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# Brief screening for traumatic life events in female university health service patients[1]

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**ABSTRACT.** Routine screening of primary care patients for exposure to traumatic life events, and particularly assaultive trauma, may yield benefits for patients and healthcare systems. However, such screening has yet to be widely adopted. From this instrumental study, female university healthcare patients ($N$ = 339) were assessed for exposure to trauma in order to examine the validity and clinical utility of brief screening for trauma in primary care patients. The discriminative validity of a brief, self-administered screening question about exposure to trauma, the Structured Clinical Interview for DSM-IV (SCID) posttraumatic stress disorder (PTSD) module's screening question, was compared to a longer inventory of traumatic life events, the Traumatic Life Events Questionnaire. Two versions of a brief screening question across two instructional sets were evaluated to determine their relative classification accuracy for identifying respondents who reported sexual or physical assault, and/or symptoms of PTSD. The brief screen identified more than three-quarters of the survivors of traumatic assault and 96% of women who met criteria for PTSD. More than 40% of the participants reported at least one physically or sexually assaultive traumatic event. Four percent of those reporting non-assaultive traumatic and one third who reported assaultive trauma met criteria for PTSD. Results suggest that a brief screening question about assaultive trauma may be useful in settings where more time-consuming assessment procedures are not practical.

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**KEYWORDS.** Trauma. Brief screen. PTSD. Clinical assessment. Life events. Primary care. Instrumental study.

**RESUMEN.** El cribado rutinario de pacientes de atención primaria expuestos a sucesos vitales traumáticos y, particularmente, al trauma por ataque, puede producir beneficios para pacientes y sistemas sanitarios. Sin embargo, tal cribado no ha sido todavía ampliamente adoptado. Para examinar la validez y la utilidad clínica del cribado conciso del trauma en pacientes de atención primaria, se evaluó desde este estudio instrumental la exposición al trauma en una muestra de pacientes universitarias ($N$ = 339). La validez discriminante de una escueta pregunta auto-administrada de cribado sobre la exposición al trauma, perteneciente al módulo de trastorno de estrés postraumático (TEPT) de la *Structured Clinical Interview for DSM-IV* (*SCID*), fue comparada con un inventario más largo de sucesos vitales traumáticos, el *Traumatic Life Events Questionnaire*. Dos versiones de la escueta pregunta de cribado fueron evaluadas para determinar su grado de exactitud para identificar a las participantes que informaron de ataque sexual o físico, y/o síntomas de TEPT. La escueta pregunta identificó a más de tres cuartas partes de las supervivientes al ataque traumático y al 96% de mujeres que cumplían los criterios del TEPT. Más del 40% de las participantes informó de al menos un ataque física o sexualmente traumático. El cuatro por ciento de aquellas que no informaron de ataque traumático y una tercera parte que informó de ataque traumático cumplían los criterios para el TEPT. Los resultados sugieren que una escueta pregunta de cribado acerca del trauma por ataque puede ser útil en contextos donde más procedimientos de evaluación que requieren más tiempo no son prácticos.

**PALABRAS CLAVE**. Trauma. Cribado conciso. TEPT. Evaluación clínica. Sucesos vitales. Atención primaria. Estudio instrumental.

**RESUMO**. A rotina de triagem de pacientes de cuidados primários expostos a acontecimentos traumáticos e, particularmente, o trauma por ataque, pode produzir benefícios para pacientes e sistemas de saúde. No entanto, tal triagem não tem sido amplamente adoptada. Para analisar a validade e a utilidade clínica da triagem sucinta do trauma em pacientes de atenção primária, avaliou-se a exposição ao trauma numa amostra de pacientes universitárias ($N$ = 339). A validade discriminante de uma pergunta breve auto-administrada de triagem sobre a exposição ao trauma, pertencente ao módulo de perturbação de stress pós-traumático (PSPT) da *Structured Clinical Interview for DSM-IV* (*SCID*), foi comparada com um inventário mais lato de acontecimentos de vida traumáticos, o *Traumatic Life Events Questionnaire*. Duas versões da pergunta de triagem foram avaliadas para determinar o seu grau de exactidão para identificar as participantes que informaram sobre ataque sexual ou físico, e/ou sintomas de PSPT. A pergunta de triagem identificou mais de três quartas partes das sobreviventes a ataque traumático e 96% de mulheres que cumpriam os critérios de PSPT. Mais de 40% das participantes informou de ao menos um ataque físico ou sexualmente traumático. Os quatro por cento daquelas que não relataram ataque traumático cumpriam os critérios para o PSPT. Os resultados sugerem que uma pergunta breve de triagem acerca do trauma pode ser útil em contextos onde mais procedimentos de avaliação que requerem mais tempo não são práticos

**PALAVRAS CHAVE.** Trauma. Triagem sucinta. PSPT. Avaliação clínica. Acontecimentos de vida. Atenção primária.

## Introduction

Recent evidence suggests that as many as two-thirds of patients in primary care settings have experienced a traumatic event, such as a natural disaster, a motor vehicle accident, or physical or sexual assault (Golding, Taylor, Menard, and King, 2000; McQuaid, Pedrelli, McCahill, and Stein, 2001; Rosenberg *et al*., 2000). Although many individuals survive such experiences without serious consequence, many others suffer adverse long term psychological and/or physical outcomes (Golding *et al*., 2000). Because of the high prevalence, detrimental risks, and health-system costs associated with this group (*e.g*., Brunello *et al*., 2001; Weisberg *et al*., 2002), many authorities have recommended routine screening of primary care patients for exposure to traumatic life events (Council on Scientific Affairs, American Medical Association, 1992; Kilpatrick, Resnick, and Acierno, 1997; Lecrubier, 2004). Several methodological issues hinder widespread adoption of trauma screening in primary care settings. One issue is the time required to administer longer measures of trauma history. The inventory approach to trauma history assessment is unlikely to be adopted in the time-pressured primary care setting (Maruish, 2000).

Recent evidence suggests that brief queries about trauma history can be effective in identifying respondents who are experiencing trauma-related impairment (Franklin, Sheeran, and Zimmerman, 2002). Accordingly, one purpose of the current study is to examine the relative effectiveness and clinical utility of a brief screen for traumatic life events.

Less attention has been given to trauma screening in the college-student healthcare setting, even though the prevalence of traumatic life events and associated risks among college students are equivalent to, or higher than, those found in the general population (*e.g*., Fillingim, Wilkinson, and Powell, 1999). The lack of trauma screening research with this group is especially notable given that the prevalence of some forms of assaultive trauma is higher than that in the general population. In particular, sexual assault has its highest frequency among undergraduate females (Acierno, Resnick, and Kilpatrick, 1997; Fisher, Cullen, and Turner, 2000). Thus, a further purpose of the present study is to evaluate the clinical utility of screening for traumatic life events within a sample of female university healthcare clinic patients.

### *Risks associated with traumatic life events*

The identification of trauma survivors is important because of the many behavioral and medical risks associated with traumatic life events. First, exposure to a traumatic life event is a prerequisite for the diagnosis of posttraumatic stress disorder (PTSD), a syndrome characterized by high levels of chronicity, comorbidity, and functional impairment (Amaya-Jackson *et al*., 1999; Dobie *et al*., 2004). Approximately 18% to 28% of the individuals who experience a traumatic life event develop PTSD (Breslau *et al*., 1998) and many who do not meet full criteria for PTSD are still at risk for substantial functional impairment (Marshall *et al*., 2001; Zlotnick, Franklin, and Zimmerman, 2002). Exposure to traumatic life events also poses a higher risk for the development of other behavioral and medical disorders including depression (McQuaid *et al*., 2001), other anxiety disorders (Brown, Campbell, Lehman, Grisham, and Mancill,

2001), cigarette smoking (Acierno *et al*., 2000), drug abuse (Kilpatrick *et al*., 2000; McCauley *et al*., 1995, suicide attempts (Felitti *et al*., 1998), high-risk sexual behaviors (Lang *et al*., 2003; Springs and Friedrich, 1992), alcohol abuse (see Stewart, 1996, for a review), cardiopulmonary and pain symptoms (see Green, Epstein, Krupnick, and Rowland, 1997, for a review), and eating disorders (Laws and Golding, 1996).

*Why screen for traumatic life events in primary care?*

There are several reasons to screen for exposure to traumatic life events in primary care patients (*e.g*., Lecrubier, 2004; Mollica, 2001): (a) there is a high prevalence of trauma survivors in primary care populations, (b) the patient and health system costs are high for patients with unaddressed trauma sequelae (Holman, Silver, and Waitzkin, 2000; Rosenberg *et al*., 2000), (c) most primary care providers do not routinely inquire about trauma history, (d) persons with mental health problems are more likely to receive treatment in primary care settings than in other treatment settings (Holman *et al*., 2000; Rosenberg *et al*., 2000), and (e) screening for trauma exposure may also be an effective way to identify risk for important problems that do not fall into formal diagnostic categories (*e.g*., relationship difficulties, sleep problems).

Studies across various samples of primary care patients have found that a substantial proportion of these patients are also trauma survivors. Prevalence figures have ranged from 57% in a general medical practice (Holman *et al*., 2000), to 59% among inner-city adolescents (Silva *et al*., 2000), to 69% in a sample of patients seeking routine care at a women's health clinic (Read, Stern, Wolfe, and Ouimette, 1997). Evidence suggests that symptomatic trauma survivors are more likely to seek treatment from medical providers than from mental health clinicians (Stein, McQuaid, Pedrelli, Lenox, and McCahill, 2000). Despite the importance of trauma in primary case patients, most primary care providers do not routinely ask patients about traumatic life events (Friedman, Samet, Roberts, Hudlin, and Hans, 1992), and most survivors do not report such experiences unless asked (see Kilpatrick *et al*., 1997; Springs and Friedrich, 1992).

*Why screen for traumatic life events in college populations?*

Screening for exposure to traumatic life events may be especially important in college student populations, given the high prevalence of traumatic events among undergraduates (Bernat, Ronfeldt, Calhoun, and Arias, 1998). Some forms of assaultive traumatic life events, such as physical and sexual assault are particularly common in college women (Fillingim *et al*., 1999; White and Koss, 1991). Sexual assault carries the highest risk for the development of PTSD (Breslau *et al*., 1998; Rosenberg *et al*., 2000). Estimates of sexual assault rates are high among undergraduate females (Fisher *et al*., 2000), ranging between 20 and 57 percent (Brener, McMahon, Warren, and Douglas, 1999).

*Validity and utility issues in screening for traumatic life events*

Screening can be a clinically useful method of identifying individuals with a high probability of having a specified characteristic (Derogatis and Lynn, 1999). In the present study clinical utility was evaluated on five dimensions that are relevant to

trauma assessment in a primary health-care setting. These are: (a) the importance or clinical significance of the traumatic life event (as defined by base rates and associated risks); (b) the acceptability of the screening procedure to patients; (c) the incremental validity of the screening procedure; (d) the time required for the standard exhaustive trauma history assessment; and (e) the discriminative validity of the screening procedure.

The discriminative validity of a screening instrument refers to the degree to which measures from the screen can differentiate individuals who possess the targeted attribute (*e.g.*, have experienced assaultive trauma) from those in whom it is absent (Derogatis and Lynn, 1999; Haynes and O'Brien, 2000), and is related to sensitivity, specificity, and predictive power[3].

The assessment of traumatic life events has taken one of two approaches: (a) A brief approach using one or several broad screening questions (*e.g.*, the broad, open-ended question assessing exposure to trauma in the DSM-IV SCID -First, Spitzer, Gibbon, and Williams, 1997-), and (b) queries about exposure to an exhaustive list of specific traumatic life events (*e.g.*, the Traumatic Life Events Questionnaire -TLEQ; Kubany, Haynes *et al.*, 2000-).

Although longer inventories can provide more specific data, they are unlikely to be adopted for screening in most general medical settings because of the time required (Maruish, 2000), and the need to screen for multiple behavior and medical problems. In support of a brief screening strategy, a number of investigators have found that briefer measures perform favorably, and are generally better accepted in primary care settings when compared to longer instruments (*e.g.*, Brody *et al.*, 1998; Spitzer, Kroenke, and Williams, 1999).

For the assessment of trauma history, only two published studies compared inventory and open-ended question assessment strategies with the same sample (Franklin *et al.*, 2002; Weaver, 1998). Franklin and colleagues examined the performance of the single SCID PTSD module screening question (First *et al.*, 1997) in a sample of 839 psychiatric outpatients. Their findings support the contention that the abbreviated approach tends to miss some events, but also indicate that the brief screen captures most persons with PTSD. The single trauma question only missed 4% of those patients reporting a traumatic life event who also reported symptoms of PTSD; although authors did not examine the nature of the traumatic life events that were disclosed with the brief screen relative to those reported with the list.

*Other issues in brief trauma assessment*

Wording of questions. The wording of questions may affect their effectiveness as brief screens for traumatic life events (*e.g.*, Acierno *et al.*, 1997; Resnick, Falsetti,

[3] *Sensitivity* is the probability of a positive identification given that the person has experienced the traumatic life event; *specificity* is the probability of a negative indication given that the person has not experienced the traumatic life event; *positive predictive* power (PPP) is the probability that a person who has been identified as having experienced a traumatic life event truly has; *negative predictive power* (NPP) is the probability that a person who has been identified as not having experienced a traumatic life event truly has not; incremental validity is the degree to which the screening measure identifies more individuals who have experienced traumatic life events than would be routinely identified without screening. Definitions of psychometric terms used in this manuscript can be found at http://www2.hawaii.edu/~sneil/ba/

Kilpatrick, and Freedy, 1996). In particular, it has been suggested that assaultive trauma is likely to be underreported when loaded or legal terms are used (*e.g.*, "rape," "domestic violence" or "assault") (Koss, 1993). However, the relative contributions of length and language to assessment sensitivity are unclear.

DSM-IV Stressor Criterion A-2. The definition of a traumatic stressor for the diagnosis of PTSD, Criterion A, includes a subjective component, Criterion A-2, which requires that the person's response to the stressor event must have involved "intense fear, helplessness, or horror." Two studies (Breslau and Kessler, 2001; Roemer, Oreille, Borkovec, and Litz, 1998) found that participants' reports of one or more of these subjective responses concurrent with the traumatic stressor strengthened predictive efficacy for PTSD.

The purpose of this instrument validation study (Carretero-Dios and Pérez, 2005; Montero and León, 2005) was to evaluate the validity and clinical utility of a single question to screen for traumatic life events with a sample of female university healthcare clinic patients. Two versions of the screening question (behaviorally specific *vs*. nonspecific) were evaluated to determine each condition's relative classification accuracy for identifying respondents who reported experiences of sexual or physical assault, and/or symptoms of PTSD. In addition, the incremental classification accuracy of the DSM-IV Criterion A-2 was examined. Discriminative and incremental validity of obtained measures, the acceptability of the screening procedure to the participants, and the clinical significance of obtained measures were also evaluated.

## Method

### *Participants*

Participants were 339 female students who presented to the University of Hawaii student health clinic for medical care. Two female research assistants were stationed in the health clinic waiting room. Incoming patients were approached by one of the researchers and asked to participate in the study after they had registered at the clinic intake desk. Patients who appeared to be in need of urgent medical care were not approached. No incentives were offered for participation in the study. A total of 453 patients were approached. Of the 388 who agreed to participate, 49 were excluded because of missing data. The self-identified ethnic breakdown of the final sample was: Caucasian (41.2%), Japanese (19.6%), Filipino (6.8%), Hawaiian/Pacific Islanders (8.9%), Chinese (6.2%), other Asian (7.4%), Hispanic (4.7%), and other or mixed ethnicity (5%). Their ages ranged from 18 to 52, with a mean age of 22.9 years ($SD$ = 5.7).

### *Procedure*

Experimental conditions. All data collection occurred in the waiting room of the health services clinic. When female patients had registered for their visit, researchers briefly described the project and provided those who expressed an interest in participating with a brief written project description and an informed consent form. Those who agreed to participate were given the screening packet to complete while awaiting their visit with a health care provider. Participants were assigned consecutively to one of

four conditions. Each condition combined one of two versions of the single screening question. The two questions (described further below) are: (a) the unmodified two-part screening question derived from the SCID PTSD module (First *et al*., 1997); or (b) a revised version of the SCID screening question with behaviorally-worded examples of sexual and physical assault.

Each screening packet contained a participant information form, one of the four versions of the screening question/instructions, the TLEQ (Kubany, Haynes *et al*., 2000); a measure of PTSD symptoms, the Distressing Events Questionnaire (DEQ; Kubany, Leisen, Kaplan, and Kelly, 2000); and a short feedback form. The research assistant remained available to answer questions, time the length of the screening session, and record any problems that arose during the session.

Debriefing. Upon their completion of the screening packet, participants were given a debriefing packet that contained psychoeducational material about exposure to traumatic life events and related problems, a resource list of emergency contact numbers, community referrals, a bibliography of self-help material, and a description of the study goals.

Training and monitoring of research assistants. Prior to initiation of the study, five female research assistants were trained in recruitment procedures, how to obtain informed consent, how to conduct the screening session, and how to conduct the debriefing session. Training consisted of discussion, demonstrations, and role-plays. To insure fidelity, research assistants were monitored on site by either the principal investigator or an advanced team member.

*Measures*

- Demographic information. Information on sex, age, marital status, year in college, and ethnicity was obtained on a participant information form.
- Traumatic life events. Exposure to traumatic life events was assessed with either of two forms of the screening question from the PTSD module of the Structured Clinical Interview for DSM-IV (SCID; First *et al*., 1997) and with the Traumatic Life Events Questionnaire (TLEQ; Kubany, Haynes *et al*., 2000). Brief screening measures from the SCID were used to classify participants as trauma-positive or negative. Measures from the TLEQ were used to assess the relative ability of each of the screening approaches to detect a) traumatic life events, and b) sexual and physical assault; and to survey the number and nature of traumatic life events reported by this population.
- Brief screening for traumatic life events. The screening questions were derived from the SCID-PTSD module (First *et al*., 1997), which queries about exposure to a traumatic life event. If the respondent reports one or more such events, the clinician then inquires about PTSD symptom clusters. Across several studies (*e.g*., Blake *et al*, 1995; Foa, Riggs, Dancu, and Rothbaum, 1993), measures from the SCID-PTSD module have demonstrated acceptable interrater reliability for lifetime and current diagnoses as well as acceptable convergent validity when compared to other measures of PSTD (Schnurr, Friedman, and Rosenberg, 1993). However, few data are available on the psychometric capabilities of the screening question, because most studies were conducted with populations whose

traumatic life event had been identified prior to PTSD assessment (*e.g*., combat veterans; see Franklin *et al*. -2002- for an exception).

Two versions of the unmodified SCID-PTSD module screening question (yes-no response format) were compared:

(1) The *unmodified version* assessed DSM-IV PTSD Criterion A with the following inquiry: "Sometimes things happen to people that are extremely upsetting, things such as being in a life-threatening situation such as a major disaster, very serious accident or fire; being physically assaulted or raped, seeing another person killed or dead, or badly hurt, or hearing about something horrible that has happened to someone you are close to. Have any of these kinds of things ever happened to you?"

(2) The *modified version* was a behaviorally-worded version of the original SCID screening question: "Sometimes things happen to people that are extremely upsetting, things such as being in a life-threatening situation such as a major disaster, serious accident or fire; *being hit, kicked, punched, or otherwise physically hurt by someone; being forced or verbally coerced into any kind of sexual activity that you did not want;* seeing another person killed or dead, or badly hurt, or hearing about something horrible that has happened to someone you are close to. Have any of these kinds of things ever happened to you?"

The revised wording of the physical assault example was derived from an item on the Partner Violence Screen (PVS; Feldhaus *et al*., 1997), which has been included in several interpersonal screening instruments (*e.g*., Hillard, 1985; Norton, Peipert, Zierler, Lima, and Hume, 1995). In a sample of female emergency department patients (Feldhaus *et al*., 1997) the PVS detected 71.4% of victims of partner violence detected by the Conflict Tactics Scale (CTS; Straus, 1979), and 64.5% of victims identified by the Index of Spouse Abuse (ISA; Hudson and McIntosh, 1981). However, the single question detected nearly as many cases as did the full 3-question screen, and demonstrated better specificity than the full screen. For identifying physical abuse victims among women outpatients at a veteran's medical center, a slightly different version of the question[4] demonstrated a sensitivity of .90 and specificity of .94 when compared to a structured clinician interview (McIntyre *et al*., 1999). The sexual-assault example reflects wording recommended by Resnick *et al*. (1996) as a preferred alternative to the terms "sexual assault" or "rape." Similar language has been used in a number of instruments that assess traumatic life events (*e.g*., McIntyre *et al*., 1999; Read *et al*., 1997; Vrana and Lauterbach, 1994) and is thought to be associated with higher reporting rates than sex assault inquiries that use less behaviorally-specific language (Resnick *et al*., 1996). For identifying sexual abuse victims among women outpatients at a veteran's medical center, an item incorporating similar wording[5] had a sensitivity of .89 and a specificity of .90 when judged against a structured interview (McIntyre *et al*., 1999).

[4] The question, an item on the Trauma Questionnaire (TQ; McIntyre *et al.,* 1999), reads "At any time, has a spouse or partner (significant other) ever hit you, kicked you, or physically hurt you in some way?"

[5] The item is also on the Trauma Questionnaire (TQ; McIntyre *et al.,* 1999) and reads: "Has anyone ever used force or the threat of force to have sex with you against your will?"

Both the unmodified and the behaviorally-revised versions of the SCID screening question are presented as 2-part items, the question inquiring about exposure to trauma and a follow-up question: "(If you answered yes): When the event or events happened, were you very afraid, or did you feel horrified or helpless?" For either version, a participant was deemed to have screened positive for a traumatic life event if she answered "yes" to both parts, A-1 and A-2.

– The Traumatic Life Events Questionnaire (TLEQ). The TLEQ (Kubany, Haynes *et al*., 2000) assesses exposure to 20 potentially traumatic life events, including physical assault, child sexual abuse, witnessing family violence, and serious accidents resulting in injury to self or others or in the death of a loved one. Events are described in behavioral terms. If a traumatic event is endorsed, respondents are then asked if they experienced intense fear, helplessness or horror during the event. An open-ended question at the end asks if the respondent has experienced any other traumatic life events that are not included, and the respondent may write in a description of the event. Finally, respondents are asked to indicate the event that causes them «the most distress» (if any). If an event is selected, that event is used as the basis for the subsequent set of questions about PTSD symptoms, contained in the Distressing Event Questionnaire (DEQ; Kubany, Leisen *et al*., 2000; described below). The TLEQ has demonstrated satisfactory temporal stability and convergent validity in separate studies with various populations, including Vietnam veterans, battered women, residents of a substance abuse program, and college students (Kubany, Haynes *et al*., 2000).
– Physical assault. Occurrences of physical assault were defined on the basis of a positive response to any of three questions on the TLEQ, questions 9, 13, and 14, that inquire about childhood physical abuse and interpersonal assault[6]. A participant was deemed to have reported a physical assault if at least one of these items, including the "fear, helplessness or horror" criterion, was endorsed.
– Sexual assault. Occurrences of sexual assault were defined on the basis of responses to four questions on the TLEQ, questions 15 through 18, which inquire about a range of potential traumatic experiences of sexual assault or abuse[7]. A

[6] The questions are: 9) Have you ever been hit or beaten up and badly hurt by a stranger or by someone you didn't know very well; 13) While growing up: Were you physically punished in a way that resulted in bruises, burns, cuts, or broken bones; and 14) Have you ever been slapped, punched, kicked, beaten up, otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend, or some other intimate partner. If a question is endorsed, the respondent is then asked: "Did you experience intense fear, helplessness, or horror when it happened?"

[7] The questions are: 15) Before your 13th birthday: Did anyone -who was at least 5 years older than you- touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way; 16) Before your 13th birthday: Did anyone touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent; 17) After your 13th birthday and before your 18th birthday: Did anyone touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent; and 18) At any time during your life: Did anyone touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent? If a question is endorsed, the respondent is then asked: "Did you experience intense fear, helplessness, or horror when it happened?"

participant was deemed to have reported a sexual assault if at least one of these items, including the "fear, helplessness or horror" criterion, was endorsed.

– Symptoms of post-traumatic stress disorder. Symptoms of post-traumatic stress disorder were assessed with the Distressing Event Questionnaire (DEQ; Kubany, Leisen *et al*., 2000). The DEQ assesses PTSD according to the diagnostic criteria provided in DSM-IV (American Psychiatric Association, 1994). In samples of Vietnam combat veterans and battered women, the DEQ demonstrated high internal consistency (alpha coefficients for the full scale ranged from .93 to .98) and satisfactory temporal stability. In four separate samples of women with histories of physical and/or sexual abuse, the DEQ exhibited satisfactory convergent validity when judged against the Clinician Administered PTSD Scale (CAPS; Blake *et al*., 1995), a widely-validated structured interview assessment of PTSD. Using a total symptom score cutoff method, the DEQ correctly classified the PTSD status of 90% of 255 women; using a DSM-IV symptom criteria method of diagnosis (and a symptom score cutoff of 1), diagnostic efficiency was 88% for all women. The DEQ was also found to be highly correlated (*e.g*., *r*'s .86 ≤ .91) with other measures of PTSD in these studies.

  In the screening packet, the DEQ immediately followed the presentation of the TLEQ. As noted, participants are asked at the end of the TLEQ administration to select one event, if any, that causes them the «most distress.» The DEQ opens with the introduction «The purpose of this questionnaire is to evaluate your reactions to the event (or series of events) experienced by you and noted on the previous page as causing you the most distress." If an event is endorsed, that event is then framed as the focus of the following inquiry about possible PTSD symptoms. There are 20 items on the DEQ that inquire about key symptoms of PTSD (5 reexperiencing symptom items, 7 numbing/avoidance symptom items, 5 hyperarousal symptom items, and 3 items that ask about guilt, anger and grief). Respondents are instructed to indicate the degree to which they experienced each of the symptoms in the past 30 days, and are given five response options to each symptom question from 0 (Absent or did not occur) to 4 (Present to an extreme or severe degree).

– Acceptability and efficiency of the screening procedure. Acceptability of the screening procedure was assessed on the basis of evaluative ratings provided by the participants and on the basis of observational data collected by research assistants regarding the administration of the screening packet. Patient evaluations of acceptability of the screening procedure were solicited on the Feedback Form which asked participants to evaluate comfort with, emotional reactions to, and perceived usefulness of the screen. Questions on the Feedback Form were developed and used in a previous study utilizing a similar protocol (Richard, 1999).

  Research assistants monitored the amount of time required by each participant to complete the SCID screening question and the TLEQ, and the number of questions or requests for assistance or other reactions or interruptions.

*Data reduction*

Missing data. Participants who did not complete both the SCID screen and the TLEQ were eliminated from analyses. Because some participants were called in for their appointment before completing all of the packet, only a subset of the full sample was used for analyses that included DEQ ($n$ = 281) or Feedback Form ($n$ = 285) data.

Classification of trauma survivors. The TLEQ was used to classify participants as to their trauma survivor status. A participant was classified as a survivor of assaultive trauma if she reported at least one assaultive event on the TLEQ for which Criterion A-2 (fear, helplessness and/or horror) was also endorsed. A participant was classified as a survivor of nonassaultive trauma if she reported at least one nonassaultive event on the TLEQ for which Criterion A-2 was also endorsed and was not also classified as a survivor of assaultive trauma. A participant was classified as a survivor of physical assault if she endorsed any of items 9, 13, and 14 (described above) and also endorsed Criterion A-2 for that item. A participant was classified as a survivor of sexual assault if she endorsed any of items 15-18 (described above) and also endorsed Criterion A-2 for that item.

Screening results and coding. SCID screening question responses were counted as positive if the participant endorsed both Question 1 (Criterion A-1) and Question 2 (Criterion A-2). The events reported on follow-up questions to the SCID screen were classified according to the TLEQ items. Two research assistants were trained to code participants' narrative responses on the follow-up question, using TLEQ items as the standard for classification. The two research assistants and the principal investigator then each independently coded all participant responses on the SCID follow-up question ($n$ = 242). Ratings made by each of the research assistants were compared to those done by the principal investigator. The kappa coefficients for each pair of coders were .88 and .83, respectively.

## Results

*Rates of traumatic events*

Table 1 presents percentages, frequencies and types of the most common events reported on the TLEQ. Of participants who reported experiencing any event on the TLEQ (94.4%, $n$ = 320), 84.9% also reported experiencing fear, helplessness and/or horror. The events endorsed most frequently were: natural disaster, 58.5% of participants, sudden death of a loved one, reported by 49.6% of participants, any assaultive trauma, 46.3%, sexual harassment, 43.5%, life threat to loved one, 41.1%, and being stalked, 26.8%. The category of event most frequently endorsed as traumatic (*i.e.*, the participant also reported experiencing fear, helplessness or horror) was assaultive trauma (40.9%), followed by sudden death of a loved one (35.2%) and life-threat to loved one (28.8%). Assaultive events were most frequently endorsed as causing the "most distress" (26% of the participants), followed by sudden death of a loved one (19%). The number of traumatic life events (*i.e.*, events associated with fear, helplessness and horror) reported by participants varied from 0 to 13 ($M$ = 2.9, $SD$ = 2.6). One traumatic life event was the modal number, reported by 19.5% ($n$ = 66) of participants, although 25.7% ($n$ = 87) reported 5 or more events.

**TABLE 1.** Frequencies and percentages of most common events reported on the TLEQ.

| | *Reported event* | | *Reported event, and fear/ helplessness/ horror* | | *Endorsed as "most distressing event"* | |
|---|---|---|---|---|---|---|
| *Type of event* | %[a] | *n*[b] | %[a] | *n*[b] | %[a] | *n*[b] |
| Any event | 94.4 | 320/339 | 84.9 | 276/325 | 91.7 | 311/339 |
| Natural disaster | 58.5 | 197/337 | 23.1 | 77/333 | 4.5 | 14/311 |
| Sudden death/loved one | 49.6 | 167/337 | 35.2 | 115/327 | 19 | 59/311 |
| Any assaultive trauma | 46.3 | 152/328 | 40.9 | 134/327 | 26 | 81/312 |
| Sexual harassment | 43.5 | 146/336 | 22 | 73/332 | 2.3 | 7/304 |
| Life-threat/loved one | 41.1 | 139/338 | 28.8 | 96/333 | 6.2 | 21/339 |
| Stalked | 26.8 | 90/336 | 21.3 | 71/334 | 4.2 | 13/310 |

NOTES. TLEQ: Traumatic Life Events Questionnaire. [a]Percent of total number of participants who responded to this TLEQ item. [b]The number of respondents to each item varied as a function of missing responses.

*SCID screen results*

Table 2 presents percentages, frequencies and types of all traumatic life events (*i.e*., events for which fear, helplessness or horror were also endorsed) reported on the SCID screen follow-up question, which asked participants to describe the nature of the event or events, if any, referred to on the SCID screen. Of participants who reported experiencing any traumatic life event on the SCID screen (55.6%, *n*= 188), 50.7% (*n* = 170) also reported experiencing fear, helplessness and/or horror. Participants in the latter group reported a total of 242 traumatic life events. One hundred and sixty-four women reported at least one event, 50 reported 2 traumatic life events, 23 reported 3 traumas, and 8 reported 4 events on the narrative SCID screen follow-up question. The event that was reported most frequently was sudden death of a loved one, 24% (*n* = 58) of all trauma events reported, followed by life-threat to loved one (16.9%, *n* = 41) and "Other" event[8] (13.6%, *n* = 33). Assaultive events made up 28.1% of events reported: 20% (*n* = 49) of events reported were sexually assaultive traumatic events, and 8% (*n* = 19) were physically assaultive.

*Symptoms of PTSD*

Symptoms of PTSD in participants were assessed by examining their responses to the Distressing Event Questionnaire (DEQ; Kubany, Leisen *et al*., 2000). The DEQ was completed by 285 participants. Of this group, 30% (*n* = 86) met at least two symptom requirements for PTSD; 15.1% (*n* = 43) met or exceeded the DEQ cutoff of 26 for PTSD established by Kubany, Leisen *et al*. (2000); and 12.2% (*n* = 35) met full symptom criteria for PTSD on the DEQ. Notably, 64% of participants who reported 2 or more symptoms of PTSD on the DEQ reported at least one assaultive trauma.

[8] Examples of events classified as "Other" either fell outside events defined by the TLEQ, *e.g.,* "Grandmother harassed by peeping-tom," "Saw mother arrested," "Parents in custody battle;" or did not provide enough information to permit classification, *e.g.,* "Suicide," "Bad things from family."

**TABLE 2.** Frequencies and percentages of traumatic events[a] reported on the SCID screen "follow-up," in order of frequency.

| *Type of event* | %[b] | *n*[c] |
|---|---|---|
| Any assaultive event | 28.1 | 68 |
| Any sexually-assaultive event | 20.2 | 49 |
| Any physically-assaultive event | 8 | 19 |
| Sudden death of loved one | 24 | 58 |
| Life-threat to loved one | 16.9 | 41 |
| Other | 13.6 | 33 |
| Motor vehicle accident | 5.8 | 14 |
| Other accident | 4.1 | 10 |
| Witnessed family violence | 2.5 | 6 |
| Natural disaster | 1.2 | 3 |
| Robbery with weapon | 1.2 | 3 |
| Witnessed assault by stranger | 1.2 | 3 |
| Abortion | .8 | 2 |
| Threatened with harm | .4 | 1 |

NOTES. SCID: Structured Clinical Interview for DSM-IV. [a]A "traumatic event" was defined as any reported event for which Criterion A2, fear, helplessness or horror, was also endorsed. [b]Percent of total events listed; some participants listed more than one event. [c]Number of events reported; total number of events reported = 242; total number of participants who reported a traumatic event on the SCID screen follow-up question = 170.

*Relationship of wording to response rates*

The original version of the SCID screening question was compared to a revised, behaviorally-worded version that replaced the original language "being physically assaulted or raped," with behaviorally-worded descriptions of sexual and physical assault. Among participants who reported an assaultive trauma on the TLEQ, comparisons of response rates in the behavioral ($n = 68$) and original wording conditions ($n = 65$) were conducted. (Only those participants who reported an assaultive trauma were evaluated, since the behavioral revisions encompassed only the portions of the SCID screening question having to do with assaultive events). No significant differences were found: the behaviorally-worded SCID screen identified 37% of survivors of assaultive trauma; and the unmodified version of the SCID identified 36% of survivors of assaultive trauma; $\chi^2_{\ 1} = .054$, $p = .97$ ($n = 134$).

*Classification efficacy of the screening question*

Using TLEQ and DEQ classifications respectively as criterion measures, the relative classification accuracy of DSM-IV Criterion A-1, Part 1 of the SCID screening question, and the incremental validity of DSM-IV Stressor Criterion A-2, Part 2 of the screening question, were evaluated by calculating sensitivity, specificity, positive predictive power and negative predictive power for each of these items. These values are presented in Table 3.

**TABLE 3.** Performance of SCID screening question with and without DSM-IV posttraumatic stress disorder (PTSD) Criterion A-2 for identifying exposure to trauma[a] as measured by the TLEQ.

| | *Criterion A1 on SCID screen* | | | | *Criterion A1 and A2 on SCID screen* | | | |
|---|---|---|---|---|---|---|---|---|
| *Variable* | Sens. | Spec. | PPP | NPP | Sens. | Spec. | PPP | NPP |
| Exposure to any traumatic event | .65 | .88 | .96 | .35 | .60 | .95 | .98 | .34 |
| Exposure to assaultive trauma[b] | .77 | .59 | .56 | .79 | .73 | .65 | .58 | .78 |
| Physical assault[b] | .76 | .50 | .27 | .89 | .73 | .55 | .29 | .89 |
| Sexual assault[b] | .83 | .56 | .43 | .89 | .79 | .62 | .46 | .88 |
| Exposure to assaultive trauma[c] | .48 | 1 | .99 | .73 | .45 | 1 | .98 | .73 |
| Two or more symptoms of PTSD | .79 | .50 | .40 | .85 | .77 | .56 | .43 | .85 |
| Meets criteria for PTSD on DEQ[d] | .96 | .48 | .27 | .98 | .92 | .54 | .29 | .97 |

NOTES. SCID: Structured Clinical Interview for DSM-IV; TLEQ: Traumatic Life Events Questionnaire; DEQ: Distressing Events Questionnaire; Sens.: sensitivity; Spec.: specificity; PPP: positive predictive power; NPP: negative predictive power. [a]A trauma is defined as any event for which both Criterion A1 and A2 were endorsed. [b]As defined by any positive SCID screen. [c]As defined by category of event reported on SCID follow-up question. [d]Met symptom criteria or DEQ cutoff of > 26.

Classification efficacy of the screen for identifying trauma survivors. Using DSM-IV Criterion A-1 (Part 1 of the SCID screen or SCID A-1) as the criterion for exposure to any traumatic life event correctly classified 232 of 336 participants (overall classification accuracy, or number of individuals correctly classified as trauma-positive or trauma-negative, was 69%). Sensitivity (*i.e.*, the proportion of true trauma survivors as identified by the TLEQ that were detected by the SCID screen) was .65; specificity (*i.e.*, the proportion of true non-survivors of trauma, as identified by the TLEQ, detected by the SCID screen) was .88; positive predictive power (*i.e.*, the proportion of survivors of trauma identified by the SCID screen that were true survivors of trauma, as identified by the TLEQ) was .96, and negative predictive power (*i.e.*, the proportion of non-survivors of trauma identified by the SCID that were true non-survivors of trauma, as identified by the TLEQ) was .35

When Criterion A-2 (Part 2 of the SCID screen or SCID A-2) was added to SCID A-1, 221 of 333 participants were identified (overall classification accuracy = 66.4%). Sensitivity was .60; specificity was .95; positive predictive power was .98, and negative predictive power was .34.

Classification efficacy of the screen for identifying survivors of assaultive trauma. The overall ability of the brief screening question to identify survivors of assaultive trauma was examined. Using as criterion the TLEQ classification of exposure to an assaultive trauma (*i.e.*, both exposure to an assaultive event and fear, helplessness and/or horror reported), SCID A-1 correctly classified 215 of 324 participants (overall classification accuracy = 66%). Sensitivity was .77; specificity was .60; positive predictive power was .56, and negative predictive power was .79. For identification of survivors of assaultive trauma, the kappa coefficient for agreement between SCID A-1 and the TLEQ was .36 ($p < .001$).

With the addition of SCID A-2 to SCID A-1, 219 of 322 participants were identified (overall classification accuracy = 68%). Sensitivity was .73; specificity was .65; positive

predictive power was .58, and negative predictive power was .78. For identification of survivors of any assaultive trauma, the kappa coefficient for agreement between SCID A-2 and the TLEQ was .36 ($p < .001$).

The ability of the brief screening question to identify survivors of assaultive trauma was also examined by using data from the follow-up question to the SCID screen to classify SCID-responders as assaultive trauma survivors[9]. Criterion A-1 correctly classified 256 of 327 participants (overall classification accuracy = 78.3%). Sensitivity was .48; specificity was 1; positive predictive power was .99, and negative predictive power was .73. For identification of survivors of assaultive trauma, the kappa coefficient for agreement between SCID A-1 and the TLEQ was .51 ($p < .001$).

With the addition of SCID A-2 to SCID A-1, 252 of 326 participants were identified (overall classification accuracy = 77.3%). Sensitivity was .45; specificity was 1; positive predictive power was .98, and negative predictive power was .73. For identification of survivors of any assaultive trauma, the kappa coefficient for agreement between SCID A-2 and the TLEQ was .49 ($p < .001$).

Classification efficacy of the SCID screen for identifying symptoms of PTSD. Using as criterion the DEQ classification of participants who met criteria for PTSD (*i.e.*, endorsed items that met DSM-IV-defined criteria for the three symptom clusters, or met the DEQ cutoff score of 26 -Kubany, Leisen *et al.*, 2000-), SCID A-1, correctly classified 159 of 283 participants (overall classification accuracy = 56.2%). Sensitivity was .96; specificity was .48; positive predictive power was .27, and negative predictive power was .98. For identification of participants who met criteria for PTSD, the kappa coefficient for agreement between SCID A-1 and the TLEQ was .22 ($p < .001$)

With the addition of SCID A-2 to SCID A-1, 169 of 280 participants were identified (overall classification accuracy = 60%). Sensitivity was .92; specificity was .54; positive predictive power was .29, and negative predictive power was .97. For identification of individuals who met full symptom criteria for PTSD on the DEQ, the kappa coefficient for agreement between SCID A-2 and the TLEQ was .24 ($p < .001$).

*Efficiency and acceptability of the screening procedure*

Completion of the SCID screen *versus* the TLEQ. A total of 338 participants completed the SCID screen and 339 participants completed the TLEQ. Participants completed the screening question in an average time of 34.7 seconds. The TLEQ was completed in a mean 3.9 minutes. Very few participants requested questionnaire-specific help during either the administration of the SCID screen ($n = 3$) or the TLEQ ($n = 2$).

Participant feedback. The participant Feedback Form was completed by 297 participants. The majority of participants reported that their responses on both the SCID screen (89.4%) and the TLEQ (90.1%) were honest, and that they were not uncomfortable or embarrassed by either the SCID (90.6%) or the TLEQ (82%). While 12% of responders

[9] The follow-up question (presented as confidential and for research purposes only) asked participants to state the nature of the event(s) they had in mind if they endorsed an event on the screen. Because not all participants who screened positive on the SCID screen reported an event on the follow-up question, this resulted in a smaller proportion of individuals classified as assault survivors.

did not agree that medical healthcare providers should screen patients for exposure to traumatic life events, 41% were neutral, and 49% agreed with this statement. Feeling bad or remembering upsetting things to a mild or strong degree were reported by 1/3 (33%) of the sample. The DEQ total symptom score was positively correlated with feeling bad or remembering upsetting things after answering questions about traumatic life events; $r_{(297)} = .35$, $p < .01$.

## Discussion

The purpose of this investigation was to evaluate the validity and utility of a brief screening question about exposure to traumatic life events among college women in a university healthcare setting. This is the first study to evaluate within-participant differences between brief screening and more exhaustive self-administered measures in reporting of traumatic life events. Results suggest that brief screening may be an acceptable alternative for the identification of trauma survivors in settings where more thorough, time-consuming alternatives to trauma assessment are not viable.

A large proportion (85%) in this ethnically diverse sample reported experiencing at least one traumatic event and 41% of the women reported one or more experiences of either traumatic physical assault, sexual assault, or both. These rates are consistent with rates of trauma-exposure and assaultive trauma-exposure reported for similar (*i.e.*, female, college-student) populations (*e.g.*, Fillingim *et al.*, 1999; Vrana and Lauterbach, 1994); and primary-care populations (*e.g.*, Rosenberg *et al.*, 2000).

A relatively conservative definition of assaultive trauma was used in the present study. High rates of stalking (27% of participants) and witnessing family violence as a child (23% of participants) were reported in this sample. If these events had been included in the definition of assaultive events, as some investigators have done (*e.g.*, Pimlott-Kubiak and Cortina, 2003), a much higher rate for assaultive trauma would have been derived.

In addition, a substantial minority of the group reported significant PTSD symptomatology. More than one-quarter of the sample reported 2 or more symptoms of PTSD on the DEQ, and 11 percent met symptom criteria for PTSD on the DEQ, which is comparable to lifetime rates of PTSD among women reported by Breslau *et al.* (11.3%; 1998), and Kessler, Sonnega, Bromet, Hughes, and Nelson (10.4%; 1995). If participants who met or exceeded the DEQ cutoff suggested by Kubany, Leisen *et al.* (2000) are added to the latter group, 17% of this sample exhibited a significant degree of PTSD symptomatology, approximating questionnaire-derived rates of PTSD reported for female primary care patients by Dobie *et al.* (20.8%; 2004).

As expected, assaultive traumatic events were significantly more likely to be associated with symptoms of PTSD, as reported on the DEQ, than were nonassaultive events. Among those women who had experienced one or more experiences of assaultive trauma, more than one-quarter met full symptom criteria for PTSD. Again, this is congruent with reported rates of PTSD for female victims of assaultive trauma (*e.g.*, 20.8%, Breslau *et al.*, 1998; 25.8%, Resnick, Kilpatrick, Dansky, Saunders, and Best, 1993).

The overall ability of the brief screening question to identify trauma survivors and symptomatic individuals was examined. Compared to the SCID screen, the more comprehensive TLEQ assessment increased the number of participants reporting any traumatic event from 50.1% to 84.9%. At the same time, the positive predictive value of the SCID screen for identifying a trauma survivor (*i.e.*, proportion of survivors of trauma identified by the SCID screen that were true survivors of trauma) was 98%; that is, virtually all of the women who reported a traumatic event on the SCID screen were also classified as trauma survivors by the TLEQ.

Utilizing the follow-up question to the SCID screen to classify reported traumas as assaultive, about half of the participants who reported an assaultive trauma on the TLEQ explicitly listed an assaultive trauma as one of the referent events for their positive SCID response. For practical purposes, however, only a positive response to the screen would serve to identify patients who would merit follow-up. Using a positive response to the SCID screen as criterion identified more than three-quarters of the survivors of traumatic assault. Finally, and perhaps most importantly, almost all of the women who reported significant PTSD symptomatology were identified by the screening question. The TLEQ identified only 2 additional women of the 47 who met symptom or DEQ cutoff criteria for PTSD. This is similar to the findings of Franklin *et al.* (2002), who found that the brief SCID screening question for PTSD failed to identify only 4% of those respondents who subsequently met criteria for PTSD.

We also examined the incremental validity of DSM-IV Stressor Criterion A-2, the degree to which it could identify trauma-exposure over and above that of Criterion A-1. The finding that the addition of the Criterion A-2 inquiry slightly improved the specificity, and slightly decreased the sensitivity, of the Criterion A-1-based Part 1 of the SCID screen that inquires only about trauma exposure is in agreement with findings of Breslau and Kessler (2001), who noted the high specificity of the criterion relative to A-1 alone. The decision about whether or not to include A-2 as criterion in a screening question in a healthcare setting would largely depend on the relative costs associated with misidentification *versus* failing to identify patients who had experienced traumatic life events.

There were no significant differences in the ability of the behaviorally-worded version of the SCID screen versus the original, non-behaviorally worded version of the SCID screen to identify survivors of assaultive trauma. This was an unexpected finding given the evidence that traumatic-event assessments that include behaviorally-worded examples of assaultive trauma are more likely to elicit positive responses (Kilpatrick *et al.*, 1997). Because a proportion of the sample did not speak English as their first language (16.5%, $n = 56$), this group was eliminated from the analyses, and the data was reanalyzed. Again, no significant differences between the groups were detected.

Several factors may account for this result. It may be that, given the voluntary nature of the questionnaire and the hurried atmosphere of the clinic, participants devoted less than full attention to written materials. Another possible explanation is that this university-educated sample is more knowledgeable about the nature and definition of physical and sexual assault than individuals in earlier studies, so that the expanded definition of assault is superfluous.

The utility of a screen depends on its acceptability and time-to-complete. With respect to the acceptability of the screening measures, most participants reported that they were comfortable, honest, and unembarrassed in responding to both the SCID and the TLEQ, although about a third of the participants, particularly those who also reported symptoms of PTSD on the DEQ, reported that answering questions about traumatic life events was at least mildly distressing to them. With respect to time, participants completed the screening question in about an eighth of the time it took to complete the TLEQ.

Several aspects of the current study limit the inferences that can be drawn. First, because only female college-student healthcare patients were evaluated, the generalizability of the results to other primary-care populations cannot be assumed. In addition, because of the single-source, self-report nature of the data, common method variance or response-consistency bias could potentially explain some significant relationships.

Another limitation of the study is that only the DEQ was used to assess trauma-related symptoms. As we noted earlier, trauma exposure is significantly correlated with many behavior problems other than PTSD symptomatology, such as mood and anxiety disorders, substance abuse, and eating disorders. Although the present study suggests that a single question about exposure to traumatic life events may be sufficient to identify most individuals who are experiencing significant symptoms of PTSD, additional research is necessary to determine the efficacy of the brief screen for identifying individuals who are experiencing other trauma-related problems.

The implementation of computer-administered screening, not feasible in the present study, might have strengthened the validity and utility of the screen. Evidence suggests that computerized instruments can be reliable, valid, cost-beneficial, and equivalent to interview and questionnaire versions of the same instruments (*e.g.*, Wood, Garb, Lilienfeld, and Nezworski, 2002). The use of a computer-administered screen for traumatic life events may have reduced the time and effort required and enhanced reporting rates for sensitive information.

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