

Abstract

The ability to recognize and respond appropriately to potentially life-threatening situations is crucial for survival. For that the emotions of fear and disgust play a key role. Theories explaining the easier acquisition of fear to evolutionarily relevant stimuli have underpinned the perceived division of threats into modern and ancestral, but the results of studies attempting to empirically support these theories are not uniform. Also, in this context, an interesting question is the threat of airborne disease, which it is not only unclear whether it belongs to rather ancestral or modern stimuli, but this threat may elicit not only fear but also disgust, the primary emotion of the behavioural immune system. This work focused on the physiological responses of the emotions of fear and disgust, specifically changes in skin resistance induced by visual stimuli representing modern (firearms, toxicity) and ancestral threats (snakes, heights, "disgusting" animals, and spoiled food) and the threat of airborne diseases. Some parameters of these responses and subjective ratings of fear or disgust were analysed and compared across the stimulus categories. The stimuli from each category were then ranked according to the probability and intensity of the subjective emotional response of fear or disgust. The results show that the strength of the emotional response for each stimulus category emerges similarly across the skin resistance parameters. The category of heights showed the highest parameter values, followed by the categories of snakes and weapons, the categories with the highest subjective fear ratings. Conversely, spoiled food came out the lowest, eliciting the greatest disgust. Airborne diseases did not prove to be very strong stimuli, but it seems to elicit higher levels of fear than disgust. Subjective emotion ratings did not correlate with skin resistance parameters within each category (except for the heights), but a nearly linear trend emerged for the effect of overall fear ratings on response probability. The results of this work suggest that fearful stimuli elicit stronger skin resistance responses than disgust-eliciting ones. Ancestral stimuli appear to be more prominent, supporting evolutionary theories, but it also depends on the chosen category of stimuli. Compared to the ancestral and modern threats, airborne diseases did not elicit very similar psychophysiological responses. The response to airborne disease is likely to be quite complex and therefore difficult to capture by skin resistance measurements.