Chapter 4
Machine Learning-Based Prediction Model for the Measurement of Mobile Addiction

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ABSTRACT

Mobile phones are now one of the most important elements of our lives. We know that they are helpful and enable us to perform different services for our requirements online. But there are limits to everything. It is excessive that we cannot even eat or go to sleep without our mobile phones. According to some statistics, a person uses their mobile phone on average 3 hours and 15 minutes a day. The part of the population that is affected most by this problem is teenagers. Most of them suffer from "nomophobia," which is defined as "the fear of not having a mobile phone." Teenagers are the most impacted by mobile addiction because they cannot manage their screen time and they still have not developed the ability to self-control. According to some research, it is ascertained that 27% of the population who own a mobile phone are people around 11-13 years old that don't turn off their phone, not even to sleep.

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INTRODUCTION

The mobile phone is now one of the most important elements of our lives. They are useful and helpful, enabling us to perform different services for our requirements online. But excessive usage of smartphones can be seriously harmful. There are a lot of research and studies based on mobile addiction and the measurement of the people that are prey to it. One of these studies is the "Machine-Learning Predictive Models for Dependency on Smartphones Based on Risk Factors" research by Giraldo-Jiménez et al. They performed an analytical study on 1228 students from a private university. "The tests were 1) smartphone dependency assessment and 2) the Nordic musculoskeletal symptoms questionnaire." (Giraldo-Jiménez et al). One of the best uses of mobile phones is as educational, learning tools and this use of them has been very common in these past years. But, according to Giraldo-Jiménez et al, online learning via phones has a major impact on student's academic performance, different from traditional learning, which could be a better approach. This study has shown that the rate of excessive use of mobile phones is 38.9%, with young people being a large percentage of this number (G. Kumar et al. 2022). This behavior can result in poor decision-making, inhibition, insomnia, and memory efficiency. The excessive use of mobile phones by this percentage of people can be related to one of the factors such as family, environmental risks, marital status, socioeconomic status, and so on. Regarding socioeconomic status, this study shows that of 385 students that were active phone users, 51.7% were employed whereas the other 48.3% didn't have a job. Xie and Molassiotis concluded from a group of 1500 individuals that "44.8% presented high income, 29.2% medium income and 26% low income, therefore establishing a relationship in the use of the smartphone with a prevalence of 78.9% over the target population" (R. Das Gupta et al. 2022). (Xie & Molassiotis) (Hennig et al., 2014) According to Freitas & Cols, young people that have high family incomes are most likely to develop mobile phone dependency. In relation to the marital status being a factor in mobile phone dependency, from 402 university students, 91.1% were single, 7.9% married, and 1.0% were divorced, leading us to the conclusion that for the percentage of unmarried and divorced students, the loneliness and not having a partner to share their life with, leads to excessive use of mobile phone (D. Singh et al. 2022). The academic program of students can also be a factor in the dependency on mobile devices (Guha et al. 2022). The results conclude that 253 (84.3%) students part of the engineering program show phone dependency, 259 (77.8%) from health school, 150 (50.0%) from economic sciences, and 201 (68.1%) from law school (Chinnery, G et al. 2006) (Burch, Z. A. et al. 2019). When concerned about musculoskeletal discomforts, the statistics show that the most risked part of the body from the excessive use of smartphone is the wrist, with a 95% range. As for other body parts such as the neck, people with smartphone dependency have 1.42