

Title: Drinking Addiction Predictive Model Using Body Characteristics Machine Learning Approach

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Abstract: Alcohol addiction exacts a toll on personal well-being and community dynamics, causing profound losses in health, relationships, and societal well-being. Our study is dedicated to predicting drinkers' types based on body attributes, distinguishing between heavy drinkers and normal drinkers an essential endeavor in ensuring a workforce that aligns with contemporary needs, where alcohol-free and moderate alcohol consumers are crucial for specialized duties. In our rigorous evaluation of machine learning algorithms, Random Forest (Accuracy: 73.08%, F1: 73.36%) and K nearest neighbor (Accuracy: 79.55%, F1: 74.28%) emerge as pivotal tools for accurately identifying drinking patterns. The novelty of our work lies not only in the efficacy of machine learning algorithms but also in the nuanced exploration of individual features. This insight highlights the complexity of predicting drinking patterns and emphasizes the need to refine models for practical applications, ensuring the selection of workers best suited for their roles. This study contributes to the growing body of knowledge on early detection of drinking patterns, addressing the critical demand for a workforce capable of fulfilling specialized duties with alcohol-free or moderate alcohol consumption requirements. Our work, therefore, stands as a proactive response to the evolving needs of industries and workplaces, underlining the importance of aligning personnel attributes with job requirements for enhanced productivity, safety, and overall well-being.

Keywords: Alcohol addiction Drinking pattern prediction Machine learning Random Forest K-Nearest Neighbor (KNN) Workforce suitability

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