

Sustainability | Poster

PP - (20871) - EMOTIONAL AND BEHAVIORAL REACTIONS TO A NATURAL DISASTER: SIMULATION OF A TSUNAMI BY VIRTUAL REALITY

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Research or practical problem and objectives

Risk perception and reaction in natural disaster situations is difficult to grasp, given their sudden and particularly dangerous nature. But the new technologies allow us today to overcome this lack, by exposing individuals to these risks without putting them in any danger. What are the emotional and behavioral reactions during a natural disaster situation? This study aims to highlight individuals' reactions facing a tsunami simulated in virtual reality as danger approaches, also considering the presence of others and their behavior.

Methods and process (for empirical research)

Eighty-eight participants took part in the study. First, each participant completed self-report measures of anxiety and impulsivity. In a second time, they were exposed to a virtual reality tsunami, according to two experimental conditions : one in which virtual people were quietly fleeing danger, another in which they fled danger by panicking. A third control condition did not include any virtual agent. Physiological stress (heart rate and skin conductance) and movement velocity were measured during the virtual exposure. The « disaster » virtual reality scenario is divided into different events according to a pre-established chronology, in order to determine the impact of each on participant's stress and behavior.

Main results preview and importance (or main arguments in the case of critical reviews)

Tsunami exposure had no effect on participants' anxiety. However, they still had physiological stress reactions during the experiment, but their trigger did not occur at the same time as their escape reaction: the participants fled the danger (increased velocity) before they experience physiological stress, whether they were in the presence of others or not.

These results question the relationship between risk, stress and escape behavioral reaction. Escape reaction is not induced by stress reaction, at least in the context of direct exposure to an imminent danger. It would therefore be interesting to highlight other determinants of escape reactions to environmental danger in order to understand the role of each and their interactions.

Palavras-chave : risk perception, natural disaster, stress reaction, escape behavior, tsunami, virtual reality, heart rate, skin conductance