

Isolated psychosis during exposure to very high and extreme altitude

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Researcher Hermann Brugger of Eurac Research (Italy).
Credit: Katharina Huefner

It is relatively well known that mountain climbers can suffer psychotic episodes at extreme altitudes, and has been frequently mentioned in mountain literature. Doctors have generally associated this with acute altitude sickness. But now, emergency medicine doctors from Eurac Research and the Medical University of Innsbruck have carried out an investigation into psychotic episodes at extreme altitudes and subjected these to systematic scientific analysis, thereby discovering a new medical entity: isolated high-altitude psychosis. The results of the study have recently been published in the renowned medical journal *Psychological Medicine*.

When Jeremy S. Windsor was climbing Mount Everest in 2008, he had a very strange experience, which he shared with many other extreme mountaineers. Alone in the high mountains, at a height of 8,200 m, he encountered a man called Jimmy who accompanied him all day long, spoke encouraging words to him and then disappeared

without trace.

Tales like this one are common in Alpine literature. Katharina Hüfner, lecturer at the University Clinic in Innsbruck and Hermann Brugger, Head of the Institute of Mountain Emergency Medicine at Eurac Research have, for the first time, collected around 80 [psychotic episodes](#) taken from German mountain literature and have systematically analysed the symptoms described in them.

Up to now, doctors had attributed the "Third Man syndrome," described above, and other acoustic, optical and olfactory hallucinations, to organic causes. They frequently occur, along with symptoms such as severe headaches, dizziness and impaired balance, as side effects of a high-altitude cerebral oedema. "In our study, we found that there was a group of symptoms that are purely psychotic; that is to say, that although they are, indeed, linked to altitude, they cannot be ascribed to a high-altitude cerebral oedema, nor to other organic factors such as fluid loss, infections or organic diseases," says Hermann Brugger.

Isolated high-altitude psychosis is most likely to occur at heights exceeding 7,000 meters above sea level. Researchers have only been able to speculate on the causes. It is possible that factors such as oxygen deficiency, self-sufficiency, and the early stages of swellings in certain areas of the brain could all be triggers for the psychosis. The symptoms disappear completely as soon as the mountaineer leaves the danger zone and comes down from the mountain. Furthermore, there does not appear to be any consequential damage. "This discovery has allowed us to make a more thorough investigation of temporary psychoses in otherwise completely healthy people, an investigation that might yield important indications for the understanding of psychiatric diseases such as schizophrenia," Katharina Hüfner continues.

The syndrome also increases the risk of accidents.

"It is of the utmost importance that extreme mountaineers are fully apprised of these temporary phenomena," explains Brugger. "There are probably unknown numbers of unreported accidents and deaths caused by psychoses. So as to reduce the number of such accidents, it is of the greatest importance to disseminate cognitive coping strategies which the mountaineers can themselves, or with the help of their partners, apply directly whilst on the [mountain](#)," says Hübner.

Next spring, the researchers will collaborate with Nepalese doctors for further investigations in the Himalayas. They hope to find out, inter alia, how frequently this condition occurs. "The highest mountains in the world are maddeningly beautiful," says Brugger. "It's just that we had no idea that they could actually drive us to madness as well."

More information: Katharina Hübner et al, Isolated psychosis during exposure to very high and extreme altitude – characterisation of a new medical entity, *Psychological Medicine* (2017). DOI: [10.1017/S0033291717003397](https://doi.org/10.1017/S0033291717003397)

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