



King's Research Portal

DOI:
[10.1002/jts.22317](https://doi.org/10.1002/jts.22317)

Document Version
Peer reviewed version

[Link to publication record in King's Research Portal](#)

Citation for published version (APA):

Gobin, M., Rubin, G. J., Albert, I., Beck, A., Danese, A., Greenberg, N., Grey, N., Smith, P., & Oliver, I. (2018). Outcomes of Mental Health Screening for United Kingdom Nationals Affected by the 2015–2016 Terrorist Attacks in Tunisia, Paris, and Brussels. *Journal of Traumatic Stress*, 31(4), 471-479. <https://doi.org/10.1002/jts.22317>

Citing this paper

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

General rights

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Outcomes of mental health screening for UK Nationals affected by the 2015-16 terrorist attacks in
Tunisia, Paris and Brussels

Maya Gobin*

Public Health England

G James Rubin*

King's College London

Idit Albert

South London and Maudsley NHS Foundation Trust

Alison Beck

South London and Maudsley NHS Foundation Trust

Andrea Danese

King's College London

Neil Greenberg

King's College London

Nick Grey

Sussex Partnership NHS Foundation Trust

Patrick Smith

King's College London

Isabel Oliver

Public Health England

*Maya Gobin and G James Rubin contributed equally to this paper.

Author note

Maya Gobin, MBBS MSs FFPH. Field Epidemiology Service, Public Health England, 2
Rivergate, BS1 6EH; G James Rubin BSc MSc PGCAP PhD, King's College London, Department of

Psychological Medicine, Weston Education Centre, Cutcombe Road, London SE5 9RJ; Idit Albert, BA, D.Clin.Psy, PGDip, Centre for Anxiety Disorders and Trauma, South London and Maudsley NHS Foundation Trust, 99 Denmark Hill, London, SE5 8AZ; Alison Beck, BA, D.Clin.Psy, PGDip, South London and Maudsley NHS Foundation Trust, Denmark Hill, London, SE5 8AZ; Andrea Danese, MD PhD. MRC Social, Genetic & Developmental Psychiatry Centre, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK. Department of Child & Adolescent Psychiatry, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK. National and Specialist CAMHS Trauma and Anxiety Clinic, South London and Maudsley NHS Foundation Trust, London, UK; Neil Greenberg BSc BM MD FRCPsych, King's College London, Department of Psychological Medicine, Weston Education Centre, Cutcombe Road, London SE5 9RJ; Nick Grey, MA DCLinPsych, Aldrington House, Sussex Partnership NHS Foundation Trust, 35 New Church Road, Hove, BN3 4AG, and University of Sussex; Patrick Smith, PhD, King's College London, Department of Psychology, De Crespigny Park, London, SE5 8AZ; Isabel Oliver LMS MSc MRCP FFPH, Field Epidemiology Service, Public Health England, 2 Rivergate, Temple Quay, Bristol, BS1 6ED

All authors contributed to the design of the screen and treat programme. MG wrote the first draft of the paper. All authors contributed to subsequent drafts. We are grateful to Jay Solanki and Nisha Hickin for their administrative help. The screen and treat programme was funded by the English Department of Health. The views expressed are those of the authors and not necessarily those of their employers or funders. All authors declare that they have no conflicts of interest.

Correspondence concerning this article should be addressed to Maya Gobin, MBBS MSs FFPH. Field Epidemiology Service, Public Health England, 2 Rivergate, BS1 6EH.

Abstract

Following several terrorist attacks in 2015 and 2016, a national programme was set up to identify and support residents of England whose mental health had been affected. We report the outcomes of the programme's screening and assessment components. Questionnaires and information about the programme were mailed to 483 people and 49 families known to the police. Those who screened positive on an assessment for post-traumatic stress disorder, anxiety, depression, increased smoking or problematic alcohol consumption were offered clinical assessment and referred to an appropriate National Health Service (NHS) service if required. Of the 195 eligible people who returned our questionnaires, 179 (91.8%) screened positive on one or more measure. Following clinical assessment, 78 adults and three children were referred for treatment. The programme was broadly successful in facilitating access to services. However, most people who had been caught up in the attacks did not participate and data protection issues limited communication with those affected. Further discussion of data protection concerns may help future programmes operate more efficiently.

Key words: Terrorism; PTSD; service evaluation

Outcomes of mental health screening for UK Nationals affected by the 2015-16 terrorist attacks in Tunisia, Paris and Brussels

Up to 30% of those directly affected by a terrorist attack may develop a psychiatric disorder such as post-traumatic stress disorder (PTSD), depression, generalised anxiety disorder or phobias (Whalley & Brewin, 2007). Secondary victims, such as those who provided assistance or onlookers, and relatives of those killed or injured are also at risk of developing these conditions (Setti & Argentero, 2015; Weinberg, 2011). Unfortunately, many of those who develop a disorder following a terrorist attack do not actively seek care (Stuber, Galea, Boscarino, & Schlesinger, 2006). Because of this, National Institute for Health and Care Excellence (NICE) guidance on the detection and treatment of PTSD recommends that authorities responsible for developing local disaster plans consider screening proactively all affected individuals to facilitate access to services for those who might benefit from treatment ((NICE), 2005). An example of this approach was the Trauma Response Programme set up in the aftermath of the 7 July 2005 bombings in London (Brewin, Fuchkan, Huntley, Robertson, et al., 2010; Brewin, Fuchkan, Huntley, & Scragg, 2010; Brewin et al., 2002; Brewin et al., 2008). In that programme, a central screening team used a variety of methods to make contact with as many as possible of the estimated 4,000 people who been directly caught up in the attacks to provide them with a short mental health screening questionnaire. Those who screened positive for any mental health disorder were invited for a more detailed assessment and referred on for treatment where appropriate. In total 248 people were eventually referred for treatment. Only a small proportion of people who received care were referred by their GP; most were identified through outreach activities. Similar outreach programmes have also been used following other terrorist attacks, include following the Utøya massacre in Norway (Haga, Stene, Wentzel-Larsen, Thoresen, & Dyb 2015).

In 2015 and 2016, terrorist attacks in Tunisia (Bardo on the 18th March 2015 and Sousse on 26th June 2015) and Europe (Paris 13th November 2015 and Brussels 19th March 2016) claimed the lives of over 200 people of whom 33 were British, and affected many more UK nationals. In response, the UK Government announced the establishment of a screen and treat programme to facilitate access to appropriate National Health Service (NHS) services for those people whose mental health may have been affected. With the attack having occurred overseas, new challenges were faced by those tasked with setting up this programme, including the issue of how best to contact those returning. In this paper, we report the outcomes of the screening component of the programme in order to identify lessons for similar programmes in the future.

Method

Participants

The programme was commissioned by the UK Government to facilitate access to appropriate mental health services, where required, for all UK nationals living in England who were either: present at the time of the attacks and either witnessed the attack or were injured or bereaved as a result; a contact (i.e. first-degree relative, household member or partner) of someone killed or injured as a result of these attacks; or in Tunisia at the time of the Sousse terrorist attack, but did not witness the attack.

Procedure

The screening component of the programme consisted of two stages: a brief questionnaire (stage 1) that was either self-completed (by adults) or completed by the parents or guardians (for children and young people) and returned to the screening team at [edited out

for blind review], followed by a more detailed clinical assessment led by the [edited out for blind review] for those who screened positive on the questionnaire (stage 2).

The number of people affected by events in Tunisia, Paris and Brussels and who were eligible for the programme was not known because of the way information was initially collected about these people. The Metropolitan Police Service (MPS: the main police service for London) held contact details for the families of people injured or killed during the attacks and for people who self-identified to the MPS when leaving the affected countries. These contact details often represented heads of households. All individuals known to the MPS (49 identified families and 483 individuals) were sent a screening pack which included a covering letter from the Department of Health, copies of the adult and child screening questionnaires and an information leaflet. In addition, the official government webpage relating to the attacks showed the leaflet and the questionnaires (including a web-based version for online completion). The website provided an opportunity for people to self-refer for screening.

Screening packs were distributed in three waves, between 1st March and 15th August 2016. Postal reminders were later issued to all people contacted in the three waves. Recipients of the screening pack were advised to share details of the website and programme with people they knew to be affected but who were not in receipt of a pack. Because of this, we do not know the total number of people who received a screening questionnaire.

[edited out for blind review] scored the completed questionnaires, and outcome letters were sent out to respondents within one week detailing proposed next steps. No further action was taken for individuals who screened negative. Screening questionnaires returned for UK nationals resident in Wales, Scotland or Northern Ireland were not assessed by [edited out for blind review] but passed on to the appropriate organisations within their countries of residence. The contact details and screening questionnaire data for residents of England who

screened positive were forwarded to [edited out for blind review]. [edited out for blind review] then offered a clinical assessment within two weeks of receiving this information. Where individuals did not respond to several attempts to contact them, letters were sent with service contact details should they wish to make contact in future. People could opt to have the assessment completed by [edited out for blind review] or by their local NHS community mental health team, which [edited out for blind review] would arrange on their behalf.

Irrespective of the outcome of their clinical assessment, all individuals were offered follow-up appointments with [edited out for blind review]. Follow-ups were typically arranged every four to six weeks depending on clinical needs and the service user's preference. For those who were not assessed or referred, follow-ups were used to monitor symptoms and the need for a clinical assessment. For those referred to local services for treatment, follow-ups ensured that individuals were able to access appropriate treatment and also provided temporary support for those on waiting lists.

The assessment for adults was concluded with feedback, recommendations regarding treatment and options for referrals to local services. A report was then completed within one week of assessment and contact made with the appropriate local NHS mental health services for treatment and follow-up appointments. People who consented to assessment but not treatment were provided with contact details should they wish to engage in treatment in the future. For those who were already in treatment, the programme was able to offer information and make a new referral if, for example, current treatment was not in line with NICE guidelines or if individuals were not satisfied. Treatment for children and young people was arranged through the local, NHS-run, Child and Adolescent Mental Health Service (CAMHS), with regular clinical supervision provided by [edited out for blind review] by phone if requested by the CAMHS hub.

The screening closed on the 31st October 2016. Individuals were followed up by [edited out for blind review] until March 2017. [edited out for blind review] had further six referrals after [edited out for blind review] closed the screening portal.

All services were provided for free to individual patients as part of the tax-payer funded provision of healthcare that is used within England.

Ethical approval was not required for the service evaluation reported in this paper.

Measures

Initial screening questionnaires (stage 1). The first stage of the assessment required people to complete one of four screening questionnaires. These were specific to: adults (18 years or older) present during the attacks (A); adult contacts of someone injured or killed (B); young people aged eight to 17 years who were either present or a contact (C1); and children younger than eight years who were either present or a contact (C2). Because we were unable to obtain contact details of people in Tunisia at the time of the Sousse attack but who did not witness the attack, no questionnaire was developed for this category.

The adult questionnaires included: the 10 item Trauma Screening Questionnaire (TSQ) as a measure of PTSD (Brewin et al., 2002); the PHQ-4 scale which contains a two item assessment for depression and a two item assessment for anxiety (Kroenke, Spitzer, & Williams, 2003; Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007); one item related to smoking more than before the attack; and the three item AUDIT-C questionnaire on alcohol consumption (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). The alpha coefficients for the TSQ, PHQ-4 and AUDIT-C scales were 0.83, 0.77 and 0.82 respectively. An adult was defined as screening positive if they endorsed six or more items of the TSQ, any item on the PHQ-4, smoking more than before the attack, or if they scored five or more on the AUDIT-C.

Children younger than eight years old were screened using a six-item tool completed by their parents or guardians (Scheeringa & Haslett, 2010; Scheeringa, Zeanah, Myers, & Putnam, 2005) and were defined as screening positive if one or more items was endorsed. Children aged between eight and 18 years old were screened using an eight-item tool, the CRIES-8, completed either by themselves or their parents or guardians (Perrin, Meiser-Stedman, & Smith, 2005; Yule, 1997). They were defined as screening positive if they had a score of 17 or more.

The questionnaires also included triage questions to help prioritise people for the second stage of the assessment. These asked about current or previous membership of the armed forces, pregnancy, history of mental illness or self-harm, reported thoughts about suicide or self-harm, difficulties looking after children, risk to employment or schooling, and neurodevelopment delay in child respondents. We also asked about help-seeking behaviour to date for any mental health problems relating to the attacks.

Clinical assessment (stage 2). Adults who screened positive at stage 1 were invited to complete a more detailed questionnaire to help tailor the clinical assessment to their needs. This included: the PHQ-9 for depression (Kroenke & Spitzer, 2002); GAD-7 for anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006); Life Event Check List for experience of other traumatic events (Gray, Litz, Hsu, & Lombardo, 2004); revised Impact of Events Scale (IES-R) for PTSD (Weiss & Marmar, 1997); visual analogue scales to measure degree of coming to terms with the event or feeling upset, anger, guilt and shame; and Work and Social Adjustment Scale (WSAS) (Mundt, Marks, Shear, & Greist, 2002). These measures included the Improving Access to Psychological Therapies minimum data set (PHQ-9, GAD-7, IES-R and WSAS) to facilitate direct referral into these services. The questionnaire was followed by either a telephone or face to face clinical and risk assessment. The clinical interview included the PTSD Symptom Scale Interview (Foa, Riggs, Dancu, & Rothbaum, 1993) and assessment

of psychiatric comorbidity. People were assessed for alcohol abuse and dependency if they had obtained a positive screen on the AUDIT-C tool. [edited out for blind review] also enquired about other family members affected by the event to coordinate assessment for the whole family.

The parents or guardians of children and young people who had screened positive were contacted by [edited out for blind review] to discuss options for further assessment and treatment, if required. The details of children and young people who requested further assessment and possible treatment were shared with the appropriate regional Child and Adolescent Mental Health Service (CAMHS) hub. The hub conducted the assessment face to face, and offered treatment as appropriate. An assessment report and treatment plan was sent from the local CAMHS team to [edited out for blind review] and the child or young person's general practitioner.

Data analysis

In order to evaluate the outreach and screening components of the programme, we assessed: the total number of people who responded to the invitation to be screened; the percentage of respondents who screened positive on one or more questionnaires; the percentage who had already accessed counselling or other treatments prior to screening; the percentages who were eventually referred on for treatment following the stage 2 clinical assessment; and the uptake of supervision and training by local services. Due to the nature of the data collection, any missing data for the screening questionnaire were counted as responses of 'no.' There were no missing data for these clinical assessment outcomes.

Results

Screening

Figure 1 shows the flow of participants through the screening process. 197 English residents returned screening questionnaires. Of these, two people were excluded as they did not complete the screening sections of the questionnaire and declined participation in the programme. 142 respondents (72.8%) were direct recipients of the questionnaire, 27 (13.8%) were immediate family/associate of a direct recipient and 24 (12.3%) received the questionnaire through other means (information was missing for two people).

Of the 195 English residents with valid screening questionnaires, 166 (85.1%) were linked to the attacks in Sousse, two (1.0%) to Bardo, 18 (9.2%) to Paris and nine (4.6%) to Brussels. 159 (81.5%) were adults present at the time of the attack, and 28 (17.6%) were adult contacts. Eight questionnaires (4.1%) were returned for children and young people (one aged under eight years and seven aged between eight and 17 years). Respondents were aged between seven and 83 years old (median 50 years, interquartile range 41 - 62 years old). 119 (61.7%) of the respondents were female. We identified 53 family clusters among our respondents, comprising 131 people.

One hundred and seventy-nine respondents (91.8%) screened positive to one or more of the screening tools. A breakdown of how many people screened positive for each tool is given in Table 1. Those who screened positive included 108 females (90.8%) and 71 males (93.4%). This difference in proportions was not significant ($\chi^2=0.4$, $p=0.51$). All eight children and young people who returned questionnaires screened positive, but we do not know the total number of young people screened.

A similar proportion of adults who were present during an attack and adults who were contacts of someone killed or injured screened positive (91.2% and 92.9% respectively). A larger proportion of female than male respondents screened positive on the TSQ (71.6% v 56.5%, $\chi^2=4.12$, $p=0.51$), PHQ-4 (99.0% v 78.3%, $\chi^2=20.91$, $p<0.001$) and smoking more

(83.3% v 64.7%, $\chi^2=1.87$, $p=0.17$) sections. The only section in which a higher proportion of males than females screened positive was the AUDIT-C (55.0% v 41.2%, $\chi^2=3.19$, $p=0.07$).

Seventy adults and six of the children and young people who screened positive had positive responses to one or more of the triage questions in Stage 1 (see Table 1).

Seventy-two adult respondents (38.5%) had not accessed counselling or other treatments prior to screening. Three children and young people who responded (37.5%) had not accessed counselling or other mental health services prior to screening. Seventy-eight people had accessed brief counselling only, six had accessed other treatments only and 31 had accessed a combination of counselling and other treatments. 51 people had counselling offered through their tour operator (an option which only applied to people affected by attacks in Tunisia) and 27 had accessed counselling from multiple providers (e.g. their GP and a mental health charity). Thirty one of the 37 people who accessed other treatments had these provided by their GP. Details about the nature of the other treatments were not collected as part of the screening process.

Clinical assessment

Figure 2 shows the flow of respondents who were referred for clinical assessment. 172 adults who screened positive were referred to [edited out for blind review] for assessment, together with seven children and young people. These included one person who screened positive as a child but who had turned 18 by the time of the assessment. A further six individuals were referred to directly to [edited out for blind review] and did not participate in the initial screening.

Of the adults, 17 (9.6%) did not respond to repeated attempts to contact. Of the other 161, 30 (18.6%) were already in treatment at the time of contact: 20 (66.7%) in NHS-

commissioned services and 10 (33.3%) in non-NHS commissioned services. 115 (71.4%) of the adults contacted named another person who may have been affected and details of 60 other family members emerged who may have been affected but were not directly invited to the Screen and Treat Programme: these people were then invited to completed screening questionnaires. We were unable to contact a parent or guardian for one of the seven children referred for assessment. Of the six others, three were already in treatment and three were not.

Of those contacted, 119 (74%) adults were assessed by [edited out for blind review], 19 declined assessment and assessment was not required for 23 because they were already assessed or booked for assessment with a local service. A summary of the number of people reporting significant level of clinical symptoms on measures of PTSD, depression and anxiety as well as impairment in functioning is presented in Table 2. Of the 19 people who requested delayed contact, five reported clinical symptoms but did not fill in the standardised measures.

Of those adults who were assessed, 78 (65.5%) were referred to local services. 74 (94.8%) were referred with PTSD as their main difficulty (42 of whom also had co-morbid symptoms) and four (5.1%) were referred with depression as their main difficulty. 41 adults were not referred; 31 (75.6%) reported few or no symptoms and 7 (17.1%) were already in treatment (four NHS-commissioned, three non-NHS commissioned). Three (7.3%) declined referral despite reporting symptoms. Three children were referred for assessment by [edited out for blind review] for trauma-related symptoms and were subsequently diagnosed with PTSD (n=2) or significant symptoms of PTSD that were judged likely to improve with treatment (n=1). Three children were not assessed by [edited out for blind review] as they were already in treatment (two with NHS-commissioned services and one with non-NHS commissioned services).

Supervision and Training

[edited out for blind review] liaised with 51 local NHS services and offered supervision to all. Of these, 16 services (30%) took up the offer of supervision, including one CAMHS service. For adults, supervision was provided for both eye movement desensitisation and reprocessing and trauma focused cognitive behaviour therapy and amounted to approximately 50 sessions covering 20 adult referrals. Some services required a limited number of supervision sessions, whereas others were given more frequent supervision, sometimes fortnightly. Further support was also given in the form of consultations which fell outside of recorded formal supervision. With respect to children, 13 sessions of supervision were provided to one child referral. In addition, [edited out for blind review] provided training to one adult service that requested it.

Follow-Up

485 follow-up contacts were carried out by [edited out for blind review] with 137 of the adults who were contacted (85%). [edited out for blind review] also followed-up all six of the children contacted. 15 (20%) of the 78 adults referred required further contacts with [edited out for blind review] psychologists before referral due to risk or clinical complexity.

Discussion

Following the terrorist attacks on tourists in Sousse, Tunisia, the UK Prime Minister promised that “we will do whatever it takes to help” the returning survivors (Merrick, 2015). The screen and treat programme reported in this paper was an integral part of the subsequent response to that incident and several others. The programme is only the second time a bespoke centralised intervention has been developed in England to support the early identification and treatment of psychological disorders following a terrorist attack. The

programme ultimately resulted in 78 adults (40.4% of all those who returned a questionnaire or self-referred) and three children (42.9%) being referred to local mental health services for evidence-based treatments. We cannot know what would have happened to these people had the programme not existed, however it is possible that many would have remained without treatment (Stuber et al., 2006). To this extent, we therefore view the programme as a success in facilitating access to services.

The need for the programme is also highlighted by the very high prevalence of people who screened positive among those who responded to our questionnaires (91.8%). Although the representativeness of our sample is uncertain, it is clear that a substantial number of people continued to experience psychological morbidity resulting from the incidents roughly one year later.

One notable finding from the programme was that 61% of adults who responded to the screening questionnaire had already accessed some form of counselling or other treatment prior to screening. This is in contrast to previous data suggesting that help seeking among people affected by traumatic experiences tends to be low (Wang et al., 2005). One reason for this difference may be the longer delay in this instance between the attacks happening and our screening programme being set up. Another important reason was the involvement in this instance of tour operators in proactively offering support to their customers. Indeed, in our sample more people had accessed counselling via their tour operator than via their GP. This in turn raises important questions as to the nature of this provision. Although 61% of respondents reported receiving some form of intervention, whether this intervention was in-line with NICE recommendations ((NICE), 2005) is uncertain. In particular, the provision of brief counselling has previously been highlighted as an area of concern, given evidence that it may cause more harm than good (Joyce et al., 2016) – whether this was the modality used for people whose treatment was arranged through tour operators is unclear. Further discussion

about how to integrate tour operator and NHS provision for future incidents that occur overseas may be worthwhile.

The use of a centralised assessment service also produced several additional benefits. For example, NICE guidelines recommend co-ordinating treatment for family members after a traumatic event ((NICE), 2005). Our assessment centre facilitated this by: identifying additional friends and relatives who were originally unknown to the programme team; establishing family links between people despite differences in their family names and addresses; helping to coordinate waiting times between members of a family; and co-ordinating referrals of both children and adults into appropriate and convenient local services. The provision of training and supervision of local services by the centralised assessment team was also well received, and intensively used in some cases. Similarly, our ability to follow-up patients was important. The high number of follow-ups included; monitoring symptoms, discussing treatment related issues, normalising reactions to anniversaries, and providing additional support and information. This was particularly important for high-risk and complex referrals; almost a fifth of those referred required additional follow-ups before a referral to treatment could be made. This was for a number of reasons including: risk to themselves, difficulty identifying appropriate local services, complex diagnoses and a need for multiple referrals, with continuity of care supported by our team.

Limitations

Despite the overall success of the programme in reaching its objective of improving access to services, several limitations existed. First, we were unable to contact all those who met our inclusion criteria in order to screen them. The only accessible information on people affected were the records held by the MPS. These records were not definitive, as they relied on victims actively providing their details to the MPS and often recorded the details of only

one person from a family unit. Alternative sources, such as records from tour operators, may have helped to supplement this list but were unavailable due to data protection issues. The fact that 60 additional family members were only discovered during the clinical assessment stage underlines the difficulties encountered in identifying all those affected. It is likely that some people who may have benefited from the programme were not contacted and remain unaware of it. Our experience contrasts with the screen and treat programme for the 7 July London bombings (Brewin, Fuchkan, Huntley, Robertson, et al., 2010) which was widely advertised in local and national print and to health professionals and which obtained contact details of victims from a wide variety of sources in order to compile a consolidated list. The reliance on MPS records may also have skewed our sample towards those most severely affected by the attack, which may partly explain the high levels of positive screening results in our sample.

Second, the response rate for our screening questionnaire was poor. The MPS sent our questionnaire to 483 people and 49 families whom they were aware of. Because we do not know the size of the families, or whether those contacted passed information about the programme to other affected people as requested, we are unable to calculate a denominator for our response rate, however we estimate it to be around 30%. The low response rate may be another partial explanation for the high levels of positive screening in our sample.

Returning the questionnaire may have been viewed by recipients as a way to request help and hence as something that was unnecessary for people without symptoms, creating a systematic bias in which only symptomatic people felt motivated to return it. This was striking in children and young people, for whom 100% of returned questionnaires screened positive.

Improving the response rate will be important for any future post-disaster mental health screening programmes. Ensuring that screening is started earlier than was the case here, improving communication about the programme by, for example, obtaining media coverage

or celebrity endorsement, and solving the data protection conundrums that we encountered might all assist with this.

Third, due to data protection issues, the initial communication with people affected was done through the MPS, on behalf of the UK Department of Health. An evaluation of the 7 July London bombings programme has previously suggested that people contacted through the MPS witness list were least likely to respond to a questionnaire and least likely to report being aware of the screening programme despite having previously received two letters about it (Brewin, Fuchkan, & Huntley, 2009). Contact of potential participants via government departments has also previously been shown to lead to a poor response rate in other contexts (Iversen, Liddell, Fear, Hotopf, & Wessely, 2006). The requirement to contact people through the MPS may therefore have contributed to poor response rates in this instance. Data protection issues are a commonly cited difficulty in both epidemiological studies (Iversen et al., 2006) and in the co-ordination of emergency responses (Government, 2007). Additional work to develop a standard operating procedure to facilitate data sharing for future screen and treat programmes may be worthwhile.

Fourth, the low number of children assessed by our programme was unexpected. Partly, this reflected the low number who were present at the scenes of the attacks. But child relatives of victims were still expected to have been affected and were eligible for screening. The key barrier in this case may have been the need for children and young people to have questionnaires submitted on their behalf by a parent or guardian. It is possible that this was viewed as unnecessary by some parents who may have thought that their children were unaffected or unlikely to benefit from psychological interventions. The fact that all children who were screened were identified as requiring assistance also suggests that parents and guardians perceived screening to be unnecessary unless they felt their child was in need of help. Detection of mental illness in children and adolescents affected by terrorist attacks

might be improved in future programmes by implementing a more comprehensive and proactive screening of all young people in the identified families. Potentially, providing brief psychoeducation materials about the impact of trauma on children in tandem with any initial screening questionnaire may also encourage more families to discuss the issue and return the questionnaire.

Conclusions

Since the terrorist attacks of 2015/16, the UK has witnessed more attacks, in Westminster, Manchester, London Bridge and Finsbury Park, as well as the devastating Grenfell Tower fire. Similar screening programmes to that reported here are in development, and further efforts will be required to ensure access to services as future incidents occur. Our results suggest that a screening programme can produce substantial benefits in terms of identifying people who have been affected and supporting them in accessing treatment. Access to lists of victims and witnesses from multiple sources in order to consolidate them into a single master list would help to maximise the benefit of screening programmes in future, however data protection issues may prove to be a key determinant as to whether this is possible.

References

- (NICE), National Institute for Health and Care Excellence. (2005). Post Traumatic Stress Disorder: Management. Manchester.
- Brewin, C. R., Fuchkan, N., & Huntley, Z. (2009). *Evaluation of the NHS trauma response to the London bombings. Final report to the Department of Health*. London: University College London.
- Brewin, C. R., Fuchkan, N., Huntley, Z., Robertson, M., Thompson, M., Scragg, P., . . . Ehlers, A. (2010). Outreach and screening following the 2005 London bombings: Usage and outcomes. *Psychological Medicine, 40*, 2049-2057. doi: 10.1017/S0033291710000206
- Brewin, C. R., Fuchkan, N., Huntley, Z., & Scragg, P. (2010). Diagnostic accuracy of the trauma screening questionnaire after the 2005 london bombings. *Journal of Traumatic Stress, 23*, 393-398. doi: 10.1002/jts.20529
- Brewin, C. R., Rose, S., Andrews, B., Green, J., Tata, P., McEvedy, C., . . . Foa, E. B. (2002). Brief screening instrument for post-traumatic stress disorder. *British Journal of Psychiatry, 181*, 158-162.
- Brewin, C. R., Scragg, P., Robertson, M., Thompson, M., D'Ardenne, P., & Ehlers, A. (2008). Promoting mental health following the london bombings: A screen and treat approach. *Journal of Traumatic Stress, 21*, 3-8. doi: 10.1002/jts.20310
- Bush, K., Kivlahan, D. R., McDonell, M. B., Fihn, S. D., & Bradley, K. A. (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine, 158*, 1789-1795. doi: 10.1001/archinte.158.16.1789

Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress, 6*, 459-473. doi: 10.1007/BF00974317

Government, HM. (2007). Data protection and sharing - guidance for emergency planners and responders (available from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60970/dataprotection.pdf).

Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the life events checklist. *Assessment, 11*, 330-341. doi: 10.1177/1073191104269954

Iversen, A., Liddell, K., Fear, N., Hotopf, M., & Wessely, S. (2006). Consent, confidentiality, and the Data Protection Act. *British Medical Journal, 332*, 165-169. doi: 10.1136/bmj.332.7534.165

Joyce, S., Modini, M., Christensen, H., Mykletun, A., Bryant, R., Mitchell, P. B., & Harvey, S. B. (2016). Workplace interventions for common mental disorders: A systematic meta-review. *Psychological Medicine, 46*, 683-697. doi: 10.1017/S0033291715002408

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals, 32*, 509-515.

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2003). The patient health questionnaire-2: Validity of a two-item depression screener. *Medical Care, 41*, 1284-1292. doi: 10.1097/01.MLR.0000093487.78664.3C

- Kroenke, K., Spitzer, R. L., Williams, J. B. W., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine, 146*, 317-325.
- Merrick, J. (2015, 27 June 2015). Tunisia hotel shooting, *Independent*.
- Mundt, J. C., Marks, I. M., Shear, M. K., & Greist, J. H. (2002). The Work and Social Adjustment Scale: A simple measure of impairment in functioning. *British Journal of Psychiatry, 180*, 461-464. doi: 10.1192/bjp.180.5.461
- Perrin, S., Meiser-Stedman, R., & Smith, P. (2005). The Children's Revised Impact of Event Scale (CRIES): Validity as a screening instrument for PTSD. *Behavioural and Cognitive Psychotherapy, 33*, 487-498. doi: 10.1017/S1352465805002419
- Scheeringa, M. S., & Haslett, N. (2010). The reliability and criterion validity of the Diagnostic Infant and Preschool Assessment: A new diagnostic instrument for young children. *Child Psychiatry and Human Development, 41*, 299-312. doi: 10.1007/s10578-009-0169-2
- Scheeringa, M. S., Zeanah, C. H., Myers, L., & Putnam, F. W. (2005). Predictive validity in a prospective follow-up of PTSD in preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 899-906. doi: 10.1097/01.chi.0000169013.81536.71
- Setti, I., & Argentero, P. (2015). Traumatization and PTSD in rescue workers: Prevention, assessment and interventions. . In C. Martin, V. Preedy & V. Patel (Eds.), *Comprehensive guide to post-traumatic stress disorder*. (pp. 1-13). Cham: Springer International Publishing.

- Spitzer, Robert L, Kroenke, Kurt, Williams, Janet BW, & Löwe, Bernd. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine, 166*, 1092-1097.
- Stuber, J., Galea, S., Boscarino, J. A., & Schlesinger, M. (2006). Was there unmet mental health need after the September 11, 2001 terrorist attacks? *Social Psychiatry and Psychiatric Epidemiology, 41*, 230-240. doi: 10.1007/s00127-005-0022-2
- Wang, P. S., Berglund, P., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 603-613. doi: 10.1001/archpsyc.62.6.603
- Weinberg, M. (2011). Spousal perception of primary terror victims' coping strategies and secondary trauma. *Journal of Loss and Trauma, 16*, 529-541.
- Weiss, D., & Marmar, C. (1997). The impact of events scale - revised. . In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD*. (pp. 399-411). New York: Guilford.
- Whalley, M. G., & Brewin, C. R. (2007). Mental health following terrorist attacks. *British Journal of Psychiatry, 190*, 94-96. doi: 10.1192/bjp.bp.106.026427
- Yule, W. (1997). Anxiety, depression and post-traumatic stress disorder in children. In I. Sclare (Ed.), *The NFER Child Portfolio*. Windsor: NFER-Nelson.

Table 1

Number and Percentage of Adult Respondents who Screened Positive for each Disorder and who endorsed each Triage Question

| Psychiatric morbidity (tool) | Total number positive / denominator | Percentage positive |
|---|--|----------------------------|
| Depression or anxiety (PHQ-4) | 155 / 187 | 82.9% |
| Post-traumatic stress disorder (TSQ) | 112 / 187 | 59.9% |
| Problematic drinking (AUDIT-C) | 80 / 187 | 42.8% |
| Smoking more (single item) | 31 / 187 | 16.6% |
| Triage question | Total number positive / denominator | Percentage positive |
| History of mental health problems | 34 / 171 | 19.9% |
| Thoughts of suicide or self harm | 27 / 171 | 15.8% |
| Risk to job | 25 / 171 | 14.6% |
| Difficulty caring for others | 8 / 171 | 4.7% |
| Employment in armed forces | 7 / 171 | 4.1% |
| Pregnant | 1 / 171 | 0.6% |

Table 2

Pre-assessment Questionnaire Scores for Clinical Assessment of Adults

| Disorder (criterion) | Total number positive / denominator | Percentage positive |
|--|--|----------------------------|
| Post-traumatic stress disorder (moderate to severe symptoms on the IES-R) | 86 / 119 | 72.3% |
| Depression (clinical significant level of symptoms on the PHQ-9) | 64 / 119 | 53.8% |
| Anxiety (clinical significant level of symptoms on the GAD-7) | 65 / 119 | 54.6% |
| Functional impairment (impairment on work, relationships leisure or social activities on the WSAS) | 61 / 119 | 51.2% |

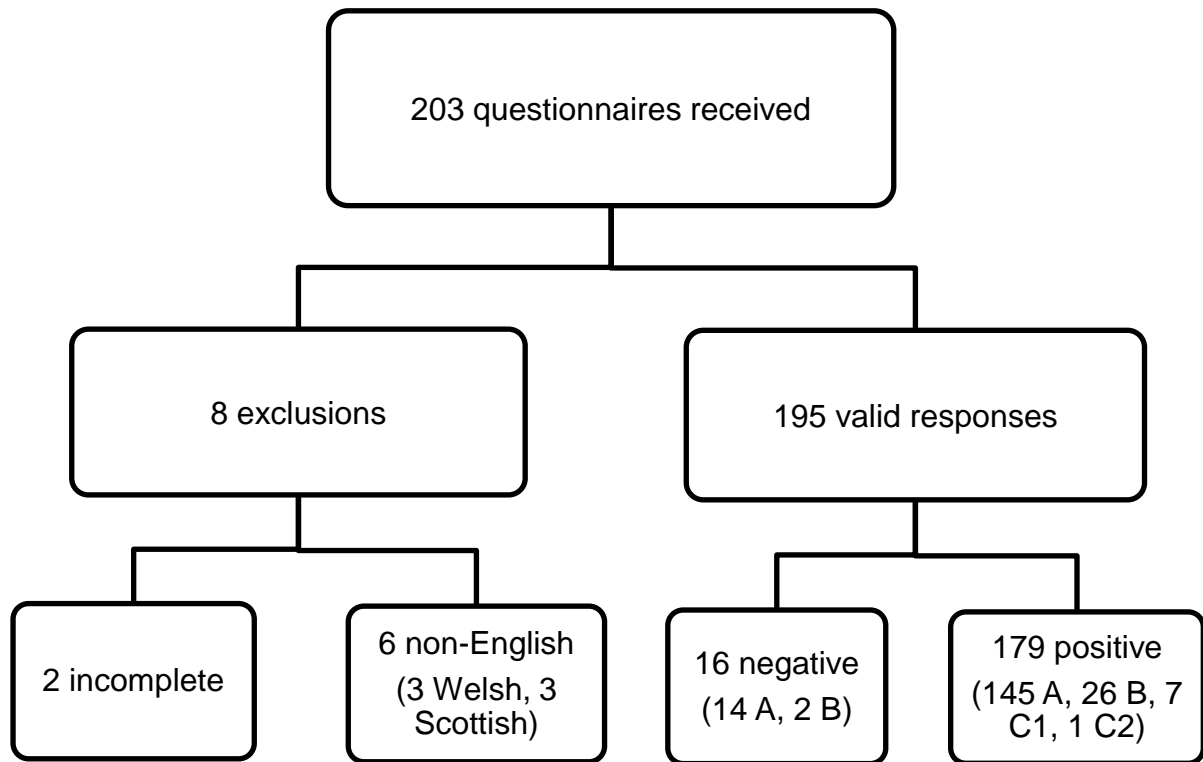


Figure 1. Flow chart of people invited to complete the screening questionnaire (‘A’ represents adults present at the attack, ‘B’ represents adult contacts of people who were injured or killed, ‘C1’ represents children and young people aged 8 and 17 years old and ‘C2’ represents children under 8 years old).

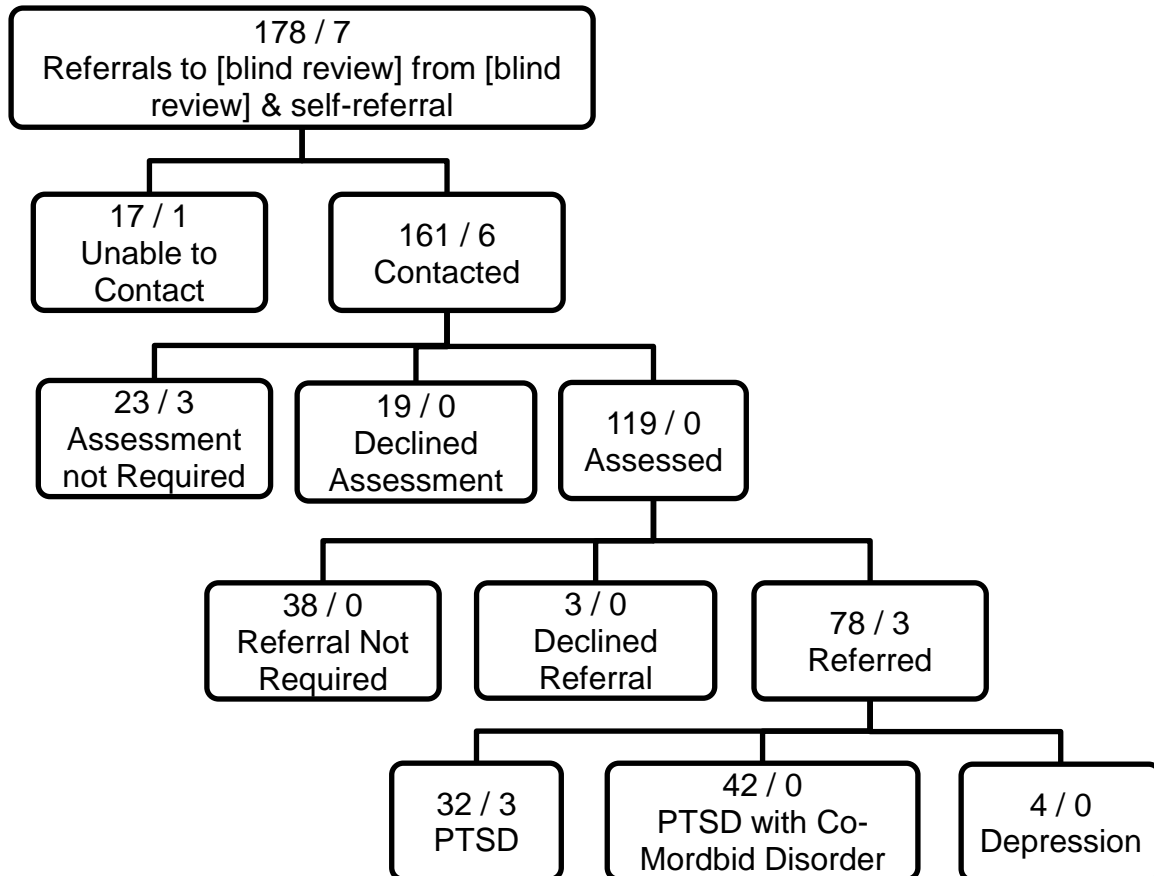


Figure 2. Flow chart of people referred for clinical assessment (number represent adults / children and young people)