

Fatigue linked to safety problems among EMS workers, study finds

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Fatigue and poor sleep quality, which affect many emergency medical services (EMS) workers, are linked to higher reported rates of injuries, medical errors and safety-compromising behaviors, according to a study by University of Pittsburgh researchers that is now available online in *Prehospital Emergency Care* and appearing in the January-March 2012 print edition.

"Emergency medical technicians and paramedics work long hours in a demanding occupation with an unpredictable workload, which can easily lead to fatigue and poor sleep. Our study is one of the first to show that this may jeopardize patient and provider safety in the EMS setting," said lead author P. Daniel Patterson, Ph.D., EMT-B, an assistant professor in the Department of [Emergency Medicine](#) at the University of Pittsburgh School of Medicine.

Dr. Patterson and his colleagues surveyed EMS workers from across the country, receiving complete data from 511 respondents. A previously tested tool called the Pittsburgh [Sleep Quality](#) Index was used to evaluate sleep quality, including such factors as sleep duration and use of sleeping medication. A questionnaire measuring fatigue and adapted for the EMS environment was used to assess physical and [mental fatigue](#). The researchers also developed a new 44-item [survey tool](#) to elicit self-reported safety outcomes data, including provider injury, medical errors or adverse events and safety-compromising behaviors, such as excessive speeding.

In the survey sample, more than half of the respondents were classified as fatigued; 18 percent reported an injury; 41 percent reported a medical error or adverse event; and 90 percent reported a safety-compromising behavior. After controlling for extraneous variables, the researchers found the odds of injury were 1.9 times greater for fatigued respondents vs. their non-fatigued peers; the odds of [medical errors](#) or adverse events were 2.2 times greater; and the odds of safety-compromising behavior were 3.6 times greater.

Most survey respondents reported working between six and 15 shifts per month, and half reported regular shift lengths of 24 hours. A third of the respondents were regularly working at more than one EMS agency. In the sample, the number of shifts worked monthly was linked to reported errors and [adverse events](#) but not to injury or perceptions of compromised safety. Longer shift hours were not associated with higher odds of negative safety outcomes—perhaps because the study did not measure the varying workloads and ability to rest during each shift, the researchers speculated.

"While further research is needed to examine the association between self-reported and actual safety outcomes, our findings provide preliminary evidence that sleep quality and fatigue are important indicators of EMS safety," said Dr. Patterson. "Our data also suggest that number of shifts and total fatigue, instead of shift length, may be important targets for intervention in this workforce."

Provided by University of Pittsburgh Schools of the Health Sciences

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