Nightingale: Panic Attacks Treatment

Elkady, Mariem (School: STEM School of Alexandria)
Abowady, Malak (School: STEM School of Alexandria)

This study introduces an innovative intervention using sleep wave simulation therapy to treat panic attacks. Panic disorder is a disabling condition characterized by recurrent, unexpected panic attacks, which often lead to significant disruptions in daily life. While traditional treatments such as psychotherapy and pharmacotherapy exist, their effectiveness is limited due to adverse side effects, making them unsuitable for all patients. To address this gap, our project integrates three key components: a mobile application, a wearable device, and an AI-based processing model. The wearable device detects fingertip numbness by measuring temperature and grip force, generating fingertip heatmaps to identify panic attacks. The mobile application produces simulated therapeutic sleep waves at specific frequencies, based on the formulation of the theoretical framework developed by Elkady et Ashraf (2024). This framework suggests that targeted sleep waves, combined with auditory and visual stimuli, can positively influence neurological development and reduce panic attack severity. The AI model demonstrated high efficiency in processing therapy durations and intensity, achieving a 94% accuracy rate after analyzing data from more than 50 clinical trials. These trials showed a significant reduction in panic attack frequency and intensity among participants using the intervention. These results suggest that sleep wave therapy holds promise as a non-invasive, side-effect-free alternative to conventional treatments, particularly for patients seeking drug-free options.

Awards Won: