

Implementing a screening programme for post-traumatic stress disorder following violent crime

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Background: The emergence of validated means to determine which individuals will develop post-traumatic stress disorder (PTSD) following a traumatic event has raised the possibility of designing and implementing effective screening programmes following traumatic events.

Objective: This study aimed to study the usefulness and implementation of a PTSD screening programme for victims of violent crime presenting to an emergency unit.

Design: 3,349 individuals who presented to an emergency unit following a violent crime were asked to complete the Trauma Screening Questionnaire 2 weeks later. Those who scored above a standard cut-off were invited to attend a mental health assessment and subsequently offered treatment according to their needs.

Results: Of the 3,349 individuals contacted, 572 (17.1%) responded, 338 (10.1%) screened positive, 26 (0.78%) attended for assessment, and 9 (0.27%) received treatment for PTSD.

Conclusions: This simple screening programme was not as useful as was hoped raising questions regarding how best to develop screening programmes for PTSD following violent crime and other traumatic events.

Keywords: *Emergency unit; post-traumatic stress disorder; screening; trauma; violent crime*

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Many people experience traumatic stress symptoms shortly after traumatic events. Over 90% of female sexual assault victims have been found to satisfy the symptom criteria for post-traumatic stress disorder (PTSD) within a week of the event (Foa, Rothbaum, Riggs, & Murdock, 1991) and 31% of 1,010 Londoners described substantial stress 11–13 days after the 7/7 terrorist attacks (Rubin, Brewin, Greenberg, Simpson, & Wessely, 2005). Thankfully, prospective research suggests that rates reduce rapidly over time and that the majority of individuals exposed to traumatic events recover without the development of PTSD or any other psychiatric disorder (Galea et al., 2003; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Unfortunately some individuals will develop PTSD. The replication

of the United States National Co-Morbidity survey found that the lifetime prevalence of PTSD was 6.8% (Kessler, Chiu, Demler, & Walters, 2005b) and the 12-month prevalence 3.5% (Kessler et al., 2005a) with around a third suffering from a severe form of the condition. This equates to a risk of around 13% for those exposed to a traumatic event.

Anyone can develop PTSD following a traumatic event but the incidence is increased after higher impact traumas. Rape has been associated with PTSD rates of over 50% in several studies (Breslau, Davis, Andreski, & Peterson, 1991; Kessler et al., 1995), whereas rates following violent crime have been estimated at 20% (Kessler et al., 1995) or lower (Walters, Bisson, & Shepherd, 2006 found a rate of 11% at 1 month). The

factors most associated with the development of PTSD are perceived lack of social support and peritraumatic dissociation but neither increase the risk by more than 50% (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003). It has also been shown that the routine use of single session psychological interventions for all those involved in traumatic events does not reduce the subsequent development of psychiatric symptoms (Rose, Bisson, Wessely, & Churchill, 2005). This has resulted in calls to avoid any form of early intervention and to rely on the social support that individuals will access through their usual sources such as family and friends (Wessely, 2005). Such an approach is cheap and appears to be evidence based but risks the costs associated with failure to detect the minority of individuals who do develop a treatable psychiatric disorder.

PTSD causes significant distress and impaired functioning yet can be treated effectively with trauma-focused cognitive behavioural therapy (TFCBT) within 3 months of the traumatic event (Ehlers et al., 2003). It is, therefore, important to offer PTSD sufferers the opportunity to access effective treatments within this timescale. This has led to calls to replace routine intervention with screening programmes targeted at individuals at high risk of developing PTSD. The UK's NICE guidelines for PTSD (NCCMH, 2005) recommended that consideration be given to this after major traumatic events and, indeed, a screening programme was implemented in the aftermath of the July 2005 London bombings (Brewin et al., 2008) with perceived success, although screening started several months after the bombings occurred. A screening programme within the British military was not considered successful (Rona, Jones, French, Hooper, & Wessely, 2004).

Various screening instruments have been tried with simple questionnaires that enquire about traumatic stress symptoms showing most promise (Brewin, 2005). The Trauma Screening Questionnaire (TSQ; Brewin et al., 2002) asks individuals to answer yes/no to the presence of five re-experiencing symptoms such as upsetting dreams and five hyperarousal symptoms such as being more aware of dangers at least twice in the previous week. Using a cut-off score of six or more, it has been shown to reasonably accurately predict the presence of PTSD in survivors of a railway accident and victims of violence (Brewin et al., 2002). We have recently found it to perform similarly well when used predictively on average 2 weeks following violent crime (Walters et al., 2006). The sensitivity of the TSQ in terms of detecting the presence of PTSD at 1 month was 85% and the specificity was 89%. Given the PTSD prevalence rate of 11% at 1 month, the positive predictive value was 0.48. More simply put, this meant that for every two victims of violent crime who scored positively on the TSQ 2 weeks later, one reported

symptoms reaching the criteria for a diagnosis of PTSD at 1 month.

The availability of a reliable screening instrument and an effective treatment suggests that a screening programme for PTSD following violent crime could result in significant health gains. We report on the experience of introducing a PTSD screening programme for victims of violent crime presenting to an emergency unit.

Method

A multiagency group tasked with reducing the impact of violent crime and including representatives from health, police, social services, local authority, licensees, and magistrates has been in existence in Cardiff for 10 years. The Crime and Disorder Act (1998) made such Crime and Disorder Partnerships (Community Safety Partnerships in Wales and Scotland) statutory. Our local Partnership has funded staff to provide evidence-based treatments for mental health difficulties precipitated by violent crime.

Subjects

Subjects were consecutive individuals over 16 years of age who attended the sole Cardiff Emergency Unit as a result of a physical assault between 1 September 2002 and 31 August 2004 who were able to complete an English-language questionnaire. No further exclusion criteria were applied.

Procedure

Subjects were contacted by an emergency unit nurse with no formal mental health training approximately 2 weeks after their assault by telephone or, if not available by telephone, by letter. They were asked to complete the TSQ to determine if they were suffering from psychological symptoms as a result of their assault that may benefit from treatment. Individuals who scored six or more were advised that their score on the TSQ indicated the possibility of them having psychological symptoms that would benefit from treatment. They were offered an assessment appointment with a cognitive behavioural nurse therapist attached to the local traumatic stress service that would result in treatment if indicated. Individuals who completed the TSQ by telephone were advised of this during the same telephone call. Individuals who returned a TSQ by letter were contacted by telephone by the same nurse or, if not contactable by telephone, by letter if they scored six or more on the TSQ. The emergency unit nurse encouraged individuals to be seen for an assessment but if they did not want to be seen their wishes were respected, they were told that they could make contact if they changed their minds and were not contacted again.

Table 1. Results of the screening programme

| Variable | Total <i>n</i> (%) | Initial contact by telephone <i>n</i> (%) | Initial contact by letter <i>n</i> (%) |
|--------------------------|--------------------|-------------------------------------------|----------------------------------------|
| Number contacted | 3,349 (100%) | 1,586 (47%) | 1,763 (53%) |
| Response rate | 572 (17.1%) | 243 (7.3%) | 329 (9.8%) |
| Number TSQ positive | 338 (10.1%) | 165 (4.9%) | 173 (5.2%) |
| Number formally assessed | 26 (0.78%) | 20 (0.6%) | 6 (0.18%) |
| Number treated for PTSD | 9 (0.27%) | 7 (0.21%) | 2 (0.06%) |

Statistical methods

Data were input to SPSS and frequencies calculated.

Calculation of costs

The cost of the screening programme represented the wages paid to staff for their direct involvement with it over the 2 years it existed.

Results

The population consisted of 3,349 subjects. Formal data regarding the extent of the physical injury and alcohol consumption were not collected, but it is suspected that alcohol had been consumed shortly before the assault in a significant proportion of the subjects included. Most of the physical injuries were relatively minor soft tissue injuries.

Table 1 provides details of the results and highlights the low number of individuals who completed the TSQ and who subsequently received an assessment or treatment. The mean (SD) age of the respondents (29.6 [11.1] years) was similar to the mean (SD) age of the total study population (30.0 [28.5] years), as was the proportion of females (23.5 versus 24.2%). Of note, 338 (59%) of those who completed the TSQ screened positive. Reasons given for not wanting assessment after screening positive included not wanting to discuss the trauma and absence of concern regarding response.

Of the 3,349 victims of assault who were initially contacted only nine received treatment for PTSD. The majority of the individuals formally assessed did not receive treatment for PTSD and were not suffering from mental health difficulties requiring treatment. However, three were referred to the addictions service for treatment of their previously undetected substance use disorders and one individual was referred for ongoing care to a local community mental health team as a result of a previously undetected psychosis. There appeared to be no difference in the results obtained from telephone contact and postal contact.

The screening programme cost approximately £37,500 over 2 years representing a cost of approximately £4,167 per individual treated for PTSD.

Discussion

Principal findings

This study represents the first large-scale attempt to evaluate the implementation of a PTSD screening programme for victims of violent crime. This simple screening programme was not as useful as had been hoped, reflected in a very low response rate and high cost per individual treated for PTSD. This problem has also been found in screening for PTSD in military populations (Rona et al., 2004).

Strengths and weaknesses of the study

Major strengths of this study are the large sample size, the real-world experience of implementing a PTSD screening programme in a busy hospital emergency unit and the use of a screening instrument that has been validated in this population (Walters et al., 2006). The low response rate was disappointing and compromises interpretation of the findings but is a key finding of the study. The overrepresentation of males is not surprising given the population under scrutiny but limits generalisation of the results to other populations. The limited dataset collected is also a weakness. Only the TSQ was used and therefore individuals with other adverse outcomes such as depression and substance misuse may have been missed. Other weaknesses include the absence of more detailed information regarding participants and other factors but this was not practical given the nature of the study. It is therefore not possible to determine exactly why the screening programme failed, whether individuals accessed care in other settings (e.g., via primary care), how many individuals did go on to develop PTSD or other mental health difficulties, and what the relationship was with the physical condition.

Clinical implications

Various explanations may account for the disappointing performance of this screening programme. Individuals may see no personal value in completing a screening questionnaire shortly after an assault. A longer period before screening may have increased the acceptability of the contact and resulted in the detection of more genuine cases requiring assistance. This appeared to be the

case in Brewin et al.'s (2008) study that was much more successful in engaging participants in treatment although not in Rona et al.'s (2004) study. Alternatively, it could be argued that screening within the first week would be more acceptable to traumatised individuals as that is when they are most likely to experience symptoms although the risk of false positives would also be increased. Although the TSQ appeared to perform well in our previous study (Walters et al., 2006), a large proportion of individuals who screened positive in this study did not feel concerned by their symptoms or were not found to have difficulties requiring treatment when formally assessed. Brewin et al. (2002) recommended waiting until 3 weeks to administer the TSQ to allow for natural recovery processes. It is also possible that some PTSD sufferers avoid reminders even at an early stage in case of retraumatisation. The biggest issue in this study did not appear to be the validity of the results of those who tested positive but the limited response rate.

It is possible that something in the screening process we adopted was not acceptable to those contacted. Our population, like others of violent crime victims, largely comprised young males involved in fights often after alcohol. Such individuals may not feel particularly like victims of violence and therefore not see the need to engage in a screening programme. Individuals subjected to repeated domestic violence are often not suitable for straightforward PTSD treatment (NCCMH, 2005) and, therefore, a simple screening programme may not seem relevant to them. It is also possible that we did not organise the system of contacting individuals and offering them follow-up opportunities to best effect. It may have been more appropriate for individuals who screened positive to be contacted by a mental health professional, rather than an emergency unit nurse, with a view to arranging an assessment appointment or for us to have been more proactive and to have contacted those who did not want an assessment again a few weeks later. It is possible that it was these factors, rather than the importance in their lives of PTSD symptoms and their precursors, which meant that few individuals complied or attended assessment appointments. However, in terms of the instrument used, the TSQ has been validated in this population (Walters et al., 2006) and appeared to satisfy the criteria relevant to a screening tool set by the United Kingdom National Screening Committee (2004); that is, a simple, safe, precise, and validated screening test.

Finally, some PTSD sufferers' needs may have been addressed elsewhere. For example, many traumatised individuals will recover solely with support from family and friends without recourse to outside help (Wessely, 2005), others may have consulted their general practitioners, received treatment from other organisations, or have been in touch with victim support services and not felt the need for other input.

The lack of cost-effectiveness and engagement of symptomatic individuals in treatment calls into question the feasibility of large-scale screening for this population. However, given the issues around this study it is premature to conclude that screening for PTSD or other mental health difficulties should not occur following traumatic events. Further work is required before definitive conclusions regarding the effectiveness of PTSD screening programmes can be reached.

Future research

The fact that this screening method appeared not to be amenable to this population raises questions of who should be screened, how, and when. All screening programmes have to make clinical choices. The outcomes of the ones made for this study should inform the development of future screening approaches. Screening is likely to be most helpful if it detects a problem that is failing to remit and therefore repeat contact after 3 or 6 months may improve detection rates although would clearly involve significant costs. Screening at a different time point, persevering more to make contact, and targeting specific high risk populations may be more successful than targeting all victims of violent crime. The development of better screening instruments is also necessary, possibly incorporating other factors such as cognitive factors that may be better predictors than symptoms alone.

Future research would be likely to benefit from consideration of other conditions such as depression and substance misuse in addition to PTSD. A more flexible response to individuals who screen positive could be considered, for example by offering a choice of review in primary care, referral to a therapist, telephone review in a few weeks, or access to a self-help package. Individuals use a variety of techniques to aid their own recovery and formal assessment might be more acceptable if these have not worked.

It will be important to evaluate the cost-effectiveness of screening programmes that are developed in the future and compare them with alternative strategies for the use of the limited resources available to us. Alternatives include raising awareness through the provision of information to those affected by traumatic events and their families, and the education of those most likely to be confronted by individuals with mental health symptoms such as general practitioners, organisations such as victim support, and employers.

Conclusions

This study calls into question the feasibility of implementing a PTSD screening programme in a busy hospital emergency unit.

Conflict of interest and funding

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