With global life expectancy rising, the incidence of chronic health conditions, such as cardiovascular disease and Alzheimer s disease, is increasing, creating a significant healthcare burden. Exposure to natural environments as a preventive health strategy shows promise for positive health effects, particularly in reducing stress and improving cognitive function. While the health effects of green spaces are well-documented, the physiological effects of coastal environments for older adults remain underexplored. This issue is especially relevant in Belgium, where a large proportion of the coastal population exceeds the age of 65. This study addresses these knowledge gaps by examining the physiological and cognitive effects of coastal walking in older adults using wearable technology. In a randomized cross-over design, 60 participants, aged 60 and older, each complete two 30-minute walks, one in a coastal environment and one in an urban environment in Ostend, with a one-week interval between sessions. Each walk is preceded by 15 minutes of sedentary exposure. Continuous measurements of heart rate variability (HRV) and electrodermal activity (EDA) are collected using the EmbracePlus wristband and the Polar H10 chestband, and GPS coordinates and movements are recorded during the walks. Salivary cortisol levels are assessed at four time points, and cognitive performance is evaluated before and after each exposure using the d2 Test of Attention and the Symbol Digit Modalities Test. Furthermore, self-reported mental health data is gathered pre- and post-exposure. In the first phase of this study, a pilot experiment with 15 participants (ages 21 56, 53% female) was conducted to test and refine the protocol. The pilot study revealed a possible familiarity bias: the urban walk had a more pronounced stress-reducing effect than the coastal walk, potentially due to participants' greater familiarity with the urban environment. Building on these findings, the current study controls for this familiarity bias, while also increasing the sample size and employing more suitable outdoor wearables. It is hypothesized that exposure to the coastal natural environment will have a more pronounced positive effect on (physiological) stress and cognitive function in older adults compared to the urban environment. This study will contribute to the growing body of research on nature-based interventions, offering potential strategies to improve health outcomes in ageing populations.

7.03.P-Tu505 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 form a unique natural landscape associated with mental health benefits, where people often report greater happiness by the coast compared to other environments. Furthermore, emotions, emotion regulation strategies (ERSs), and activation, are all linked to changes in mental health outcomes. Emotions and ERSs are an important component to the recent nature-based biopsychosocial resilience theory, a fundamental framework describing how nature exposure can promote well-being. 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). 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 experiments or virtual reality biases. This method should allow controlling for random, real-life disturbances, while maintaining a higher level of ecological validity compared to less immersive methods. The activation manipulation will also align with real-life contexts. Prior to exposure, a sadness induction will be conducted for standardization, and, post-exposure, emotions and ERSs will be assessed to compare outcomes across conditions. It is hypothesized that participants will experience more positive emotions and use more adaptive ERSs in the coastal exposure and activation conditions (main effects) and that this effect will be even 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. It is anticipated this study will contribute to the understanding of how exposure to a coastal environment influences emotional responses and ERSs. As such, findings may inform policymakers in designing environments that support mental well-being and may increase awareness of the potential health benefits of the coast.