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Report Links 9/11 Memories to Proximity

By RANDOLPH E. SCHMID
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WASHINGTON -- The closer New Yorkers were to the World Trade Center on Sept. 11, 2001, the more vivid their memories are of the disaster that brought down the buildings.

For people close to the scene, memory of the event involves an emotion-recording portion of the brain, while those who were farther away involved other parts of the brain in the recollection, researchers report in Tuesday's issue of Proceedings of the National Academy of Sciences.

All of the 24 participants in the study were in Manhattan on 9/11. Three years later the recollections of those who were in lower Manhattan, closer to the World Trade Center, were more vivid, detailed, and confident than those who were farther away, said Elizabeth Phelps, a professor at New York University.

"The downtown subjects also reported seeing, hearing, and smelling what had happened. Subjects who were, on average, around midtown Manhattan reported experiencing the events second hand, such as on television or the Internet," explained Phelps.

Magnetic resonance imaging of their brains at the time of recall indicated that those closest to the scene involved the amygdala, a small portion of the brain involved in emotions. That was not the case for those farther away.

Tali Sharot, an NYU researcher and the study's lead author, said the findings "indicate that personal involvement may be critical in producing memories with the characteristic qualities of flashbulb memories.

"We think this is because the amygdala, which is known to play a role in enhancing the feeling of remembering for emotional material, is more engaged when these events are experienced first hand," she said.

Flashbulb memories are a psychological concept that memories of shocking events such as a presidential assassination are created in a unique process that sears the image into the brain like a photo.

Studies of other events have shown, however, that flashbulb memories are not necessarily more accurate than other memories, even though the person had a vivid recall of them and is very confident.

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"It is clear from these recollections that proximity to the World Trade Center changed the nature of the experience of these events, such that those subjects who were downtown on 9/11 had greater personal involvement with the consequences of the terrorist attacks," the researchers said in their report.

Jennifer M. Talarico, who teaches psychology at Lafayette College in Easton, Pa., said the report is the first to adapt neuroimaging techniques to the study of flashbulb memories.

"I admire the authors for tackling both a topic and a technique that impose serious constraints on experimental design and for succeeding in producing an interesting and informative paper," said Talarico, who was not part of the research team.

It is not surprising that those closer to the event processed memory in an emotional area of the brain, she said. "It basically means that those who experienced real or perceived danger were more emotional than those who experienced the event indirectly."

While it is not definitive, the report does improve understanding of flashbulb memory, she added.

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