

Who Seeks Treatment After a Traumatic Event and Who Does Not? A Review of Findings on Mental Health Service Utilization

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This review aimed to identify factors associated with seeking treatment from mental health services after a traumatic event. Databases of literature were searched in a systematic manner and 24 relevant articles were found. Although many of the findings are inconsistent, the most important factors associated with treatment seeking appear to be a higher level of psychopathology, the type and level of the traumatic event, and sociodemographic characteristics, in particular female gender. Even though the evidence is insufficient to guide service development, suggestions for future research are made. The methodological quality of research should be improved to establish whether the inconsistency of findings reflects methodological artefacts or true differences between different samples and contexts.

An extensive research base has documented that traumatic experience can lead to severe and long-lasting psychological distress (Yehuda, 1998). Posttraumatic stress disorder (PTSD) may occur as a result of a traumatic experience (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Norris, 1992). It is, however, not the only mental sequela of trauma. Other disorders, such as depression, somatization disorder, generalized anxiety, and personality change, may also develop as a result of psychological trauma, with PTSD or alone (Goenjian et al., 2000; Priebe, Denis, & Bauer, 1996).

Mental health treatment has been shown to be effective (Harvey, Bryant, & Tarrier, 2003) and holds the promise of shortening the duration and lowering the level of psychological distress following traumatic events. Many people suffering from posttraumatic stress symptoms seek medical help (Calhoun, Bosworth, Grambow, Dudley, & Beckham, 2002), but a significant proportion do not seek or receive mental health treatment (Bramsen & Van der Ploeg, 1999; Eaton, Sigal, & Weinfeld, 1982). Furthermore, if PTSD is left untreated it can be complicated by other disorders such as depression and substance misuse (Kessler et al., 1995). Thus, reaching the patients suffering from posttraumatic stress remains a special challenge to health services.

Several theoretical models have been proposed in an attempt to explain the complex process of treatment-seeking behavior. One of these is a behavioral model of health service use that has been designed to explain why many individuals who appear to need health services do not use them (Andersen, 1995; Andersen & Newman, 1973). This model, which has been applied to the use of mental health services (Greenley, Mechanic, & Cleary, 1987; Leaf et al., 1988), suggests that individual

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characteristics related to service use can be classified as predisposing, enabling, and need factors. Predisposing factors are defined as an individual's tendency for mental health service use and are not related to the specifics of the illness, for example, age and gender. Enabling factors are defined as factors that *enable* a person to access mental health services and include, for example, employment status (related to insurance and financial means) and knowledge of the existence of services. Finally, need factors fall into two groups that are defined as those indicating (a) the subject's own view of the severity of the illness and (b) the professionals' assessment of the patient's mental health status.

Studies investigating the determinants of treatment seeking for severe psychiatric disorders have identified the degree of psychological distress as the best predictor of mental health service use (Leaf et al., 1988; Williams, Tarnopolsky, Hand, & Shepard, 1986). Further factors frequently found include female gender, younger age, comorbidity, higher education, urban residence, and separation or divorce (Bland, Newman, & Orn, 1997; Greenley et al., 1987). Other studies (Shapiro et al., 1984) found that young adults, men, substance users, and the cognitively impaired were less likely to seek help, whereas women, and people with schizophrenia and affective disorders, were more likely to seek help. However, it still remains poorly understood why so many people suffering from psychological symptoms do not seek or receive mental health treatment following traumatic events. The aim of this review was to identify factors associated with treatment seeking after traumatic events, and to conclude on implications for both clinical services and future research in the field.

Method

Selection of Studies

We searched databases (Medline, Psychinfo, and Embase) with a combination of subject headings *health care utilization, mental health services, help seeking behavior, patients' acceptance of health care, and post traumatic stress disorder*.

Inclusion criteria for the review were that a study (a) had been conducted on a sample of adults who had experienced a traumatic event, and (b) considered factors associated with some aspect of seeking or receiving mental health treatment.

We did not include studies that either (a) did not distinguish between mental and physical treatment seeking, as some studies (Leaf et al., 1988) show that fac-

tors affecting use of mental health services and general medical health care differ, or (b) investigated factors associated with the frequency of service use and treatment adherence, rather than with treatment seeking versus not treatment seeking, because adherence to treatment is a different issue. In addition, studies reviewed did not specifically look at the barriers preventing people from seeking treatment.

Out of 316 abstracts identified from the database search as potentially relevant, 42 articles were reviewed, 15 of which fulfilled the inclusion criteria. Reference list searching identified further studies in 4 books and 17 articles as possibly relevant. From these studies one book-chapter report and three articles fulfilled inclusion criteria. Experts in the field recommended one thesis and four further articles that were included. In addition to searching these standard databases, we searched the PILOTS database run by the National Center for PTSD, where one additional paper was identified but did not fulfil the inclusion criteria. A total of 24 studies fulfilled our inclusion criteria (Table 1).

Study Quality Assessment

Given that the quality of the selected studies differed very much, a subgroup of studies with higher quality standards was identified in order to weight the studies' results. We based the definition of the studies' quality mainly on the following criteria: sampling, recruitment, power, and data analysis. The thresholds for high quality studies were as follows: (a) if the sample was random or inclusive—a response rate of at least 50% or if the sample is selective—a sample size of at least 1,000 interviewees; and (b) that multivariate analysis was carried out controlling for trauma exposure or PTSD. Eleven studies fulfilled these inclusion criteria, and they are indicated in Table 1.

Reporting of Extracted Findings

As described in the introduction, there are several theories as to why people with mental disorders do or do not seek mental health treatment. We used the behavioral model of health service use as a framework for classifying the results of the studies, and distinguished between predisposing, enabling, and need factors. This model was taken as a framework for grouping the results, and was not used as a theory to analyse treatment-seeking processes, which is beyond the scope of this review.

Table 1. Overview of Studies Looking at Factors Associated With Treatment Seeking After a Traumatic Event

Study	N	Participants	Sample Selection (response rate%)	Definition of Treatment	Significant Positive Predictors for Treatment Seeking (reverse for Non Treatment Seeking) (nonsignificant factors)
Bramsen (1999)	4,057	WWII survivors	Representative (44%)	Mental health care from professionals for problems related to wartime experiences	Univariate – severity of stressor
Koenen ^a (2003)	2,713	Community sample with PTSD	Selective	Mental health treatment	Univariate – older, separated/divorced, White, unemployed, higher interference of symptoms, major depression, panic disorder, general anxiety disorder, OCD, social phobia (nonsignificant – gender, education, geographical location, intrusive symptoms) Multivariate analysis: age between 25 and 64, separated/divorced, intrusive symptoms, panic disorder, White (nonsignificant – gender, education, employment, geographical location, major depression, generalised anxiety disorder, OCD, social phobia)
Kulka (1990)	2,044	Vietnam war veterans	Representative (80%) – stratified sample	Last 12 months and lifetime – any mental health services	Univariate – type/level of exposure, PTSD, substance abuse, ethnicity (Black) for lifetime VA services, physical disability for males
Boscarino ^a (2004)	2,001	English or Spanish speaking citizens of NYC	Representative (64%)	Help sought for personal or emotional problems from a professional in 4 th and 5 th month after a disaster	Univariate – Caucasian, graduate education, older, having primary care physician, experienced ≥ 2 lifetime traumatic events, experienced ≥ 1 stressful life event in year before attack, increased alcohol use, proximity to attack, PTSD, depression, panic attack during or shortly after the terrorist attack (nonsignificant – none) Multivariate analysis: Caucasian, experienced ≥ 4 lifetime traumatic events, experienced ≥ 2 stressful life events in year before attack, PTSD, depression (nonsignificant – education, age, having primary care physician, increased alcohol use, distance from the attack, panic attack during or shortly after the terrorist attack)
Rosenheck ^a (1994)	1,698	Male Vietnam war veterans	Representative (80%) – stratified sample	Help sought for a psychological problem from mental health services, other physicians, the clergy, and self-help groups	Univariate – Whites used more non-VA mental health services Multivariate – Black and Mexican Hispanic less likely to use any formal mental health service and non-VA mental health service (but not VA services)
Rosenheck ^a (1995)	1,676	Male Vietnam war veterans	Representative (80%) – stratified sample	Use of VA and non-VA mental health services	Multivariate – PTSD especially in VA mental health services, in receipt of VA compensation, pension benefits, low income, having at least one other psychiatric disorder in addition to PTSD, living in an urban area (nonsignificant – PTSD for non-VA services)
Hankin (1999)	856	Male Vietnam war veterans with mental illness at VA outpatients	Representative (57.2%)	Any received (nonspecific) mental health treatment	Univariate – younger, more educated, employment status, higher combat exposure, severe depression symptoms, PTSD, Caucasian, higher lifetime traumatic exposure (nonsignificant – marital status and alcohol-related disorder) Multivariate analysis – male, Caucasian, severe PTSD symptoms, severe alcohol related symptoms (non significant – age, education, employment status, marital status, combat exposure, traumatic exposure, symptoms of depression)
Solomon ^a (1989)	716	Male Israeli soldiers in 1982 war in Lebanon	Representative (89%)	Received treatment at Israel Defence Forces mental health facilities for combat stress reaction	Univariate-fewer negative life events 3 months preceding the war regarding family, work and social areas (nonsignificant – negative life events 3 months preceding the war regarding health, personal life, and studies) Multivariate – lower perceived self-efficacy, higher PTSD and general psychopathology scale score, lower social functioning, more somatic problems (nonsignificant – none)
Dobson ^a (1998)	692	Male Australian Vietnam war veterans	Representative (n = 1,000) and selective (n = 145)	Self referral to Vietnam Veterans Counselling Service	Univariate – combat exposure, PTSD, lower general health status Multivariate – (controlled for morbidity and combat exposure) – PTSD, discrimination as Vietnam veteran, involvement in disputes about Vietnam, thinking about war, talking about Vietnam in the last 5 years, feelings at homecoming (nonsignificant – other homecoming and postwar experiences)

(Continued)

Table 1. Continued

Study	N	Participants	Sample Selection (response rate %)	Definition of Treatment	Significant Positive Predictors for Treatment Seeking (reverse for Non-Treatment Seeking) (nonsignificant factors)
Ullman ^a (2002)	627	Females who experienced sexual abuse, aged 15 - 54	Representative (> 98.1%)	Lifetime visit to a psychiatrist, psychologist, social worker, or counsellor for psychological problems or substance misuse	Multivariate analysis: for abuse in childhood – more education, Caucasian, a more recent first assault (nonsignificant factors – duration of abuse, victim – offender relationship, traumatic life events, stressful life events within last 12 months, social support, social conflict, alcohol dependence symptoms, PTSD diagnosis, medical insurance) for abuse in adulthood – Caucasian, more traumatic life events, more stressful life events in past 12 months, more social support, more social conflicts, medical insurance (nonsignificant factors – education, time since assault, duration of abuse, victim–offender relationship, alcohol dependence symptoms, PTSD diagnosis) for abuse both in childhood and adulthood – none (nonsignificant factors – education, race, time since assault, duration of abuse, victim–offender relationship, traumatic life events, stressful life events within last 12 months, social support, social conflict, alcohol dependence symptoms, PTSD diagnosis, medical insurance)
Luce (2002)	536	All local health services staff after Omagh bombing	Inclusive (35%)	Help sought from professionals and nonprofessionals relating to the bombing	PTSD scores
Caldera ^a (2001)	496	Nicaraguans attending primary health care after an earthquake	Inclusive (96%)	Help seeking from a professional after trauma	Multivariate analysis (controlled for severity of trauma) – for professional help only – previous mental health problems (nonsignificant – gender, literacy)
Golding ^a (1989)	447	Victims of sexual assault	Representative (68%)	Consultation with mental health professionals	Univariate – female, non-Hispanic White, emotionally upset by the assault (nonsignificant – education, age, characteristics of assault) Multivariate analysis – non-Hispanic White, emotionally upset by the assault (nonsignificant – gender, education, age, characteristics of assault)
Norris ^a (1990)	374	Victims of violent and property crime	Representative (approx. 60%)	Use of mental health services within first months after crime	Multivariate – depression, exposure to trauma, i.e., violence (in univariate also gender and marital status) (nonsignificant – gender, urban, occupation, marital status, age, locus of control, social support, life events, prior victimization)
Jaycox ^a (2004)	231	Male victims of community violence	Representative (59%)	Mental health service use within 12 months	Multivariate for interaction effects with violence – urban, internal locus of control, social support, prior victimization (nonsignificant – interaction with gender, urban, occupation, marital status, age, locus of control, social support, life events, depression, prior victimization)
Rosner (2002)	212	Bosnian civilians	Representative (32% non-treatment seekers), stratified treatment seekers	At least 1 session of psychological treatment in last 3 months.	Univariate – whole sample – older age, non – Latino, previous service user, PTSD symptoms, subjective need for services; for symptomatic subset – older age, PTSD symptoms (nonsignificant for the whole sample – income, injury severity, neuroticism; nonsignificant for symptomatic subset – Latino ethnicity, income, injury severity, neuroticism, previous use of mental health services, subjective need for services) Multivariate – PTSD symptoms and subjective need for services; older age predicted post injury service use; for symptomatic subset: older age and PTSD symptoms (nonsignificant for the whole sample – previous use of mental health services; nonsignificant for symptomatic subset – previous use of mental health services, subjective need for services) Multivariate analysis – avoidance, employment, task oriented coping strategies (negative) (nonsignificant – war events, income, intrusion, hyperarousal, education, emotion oriented coping, avoidance oriented coping)

(Continued)

Table 1. Continued

Study	N	Participants	Sample Selection (response rate %)	Definition of Treatment	Significant Positive Predictors for Treatment Seeking (reverse for NonTreatment Seeking) (nonsignificant factors)
Rodriguez (2003)	197	PTSD cases in primary care	Representative (approx. 18%)	Current and 3 months prior psychotropic medication, and current and 6 months prior psychosocial treatment	Multivariate any treatment – Global Functioning (negatively) (nonsignificant – age, number of lifetime traumas, comorbid major depression, panic disorder, panic disorder with agoraphobia, social phobia, generalized anxiety disorder, agoraphobia without anxiety disorder) medication – Global Functioning (negatively), panic disorder with agoraphobia (nonsignificant – age, number of lifetime traumas, comorbid major depression, panic disorder, social phobia, generalized anxiety disorder, agoraphobia without anxiety disorder) psychotherapy – Global Functioning (negatively), number of lifetime traumas (negatively) (nonsignificant – age, comorbid major depression, panic disorder, panic disorder with agoraphobia, social phobia, generalized anxiety disorder, agoraphobia without anxiety disorder) Univariate – comorbidity with Borderline Personality Disorder
Connor (2002)	150	General population with PTSS	Representative	Use of outpatient mental health services in last 6 months	Univariate – treatment group was older; more females, more married and widowed, shorter time in united states, more participants on welfare, more PTSD symptoms, fewer go to school or work, more knowledge of mental health services, more lived with family. Seek mental health service if had headaches, nightmares, difficulties sleeping, poor concentration, depression, and other health related problems. (nonsignificant – seek help if anxiety, loneliness, family problems, feeling numb, and would seek help from monk, family, herbalist, psychiatrist, fortune-teller, teacher)
Yeung (1988)	91	Cambodian refugees	Selective	Currently receiving treatment at a mental health clinic (compared to refugees who were seeking nonmental health services)	Univariate rate of comorbidity
Spivak (2000)	80	Male Israeli war veterans with PTSD not receiving psychiatric treatment	Representative	Receiving psychiatric treatment	Univariate – higher traumatic stress and depression, lower general health status Multivariate – general health status (nonsignificant – PTSD symptom severity, depression symptom severity)
Weine (2000)	70	Bosnian refugees	Selective	Refugee mental health services not sought	Univariate – childhood sexual abuse, lack of religious faith, grief scores, posttraumatic stress, dissociation, death imaginary (nonsignificant – gender, age, income, education, race, marital status, previous serious accident, bereavement, dependency, hospital admission, previous involvement in individual therapy and psychotropic medication, childhood history of physical abuse)
Rynearson (1995)	52	Relatives of homicide victims	Inclusive (21.9%)	Supportive intervention requested/refused after contact by a researcher	Univariate – increased drinking, posttraumatic stress and depression score at the time of body handling, frequency of physical problems (nonsignificant – personal experience of disaster, professional working in the disaster)
Tucker (2002)	51	Omagh bombing body handlers	Inclusive (38%)	Sought treatment for mental health issues arising from or worsened by bombing	Univariate – poorer German, formal sentencing (in Iran), anxiety, inner tension, depression, PTSD symptoms (intrusive, hyperarousal, and some avoidant symptoms), PTSD diagnosis, coping – more political activities, less studies and sport (nonsignificant – gender, age, education, employment status, with whom they lived, type of imprisonment and torture, inner restlessness, backache, worries, restless legs, pain in joints and muscles, irritability, forgetfulness, exhaustion and sleepiness, comorbidity, other coping strategies talks with friends, talks with family members and children and contact with other former prisoners)
Priebe (1997)	34	Iranian refugees with enduring mental sequelae from torture	Selective	Torture victims' specialized treatment/private psychiatric practice because of PTSD	

Note. PTSD = posttraumatic stress disorder; PTSS = posttraumatic stress symptom scale; OCD = obsessive compulsive disorders. Studies are ordered by sample size.

^aStudies classified as higher in quality.

Results

Studies on Factors Associated With Mental-Health Treatment Seeking

Samples

In total, the 24 studies investigated approximately 17,000 people who had experienced traumatic events. Seven studies investigated Vietnam or Israeli war veterans; three looked at refugees in the United States and Germany; two were on victims of sexual assault; three investigated community samples who had experienced varying types of trauma; two were on rescue and medical workers involved in care after the Omagh bombing; and one study each considered World War II survivors, victims of the September 11th attack, the general population that had experienced war in Bosnia, victims of an earthquake in Nicaragua, family members of persons killed, victims of crime, and victims of community violence (see Table 1). Out of seven studies on war veterans, two articles and one book chapter on Vietnam veterans (Kulka et al., 1990; Rosenheck & Fontana, 1994; Rosenheck & Fontana, 1995) looked at different factors from the same National Vietnam Readjustment Study.

Recruitment Methods

Of the 24 studies, five studies (Yeung, 1988; Solomon, 1989; Weine et al., 2000; Priebe & Esmaili, 1997; Rosner, Powell, & Butollo, 2002) compared people in treatment with a group that had experienced similar events, but were not in treatment. One study (Spivak, Segal, Laufer, Mester, & Weizman, 2000) identified a group of non-treatment seeking Israeli war veterans with PTSD and compared comorbidity rates with rates from the literature. Four studies (Connor et al., 2002; Hankin, Spiro, Miller, & Kazis 1999; Koenen, Goodwin, Struening, Hellman, & Guardino, 2003; Rodriguez et al., 2003) selected a subgroup with significant levels of psychopathology from a wider group with traumatic experiences and then assessed mental-health treatment seeking within that symptomatic subsample. One study (Jaycox, Marshall, & Schell, 2004) investigated treatment seeking after trauma in both a symptomatic subsample and a comprehensive sample. Remaining studies considered mental-health treatment seeking in a sample after a traumatic event regardless of individual level of psychopathology.

Definition of Mental-Health Treatment

As shown in Table 1, definitions of mental health treatment showed considerable variation. Some definitions were broad and inclusive but not specific, for example, treatment sought for mental health issues arising from or worsened by bombing (Tucker et al., 2002). Other studies defined treatment narrowly, thus specifying the type of treatment and excluding other possible treatment options, for example, community based Vietnam Veteran counselling service (Dobson, Grayson, Marshall, & O'Toole, 1998).

Statistics

As shown in Table 1, studies applied univariate, multivariate statistics or both. Studies in Table 1 are ordered by sample size. *Selective* sample means nonrandom sample, *representative* means random sample, and *inclusive* means that all participants from the exposed group were approached.

We mainly present *positive* findings, that is, factors identified as significantly associated with treatment seeking. Yet, results of other studies that looked at the same factors but did not identify them as significant are also presented to give the reader a more balanced picture of the evidence. We did not specify the power of each study to detect positive results, and *negative* findings cannot necessarily be interpreted as evidence for the absence of an association between the given factor and treatment seeking. Considering the characteristics of the studies included in this review, a meta-analysis was not feasible.

Predisposing factors. Findings on predisposing factors were inconsistent. Sociodemographic characteristics identified as significantly associated with treatment seeking were both younger (Hankin et al., 1999) and older age (Jaycox et al., 2004; Koenen et al., 2003; Yeung, 1988); female gender (Yeung, 1988; Golding, Siegel, Sorenson, Burnam, & Stein, 1989); employment (Rosner et al., 2002), unemployment (Koenen et al.; Yeung, 1988), or the status of being retired and disabled (Hankin et al.); higher education (Hankin et al.; Ullman & Brecklin, 2002; Boscarino et al., 2004); being separated or divorced or unmarried (Koenen et al.), or being married or widowed (Yeung, 1988); living in an urban area (Rosenheck & Fontana, 1995); and being Caucasian (Boscarino et al.; Hankin et al.; Koenen et al., 2003; Ullman & Brecklin), non-Latino (Jaycox et al.), or Black—for lifetime VA services only (Kulka et al., 1990).

As presented in Table 1, education was a nonsignificant factor in eight studies, age in seven, gender in six,

employment/type of employment in four, race in three studies, marital status in three studies, and geographical location in two studies.

Enabling factors. With respect to enabling factors, low and medium income, pension benefits and compensation (Rosenheck & Fontana, 1995), and medical insurance (Ullman & Brecklin, 2002) were identified as significant predictors of treatment seeking. Income was a nonsignificant factor in three studies (Jaycox et al., 2004; Rosner et al., 2002; Rynearson, 1995). Although knowledge of the language of the host country is usually considered an enabling factor for refugees to seek treatment, treatment seekers were found to have a poorer knowledge of the language of the host country in one study (Priebe & Esmaili, 1997), in which case poor language skills may rather represent a predisposing factor.

Need factors. The factor most consistently associated with treatment seeking was the level of psychological symptoms. Most of the studies assessed current PTSD, depression, anxiety, or substance misuse, but some studies also recorded distress at the time of trauma (e.g., Boscarino et al., 2004) and comorbidity (Spivak et al., 2000). The severity of current psychopathology was strongly correlated with treatment seeking in most of the studies. However, four studies showed no significant relationship between psychopathology and treatment seeking in multivariate analyses when controlling for general health status (Weine et al., 2000); global assessment of functioning (Rodriguez et al., 2003); sociodemographic data (Rosner et al., 2002); coping strategies (Rosner et al.; Weine et al.); and time since assaults, medical insurance, and social support/social conflicts (Ullman & Brecklin, 2002). Some studies distinguished between subjective or perceived need, for example, interference by symptoms or perceived problem due to a traumatic event, and objective need, for example, psychiatric diagnosis (Jaycox et al., 2004; Koenen et al., 2003).

Two studies separately considered different symptom clusters of posttraumatic stress (intrusion, avoidance, and hyperarousal). In Rosner et al. (2002) avoidance was the only symptom cluster associated with treatment seeking (of borderline significance); however, in Priebe & Esmaili (1997) all symptoms of intrusion and hyperarousal, but not all of avoidance, showed a significant association with treatment seeking.

Other need factors linked to health service utilization were the number of somatic symptoms (Solomon, 1989; Tucker et al., 2002), lower health status (Weine et al., 2000), lower global assessment of functioning (Rodriguez et al., 2003), and physical disability (Kulka et al., 1990).

Other factors. The type and degree of traumatic event was, after psychopathology, the second most common factor associated with treatment seeking.

Several studies included in this review showed that the type and degree of traumatic event are associated with treatment seeking. In some studies, this association failed to reach statistical significance once the influence of the levels of psychological symptoms and other variables were controlled for in a multivariate analysis (Boscarino et al., 2004; Dobson et al., 1998; Hankin et al., 1999; Weine et al., 2000). However, Norris, Kaniasty, and Scheer (1990), Ullman and Brecklin (2002), and Rodriguez et al. (2003) still report a significant association in multivariate analyses. Only one study (Golding et al., 1989) showed that characteristics of assault were not a significant factor.

The occurrence of stressful life events other than the traumatic event was found to predict treatment seeking in five studies (Boscarino et al., 2004; Hankin et al., 1999; Norris et al., 1990; Ullman & Brecklin, 2002; Rynearson, 1995), whereas one study (Solomon, 1989) showed the opposite, that is, that fewer negative life events in areas of family, work, and social life within the 3 months prior to the trauma were positively associated with treatment seeking. Previous stressful life events were not significantly associated with treatment seeking in four studies (Norris et al., 1990; Rodriguez et al., 2003; Rynearson, 1995; Ullman & Brecklin). In Solomon (1989) stressful events regarding health, personal life, and studying did not have a significant impact.

Previous use of services/previous mental health problems was identified as a significant factor by Caldera, Palma, Penayo, and Kullgren (2001). In Jaycox et al. (2004) it was identified as a significant factor only in univariate analysis. In Rynearson (1995) previous individual therapy/psychotropic medication was not a significant factor.

Other factors significantly associated with treatment seeking in individual studies were: lower self-efficacy (Solomon, 1989); low social functioning (Solomon, 1989); for Vietnam veterans, negative feelings towards others when they first returned home (Dobson et al., 1998); and more social support and more social conflicts, in Ullman and Brecklin (2002), only for a subgroup of participants who experienced abuse in adulthood. Social support was not a significant factor in Norris et al. (1990).

Coping strategies have also been identified as a significant factor. Rosner et al. (2002) found fewer task-oriented coping strategies and Priebe and Esmaili (1997) found fewer study activities and sports, and more political activities, to be associated with treatment seeking.

Findings From the Subgroup of Studies That Fulfil Higher Quality Criteria

We next, looked only at the studies that fulfilled higher quality criteria. Levels of psychopathology were associated with treatment seeking in most of these studies, although in the study of Ullman and Brecklin (2002) significant results disappeared in a multivariate analysis, and in Rosenheck and Fontana's (1995) study PTSD not significantly associated with non-VA services. With regards to the predisposing factors, being Caucasian was consistently associated with treatment seeking, whereas other sociodemographic factors such as age, female gender, and education were significant in some but not in all studies. Various enabling factors were identified in some studies but were not consistently investigated across a larger number of studies. The type and level of exposure were significantly associated with treatment seeking, but this significance disappeared when the influence of other variables was also considered in multivariate analyses. This also applies to the experience of previous stressful events.

Findings From the Subgroup of Studies That Also Discuss Informal Sources of Help

Four studies discussed factors associated with seeking help from informal sources—Rosenheck and Fontana (1994) from self-help groups; Golding et al. (1989) from police and friends or relatives; and Caldera et al. (2001) and Luce, Firth-Cozens, Midgley, and Burges (2002) from informal sources in general.

Caldera et al. (2001) showed that seeking help from informal sources was associated with female gender and illiteracy in addition to previous mental health problems (which was identified as the only significant factor for formal sources of help). Lower PTSD level was related to seeking help from informal sources when compared to seeking help from mental health services (Luce et al., 2002). Seeking help from a self-help group was negatively associated with being Black or Mexican and that was similar to the result on seeking help from formal sources (Rosenheck and Fontana, 1994). Golding et al. (1989) showed that talking to a friend or relative after a sexual assault was associated with female gender, younger age, and assault by a stranger, whereas talking to police was linked to female gender and to physical and sexual assault by a stranger. In the same group, seeking help from mental health services was associated with being non-Hispanic White and being emotionally upset by the assault.

Discussion

Factors Associated With Mental-Health Treatment Seeking

The search yielded only 24 studies, with limited data suggesting that not enough evidence is available to establish sound conclusions on this topic. Several methodological problems make it difficult to compare the findings from different studies. For example, studies investigated such diverse samples as Vietnam war veterans and earthquake survivors in Nicaragua. Moreover, some studies applied only uni-/bi-variate statistics and did not control for the level of symptoms. Although this might not pose a major problem for the studies that used clinically relevant symptoms as their inclusion criterion (e.g., Priebe & Esmaili, 1997), it makes interpretation of findings from other studies difficult (e.g., Rynearson, 1995; Tucker et al., 2002; Yeung, 1988). Furthermore, in some studies a large number of analyses were conducted without any post hoc adjustment for multiple testing (e.g., Bonferroni adjustment). Despite these shortcomings, some conclusions may be drawn from the review.

Treatment seeking in traumatized individuals appears dependent on need factors such as the severity of current psychopathology. That people with higher levels of symptoms are more likely to seek treatment appears an almost trivial result and has been found in studies on people with other mental disorders (Leaf et al., 1988; Williams et al., 1986). Current psychopathology was inconsistently defined, that is, some studies assessed only PTSD symptoms, whereas others also considered symptoms of depression, alcohol dependence, panic attacks, and so forth. Additionally, some studies separately obtained objective and subjective ratings of symptomatology and distress.

The severity of current psychopathology was strongly correlated with treatment seeking in most of the studies. However, it was not a significant factor in several multivariate analyses when the influence of other factors was controlled. One explanation for this might be that the variables shown to be significant in multivariate models, such as general health status, number of traumatic life events, time since trauma, and global assessment of functioning were highly correlated with the level of psychopathology. When controlling for those factors the level of psychopathology can fail to be a statistically significant predictor of treatment seeking, as a statistical artefact, because of the collinearity of different predictors. Alternatively, other factors might indeed be more important predictors of treatment seeking in those studies and possibly explain both psychopathology and treatment-seeking behavior. The distinction between

different symptom clusters of PTSD did not yet yield consistent findings on what symptoms might be particularly motivating to seek treatment.

With respect to other need factors, somatic symptoms and general health status were found to be important (Green & Schnurr, 2000). Physical health problems can influence mental health seeking both directly and indirectly: directly because physical health problems may increase psychopathology and disability, and thus the need for mental-health treatment, and indirectly because individuals with physical health problems are more likely to be seen by primary care staff who may diagnose mental-health problems and initiate treatment.

Enabling factors, such as coverage through medical insurance, and predisposing factors also appear relevant. The latter include sociodemographic characteristics (female gender, higher education, marital status) and living in an urban area; these are factors that have also been found to predict treatment seeking for general psychiatric disorders, not only following a traumatic event (Bland et al., 1997). Inconsistent findings concerning the role of age might be related to the very different age ranges in the reviewed studies, and the relationship between age and treatment seeking might not be linear. Ethnicity was associated with treatment seeking in a number of studies, most of them showing that Whites were more likely to receive treatment. One study (Kulka et al., 1990) showed the reverse result, that is, that Black Vietnam Veterans were more likely to seek help, although this referred only to lifetime usage of VA mental-health services.

The level and type of exposure to trauma is an important predictor of psychopathology after the event. For example, a meta-analysis showed that trauma severity was one of the strongest predictors of how many symptoms of PTSD are reported (Brewin, Andrews, & Valentine, 2000). This may explain why a significant relationship between treatment seeking and type and level of traumatic event disappeared in several studies once the association with psychopathology was controlled. However, two studies reported a significant effect of the type and level of exposure to the traumatic event even after controlling for psychopathology and other factors. This may suggest that the relationship between this factor and treatment seeking is mediated, but not fully explained, through the level of psychological symptoms.

Having experienced other stressful or traumatic events was positively associated with treatment seeking in several studies; however, one study showed a negative association. It should be noted that in this particular study (Solomon, 1989), the analysis investigating the association of negative life events and treatment seeking included neither level of current psychopathology nor any

of the other variables measured in the study. Thus, this result may be influenced by confounding variables that were not controlled for.

The results are similar when only the papers that fulfil high quality criteria are considered. The factors most consistently associated with treatment seeking were level of psychopathology, level of exposure, and being Caucasian.

Some of the studies that also investigated seeking help from informal sources suggested that different factors may be associated with seeking formal and informal help. However, because of inconsistent methodologies firm conclusions can not yet be drawn on this on the basis of the selected studies. Also, some of the studies relevant for comparison between formal and informal help did not fulfil original inclusion criteria for the review (Ullman & Filipas, 2001) and thus, although relevant, were not included in the analysis.

In conclusion, the review has some limitations and has probably not fully exploited the potential of existing data sets. We excluded studies that did not distinguish between mental and physical treatment seeking, and those that investigated only factors associated with the frequency of service use. Some of those studies might be relevant if additional statistical analyses were performed. However, on the basis of the results reported in the reviewed publications, they were not eligible for this review.

The existing knowledge on the factors that predict treatment seeking may be seen as very limited. The studies vary substantially with respect to design, population, and context. This makes it difficult to base specific recommendations for service development on the existing evidence. Also, the research question as to who seeks treatment and who does not is only one step towards addressing the practically relevant issues of identifying (a) who needs help and does not seek it, and (b) how those people may be reached and motivated to seek and accept treatment.

There are several implications of the review for further research, mainly concerning the requirement for higher quality standards and more consistency of the methodologies in future studies. Recommendations for further studies in the area are:

- (a) Influence of psychopathology and the level of exposure to the traumatic event should be controlled when the predictive power of factors for treatment seeking is explored.
- (b) For a better interpretation of multivariate analyses the intercorrelations of all tested predictors should be reported. Sample sizes need to be sufficient to compute multivariate analyses with reasonable statistical power.

- (c) A consistent set of variables need to be investigated reflecting predisposing, enabling, and need factor clusters, including physical health.
- (d) The type of treatment that interviewees have or have not sought needs to be specified. Depending on the given health care system, distinctions should be made between primary, secondary, and specialized care, and the actual received treatment should be recorded, for example, pharmacotherapy and type of psychological interventions. Thus, it may be possible to consider treatment seeking not just as a dichotomous variable, but to distinguish between treatment seeking on different levels within health care systems.
- (e) Reasons for why treatment has been sought should be recorded, particularly as to whether patients regard their mental health problems to be a result of trauma and seek treatment because of those problems. This qualitative aspect of the research addressing attitudes toward mental health service and coping strategy appears essential to disentangle the associations and significance of various factors. For example, the result that Caucasians are more likely to seek treatment than ethnic minorities should be complemented with further studies exploring mediating and moderating effects of other variables, such as attitudes towards psychiatric services and explanatory models of psychological difficulties.
- (f) With respect to seeking treatment for physical health problems, one should try to explore whether patients seek treatment for problems of explicit organic nature (injuries) or other somatic problems that might reflect symptoms of somatization.

A more consistent methodology appears particularly important to explore whether the inconsistent results identified in this review are due to methodological differences and shortcomings or reflect true differences between different samples and contexts. In the light of the existing methodological shortcomings it is difficult—if not impossible—to distinguish between processes that can be generalized across samples and other factors that may only be relevant in a specific context. It also remains unclear to what extent treatment seeking in people with mental sequelae of trauma is influenced by the same or different factors than in groups with other mental disorders. The reviewed evidence points towards a small number of similar factors such as the level of psychopathology and gender, but is inconclusive on most other factors.

A consistent methodology would also enable researchers to subject their findings to meta-analyses, which might reveal more reliable findings. The current evidence is not sufficient to design specific public health strategies or develop new services—within or outside the conventional health care system—in order to reach non-treatment seeking people who suffer from the mental sequelae of traumatic events.

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