Optimizing circadian rhythm for well-being: Value co-creation using Machine Learning

Abstract

Purpose

Circadian rhythm is the natural cycle of physical and mental changes that are also termed as the "body's clock." It can affect sleep, appetite, and other important body functions. This study focuses on our health, keeping 'sleep' as a critical factor to provide a reflection on an individual's well-being.

Design

The research uses quantitative data retrieved from various stages of sleep using healthcare IoT devices. It utilizes 'Logistic regression' to develop a Machine Learning (ML) model. Such a predictive model can depict the value co-creation achieved in the healthcare context.

Findings

Abnormal circadian rhythms can be linked to sleep disorders, and analytics on the same may help achieve improved sleep. The proposed research further offers valuable insights into the actors that affect human circadian rhythm.

Implications

A compromised sleep may also have enormous repercussions that may lead to deterioration of health. A data-driven analysis may help people increase self-efficacy and, simultaneously, offer cognitive assistance to health providers. Additionally, the same may reflect on the betterment of blood pressure, cellular growth & cardiovascular efficiency.

Originality

The research contains an experimental setup that deploys data science for predictive analysis. It demonstrates the consideration of crucial actors that could offer enhanced alertness, improved coordination, and quick reaction time, resulting in the well-being of health.

Keywords: *Artificial Intelligence, Data Science, Circadian Rhythm, Sleep Pattern, Well-being*