

EaseApp: Personalized and Adaptive Mobile App to Treat Misophonia / Inbal Tzafrir

Introduction and Background:

Misophonia is a sound sensitivity disorder triggered by specific sounds, resulting in extreme emotional responses like anger, disgust, and panic. Current treatments range from coping strategies and cognitive behavioral therapy to using hearing devices. However, these treatments are often costly, rely on external sources, and may not be suitable for children.

Procedure:

I explored whether Misophonia symptoms can be reduced through adaptive auditory training. Applying principles of brain plasticity, I developed EaseApp, a mobile app that encourages children to modify their initial reactions to triggering sounds. I coded various video games with personalized soundtracks containing triggering sounds and an adaptive mechanism that modifies these soundtracks based on the child's feedback. This allows children to create positive neurological experiences, build resilience, and reframe their responses over time.

Results:

In an A/B test with 26 children, half diagnosed with Misophonia, participants were divided into a group that played games on EaseApp, and a control group. After six weeks, individuals with Misophonia who played on EaseApp showed a 45.4% reduction in Misophonia symptoms and a 26.7% drop in stress and anxiety levels, both statistically significant.

Conclusion:

Misophonia symptoms can be significantly reduced and self-treated at home using low-cost, personalized, and adaptive tools. This approach represents a major advancement in psychiatric treatment and has the potential to improve the quality of life for many individuals.

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