

INTRODUCTION

in 2012, crashing with winds of 80 mph and floods of up to 13 feet. disaster

(Linehan, 1987, Verheul et al., 2003). It includes behavioral analysis, experienced anxiety and depression. Follow-up 18 months mindfulness, emotion regulation, and interpersonal effectiveness. It is

reported having these feelings (Roorda, Van Stiphout & Huijsman-Rubingh, 2004). In another study of the same disaster, 30 months post-disaster, the incidence of psychological problems in survivors was 30% greater than control subjects. An individual's reaction to emotional trauma is complex and difficult to predict (McFarlane & Yehuda, 1995). Their emotional and physical proximity to actual

trauma (e.g., natural disaster) also

sample of those affected by hurricanes, greater than fifteen percent

100,000 adults met criteria for hurricane-specific PTSD. Abramson, Stehling-Ariza, Garfeld, and Redlener (1996) reported that 15% of a

included in planning for disaster preparation and recovery.

Dialectical Behavior Therapy (DBT) has been used to reduce

(Linehan, 1993). The current study evaluates the use of Dialectical Behavior Therapy in individuals following Hurricane Sandy. It was hypothesized that the BAI scores would be reduced after treatment, reflecting a reduction in anxiety levels. The participants were diagnosed using the diagnostic criteria in the DSM-IV-TR manual. The study obtained ethical approval, participants gave informed consent, and identifying participant data remains confidential.

METHOD

The participants in this study were 22 adults residing in the north-eastern United States, who had sustained food damage to their homes during Hurricane Sandy. The sample was self-selected (the individuals sought psychotherapy for post-disaster stress) during the time frame 6-12 months post-disaster. Subjects were male and female adults ranging in age from 32-61 who gave informed consent and reported anxiety related to the hurricane. They were seen for individual Dialectical Behavior Therapy psychotherapy sessions by the author of the study, and the Beck Anxiety Inventory was self-administered in the initial session, and again during the final session. They were encouraged to attend weekly sessions for six months. BAI mean scores were calculated, and a Student's t- test analysis was

pre and post-treatment. Dialectical Behavior Therapy skills (including

stress. Subjects received weekly sessions during which Dialectical Behavior Therapy exercises were discussed, homework exercises were reviewed, and progress was monitored. A control group was

age range, who were impacted by food damage to their homes and reported anxiety related to the hurricane. These individuals were asked to complete the BAI upon initial contact six months post-hurricane,

those who scored an anxiety level of 29 or higher on the initial BAI, and did not receive psychotherapy services in the interim.

The Beck Anxiety Inventory (BAI), created by Aaron Beck and colleagues, is a 21-question multiple-choice scale which assesses the severity of an individual's anxiety. It measures anxiety symptoms in adults and can be completed within ten minutes. This scale can

anxiety symptoms subsequent to treatment. Respondents are asked

losing control, inability to relax) on a scale ranging from zero to three. The total score has a minimum of zero and a maximum of 63 (Beck & Steer, 1993). Research on the Beck Anxiety Inventory has provided support for concurrent validity and reliability. The scale showed high internal consistency ($\alpha = 0.92$) and test-retest reliability over one week of 0.75. In addition, the BAI was correlated with the revised Hamilton Anxiety Rating Scale, ($r = 0.51$) (Beck, Epstein, Brown, & Steer, 1988). The Inventory was also validated in other studies (Fydrich, Dowdall, & Chambless, 1992, Steer, Ranierik, Beck, & Clark, 1993).

RESULTS

Of the 22 participants who received Dialectical Behavior Therapy, 14 (64%) were female and eight (36%) were male. Mean age was 49.6 years ($SD = 8.4$), with an age range from 32 to 61. Mean

included anxiety, irritability, and sad mood related to the disaster. Results from the Beck Anxiety Inventory demonstrated that 95% of individuals reported a lower level of anxiety at the end of treatment. Student's *t*-test revealed that individuals scored significantly higher on the BAI pre-treatment than post-treatment. Higher BAI scores indicate higher anxiety levels; scores between 22-35 are termed moderate anxiety.

Among participants ($n = 22$), there was a statistically significant difference between the pre ($M = 33.90$, $SD = 5.17$) and post-treatment scores ($M = 19.22$, $SD = 2.68$), $t(21) = 25.69$, $p < 0.05$, $CI 95\%$. Therefore, the null hypothesis that there is no difference in anxiety levels pre and post-DBT treatment can be rejected. Control subjects ($n = 22$) had an average initial BAI score similar to those of treatment subjects ($M = 35.36$, $SD = 5.28$), and their BAI scores six months later (after receiving no treatment) was not significantly lower ($M = 30.40$, $SD = 2.48$).

DISCUSSION

policymakers. Several variables can be quantitatively examined. These include the specific treatments which help people recover,

mental health programs to address survivor's needs after flooding. Information from the present study can be useful in clinical and administrative arenas as well. Healthcare agencies and individual clinicians need to be educated about the major distress that flooding and its after-effects can cause, in addition to the treatments which enable survivors to improve mental health (Appendix 1).

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