

# Emotional impact of 9/11 attacks seen in brain's response to negative visual images

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In the wake of the 10th Anniversary of the September 11th attacks, research published in the *Journal of Traumatic Stress* reveals how the attacks impacted the psychological processes of those not directly exposed to the attacks.

The study, which focused on college students in Massachusetts, found that even those who were not directly connected to New York or Washington showed increased stress responses to run of the mill [visual images](#).

"Other studies have shown that the 9/11 attacks resulted in a wave of stress and anxiety across the United States," said Ivy Tso from the University of Michigan. "8-10 percent of the residents of New York City reported symptoms consistent with post-traumatic stress disorder ([PTSD](#)) and depression while 40 percent of Americans across the country experienced significant symptoms of stress related to the attacks."

Tso and her colleagues' study, which took place within one week of the attacks, assessed a sample of 31 university students in Boston, Massachusetts who were not directly connected to the attacks in New York and therefore represented the wider American public.

The participants were shown a series of 90 pictures, 30 of which contained images of the attacks while the others were defined as either 'negative' but not related to the attacks, or 'neutral'. The team then

measured the [brain activity](#) of the participants to detect signs of anxiety and stress.

"The results of our study indicate that participants' brainwave responses during processing of the images deviated from normal in proportion to their self-report distress level directly related to the 9/11 attacks," said Tso.

These stress-related neural deviations are analogous to the clinical phenomena and abnormal cognition observed in individuals with PTSD (e.g., diminished attention, hypervigilance, suppression of unwanted thoughts).

"This finding is significant as our participants were young, unmediated, highly functional individuals and while their distress was clearly below clinical threshold, their brain responses to emotional information were affected the same way, though not to the same degree, as in PTSD," concluded Tso. "This makes us rethink whether distress reactions should be considered a spectrum of severity, rather than simply divided into normal vs. clinical categories."

Provided by Wiley

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