSD among adults with histories of childhood sexual and/or physical abuse ranging from 69% to 85% (Cloitre, Scarvalone, & Difede, 1997; O'Neill & Gupta, 1991; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997; Rowan, Foy, Rodriguez, & Ryna, 1994). The role of trauma exposure may be particularly relevant to the health status among women with abuse histories given that reexposure to trauma is so common among this group. For example, recent research has indicated that compared to women without abuse histories, incest survivors are at 2.5 to 3.1 times increased risk for sexual assault in adulthood (Cloitre, Tardiff, Marzuk, Leon, & Portera, 1996; Wyatt, Gunthrie, & Notgrass, 1992). A clinical sample study revealed that child abuse survivors who had been sexually assaulted in adulthood also reported increased incidences of physical assault, robbery, and accidents (Cloitre et al., 1997). The increased load of sexual and other forms of assault in

adulthood may place these women at risk for an array of physical problems such as gynecological and musculoskeletal illnesses.

Identifying the contribution of PTSD and extent of trauma among child abuse survivors is of clinical significance. The recognition of these factors can have an impact on treatment planning in terms of interventions designed to reduce PTSD symptoms and lessen the risk of re-traumatization. Also studies of health utilization among incest survivors indicate that they are high users of health facilities (Felitti, 1991; Koss & Heslett, 1992; Lechner et al., 1993; Moeller et al., 1993; Springs & Friedrich, 1992; Walker et al., 1988 & 1992). Use of such services is costly and in addition can have a negative psychological impact on the child abuse survivor who may have reinforced the belief that she is sick, vulnerable or tainted.

The central aim of the current investigation was to examine the presence of PTSD symptoms and extent of exposure to trauma as possible correlates of adverse adult health in a treatment-seeking sample of women (n = 67) with histories of childhood abuse. First we wished to determine medical health status and subjective experience of physical well being among women with childhood abuse as compared to a never victimized, psychiatrically healthy comparison group of women. Second, we wished to determine the relative contribution of PTSD symptoms and the extent of trauma exposure on physical health among the abused women. We predicted that women who had more severe PTSD symptoms and those who had a more chronic trauma exposure would report a greater number of medical problems and less over all physical well being. Regression analyses were performed to identify the unique contribution each of the factors made to health status.

Method

Procedure

Sixty-seven women with childhood abuse were recruited from advertisements in local papers for free assessment and treatment of trauma related psychological difficulties. Women responded to the ads by making a phone call to the program at which time a phone screen was completed to review study criteria and to give a description of the study to prospective subjects. Following the phone screen, potential study participants were invited to the trauma study service for a clinical assessment. Women who did not meet criteria for the treatment study were offered referrals to other clinics in the community. Exclusion criteria included a history of, or present, schizophrenia or organic brain syndrome and disorders that represented an acute risk to self requiring specialized treatment. These were (a) current eating disorder, (b) current alcohol or substance dependence, (c) current borderline personality disorder, and (d) acute suicidal risk.

The 29 women comprising the never victimized comparison group were recruited through local advertisements seeking women who had never experienced childhood neglect, physical or sexual abuse, rape or attempted rape. Subjects in the never victimized group were paid \$40.00 for their participation. They received identical assessments and clinical interviews as the childhood abuse group. Those who were diagnosed with any mental disorder were excluded from the study, received payment for their participation and provided with an appropriate referral, if they so wished.

Definitions of Trauma Experiences

Index Trauma—The index trauma for this study was the presence of *childhood abuse* (CA), that is, childhood sexual and/or physical abuse that occurred under the age of 18 and perpetrated by a caretaker. Of the 67 women with a trauma history, 25% of women experienced sexual abuse, 40% experienced physical abuse and 35% experienced both. There were no differences in sociodemographic or clinical characteristics, or type and frequency of revictimization among the women by type of childhood abuse.

Additional Traumas—Other types of interpersonal violence traumas were assessed as follows: (1) *Childhood sexual assault* (CSA) which included molestation, rape, or attempted rape by strangers or noncaregiver before age 18, (2) *Adult sexual assault* (ASA), defined as the subject's report of at least one instance of rape or attempted rape (forced or pressured sexual contact involving intercourse of any type (e.g., oral, anal, vaginal, fellatio, cunnilingus, or objects in any orifice) occurring at or after age 18, (3) *Adult physical assault* (APA), defined as the subject's report of being intentionally physically injured by another person on at least one occasion, (4) *Chronic adult sexual assault* (CASA) was defined as the subject's report of multiple rapes by spouse or partner, (5) *Chronic adult physical assault* (CAPA) was defined as the subject's report of multiple physical assault assault (CAPA).

Measures

Clinical Interviews

Structured Clinical Interview for DSM-III-R I and II, including the PTSD Module
(SCID; Spitzer, Williams, & Gibbon, 1987; Spitzer, Williams, Gibon, & First,
1989): The SCID is a semistructured interview used to assess Axis I and Axis II disorders.
The SCID has acceptable joint interview interrater reliabilities with kappas between .70 and .94 (Skre, Onstad, Torgersen, & Kringlen, 1991).

The Child Maltreatment Interview Schedule (Briere, 1992): This 193-item instrument gathers information about parental emotional, physical and sexual abuse, and neglect. It has successfully discriminated among the long-term effects of various types of abuse in adult survivors (Briere & Runtz, 1990). In a previous study, we assessed the reliability of this instrument by randomly selecting 10 interviews of participants reporting a history of childhood abuse, and examining inter-rater reliability on a subset of variables (Cloitre et al., 1997). Kappas for each of the variables were as follows: sexual abuse by father figure = 1.00, physical abuse by mother figure = 0.80.

Sexual Assault History Initial Interview Schedule (Resnick, 1987): This 167-item interview obtains information concerning history of adult sexual assault and other types of interpersonal victimization in adulthood (e.g., physical assault, and robbery). It has been used in previous studies of rape victims (Foa, Rothbaum, Riggs, & Murdock, 1991; Resnick & Schnicke, 1992). The same ten subject interviews identified above were assessed for interrater reliabilities on the presence of at least one adult sexual assault (kappa = 1.00), and the designation of acquaintance rape (kappa = 1.00).

Extent of Trauma Exposure: Was calculated based on the number and type of abuse experiences subjects reported during the Child Maltreatment Interview Schedule and the Sexual Assault History Initial Interview Schedule. Scores ranged from 0 to 7, with 0 indicating no additional trauma experiences (beyond the index trauma of childhood abuse). Childhood sexual assault (CSA), adult sexual assault (ASA), and adult physical assault (APA) were weighted as one. Chronic adult sexual assault (CASA) and chronic adult physical assault (CAPA) were both weighted as two. Scores were summed to calculate a total exposure score.

Self-Report Measures

The Posttraumatic Stress Disorder Symptom Scale-Self Report (PSS-SR; Foa, Riggs, Dancu, & Rothbaum, 1993)—The PSS-SR measures the frequency and severity of each of the 17 DSM-IV diagnostic criteria for PTSD. The authors report that both test-retest reliability and internal consistency were high among women with sexual assault experiences. In a previous study (Cloitre et al., 1997), convergent validity relative to the SCID was high (n = 84, r = .33, p < .002).

The Perceived Physical Health Scale (PPH)—consists of 5 items about the subject's perceived health status. First, subjects are asked to rate their health status in general on a 5 point Likert-type scale from 1 (excellent) to 5 (poor). Then they are instructed to indicate how true or false the following 4 statements are on the same 5 point Likert-type scale (definitely true, mostly true, not sure, mostly false, definitely false): I am somewhat ill, I am as healthy as anybody I know, My health is excellent, I have been feeling bad lately. After reverse coding appropriate items scores are summed for a total perceived physical health score with lower scores indicating better perceived physical health ratings. These questions were selected from the Short-Form Health Survey (SF-36), a 36-item self-report measure that has been shown to have acceptable reliability and validity (Stewart, Hays, & Ware, 1988). Cronbach's alpha for the 5 items in our sample of 96 women was .87.

Women's Medical History Questionnaire—This 43-item scale, developed by Wolfe and colleagues at the National Center for PTSD (Wolfe et al., 1994), assesses whether respondents have ever experienced any of 43 different health problems including dermatological, cardiovascular, gastrointestinal, oncological, and gynecological problems. The subjects also indicate how old they were when they first developed the condition, if the condition was ever diagnosed by a physician, and whether the condition has been a problem for them in the past 12 months. After consultation with Dr. Wolfe (personal communication), we chose to use the total number of health problems the subjects endorsed as a global measure of women's health. Cronbach's alpha for our sample of 96 women was .79.

Results

Sociodemographics and Health Status Variables

Demographic characteristics of the study sample are shown in Table 1. Chi-square analyses revealed no significant differences between the two groups on variables of age, race, marital status, education or income. There were, however, significant differences between the two

groups on variables of medical problems and perceived health. T-tests presented in Table 2 show that women with abuse histories reported significantly more medical problems and poorer perceived health than the no abuse comparison group.

Posttraumatic Stress Disorder Symptoms and Trauma Characteristics

Posttraumatic Stress Disorder symptoms for the child abuse (CA) group are also presented in Table 2. The PSS-SR was used to determine severity and frequency of total PTSD symptoms as well as on the three symptom clusters that comprise a diagnosis of PTSD: avoidance, intrusion, and hyperarousal. Seventy percent (70%) of the traumatized subjects in our sample met diagnostic criteria for a PTSD diagnosis based on the SCID. A majority of the sample (91%) experienced at least one additional trauma (beyond that of their index abuse trauma), 71% of the sample experienced at least 2 additional traumas, and 45% experienced at least 3 additional traumas.

Predictors of Health Status Among Childhood Abuse Victims

The association between health status, PTSD, and extent of trauma exposure was investigated among those women in our sample with a history of child abuse using multiple regression analyses. Two sets of regression analyses were completed, one in which the outcome variable was total number of medical problems as measured by the Women's Medical Health (WMH) index and the other set in which the outcome variable was perceived physical health (as measured by the PPH). The predictor variables were PTSD symptoms (as measured by the PSS-SR) and subjects' exposure to trauma (based on the number and type of lifetime trauma). Table 3 provides the first order correlations among the main study variables. Age was associated with women's medical health. No other sociodemographic variable was associated with either measure of health status.

Predictors of Women's Medical Health Status (WMH)—The predictor variables were entered simultaneously to examine which were significant predictors of medical health status when directly competing against each other. Age was also entered when examining number of medical problems as these two variables were significantly correlated. When all three variables were entered simultaneously, only trauma exposure was statistically significant and emerged as the most powerful predictor of number of medical problems (Beta = .31; t < .05). PTSD was not a significant predictor of number of medical problems nor was age. The total model accounted for 21% of the variance (F(3,49) = 4.13, p = .01) (see Table 4).

Multiple regressions analyses were conducted to examine the relative predictive value of PTSD and exposure on number of medical problems. The effect of age was controlled for by entering it in the first step of the analysis. In Model 1, extent of trauma exposure was entered in step two, while PTSD was entered in step three to determine what additional variance, over and above exposure to trauma, PTSD symptoms would explain. Extent of trauma exposure was a significant predictor that accounted for 10% of the variance (F(1,50) = 6.10, p < .05). PTSD was not a significant predictor and only accounted for an additional 3% of the variance (F(1,49) = 1.82, p = .18). In Model 2, steps two and three were reversed. Results again showed that PTSD was not a significant predictor of the number of medical

problems, even when entered before exposure. Trauma exposure continued to be a strong and significant predictor accounting for 9% of the variance (F(1,49) = 5.43, p < .05) over and above the contribution of PTSD (see Table 5).

Predictors of Perceived Physical Health (PPH)—The same series analyses were conducted with PPH, except that age was not included in any of the models, as it was not significantly correlated with PPH. The simultaneous regression analyses, presented in Table 4, revealed that in contrast to WMH findings, PTSD was a significant predictor of perceived health (Beta = .28; t < .05) whereas exposure was not. The total model accounted for 10% of the variance (F(2,47) = 2.62, p = .08).

The results of the hierarchical regression analyses for PPH are presented in Table 6. In Model 1, exposure was entered in step one, and then PTSD was entered in step two. Results showed that extent of trauma exposure was not a significant predictor and only accounted for 2% of the variance (F(1,47) = 1.07, p = .31), whereas PTSD symptoms were significant, accounting for 8% of the additional variance (F(1,47) = 4.09, p < .05). In Model 2, the two steps were reversed in order. Results were identical, showing PTSD as a significant predictor accounting for 8% of the variance (F(1,47) = 4.12, p < .05) and exposure only accounting for 2% of the additional variance (F(1,47) = 1.05, p = .31).

Discussion

This study determined that the traumatized women had a significantly greater number of medical problems and poorer perceived health than a never victimized comparison group. Analyses of the child abuse group indicated that the extent of trauma exposure, even after controlling for PTSD symptoms, was a significant predictor of women's medical problems, whereas PTSD was not. In contrast, PTSD symptoms were significant predictors of perceived physical health status whereas trauma exposure was not.

The first set of findings are consistent with those of Moeller et al. (1993), who found that repeated exposure to childhood abuse alone predicts poorer adult physical health. Results were considered preliminary because the authors did not control for the potential role of PTSD symptoms. The current study confirms the impact of repeated trauma on medical status and rules out the possible confound of PTSD symptomotology. These two studies, however, differ from those of Wolfe et al. (1994), Kimerling et al. (2000), and Wagner et al. (2000) who found that among female veterans, PTSD was strongly related to physical symptoms and accounted for more of the variance than repeated exposure to trauma in explaining physical illness. One reason for this may be a qualitative difference between adult and time-limited trauma during wartime and chronic exposure to sexual and/or physical abuse beginning in childhood. Trauma among army personnel in wartime was a discrete experience marked by time and place, and occurred only in adulthood. In our sample women have experienced multiple trauma throughout their lives, with initial onset occurring during the developmental years of childhood where the impact of insults to the body may be more substantial. Thus, our results suggest that the nature of exposure (chronic vs. discrete and/or childhood vs. adulthood) may be a key factor in predicting current physical illness.

These results have several important implications. First the findings highlight the importance of educating medical and healthcare professionals (e.g., physicians, nurses) on the relevance of routinely inquiring about childhood abuse as well as recent assault and victimization experiences in their patients. This is particularly critical as physicians and medical personnel may be even more likely to encounter abuse victims than psychologists and other mental health providers. Kimerling and Calhoun (1994), for example, found in their study that rape victims more often sought treatment at medical facilities than psychological services in the first year post sexual assault. Second, the consequences of trauma exposure on health care utilization and health costs are important in terms of public health policy and intervention efforts. For example, preventative programs for those at risk for trauma exposure and early, aggressive treatment for those who have already experienced trauma(s) would likely reduce the number of women presenting to healthcare providers with trauma related injuries and illness.

The second set of findings, namely the impact of PTSD on perceived physical health in childhood abuse survivors, also has significant implications. Perceived physical health has been shown to be a reliable indicator of longevity (Idler & Kasl, 1991; Bosworth et al., 1999), quality of life (Menac, Chipperfield, & Perry, 1999), and functional disability (Farmer & Ferraro, 1997). Studies on women with breast cancer (Taylor, 1983; Taylor, Lichtman, & Wood, 1984), people infected by HIV or with AIDS (Reed, Kemeny, Taylor, Wang, & Visscher, 1994), and individuals with heart disease (Helgeson & Taylor, 1993) indicate that positive psychological beliefs may be protective of physical health, even if these beliefs are inconsistent with objective medical evidence. Thus, treatments focused on the resolution of PTSD symptoms among trauma survivors may lead to improved perceptions about self, and in turn, increased protection against the development of physical illness.

Although both health status instruments used in our study were based on self-report, they appear to be measuring relatively distinct concepts of self-assessed health status as indicated by their differential correlation patterns to PTSD symptoms and trauma exposure. PTSD symptoms and perceived physical health seem to reflect more subjective, general psychological states, whereas number of medical problems/diagnoses and exposure measures may reflect more specific and objective experiences. These two indices provide vital and complementary information and both should be regularly included in studies of health in trauma patients. These findings also underscore the vital roles of both mental health providers as well as medical practitioners in the treatment of trauma victims and the importance of a coordinated treatment effort.

There are several methodological limitations in this study. The women included in our sample were a self-selected group seeking treatment. While rates of re-traumatization in the community are similar to those found in our clinical population (Wyatt et al., 1992), the clinical sample may suffer from more frequent and diverse forms of trauma, as well as more diagnoses, and perhaps a different set of difficulties in interpersonal and self-functioning. Our sample was also primarily Caucasian and college-educated, limiting generalizability to other populations such as inner-city minority women. Lastly our definition of abuse was based solely on self-report and was not independently verified.

Strengths of this study include a relatively large sample of women with diverse abuse histories, including both physical and sexual childhood abuse and various levels of revictimization in childhood and in adulthood, with highly reliable assessment measures (i.e., SCID, PSS-SR) and the use of two different measures of health status. Both chronic medical illnesses and subjective perceptions of health have been assessed among adult female crime victims (Koss, Woodruff, & Koss, 1990) and adult rape victims (Kimerling & Calhoun, 1994; Golding, 1994). This study contributes to the emerging empirical literature on the impact of trauma on health by characterizing both of these types of health outcomes in an understudied population, childhood abuse survivors. In addition, the study has identified distinct and differing mediators associated with each of these mediators and the ensuing influence they might have on both medical health status and quality of life in women with childhood trauma.

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Demographic Characteristics of Childhood Abuse (CA) Group and the Never Victimized (NV) Group

Variable	CA Group (n = 67)	NV Group (n = 29)	Chi-square
	Percentage	Percentage	
Age			4.14 (ns)
18-25	13	31	
26-40	49	37	
41-69	37	31	
Race			1.87 (ns)
White	64	75	
Black	16	7	
Hispanic	10	10	
Asian/Other	9	6	
Marital Status			3.41 (ns)
Married/Live with sig. other	18	35	
Separated/Divorced/Widowed	22	14	
Single	60	52	
Highest Level of Education			5.41 (ns)
Did not graduate high school	9	0	
High school graduate	5	3	
Some college/College graduate	61	51	
Post college	25	45	
Earnings			4.59 (ns)
Less than \$5,000	29	29	
\$5,000-\$15,000	24	21	
\$15,000-\$30,000	23	42	
More than \$30,000	24	8	

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TABLE 2

T-Tests of Health Variables in the Child Abuse (CA) and Never Victimized (NV) Comparison Group, Presentation of PTSD Symptoms in Child Abuse Group

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		CA Gro	đ	-	VV Gro	dn	
Variable	u	Μ	SD	u	W	SD	t
Women's Medical History	64	7.44	4.62	26	5.27	3.55	2.14^{*}
Perceived Physical Health	63	11.43	4.60	28	7.43	3.89	4.00 **
PTSD Symptoms (PSS-SR)							
Intrusions	65	15.00	5.90	I	I	ł	ł
Avoidance	61	27.69	10.89	I	I	I	ł
Arousal	65	24.17	9.94	I	I	ł	ł
Total PSS-SR Score	61	61.21	23.27	I	I	ł	1

Zero-Order Correlation Coefficients Among Variables for Child Abuse Group

Variable	WMH	PPH	Exposure	PSS-SR
1. WMH				
2. PPH	.61 ***			
3. Exposure	.37 **	.11		
4. PSS-SR	.25	.29*	.14	
5. Age	.27*	.12	.16	.17

Note. WMH = Women's Medical History; PPH = Perceived Physical Health; PSS-SR = Posttraumatic Stress Disorder Symptoms Scale-Self-Report.

*** p<.001.

** p<.01.

p < .05.

Simultaneous Regression Models Predicting Number of Medical Problems and Predicting Perceived Health Status

Step	Variable	<u>Medical Problems</u> Final Beta	<u>Perceived Health</u> Final Beta
1	Age	.18	
	PTSD	.18	.28*
	Exposure	.31*	.14

* p < .05.

Hierarchical Regression Models Predicting Number of Medical Problems

		Model 1		
Step	New Variable	Final Beta	R ² Change	F Change
1	Age	.18	.07	3.90*
2	Exposure	.31*	.10	6.10*
3	PTSD	.18	.03	1.82
		Model 2		
1	Age	.18	.07	3.90*
2	PTSD	.18	.04	2.37
3	Exposure	.31*	.09	5.43*

* p<.05.

Hierarchical Regression Models Predicting Perceived Health

		Model 1		
Step	New Variable	Final Beta	R ² Change	F Change
1	Exposure	.14	.02	1.07
2	PTSD	.28*	.08	4.09*
		Model 2		
1	PTSD	.28*	.08	4.18*
2	Exposure	.14	.02	1.05

* p < .05.

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