A screening instrument for assessing psychological distress following disasters: Adaptation for the March 15th, 2019 mass shootings in Christchurch, New Zealand.

Martin J. Dorahy and Neville M. Blampied
University of Canterbury, New Zealand

In order to efficiently deploy scarce professional resources in the aftermath of a disaster, it is important to differentiate 1) those distressed individuals who will recover given time for natural psychological healing processes to effective operate from 2) those who may require more immediate and substantial psychological interventions. Following the fatal 2011 Christchurch, NZ earthquakes, a brief screening measure was developed to help practitioners and those actively engaged with survivors and support services to flag those who needed immediate intervention versus those who could be monitored for signs of improvement without immediate provision of ongoing support. This instrument has been adapted for use following the March, 15th, 2019 Christchurch Mosque shootings. The paper outlines the developments of this measure and the adaptations made.

A natural or man-made disaster, and its immediate unfolding, whether a single incident that was predicted (e.g., a hurricane; flood surge, pre-signalled terrorist attack) or unpredicted (e.g., an active-shooter situation, tsunami), or a more protracted sequence that struck with warning (e.g., droughts) or by-surprise (e.g., earthquake and immediate aftershocks; multiple coordinated terrorist attacks), almost always involves members of the general population. These may be direct victims of the unfolding event/s, those caught up by virtue of their proximity in helping the injured or deceased, or those coming into contact with perpetrators. The number directly affected may be very large, such as the case of a city struck by an earthquake with multiple collapsed and damaged buildings, and vast numbers of casualties and fatalities (e.g., the 2011 Christchurch earthquake) or a tourist areas engulfed by a giant swell of water (e.g., the 2004 Indonesian tsunami). In other cases victims and those civilians directly involved may be limited, such as in the case of a factory explosion or an active shooter situation with targeted victims (e.g., the 2015 Bataclan nightclub shooting in Paris, the March 2019 Christchurch Mosque attack). Such events inevitably draw on the expertise of emergency services and first-responder professions, as well as hospital and medical/nursing staff. Increasingly, clinical psychologists may be mobilised to offer their expertise while an event is ongoing, for example, in the service of assisting victims coming into emergency settings or being present amongst first responder groups to act as an adjunct to what they provide or as monitors of the immediate well-being of such staff.

Yet, typically the skills and expertise of a clinical psychologist are more pertinent and effectively initiated at a later point in the time-course of the disaster, in the days, weeks and months that follow. Early in this post-event phase families and friends of victims, and the community at large, are becoming aware of the event - its magnitude, its implications, and their personal connection. Make-shift sites for medical, psychological and social provision may be set up for victims and families, including those waiting to learn of a loved-ones' fate. From this point on a psychologist might be looking for those most in need of immediate support with a view that intervention then may halt the development of more severe problems. There is a tension here between allowing a person to go through the natural process of healing after exposure to a catastrophic event and detecting those whose natural propensity to make sense of their experience and recover from the disaster is compromised and who may especially benefit from early intervention.

It is generally understood that in days and weeks following a disaster taking a conservative approach to detecting those in need of more intense support is best practice (Hobfoll et al., 2007; NICE, 2005). Sleep difficulties, mood fluctuations, increased anxiety, feeling numb or confused, having trouble remembering what happened, feeling isolated or fearing separation, losing motivation and experiencing guilt, sadness, disbelief and anger, are all part of the natural response in the hours, days and sometimes months that follow a disaster (Disaster Response & Resilience Research Group, 2012). Such responses should not be pathologized or seen as indicators of weakness, vulnerability for prolonged or increased suffering or the development of psychopathology. It is typically recommended that basic psychological first aid involving physical and emotional support along with education about normal responses to overwhelming events should be engaged in (Disaster Response & Resilience Research Group, 2012; Kim, 2011), while there is a 'watch and wait' period, where, over eight to ten weeks, the person is invited to monitor themselves for signs of worsening difficulties (Hobfoll et al., 2007; NICE, 2005). Should symptoms persist over several months, or worsen, the person should be further assessed with a view to more formalised interventions to reduce psychopathology or halt its further development.

Thus, following in the immediate aftermath of a disaster, three groups of people might be identified:

1) Those that show no or little distress;
2) Those who appear symptomatic at least to a moderate level. Here the 'watch and wait' period will allow, either:
   2a) The natural process of psychological healing to take place and the person will steadily recover

their psychological equilibrium, motivation and appetite for life,

2b) The natural healing process will be disrupted and distress will be prolonged or worsened.

3) Those with high and diverse symptoms, where the natural healing process is immediately compromised, and has no chance of operating to promote recovery. Here a 'watch and wait' period would leave the person suffering without the likelihood of recuperation, and interventions would best not be withheld.

Tools have been developed to assist psychologists, emergency support agencies, counsellors, and those providing psychosocial support to assist in the detection of these groups. For example, Carlson, Palmieri, and Spain (2017) developed a measure based on known risk factors (e.g., post-trauma social support, trauma cognitions, acute stress symptoms) for the development of posttraumatic stress disorder (PTSD) following overwhelming events. It contains 21 items in an easy to complete tickbox response format that can be used in various settings. They suggest that if a person responds positively to three or more of the six risk factors assessed, they should be referred for more specialist psychological intervention; i.e., they are in category 3 above. Brewin et al. (2002) developed a short 10-item measure (*The Trauma Screening Questionnaire*; TSQ) assessing re-experiencing and arousal symptoms following an overwhelming event. It was designed to be used one or more months after a trauma (i.e., following a period to allow natural recovery to take hold) and has a very simple yes/no response format enquiring about the experience of each symptom at least twice in the past two weeks. It can be used in different settings and was found to be helpful following the 2005 London bombings in the detection of those most likely to have PTSD. Scores of 6 or more prompt more thorough assessment, which might ultimately lead to the detection of categories 2b or 3 above.

Mass shooting in Christchurch, March, 15th, 2019

The mass shootings in Christchurch represented a unprecedented event for the city and for the nation as a whole. Unlike the earthquakes that started in 2010, reached their height of destructiveness and human cost in 2011 and remained a constant threat over many years via persistent aftershocks, the mass shootings were targeted at a specific minority group within the city, were of human design and conducted by a single person who was not from the city nor had any affiliation with it. These two disasters were different on multiple levels: One was natural, the other man-made; One left wide-spread infrastructure damage and mass scars on the built environment, the other impacted on two buildings, where the remnants of the events were etched into walls, floors, doors and ceilings in the form of bullet marks, but no structural damage ensued; One persisted following the initial turmoil for several years, with ongoing large aftershocks and the multiple stresses associated with insurance claims, etc; The other ended quickly following the initial turmoil. Yet, both led to significant loss of life, both arose without warning, both led to massive community responses that spread from the city to the country and onto the international community, and both tore at the social heart of the city in terms of a sense of felt safety, moving out from an individual's psychology to communal identity.

The earthquakes required a massive psychosocial and community response, as every aspect of life was affected, and everyone in the city was impacted. For some this was limited to needing to change work or school routines, adopt new travel routes, change social and sporting outlets, and live with the anxiety of the uncertain and unpredictable. For others the impact was more costly, losing family members, homes, jobs, pets and neighbours, and needing to start again. For many the psychological effect of the earthquakes remain, and a considerable proportion of people are still working to settle insurance claims and are living in broken or unsatisfactory housing. Nevertheless, as one consequence of this experience, the Christchurch community has gained considerable experience in coping with and organizing responses to disasters.

As one example of this, in the immediate aftermath of the 2011 earthquakes, a group of clinical psychologists acting together under the auspices of the New Zealand College of Clinical Psychologists, looked at various tasks and initiatives that could be developed to assist the human response to earthquake recovery. One project was to develop a short measure of psychological function that could be used to assist in decision-making around the three categories of response outlined above (i.e., those individuals who evidenced little distress about the earthquake, those who were in the watch and wait group, on account of having symptoms and risk factors for more severe problems but where the natural process of healing might arrest the development of ongoing and more chronic distress, and those who needed more immediate engagement with more psychologically sophisticated interventions beyond psychosocial or physical support, to target symptoms and reduce pathological distress or its development).

Following the March 2019 mass shooting this measure was adapted to be more fit-for-purpose for the signal event. The measure is short (two pages) with Likert-type response formats. It includes Brewin et al.'s (2002) 10 item TSQ (see Appendix, part A), which was found to be effective at detecting those most prone to posttraumatic stress symptoms after the London bombing. In addition, as psychopathology has been a consistent risk factor for posttraumatic problems (Ozer, Best, Lipsey, & Weiss, 2003), three separate items from the Generalised Anxiety Disorder-7 scale (Spitzer et al., 2006) and two discrete depression items from the Patient Health Questionnaire-9 (Spitzer et al., 1999) were utilised (see Appendix, part B). Further, as persistent dissociation has been shown to be a solid predictor of ongoing distress after potentially traumatic experiences (e.g., Hooper, Dorahy, Blampied, & Jordan, 2014), and Briere and colleagues (2005) found that four persistent dissociation items from the Detailed Assessment of PTSD (Briere, 2001) were good predictors of individuals who had more severe posttraumatic concerns, these four items were also included (see Appendix, part C).

The three different risk variables so far discussed for the development of more severe problems were included in the earthquake screening measure. The remaining questions were either designed to be more fit-for-purpose for the current situation (a mass shooting targeting the Muslim community), more specific to Christchurch residents particularly, or to assess the risk factor of lack of social support. The first new item assessed whether the respondent feels that people around them support their religious and cultural beliefs and practices (see Appendix, part D). Literature on mass shootings routinely shows that immigrants are more vulnerable to

develop posttraumatic problems in the aftermath of a shooting (Lowe & Galea, 2017). For example, being a migrant was one of the best predictor of the development of more severe problems following the Utoya shooting in Norway (Dyd, Jensen, Nygaard, & Ekeberg, 2014). The second new question addressed whether the March 15th shooting brought back distressing memories of the earthquake or other painful events (see Appendix, part E). Research persistently shows previous trauma is a good predictor for disruptions of the healing response following a potentially traumatic event (Carlson et al., 2017, Ozer et al., 2003). Finally, an item adapted from the earthquake version of the screening instrument assessed access to social support (see Appendix, part F), as again, this has been routinely shown to be a risk factor for post-trauma failure to recover (e.g., Frazier et al., 2011).

Each part of the instrument (i.e., from part A to part F) produces a yes/no score based on whether the participant is positive for each one. A traffic light system is adopted, which either reflects 1) scoring for those assessed within the two month period following the shooting, or 2) scoring that occurs if the instrument is completed at least two months after the attack. For individuals assessed in the first two months, those who score positively on two or fewer of the six areas are in the green zone. They may be offered some psychological first aid to assist full recovery, but require no further attention unless symptoms increase (category 1 above). Those affirmative on three or four of the six areas, are in category 2 above, or the orange zone. They are the watch and wait group, and following receipt of any psychological first aid on offer and any basic information or specific low-level intervention (e.g., sleep hygiene) they should be invited to recontact services (or can be followed-up, depending on service provision and procedures) if difficulties persist or increase. Those scoring above 4 – in the red zone - are offered more assessment and more specific and targeted intervention for distress. More immediate action is needed for these individuals to reduce distress or stop the development of more severe problems. Here, specific psychological therapy may be engaged in to target symptoms or address the person as a whole, if more complex and pervasive difficulties are present.

For those completing the screening tool beyond two months after the event, the scoring is the same, but the decision making 'traffic light' system is altered. The green zone now reflects those with a zero score, the orange zone captures those with a score of 1 or 2, and those who have a score of 1 or more on parts A, B and C (symptom measures) *plus* a score of 1 or more on parts D, E and F (support & reactivation measures) are identified in the red zone (see Appendix for scoring and decision making guidance).

The scoring scheme or categorisation has not been empirically tested and should not trump sound clinical decision making. It is based on reviewing the literature and on anecdotal reports from when the related tool was used in clinical services during the Christchurch earthquakes. It is unknown how culturally sensitive it may be, and at this stage there is only an English language version, but it could be translated. In short, it requires further assessment but may be of assistance to services dealing with the current crisis, or it could be adapted and adopted to fit future disasters or traumatising events.

Correspondence concerning this article should be addressed to Martin J. Dorahy, Department of Psychology, University of Canterbury, Private Bag 4800, Christchurch, 8140, New Zealand. Email: martin.dorahy@canterbury.ac.nz

References

Brewin, C. R., Rose, S., Andrews, B., Green, J., Tata, P., McEvedy, C., Turner, S. & Foa, E. B. (2002). Brief screening instrument for post-traumatic stress disorder. *British Journal of Psychiatry 181,* 158-162.

Briere, J. (2001). *DAPS—Detailed Assessment of Posttraumatic Stress Professional Manual*. Odessa, FL: Psychological Assessment Resources.

Briere, J., Scott, C., & Weathers, F. (2005). Peritraumatic and persistent dissociation in the presumed etiology of PTSD. *American Journal of Psychiatry, 162*, 2295-301.

Carlson, E. B., Palmieri, P. A., & Spain, D. A. (2017). Development and preliminary performance of a risk factor screen to predict posttraumatic psychological disorder after trauma exposure. *General Hospital Psychiatry, 46,* 25–31.

Disaster Response & Resilience Research Group (2012). *NSW Health Disaster Mental Health Manual*. Retreived from: https://www.health.nsw.gov.au/emergency_preparedness/mental/Documents/disaster-mental-health-manual.pdf

Dyd, G. Jensen, T. K., Nygaard, E., & Ekeberg, O. (2014). Post-traumatic stress reactions in survivors of the 2011 massacre on Utøya Island, Norway. British Journal of Psychiatry, 204, 361-367.

Frazier, P. A., Gavian, M., Hirai, R., Park, C., Tennen, H., Tomich, P., & Tashiro, T. (2011). Prospective predictors of posttraumatic stress disorder symptoms: Direct and mediated relations. Psychological Trauma: Theory, Research, Practice, and Policy, 3(1), 27-36.

Hobfoll S. E, Watson P, Bell C. C, Bryant R. A, Brymer M. J, Friedman M. J,…Ursano, R. J. (2007) Five essential elements of immediate and mid-term mass trauma intervention: Empirical evidence. Psychiatry. 70, 283–315.

Hooper, A. L., Dorahy, M. J., Blampied, N. M., & Jordan, J. (2014). Dissociation, perceptual processing, and conceptual processing in survivors of the 2011 Christchurch earthquake. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*(6), 668-674.

Kim, Y. (2011). Editorial: Great East Japan Earthquake and Early Mental-health-care Response. Psychiatry and Clinical Neurosciences, 65, 539–548.

Lowe, S. R & Galea, S. (2017). The Mental Health Consequences of Mass Shootings. Trauma, Violence and Abuse, 18, 62-82.

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin, 129*(1), 52-73.

Spitzer, R., Kroenke, K., & Williams, J. B. W. (1999). Validation and utility of a self- report version of PRIME-MD: The primary care study. *Journal of the American Medical Association,* 282, 1737– 1744.

Spitzer, R., Kroenke, K., Williams, J. B. W., & Lowe, B. (2006). A brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine*, 166, 1092–1097.

Appendix

BRIEF TRAUMA SCREENING INTERVIEW

The following questions are designed to be asked by a GP, clinician or health professional of people who may be distressed by the March 15th 2019 mass shootings in Christchurch. The questions are designed to help understand people's responses and reactions and identify those who might require more psychological support.

- I am going to ask you some questions about reactions that people sometimes have after an event such as the recent shootings in Christchurch.
- My questions are concerned with your personal reactions to the March 15th 2019 events.
- Can you indicate whether or not you have experienced the following AT LEAST TWICE IN THE PAST WEEK

IDENTIFICATION CODE (Person's first & last initials & day & month of birth-eg. mb1308) _____

AGE _____ **GENDER** _____

PHONE _____ **EMAIL** _____

TODAY'S DATE _____ **TIMES ASSESSED WITH THIS MEASURE: 1 2 3 4 5**

DO YOU CONSENT TO BEING CONTACTED IN THE FUTURE TO CHECK YOUR PROGRESS? YES NO

- If answer is YES, please rate: 0=A little bit; 1=Moderately; 2=Quite a lot; 3=Very much; 4=Extremely

	(At least TWICE in the past week) **YES**	**NO**	**Rating 0-4**
1. Upsetting thoughts or memories about the event that have come into your mind without your intention			
2. Upsetting dreams about the event			
3. Acting or feeling as though the event were happening again			
4. Feeling upset by reminders of the event			
5. Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event			
6. Difficulty falling or staying asleep			
7. Irritability or outbursts of anger			
8. Difficulty concentrating			
9. Heightened awareness of potential dangers to yourself and others			
10. Being jumpy or being startled at something unexpected			

A. Total score on items 1-10 ≥ 6: NO YES

As a result of the attacks, how often have you been bothered in the past week by the following problems?	Not at all	Several days	More than half the days	Nearly every day	Every-day
11. Feeling nervous, anxious or on edge	0	1	2	3	4
12. Not being able to stop or control worrying	0	1	2	3	4
13. Feeling afraid as if something awful might happen	0	1	2	3	4
14. Feeling down, depressed, or hopeless	0	1	2	3	4
15. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3	4

B. Mean score on items 11-15 ≥ 1.5: NO YES

As a result of the attacks, how much in the last week has the following happened?	Not at all	Slightly	Some-what	Very	Extrem -ely
16. Feeling like you were walking around in a dream or a movie.	0	1	2	3	4
17. Things not feeling completely real.	0	1	2	3	4
18. Going around in a daze, not noticing things.	0	1	2	3	4
19. Times when you felt separate from your body.	0	1	2	3	4

C. Mean score on items 16-19 ≥ 2: NO YES

Since the attacks, to what degree have you:

20. Felt people around you have understood and supported your spiritual and religious beliefs, and culture?

0 (Constantly) 1 (often) 2 (sometimes) 3 (occasionally) 4 (Not at all)

D. Score on item 20 ≥ 3: NO YES

21. Has this event reactivated painful feelings of the Canterbury Earthquakes or other distressing events?	YES	NO

E. Score "Yes' on 21: NO YES

22. Have you got people around that you can talk to openly about what you have experienced during and since the attack?

0 (Not at all) 1 (occasionally) 2 (sometimes) 3 (often) 4 (Constantly)

F. Score on items 21 ≤ 1: NO YES

Brief Screening Scoring Key

1a: Scoring in the 2 months following the disaster

Add up items for each part (A-F) to determine if YES (criterion met) or NO (criterion not met):

A: Sum total of items 1-10 = 6 or above
B: Mean of items 11-15 = 1.5 or above
C: Mean of items 16-20 = 2 or above
D: Item 20 = 3 or above
E: Item 21 = YES
F: Items 22 = below 2

1b: Decision making in the 2 months following the disaster

Green (no further immediate action), orange (watch and wait – invite to contact again if no improvement), red (continue psychological support, assessment, & move into therapy)

- **If 2 or less, psychological first aid, education. No further action unless requested.**
- **If 3 or 4, education, support, watchful wait. Invite further contact if no change in a fortnight**
- **If > 4, continue ongoing psychological support with specific treatment of symptoms or the person, or referral to appropriate person/service**

2a: Scoring beyond 2 months following the disaster

The same as scoring above.

2b: Decision making beyond 2 months following the disaster

Green (no further immediate action), orange (watch and wait – invite to contact again if no improvement), red

(continue psychological support, assessment, & move into therapy)

- **If 0, Invite further contact if any difficulties arise**
- **If 1 or 2, education, support, watchful wait. Invite further contact if no change in a fortnight**
- **If ≥ 1 on parts A, B, and C, *AND* ≥ 1 on parts D, E and F, continue ongoing psychological support with specific treatment of symptoms or the person, or referral to appropriate person/service**