
A CONCEPTUAL FRAMEWORK FOR RESEARCH ON LIFETIME VIOLENCE, POSTTRAUMATIC STRESS, AND CHILDBEARING

Julia S. Seng, CNM, PhD

ABSTRACT

The objective of this theoretical article is to describe a conceptual framework for research on effects of past and current abuse and posttraumatic stress on childbearing women. The proposed framework builds on an earlier framework proposed by the Centers for Disease Control and Prevention (CDC) for research on violence occurring around the time of pregnancy. Two main adaptations are suggested. First, cumulative lifetime history of abuse trauma is added to the framework in addition to violence occurring around the time of pregnancy. Second, posttraumatic stress disorder (PTSD) is given greater emphasis as a potential factor contributing to adverse maternity outcomes based on the theoretical proposition that PTSD could be a plausible mechanism for adverse outcomes via both behavioral and neuroendocrine pathways. More research is needed on the effects of violence and PTSD on childbearing. This framework for research could be used to facilitate design of studies in which investigators want to consider PTSD as a potential mediator between lifetime exposure to violence and negative childbearing processes and outcomes. It is congruent with a CDC framework for research and could be incorporated into studies designed to meet their recommendations. *J Midwifery Womens Health* 2002;47: 337–346 © 2002 by the American College of Nurse-Midwives.

INTRODUCTION

The purpose of this article is to present a conceptual framework for research on the effects of violence against women on childbearing by building on a framework developed by a work group sponsored by the Centers for Disease Control and Prevention (CDC) for studies of violence occurring around the time of pregnancy (1). The conceptual framework proposed here keeps all of the elements of the CDC group's framework but with two changes. First, it incorporates a dual focus on both past and current violence trauma. Second, it shifts the emphasis from a "life event stress" paradigm to a "posttraumatic stress" paradigm. This expansion on the CDC framework remains congruent with their most recent recommendations for research (2,3).

Here I briefly summarize the bodies of literature that suggest that an expanded conceptual framework, one that considers both lifetime abuse trauma and posttraumatic stress, might be fruitful for guiding future research. The

components and relationships in the framework are explained in comparison with the CDC framework it builds on. Finally, because posttraumatic stress disorder (PTSD) is not as familiar to perinatal researchers as it is to mental health researchers, resources for conducting research on PTSD will be included.

THE EFFECT OF ABUSE ON CHILDBEARING OUTCOMES

The body of literature reporting studies on the effects of current abuse (violence occurring around the time of pregnancy) on pregnancy outcomes has been reviewed (in a special issue of *The Maternal Child Health Journal*, June 2000) (3) and subjected to a meta-analysis (4). Briefly, the research that has focused on prevalence and outcomes of violence occurring around the time of pregnancy provides evidence to support routinely screening all clients during prenatal care to intervene to improve the safety of the approximately 4% of pregnant girls and women who are estimated to be abused (5). Research shows that fetal death can occur from assault to the abdomen (6), and recent studies document homicide of pregnant women by intimate partners as an important cause of maternal mortality (7,8). Studies of nonfatal adverse perinatal outcomes of violence have most often focused on fetal and infant outcomes such as prematurity and low birth weight. The findings from these studies have been contradictory or inconclusive and difficult to compare (1), although studies performed more recently (9) and a new meta-analysis are finding associations with low birth weight (4). Interventions research is also advancing to address violence occurring around the time of pregnancy (10).

A smaller body of clinical and research literature has considered that past experiences of abuse, especially childhood sexual abuse, may also be associated with complications or adverse experiences for the woman during pregnancy, labor, and the puerperium. Such problems include more unintended pregnancies (11,12), adolescent pregnancies (13), spontaneous abortions, hyperemesis, preterm contractions, problems with maternal and fetal weight gain, dysfunctional labor (14–16), potential difficulties with lactation (17), depression (18), and probably also postpartum mood disorders, problems

Address correspondence to Julia S. Seng, CNM, PhD, University of Michigan School of Nursing, 400 N. Ingalls, Ann Arbor, MI 48109-0482.

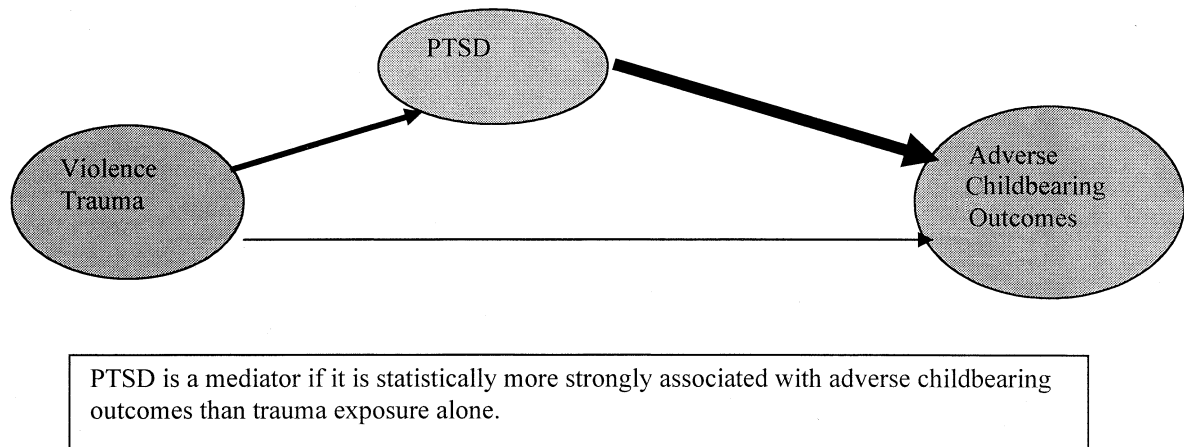


FIGURE 1
Diagram of a mediating relationship in a statistical model.

with attachment, and difficulties adapting to mothering (19,20). Adolescent and adult women with abuse histories also are more likely to have eating disorders, to use drugs, alcohol, and tobacco (13,21–23), and to be unable to stop substance use in pregnancy (24,25).

Women who are currently abused and those abused in childhood are not mutually exclusive groups (26). The “revictimized” women (adult women experiencing abuse who were also abused in childhood) have the highest levels of distress (27). Furthermore, the effects of abuse across the life span may be cumulative and result in dose response relationships with negative outcomes (28,29).

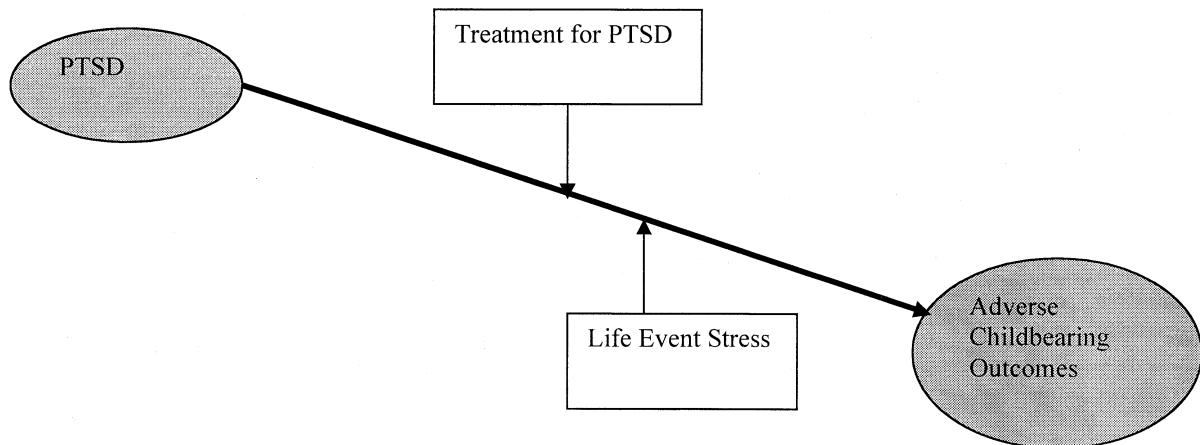
Both groups of women, those abused around the time of pregnancy and those abused in childhood, are epidemiologically important in perinatal research. Between 28 and 51% of US women have experienced childhood abuse involving physical contact (28,30,31). Estimates range between 0.9 and 20.1% for the prevalence of abuse during pregnancy, with the most likely range reported by the CDC (5) estimated at 4–8% and 2.4–5.6% in a newer study conducted by using the CDC’s Pregnancy Risk Assessment Monitoring System data, a multistate epidemiological surveillance study for perinatal risk assessment monitoring (32).

In addition to current abuse and effects of past abuse, abuse-related PTSD itself is epidemiologically important for perinatal research. The peak age for trauma exposure in females is before age 20 (33). Population surveys

estimate that 27% of women molested in childhood (34), 32–80% of women who are raped (35,36), and 39–74% of battered women (35,37) develop sequelae that meet diagnostic criteria for PTSD. Women develop PTSD at twice the rate of men, and PTSD becomes chronic for more than half of affected women (38). Chronic PTSD can persist or recur across the life span (39). The lifetime prevalence of PTSD among all US women is estimated to be between 10.4% (34) and 12.3% or 11.8 million women (35).

PTSD is itself a major sequela of abuse trauma. A body of research that shows that PTSD also “mediates” between trauma experiences and many additional negative health outcomes is accumulating. This is to say that when PTSD develops after trauma and is then taken into account in a statistical model to assess the relationship between trauma and negative health outcomes, the PTSD variable is more predictive of the poor outcome than the trauma exposure variable (40). Figure 1 is a diagram of PTSD as a mediating variable in the relationship between trauma exposures and adverse childbearing outcomes. Examples of this pattern can be seen in women’s health studies of violence, PTSD, and substance abuse (22,23,41), HIV progression (42), poor health perceptions (43), revictimization (44,45), and eating disorders (21). In addition, one exploratory epidemiologic analysis of existing data tested the hypothesis that PTSD would be associated with pregnancy problems and found that women with the PTSD diagnosis code had more complications of pregnancy, including more ectopic pregnancies, miscarriages, hyperemesis, and preterm contraction episodes (46). Taken together, these studies suggest that further research is warranted on PTSD as a mediator of negative processes and outcomes of childbearing. Post-traumatic stress, especially when it reaches the level of

Julia Seng completed her midwifery education and doctorate in women’s health nursing at the University of Michigan. She wrote this article while she was an assistant professor at the University of Iowa College of Nursing and while she was a Pfizer Postdoctoral Fellow. Currently, Dr. Seng is a primary research scientist at the University of Michigan School of Nursing and Department of Obstetrics and Gynecology.



Treatment for PTSD is an example of a potentially beneficial moderator if it decreases the association between PTSD and adverse childbearing outcomes.

High life event stress is an example of a potentially detrimental moderator because it could increase the association between PTSD and adverse childbearing outcomes.

FIGURE 2
Diagram of a moderating relationship in a statistical model.

symptomatology found in posttraumatic stress disorder, is a very logical potential mediator to consider because it has behavioral and neuroendocrine alterations associated with it that could cause obstetric complications (47–49).

It is important to learn whether PTSD is associated with complications and adverse experiences in childbearing because effective treatments for PTSD exist (50). It may be feasible to adapt these treatments to try to improve childbearing outcomes if associations between PTSD and complications are confirmed in future research. Interventions to address PTSD could potentially “moderate” the relationship between PTSD and adverse childbearing outcomes. In statistical models, a “moderating variable” can affect the relationship between two other variables (40). Figure 2 is a diagram of how two potential moderators (an intervention for PTSD and life event stress) could lower or raise the likelihood of PTSD causing adverse outcomes. Three categories of potential moderator variables are discussed below.

Research that combines attention to past abuse, current abuse, and PTSD within the same studies is needed. Along with ascertaining what complications or disruptions of the childbearing process may be associated with lifetime violence trauma, it is important to consider possible biologic mechanisms, which may be the result of trauma exposures that are sometimes decades in the past and that could be mediating factors contributing to the development of complications in pregnancy that are not attributable to direct injury. Because trauma-exposed people who develop PTSD are known to have alterations

in their neuroendocrine system (48,49), focusing on PTSD and combining psychological and biologic measures may lead to biologic explanations for associated complications. By combining attention to both past and current abuse, we can consider the effects that all forms of lifetime abuse exposures may have in common. We can also consider the cumulative effects of multiple trauma exposures. Identifying contributing factors is especially worthwhile if they turn out to be amenable to health care interventions.

CDC FRAMEWORK FOR RESEARCH EXAMINING THE ASSOCIATION BETWEEN VIOLENCE AND PREGNANCY OUTCOMES

After a national conference on violence and reproductive health sponsored by the CDC in May 1997, Petersen et al. (51) proposed a set of definitions and guidelines for measurement and design so that future research results can be compared. They propose a conceptual framework for what to include when examining the association between violence during pregnancy and adverse pregnancy outcomes in research studies (Fig. 3) (1). In this framework, violence can lead to adverse fetal and maternal outcomes via the mechanisms of both trauma (physical injury) and stress (as conceptualized in a life event stress paradigm). The pathways by which physical injury and stress could affect pregnancy outcomes include physiologic mechanisms, psychological state, per-

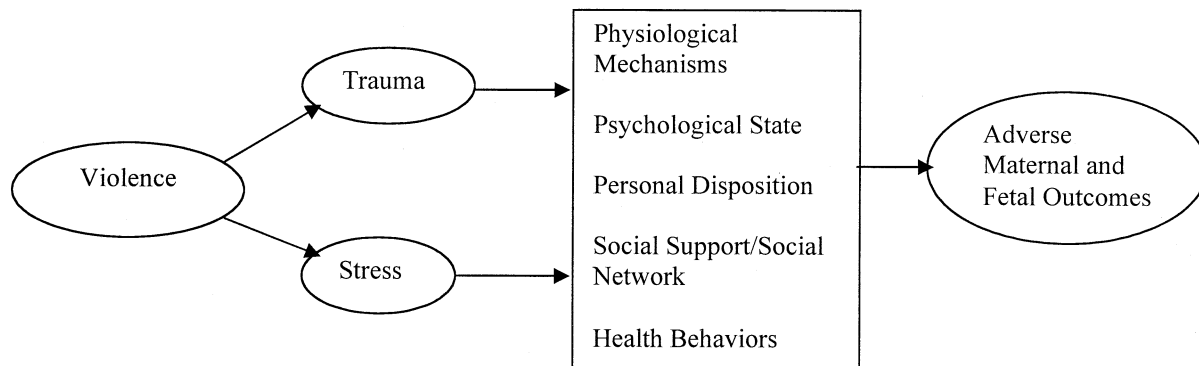


FIGURE 3

CDC group's framework to guide strategies for future research on violence occurring around the time of pregnancy. (Reprinted by permission of Elsevier Science from Peterson R, Gazmararian JA, Spitz AM, Rowley DL, Goodwin MM, Saltzman LE, Marks JS. Violence and adverse pregnancy outcomes: a review of the literature and directions for future research. *Am J Prev Med* 1997;13:366-73 © 1997 by American Journal of Preventive Medicine.)

sonal disposition, social support/social network, and health behaviors.

In the CDC group's framework, the definition of "violence" includes physical, sexual, and psychological/emotional violence or threats of physical or sexual violence that are inflicted around the time of pregnancy. They use the term "trauma" in the medical or obstetric sense, as an accidental or inflicted impact on the body resulting in physical injury. This use of the term is congruent with the body of research literature that studies the effect of abdominal "trauma" on pregnancy outcomes. "Stress" is used as a broad term for life event or daily stress.

PTSD FRAMEWORK FOR RESEARCH EXAMINING THE ASSOCIATION BETWEEN VIOLENCE AND PREGNANCY OUTCOMES

The CDC group's framework focuses on women who are victims of violence occurring around the time of pregnancy and considers life events stress as a mediating factor. They included a brief reference to PTSD as a potential factor under the "psychological state" component of their framework, along with anxiety, depression, and demoralization. The framework proposed in this article reverses the relative emphasis of "stress" and "posttraumatic stress" to consider PTSD as the main effect stress factor, along with physical injury from current violence (Fig. 4).

The proposed PTSD framework suggests that the association between violence trauma and adverse fetal and maternal outcomes is mediated by two primary factors: injury and/or PTSD. The effect of PTSD on adverse outcomes may, in turn, be mediated by behavioral and neuroendocrine features associated with PTSD. The adverse pregnancy outcomes most frequently stud-

ied in research on violence occurring around the time of pregnancy have been the infant outcomes of prematurity and low birth weight (3). The CDC framework leaves the outcome component open for specific definition as relevant to future studies. The CDC research framework allows the researchers to define the outcome variables that researchers may be interested in studying, such as specific maternal complications. There are many negative conditions and outcomes that could be considered in light of the potential for PTSD to disrupt behavioral and physiologic processes across the entire childbearing year and across physical, psychological, and interpersonal domains.

This PTSD framework subordinates nontraumatic "stress" (eg, life events stress) to the position of a moderator. It also locates exposures to violence trauma in two places. At the far left, there is a component representing a first or only experience of victimization, including childhood abuse. Subsequent to PTSD, exposure to "revictimization" is included among the behaviors associated with PTSD. Having two trauma components (past/first/only exposure and reexposure) depicts the reality that a subset of women victimized around the time of pregnancy are also survivors of childhood or previous adult experiences of victimization. It allows also for the framework to guide research with women who are not experiencing current violence but whose current behavioral and physiologic health and childbearing may be affected by negative sequelae from childhood or past adult trauma exposures, including PTSD.

Using a PTSD paradigm requires a change in definition of the word "trauma." The CDC framework uses the term "trauma" in the medical sense (eg, "blunt trauma to the abdomen"). In the PTSD framework, "injury" is the term used for this component because in the context of

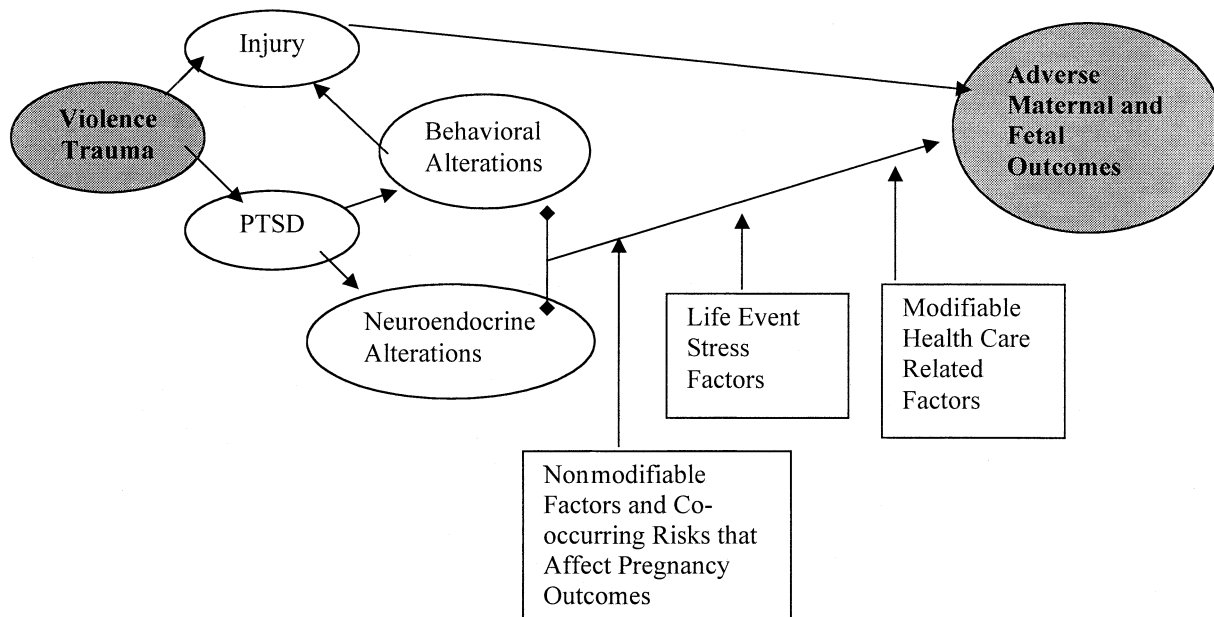


FIGURE 4

Conceptual framework highlighting PTSD as a factor in studying the relationship between violence trauma and adverse childbearing outcomes.

traumatic stress studies and PTSD, the term “trauma” is used in a broader sense. There are four diagnostic criteria for PTSD in the American Psychiatric Association’s (APA) *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)* (47, p. 424), including criterion A which specifies that the person must have been exposed to a “trauma.” According to this criterion, acts of violence against women qualify as the sort of trauma exposure from which PTSD may develop. The diagnostic criteria state that “trauma” has occurred when 1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others, and 2) the person’s response involved intense fear, helplessness, or horror. PTSD is characterized by three clusters of symptoms (Table 1): intrusive reexperiencing of the trauma (eg, flashbacks or in nightmares [criterion B]), avoidance of reminders of the trauma and numbing of affect (criterion C), and autonomic hyperarousal (criterion D). After severe trauma, especially that which is inflicted by humans, associated features of dissociation, somatization, interpersonal sensitivity, and loss of previously sustained faith may contribute to a complex PTSD or disorder of extreme stress (52).

Violence against girls and women in the form of physical, sexual, and emotional abuse and threats of abuse meet APA definition and correspond to the CDC group’s definition of violence as well, so the term

“violence trauma” can encompass all of the forms of violence that qualify as “trauma” in the APA definition. “Injury” is the term used to indicate physical harm from violence, which could directly cause poor outcomes including blunt trauma to the abdomen or sexually transmitted infections. “Posttraumatic stress” is the main psychological and biobehavioral factor that mediates between violence trauma and poor outcomes and/or is used as a stand-alone dependent measure. “Life Event

TABLE 1
Diagnostic Criteria for Posttraumatic Stress Disorder

Trauma	
Criterion A:	exposure to a qualifying trauma
Symptoms	
Criterion B:	at least one intrusive symptom
Criterion C:	at least three avoidance and numbing symptoms
Criterion D:	at least two arousal symptoms
Duration and intensity	
Criterion E:	duration of the disturbance is >1 mo
Criterion F:	the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
Specify if acute (duration < 3 mo) or chronic (>3 mo).	
Specify if with delayed onset, if onset of symptoms is ≥6 mo after the stressor	

From American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* Washington (DC): American Psychiatric Association, 1994.

Stress” as described by McLean et al (53) and delineated in detail in the CDC group’s framework is the term used for the multiple additional stressors that are ubiquitous influences on health and well-being, including socioeconomic stress, role stress, and stress from exposure to racism, classism, and sexism.

PTSD is associated with behavioral and neuroendocrine alterations that are shown in the framework as additional mediating factors. PTSD can result in behavioral adaptations that make women more vulnerable to direct injury, including substance abuse, high-risk sexual exposures, and exposure to revictimization. PTSD is also associated with disordered eating and self-harm. These behavioral features of abuse-related PTSD are known risk factors for poor obstetric outcomes in and of themselves.

Current research is focusing on neuroendocrine alterations that are associated with PTSD. Past theories that PTSD was an extreme form of normal stress are being set aside in recognition of research findings showing that people with PTSD appear to have some dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, especially with regard to cortisol (48,49). Prospective studies of potential physiologic mechanisms would be important if PTSD is found to be associated with childbearing problems. Biologic mechanisms specific to PTSD could disrupt many aspects of childbearing that are not found in studies in which outcome measures are limited to preterm birth or low birth weight. It would be desirable to combine physiologic measures with psychosocial ones to better determine whether PTSD-specific hormonal alterations may be playing a role in a broader range of maternal complications. As the psychophysiology of PTSD becomes better understood, additional physiologic mechanisms for complications may become known and will be important to study.

Additional factors likely to moderate the relationship between violence trauma and adverse outcomes need to be taken into account. For purposes of this framework, they are divided into three categories. The first group includes “non-modifiable factors that affect pregnancy outcomes.” These have often been taken into account in past research. They include medical and obstetric risk and relevant demographic factors such as age and parity. The second group contains the elements of the life events stress framework as described by McLean and colleagues (53), including stressors such as negative life events and chronic strains, including the strains of persistent life difficulties, role strains, exposure to discrimination, and community strains such as crime and poverty. The life event stress framework also includes the moderating effects of personal disposition factors, psychological state, social support, and social networks. The third group of moderating factors in the PTSD framework are those that can and should be influenced by the efforts of

health care providers and health care institutions, including response to mental health needs, quality and amount of prenatal care, and care-seeking behavior. Characteristics of PTSD, especially the complex forms of posttraumatic stress found among abuse survivors, suggest that the alliance with the caregiver may be an important additional concept to measure in this category because interpersonal relationships can be problematic for some people with complex PTSD.

RELATIONSHIP BETWEEN PTSD AND CURRENT VIOLENCE

The hierarchy of needs dictates that safety is a priority in responding to client needs. Among the subset of women experiencing current violence, there is risk for homicide, fetal death, and low birth weight (6–9,54). All of the screening and safety planning protocols that are becoming standards of care must remain a high priority in providing family-planning services and/or prenatal care (55,56). Consistent routine inquiry, validation, and offers of support and planning for safety increase the likelihood that a currently abused woman will turn to a health care provider for assistance to increase her physical safety (10,57). However, there is more that can be done.

It is becoming more clear from research findings that abuse or assault occurring anytime across the life span can have long-term negative consequences for health (58) and that effects of repeated traumatic experiences are cumulative (28,29). Clinical and research literature suggests that a history of abuse, including childhood sexual abuse, rape, and all forms of dating and interpersonal violence, may negatively affect pregnancy intention, care-seeking behavior, health risk behaviors, and outcomes of childbearing (4,11–13,16). None of these studies has included PTSD as a contributing factor. Focusing on PTSD in relation to childbearing may be efficient if it facilitates study of the effects of violence on both previously and currently abused gravidas and fosters research on interdisciplinary interventions for survivors of past trauma and women currently experiencing violence that may be appropriate for both subsets of women. Therefore, future research assessing the relationship between interpersonal violence and pregnancy outcomes should follow existing recommendations that assessment for PTSD follow disclosure of abuse history (49). Furthermore, PTSD is associated with disordered eating, substance use including tobacco, sexual risk exposures, and revictimization, all behaviors and/or exposures that can multiply obstetric risk (54). Yet the relationships of these risk factors to past trauma or current victimization is often overlooked in perinatal research. Studies that determine the extent to which these health risks co-occur with abuse-related PTSD would also inform clinical practice. Understanding how these

behaviors are associated with trauma history and PTSD may lead to more effective interventions.

COMPLEXITY OF CONDUCTING RESEARCH ON PTSD AND CHILDBEARING

It is not easy to study the effects of PTSD on childbearing. PTSD is not a single, unique stressor. PTSD co-occurs with concurrent violence at very high rates (26,37). It can even occur as a result of traumatic obstetric experiences (59). People with PTSD that follows childhood abuse miss opportunities for educational and occupational advantage, so PTSD can lead to lower socioeconomic status (60). Conversely, higher socioeconomic status appears to cushion the effect of violence and decrease the odds of developing PTSD (61). Life event stress, sociodemographic disadvantage, violent neighborhoods, social isolation, and PTSD are likely to covary and be highly collinear in statistical models of these phenomena in relation to childbearing.

In addition, women have always varied in their ability to cope successfully with the effects of domestic violence and posttraumatic stress in their lives—even before there was public health and clinical interest in these acts and subjective experiences. Important differences in outcomes may not have been discerned in the past because individual variation in women's effective management of stress, disadvantage, racism, sexism, violence, and posttraumatic sequelae has not always been considered.

Finally, prenatal care is a factor that may need to be operationalized in a more detailed manner to understand any contribution it has to improved outcomes among abused women. Week of gestation at initiation of visits or indexes of adequacy, which are commonly used measures in obstetric research, may be too crude to use as the only measure of the effect of care in studies of violence and PTSD. For currently or previously abused women, there are barriers to care that are complex. Women who are experiencing intimate partner violence may be prevented from seeking care by the abusive partner or may need to avoid having injuries discovered. For women who have been sexually abused, avoidance of reminders of the trauma, such as the intrusive medical procedures involved in prenatal care, is a core symptom of PTSD and may lead to avoidance of health care. It is also likely that routine prenatal care delivered in a patriarchal medical context leaves women with abuse-related PTSD vulnerable to triggering and disempowering experiences that could counteract the positive effects of prenatal care (62). Research that includes variables to account for the quality of the relationship with maternity caregivers may explain more of the positive impact of prenatal care than attendance alone. It is possible that responding to the effects of lifetime abuse history and PTSD on pregnant women may lead to maternity care that extends far

beyond birth because women affected PTSD may have needs for surveillance for postpartum mood disorders, recurrence of eating disorders and substance abuse, and attachment problems. Over the long term, they may desire additional support for parenting because fear of not being a good enough mother is a logical concern among women who come from families in which they were in the past or are now abused.

It may be especially important that nurses and midwives contribute to this research, particularly if intervention research is warranted, because a higher proportion of pregnant abuse survivors has been found in nurse-midwifery care compared with obstetrician care (12.2% versus 8.5%) (63), and because nurses are involved in the care of nearly every pregnant woman across prenatal, intrapartum, postpartum, and infant health settings. Furthermore, the accumulating knowledge about what abuse survivors and current victims want from health care providers suggests that some of their needs can be met by holistic approaches nurses use to assess and respond to women's strengths, safety, physical, and emotional needs (10,57,64–67). Although pharmacologic treatment and referral for psychotherapy are considered front-line responses to PTSD in general health settings (68), recent research suggests that pregnant women with abuse-related PTSD may not seek mental health treatment but would be open to other forms of help (67). This distinction suggests that the type of health-oriented and community-based emotional, social, and educative support that nurses and midwives can coordinate or provide directly in the course of prenatal care may be more acceptable and desired by some women, at some points in the life span, than formal psychotherapy or pharmacologic interventions during pregnancy.

RESOURCES FOR RESEARCH ON PTSD

Given the complexities involved in doing research on issues pertaining to both perinatal events and posttraumatic stress, combining perinatal and mental health considerations in research is probably best done with an interdisciplinary team. There are numerous instruments developed to measure both trauma exposures and PTSD symptoms and diagnosis. The difficulty of obtaining valid, reliable data about lifetime trauma and about current and lifetime symptoms requires careful consideration of which tools to choose. There are resources that perinatal researchers may find useful when evaluating diagnostic instruments (69) and/or psychological and pharmacologic interventions (47). The International Society for Traumatic Stress Studies, which publishes the *Journal of Traumatic Stress* (www.istss.org) is a professional society with members from both practice and research domains. The National Center for PTSD, associated with the Veteran's Administration, maintains the

PILOTS database, which is accessible via the National Center's internet web site (www.ncptsd.org) and which aims to be the largest catalogue and collection of trauma-related materials in the world. Although structured clinician interviews are considered the gold standard for research measurement of PTSD diagnosis, some brief self-report instruments are available. An example of one of these tools, the Modified PTSD Symptom Scale-Self Report (70) is included in Appendix B. [Several books that provide overviews of PTSD that may be useful to clinicians and researchers are listed in Appendix A.]

CONCLUSION

In conclusion, more research is needed to expand our understanding of the long-term, cumulative health consequences of violence against girls and women, including negative effects on childbearing. Studies that systematically enumerate the full breadth and cost of clinically significant negative effects of abuse trauma on women's health and childbearing, consider behavioral and biological mechanisms, attend to the moderating effects of life event stressors and effective coping, and assess the benefit of a range of interventions are needed. The value of focusing on PTSD in future research on childbearing processes and outcomes is that it reflects current understandings of how trauma affects women across the life span, it may be a more proximal and precise predictor of problems, and it may be a factor that is amenable to collaborative, acceptable interventions that have the potential to improve physical health, mental health, and mothering.

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REFERENCES

- Petersen R, Gazmararian JA, Spitz AM, Rowley DL, Goodwin MM, Saltzman LE, et al. Violence and adverse pregnancy outcomes: a review of the literature and directions for future research. *Am J Prev Med* 1997;13:366-73.
- McMahon PM, Goodwin MM, Stringer G. Sexual violence and reproductive health. *Matern Child Health J* 2000;4:121-4.
- Gazmararian JA, Petersen R, Spitz AM, Goodwin MM, Saltzman LE, Marks JS. Violence and reproductive health: current knowledge and future research directions. *Matern Child Health J* 2000;4:79-84.
- Murphy CC, Schei B, Myhr TL, duMont J. Abuse: a risk factor for low birth weight? A systematic review and meta-analysis. *Can Med Assoc J* 2001;164:1567-72.
- Gazmararian JA, Lazorick S, Spitz AM, Ballard TJ, Saltzman LE, Marks JS. Prevalence of violence against pregnant women. *J Am Med Assoc* 1996;275:1915-20.
- Connolly AM, Katz VL, Bash KL, McMahon MJ, Hanson WF. Trauma and pregnancy. *Am J Perinatol* 1997;14:331-5.
- Horon IL, Cheng D. Enhanced surveillance for pregnancy-associated mortality—Maryland, 1993-1998. *J Am Med Assoc* 2001;285:1455-9.
- Krullewitch CJ, Pierre-Louis ML, deLeon-Gomez R, Green R. Hidden from view: violent deaths among pregnant women in the District of Columbia, 1988-1996. *J Midwifery Womens Health*, 2001;46:4-10.
- Curry MA, Perrin N, Wall E. Effects of abuse on maternal complications and birth weight in adult and adolescent women. *Obstet Gynecol* 1998;92:530-4.
- Parker B, McFarlane J, Soeken K, Silva C, Reel S. Testing an intervention to prevent further abuse to pregnant women. *Res Nurs Health* 1999;22:59-66.
- Gazmararian JA, Adams MM, Saltzman LE, Johnson CH, Bruce FC, Marks JS, et al. The relationship between pregnancy intendedness and physical violence in mothers of newborns. *Obstet Gynecol* 1995;85:1031-8.
- Dietz PM, Spitz AM, Anda RF, Williamson DF, McMahon PM, Santelli JS, et al. Unintended pregnancy among adult women exposed to abuse or household dysfunction during their childhood. *J Am Med Assoc* 1999;282:1359-64.
- Silverman JG, Raj A, Mucci LA, Hathaway JE. Dating violence against adolescent girls and associated substance use, unhealthy weight control, sexual risk behavior, pregnancy, and suicidality. *J Am Med Assoc* 2001;286:572-9.
- Jacobs J. Child sexual abuse victimization and later sequelae during pregnancy and childbirth. *J Child Sex Abus* 1992;1:103-12.
- Van Der Leden M, Raskin V. Psychological sequelae of childhood sexual abuse: relevant in subsequent pregnancy. *Am J Obstet Gynecol* 1993;168:1336-7.
- Simkin P. The impact of childhood sexual abuse on the birthing woman [audiocassette]. Eugene (OR): Midwifery Today, 1993.
- Kendall-Tackett K. Literature review: breastfeeding and the sexual abuse survivor. *J Hum Lact* 1998;14:125-33.
- Benedict MI, Paine LL, Paine LA, Brandt D, Stallings R. The association of childhood sexual abuse with depressive symptoms during pregnancy, and selected pregnancy outcomes. *Child Abuse Negl* 1999;23:659-70.
- Kendall-Tackett K. The hidden feelings of motherhood: coping with stress, depression and burnout. Oakland (CA): New Harbinger Publications, 2001.
- Cohen T. Motherhood among incest survivors. *Child Abuse Negl* 1995;19:1423-9.
- Dansky BS, Brewerton TD, Kilpatrick DG, O'Neil PM. The National Women's Study: relationship of victimization and posttraumatic stress disorder to bulimia nervosa. *Int J Eat Disord* 1997;21:213-28.
- Kilpatrick DG, Acierno R, Saunders B, Resnick HS, Best CL, Schnurr PP. Risk factors for adolescent substance abuse and dependence: data from a national sample. *J Consult Clin Psychol* 2000;68:19-30.
- Epstein JN, Saunders BE, Kilpatrick DG, Resnick HS. PTSD as a mediator between childhood rape and alcohol use in adult women. *Child Abuse Negl* 1998;22:223-34.
- Grimstad H, Backe B, Jacobsen G, Schei B. Abuse history and health risk behaviors in pregnancy. *Acta Obstet Gynecol Scand* 1998;77:893-7.
- Amaro H, Fried L, Cabral H, Zuckerman B. Violence during pregnancy and substance use. *Am J Public Health* 1990;80:575-9.
- Messman TL, Long PJ. Child sexual abuse and its relationship to revictimization in adult women: a review. *Clin Psychol Rev* 1996;5:397-420.
- Messman-Moore TL, Long PJ, Siegfried NJ. The revictimization of child sexual abuse survivors: an examination of the adjustment of college women with child sexual abuse, adult sexual assault, and adult physical abuse. *Child Maltreat* 2000;5:18-27.
- Felitti V, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, et al. Relationship of childhood abuse and household dysfunction

tion to many of the leading causes of death in adults: the adverse childhood experiences (ACE) study. *Am J Prev Med* 1998;14:245–58.

29. Bohn DK. Lifetime and cumulative abuse: implications for women and women's health. Madison, WI: Nursing Network on Violence Against Women International Conference, 2001.

30. Russell DEH. The incidence and prevalence of intrafamilial and extrafamilial sexual abuse of female children. *Child Abuse Negl* 1983;7:133–46.

31. Wyatt EG. The sexual abuse of Afro-American and White American women in childhood. *Child Abuse Negl* 1985;9:507–19.

32. Gilbert BJC, Johnson CH, Morrow B, Gaffield ME, Ahluwalia I. Prevalence of selected maternal and infant characteristics, Pregnancy Risk Assessment Monitoring (PRAMS), 1997. *MMWR* 1999;48(SS-5):1–37.

33. Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, Andreski P. Trauma and posttraumatic stress disorder in the community: the 1996 Detroit area survey of trauma. *Am J Psychiatry* 1998;55:626–32.

34. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson C. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 1995;52:1048–60.

35. Resnick HS, Kilpatrick DG, Dansky BS, Saunders BE, Best CL. Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *J Consult Clin Psychol* 1993;61:984–91.

36. Breslau N, Davis GC, Andreski P, Peterson E. Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Arch Gen Psychiatry* 1991;48:216–22.

37. Woods SJ. Prevalence and patterns of posttraumatic stress disorder in abused and postabused women. *Issues Mental Health Nurs* 2000;21:309–24.

38. Breslau N, Davis GC, Peterson EL, Schultz L. Psychiatric sequelae of posttraumatic stress disorder in women. *Arch Gen Psychiatry* 1997;54:81–7.

39. Ronis D, Bates E, Garfein A, Buit B, Falcon S, Liberzon I. Longitudinal patterns of care for patients with posttraumatic stress disorder. *J Traum Stress* 1996;9:763–81.

40. Baron RM, Kenny DA. The mediator-moderator distinction in social psychological research: conceptual, strategic, and statistical considerations. *J Pers Soc Psychol* 1986;51:1173–82.

41. Chilcoat HD, Breslau N. Posttraumatic stress disorder and drug disorders: testing causal pathways. *Arch Gen Psychiatry* 1998;55:913–7.

42. Kimerling R, Calhoun KS, Forehand R, Armistead L, Morse E, Morse P, et al. Traumatic stress in HIV-infected women. *AIDS Educ Prev* 1999;11:321–30.

43. Kimerling R, Clum FA, Wolfe J. Relationships among trauma exposure, chronic posttraumatic stress disorder symptoms, and self-reported health in women: replication and extension. *J Traum Stress* 2000;13:115–28.

44. Arata CM. Sexual revictimization and PTSD: an exploratory study. *J Child Sex Abus* 1999;8:49–65.

45. Sandberg DA, Matorin AL, Lynn SJ. Dissociation, posttraumatic symptomatology and sexual revictimization: a prospective examination of mediator and moderator effects. *J Traum Stress* 1999;12:127–38.

46. Seng JS, Oakley DJ, Sampsel CM, Killion C, Graham-Bermann S, Liberzon I. Association of posttraumatic stress disorder with pregnancy complications. *Obstet Gynecol* 2001;97:17–22.

47. American Psychiatric Association. Diagnostic and statistical manual of mental disorders; 4th ed. Washington (DC): American Psychiatric Association, 1994.

48. Yehuda R, McFarlane A. Conflict between current knowledge about posttraumatic stress disorder and its original conceptual basis. *Am J Psychiatry* 1995;152:1705–13.

49. Yehuda R. Sensitization of the hypothalamic-pituitary-adrenal axis in posttraumatic stress disorder. In Yehuda R, McFarlane AC. *Psychobi-*

ology of posttraumatic stress disorder. New York: The New York Academy of Sciences, 1997;821:57–75.

50. Foa EB, Keane TM, Friedman MJ, eds. *Effective treatments for PTSD: practice guidelines from the International Society for Traumatic Stress Studies*. New York: Guilford, 2000.

51. Petersen R, Saltzman LE, Goodwin M, Spitz A. Key scientific issues for research on violence occurring around the time of pregnancy. (Report prepared for the CDC, April 1998) www.cdc.gov/nccdphp/drh/wh_violenc.htm [Accessed October 21, 2000]

52. Roth S, Newman E, Pelcovitz D, van der Kolk B, Mandel FS. Complex PTSD in victims exposed to sexual and physical abuse: results from the DSM-IV Field Trial for Posttraumatic Stress Disorder. *J Traum Stress* 1997;10:539–55.

53. McLean DE, Hatfield-Timajchy K, Wingo PA, Floyd RL. Psychosocial measurement: implications for the study of preterm delivery in black women. *Am J Prev Med* 1993;9S:39–81.

54. Ahluwalia IB, Merritt R, Beck LF, Rogers M. Multiple lifestyle and psychosocial risks and delivery of small for gestational age infants. *Obstet Gynecol* 2001;97:649–56.

55. Paluzzi PA, Houde-Quimby C. Domestic violence: implications for the American College of Nurse-Midwives and its members. *J Nurs Midwifery* 1996;41:430–5.

56. American College of Obstetricians and Gynecologists. ACOG technical bulletin: domestic violence. Number 209, August 1995. *Intl J Gynecol Obstet* 1995;51:161–70.

57. Gerbert B, Abercrombie P, Caspers N, Love C, Bronstone A. How health care providers help battered women: the survivor's perspective. *Women Health* 1999;29:115–35.

58. Resnick HS, Acierno R, Kilpatrick DG. Health impact of interpersonal violence 2: medical and mental health outcomes. *Am J Prev Med* 1997;27:65–78.

59. Creedy DK, Shochet IM, Horsfall J. Childbirth and the development of acute trauma symptoms: incidence and contributing factors. *Birth* 2000;27:104–11.

60. Hall JM. Women survivors of childhood abuse: the impact of traumatic stress on education and work. *Issues Mental Health Nurs* 2000;21:443–71.

61. Vogel LCM, Marshall LL. PTSD symptoms and partner abuse: low income women at risk. *J Traum Stress* 2001;14:569–84.

62. Kitzinger JV. Counteracting, not reenacting, the violation of women's bodies: the challenge for perinatal caregivers. *Birth* 1992;19:219–20.

63. Sampsel CM, Petersen BA, Murtland TL, Oakley DJ. Prevalence of abuse among pregnant women choosing certified nurse-midwife or physician providers. *J Nurse Midwifery* 1992;37:269–73.

64. Silva C, McFarlane J, Soeken K, Parker B, Reel S. Symptoms of post-traumatic stress disorder in abused women in a primary care setting. *J Womens Health* 1997;6:543–52.

65. Draucker CB. The psychotherapeutic needs of women who have been sexually assaulted. *Perspect Psychiatr Care* 1999;35:18–28.

66. Cole B, Scoville M, Flynn LT. Psychiatric advance practice nurses collaborate with certified nurse midwives in providing health care for pregnant women with histories of abuse. *Arch Psychiatr Nurs* 1996;10:229–39.

67. Seng JS, Sparbel KJ, Kane Low L, Killion C. Abuse-related posttraumatic stress and desired maternity care practices: women's perspectives. *J Midwifery Womens Health* 2002;47:360–370.

68. Davidson JRT. Recognition and treatment of posttraumatic stress disorder. *J Am Med Assoc* 2001;286:584–8.

69. Wilson JP, Keane TM, editors. *Assessing psychological trauma and PTSD*. New York: Guilford, 1997.

70. Falsetti S, Resnick H, Resick P, Kilpatrick DG. The modified PTSD symptom scale: a brief self-report measure of posttraumatic stress disorder. *Behav Therap* 1993;16:161–2.

APPENDIX A

Books on Posttraumatic Stress Disorder

Herman JL. Trauma and recovery: the aftermath of violence—from domestic abuse to political terror. New York: BasicBooks, 1992.

Foa EB, Keane TM, Friedman MJ, eds. Effective treatments for PTSD: practice guidelines from the International Society for Traumatic Stress Studies. New York: Guilford, 2000.

Wilson JP, Keane TM, eds. Assessing psychological trauma and PTSD. New York: Guilford Press, 1997:192–238.

Yehuda R, McFarlane AC, eds. Psychobiology of posttraumatic stress disorder, vol. 821. New York: The New York Academy of Sciences, 1997.

Saigh PA, Bremner DJ, eds. Posttraumatic stress disorder: a comprehensive text. Needham Heights (MA): Allyn & Bacon, Inc., 1999.

van der Kolk BA, McFarlane AC, Weisaeth L, eds. Traumatic

stress: the effects of overwhelming stress on mind, body, and society. New York: Guilford, 1996.

Friedman M, Charney D, Deutch A, eds. Neurobiological and clinical consequences of stress:from normal adaptation to posttraumatic stress disorder. Philadelphia: Lippencott-Raven, 1995.

Marsella AJ, Friedman MJ, Gerrity ET, Scurfield RM, editors. Ethnocultural aspects of posttraumatic stress disorder: issues, research, and clinical applications. Washington (DC): American Psychological Association, 1996.

Rothschild B. The body remembers: the psychophysiology of trauma and trauma treatment. New York: W.W. Norton & Company, 2000.

Pearlman LA, Saakvitne KW. Trauma and the therapist: countertransference and vicarious traumatization in psychotherapy with incest survivors. New York: Norton, 1995.

APPENDIX B

Modified PTSD Symptom Scale

Name: _____ Date: _____

The purpose of this scale is to measure the frequency and severity of symptoms in the *past two weeks*. Using the scales listed below, please indicate the frequency of symptoms to the left of each item. Then indicate the severity to the right of each item by circling the number that best fits your experience.

FREQUENCY

- 0 Not at all
- 1 Once per week or less/a little bit/once in a while
- 2 2 to 4 times per week/somewhat/half the time
- 3 5 or more times per week/very much/almost always

SEVERITY

- 0 Not at all distressing
- 1 A little bit distressing
- 2 Moderately distressing
- 3 Quite a bit distressing
- 4 Extremely distressing

FREQUENCY

SEVERITY

___ 1. Have you had recurrent or intrusive distressing thoughts or recollections about the event(s) we talked about?	0	1	2	3	4
___ 2. Have you been having recurrent bad dreams or nightmares about the event(s)?	0	1	2	3	4
___ 3. Have you had the experience of suddenly reliving the event(s), flashbacks of it, acting or feeling as if it were reoccurring?	0	1	2	3	4
___ 4. Have you been intensely EMOTIONALLY upset when reminded of the event(s) (includes anniversary reactions)?	0	1	2	3	4
___ 5. Have you been having intense PHYSICAL reactions (e. g., sweaty, heart palpitations) when reminded of the event(s)?	0	1	2	3	4
___ 6. Have you persistently been making efforts to avoid thoughts or feelings associated with the event(s)?	0	1	2	3	4
___ 7. Have you been persistently making efforts to avoid activities, situations, or places that remind you of the event(s)?	0	1	2	3	4
___ 8. Are there any important aspects of the event(s) that you still cannot recall?	0	1	2	3	4
___ 9. Have you markedly lost interest in free time activities since the event(s)?	0	1	2	3	4
___ 10. Have you felt detached or cut off from others around you since the event(s)?	0	1	2	3	4
___ 11. Have you felt that your ability to experience emotions is less (e.g., unable to have loving feelings, can't cry when sad, feeling numb, etc.)?	0	1	2	3	4
___ 12. Have you felt that any future plans or hopes have changed because of the event(s) (e.g., no career, marriage, children, or long life)?	0	1	2	3	4
___ 13. Have you been having persistent difficulty falling or staying asleep?	0	1	2	3	4
___ 14. Have you been continuously irritable or having outbursts of anger?	0	1	2	3	4
___ 15. Have you been having persistent difficulty concentrating?	0	1	2	3	4
___ 16. Are you overly alert (e.g., checking to see who is around you, etc.) since the event(s)?	0	1	2	3	4
___ 17. Have you been jumpier, more easily startled, since the event(s)?	0	1	2	3	4

PTSD diagnostic criteria are met for trauma-exposed people when they have:

- 1 (or more) symptoms from #1–5
- + 3 (or more) symptoms from #6–12
- + 2 (or more) symptoms from #13–17

In a community sample, frequency score > 15, severity score > 32, or total (sum of both scores) > 46 were consistent with having PTSD as diagnosed by standard clinical interview.