

Research identifies risk factors that affected World Trade Center evacuation

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Researchers at Columbia University's Mailman School of Public Health have released findings identifying factors that affected evacuation from the World Trade Center (WTC) Towers on September 11. A research methodology known as participatory action research (PAR) was used to identify individual, organizational, and structural (environmental) barriers to safe and rapid evacuation.

PAR is a research approach in which the researchers actively engage and collaborate with members of the study population on all phases of the project -- from study design to the presentation of results and discussion of implications. According to Robyn Gershon, DrPh, professor of clinical Sociomedical Sciences at the Mailman School of Public Health and principal investigator for this study, "PAR has been used extensively in occupational health research but not, to our knowledge, in disaster research."

For this WTC Evacuation study, the WTC evacuees, study investigators, and consultants with a wide range of expertise worked together collaboratively to develop a set of recommendations to improve high-rise evacuation of business occupancies. The PAR teams identified key risk factors associated with three major outcomes: length of time to initiate evacuation, length of time to complete evacuation, and incidence of injury. WTC evacuation initiation was delayed by lack of awareness and experience in evacuation procedures; making phone calls; seeking out co-workers; and personal concerns about one's own ability (e.g. health and stamina) to descend multiple flights of stairs. Workers also delayed their

evacuation because they were waiting for their supervisor's permission to leave.

The length of time for the entire evacuation process was lengthened by inappropriate footwear; confusion about where the staircases were located and where they terminated; and periodic congestion on stairs. Injuries were associated most often with physical disabilities (i.e., those with physical disabilities were more likely to be injured during the evacuation process).

The researchers make recommendations that focus on the need for a greater emphasis on emergency preparedness for high-rise workers. Specific measures recommended by PAR team members include mandatory training and drills, such as full-building evacuation drills. PAR team members also suggested that employees keep comfortable footwear and emergency supplies at their desks.

"One of the most important recommendations the teams made was to encourage the development of a clear cut emergency preparedness climate that is communicated to personnel," noted Dr. Gershon, "Emergency preparedness is a shared responsibility."

The study was funded by the Centers for Disease Control and Prevention through a cooperative agreement with the Association of the Schools of Public Health.

Source: Columbia University's Mailman School of Public Health

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