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**Problemowe używanie telefonu komórkowego - ocena  
znaczenia czynników osobowościowych oraz roli  
współistniejącego uzależnienia od substancji psychoaktywnych**

**Rozprawa na stopień naukowy doktora nauk medycznych i nauk  
o zdrowiu w dyscyplinie nauki medyczne**

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## Summary

### **Problematic mobile phone use - significance of personality traits and the role of coexisting addiction to psychoactive substances.**

#### **1. Introduction**

Problematic mobile phone use (PMPU) is classified as a technological addiction (a subtype of behavioral addiction) and is associated with numerous somatic and psychological consequences. In the literature the most frequently mentioned are: stiffness and muscle pain, auditory and tactile hallucinations, anxiety, mood swings, sleep quality deterioration or increase in blood pressure. The symptoms of PMPU also include behavioral disorders such as sexting: sending erotic text messages and impulsive sending and willingness to receive photos or recordings of a sexual nature, nomophobia (no-mobile-phone-phobia) a specific phobia defined as the fear of not having a phone within reach or losing it, and FOMO (Fear of Missing Out): a syndrome that occurs among social media users who fear that they will miss something essential.

Personality traits play an important role in the development, duration, and prognosis of all types of addictions. However, it is worth emphasizing that the results of studies on the relationship between personality traits and PMPU are scarce and inconsistent, and the available data is collected mainly from healthy students, which may not accurately reflect the personality profile of all problematic phone users. Research indicates that various addictions (behavioral or from psychoactive substances) may stem from distinct processes involved in personality development. However, it is unclear whether the problematic mobile phone (or Internet) use may be impacted by psychoactive substances use. It is also unknown whether the use of psychoactive substances may influence the relationship between the personality profile and mobile phone use. The above associations seem likely considering that substance use and behavioral addictions may result from the desire to fulfill similar basic human needs (such as stimulation or regulation of negative affect). It seems that the assessment of the relationship between PMPU and addiction to psychoactive substances and personality traits will allow us to better understand the essence of this behavioral disorder. Therefore, the aim of this study was to investigate the relationship

between personality traits and PMPU, and to assess whether addiction to psychoactive substances moderates this relationship.

## **2. Objectives and hypothesis**

The overall objective of the study was to review the knowledge about problematic mobile phone use, to assess the prevalence of use of new technologies (mobile phone and Internet) in various research groups, and to analyze in detail the relationship between PMPU and personality traits in relation to the coexisting addiction to psychoactive substances.

Detailed objectives and research hypotheses:

### **Objective 1:**

To assess the mobile phone and Internet use among individuals addicted to psychoactive substances, patients treated for mental disorders and medical students.

### **Hypothesis 1:**

There is a significant relationship between problematic mobile phone / internet use and psychoactive substances use and symptoms of mental disorders.

### **Objective 2:**

To analyse the relationship between personality traits and problematic mobile phone use in a healthy control group (medical students).

### **Hypothesis 2**

In the healthy control group (medical students), extraversion, neuroticism and low openness to new experiences are associated with problematic mobile phone use.

### **Objective 3:**

To analyse the relationship between personality traits and problematic mobile phone use in a group of individuals addicted to psychoactive substances.

**Objective 4:**

To compare the relationship between the use of a mobile phone and personality traits in the group of healthy individuals and subjects addicted to psychoactive substances.

**Hypothesis 3, 4:**

A priori hypotheses were not generated due to the lack of previously performed studies analyzing these relations.

**3. Material and methods**

The current data comes from a sample recruited among individuals diagnosed with psychoactive substance addiction (mainly opioids), entering an inpatient detoxification ward, and patients with mental disorders (recruited in a mental health outpatient clinic and adult general psychiatric units). Among the latter, the dominant diagnoses according to ICD-10 were: personality disorders, anxiety disorders, adjustment disorders, mood disorders and schizophrenia. The control group consisted of medical students who did not meet criteria of addiction to psychoactive substances. A total of 151 patients diagnosed with addiction to psychoactive substances, 183 patients of psychiatric wards and 554 healthy controls (students) were recruited for the study. The following questionnaires were used to evaluate the studied variables: 1) MPPUS-10 (*Mobile Phone Problem Use Scale-10*) to assess problematic mobile phone use; 2) MPAAQ (*Mobile Phone Addiction Assessment Questionnaire*); 3) IAT (*Internet Addiction Test*) to assess internet addiction; 4) Personality inventory NEO-FFI (*NEO-Five Factor Inventory*); 5) DUDIT (*Drug-Use Disorders Identification Test*- to assess drug addiction).

## 1. Results

- a) There were no significant differences in the level of problematic mobile phone use assessed using the MPPUS-10 scale between the group of people addicted to psychoactive substances, patients treated for mental disorders and medical students.
- b) Significantly higher results in the level of problematic mobile phone use assessed using the MPAAQ scale were observed in the substance use disorder group compared to the control group ( $p < 0.001$ ) and patients with mental disorders ( $p < 0.001$ ).
- c) Individuals addicted to psychoactive substances were significantly more neurotic, less open to new experiences, less conscientious and less agreeable than those in the control group (students).
- d) In the case of neuroticism and openness to new experiences, addiction to psychoactive substances moderated the relationship between personality traits and the severity of PMPU.
  - e) Greater neuroticism and openness to new experiences were significantly associated with more excessive PMPU in the control group.
- f) Among individuals addicted to psychoactive substances, greater openness to new experiences was a protective factor against PMPU. However, no relationship was found between neuroticism and PMPU in this group.
- g) In the group of subjects addicted to psychoactive substances and in the control group the use of the Internet and mobile phone were significantly correlated.
- h) Addiction to psychoactive substances significantly moderated the relationship between neuroticism and openness to new experiences and the intensity of Internet use, according to the model for PMPU.

## **2. Conclusions**

1. The relationship between problematic mobile phone use and comorbid mental disorders, including coexisting addiction to psychoactive substances, is unclear and requires further research.
2. High levels of neuroticism, extraversion and openness to new experiences are significantly associated with a greater risk of problematic mobile phone use in healthy individuals.
3. In individuals addicted to psychoactive substances, lower openness to new experiences is significantly related to the greater risk of problematic mobile phone use.
4. In the substance use disorder group greater openness to new experiences was a protective factor against problematic mobile phone use, there was no relationship between neuroticism and problematic mobile phone use.
5. The presence of substance use disorder symptoms may affect the association between personality traits and mobile phone use.

### **Additional conclusion:**

6. The associations described for the use of the Internet are consistent with the observations regarding the use of a mobile phone.

