

The effect of coastal exposure and the role of activation on emotions and emotion regulation: An innovative experimental design

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Coastal environments are unique natural landscapes associated with mental health benefits, where people often report greater happiness compared to other environments (MacKerron & Mourato, 2013; Stieger *et al.*, 2022). Such findings are conceptualized in the recent “nature-based biopsychosocial resilience theory,” a fundamental framework describing how nature exposure can promote well-being (White *et al.*, 2023). An important aspect of this theory concerns emotions and emotion regulation strategies (ERSs), two concepts that are linked to changes in mental health outcomes (Pandey & Choubey, 2010; Gross, 2015), along with activation (Morrow & Nolen-Hoeksema, 1990). Therefore, to gain a better understanding of the link between mental health and the coast, a significant step forward lies in examining the role of experienced emotions, ERSs, and activation in this context, an area that remains underexplored.

This study aims to address this research gap through an experimental design using virtual exposure. Four conditions will be compared by combining the following elements: exposure to either a coastal or urban environment, with or without activation (resulting in a 2x2 design). The environmental exposure will take place in a controlled setting within an immersive projection room featuring 360° videos and accompanying audio of a coastal (or urban) environment, providing an innovative solution to the limitations of picture and virtual reality experiments. The immersive projection room controls for random, real-life disturbances, while maintaining a high level of ecological validity. The activation manipulation will also align with real-life contexts. In the activation condition, participants will walk on a treadmill placed in the immersive room, while those in the non-activation condition will remain seated in a chair within the same room. To ensure standardization, a sadness induction will be conducted before the exposure. Following the exposure, emotions and ERSs will be assessed to compare outcomes across conditions.

It is hypothesized that participants will experience positive emotions and use adaptive ERSs in the “coastal exposure” and “activation” conditions (main effects) and that this effect will be stronger for “coastal exposure” and “activation” together (interaction effect). Ethical approval will be sought from the local ethics committee, and the study will be pre-registered to ensure transparency. Based on power calculations, the target sample size will be set at 180 participants. It is anticipated this study will contribute to the understanding of how exposure to a coastal environment influences emotional responses and emotion regulation. This study makes a novel contribution not only by using an immersive room but also by integrating emotion and emotion regulation with activation—bridging two research domains that have rarely intersected in existing literature on the relationship between the coast and well-being. The findings may thus offer valuable insights for policymakers in designing environments that foster mental well-being and highlight the potential health benefits of coastal settings.

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Keywords

Coast; Emotions; Emotion Regulation; Activation; Virtual Exposure; Mental Health; Well-being; Ocean and Human Health