

# Development of A Medical Information Model for Mitigation of Smartphone Addicted Patients in Urban Area

Seong-Ran Lee\*

\*Dept. of Medical Information, Kongju National University

e-mail:leesr@kongju.ac.kr

## 도심지역 스마트폰 중독환자들의 완화를 위한 의료정보의 모델 개발

이성란\*

\*국립공주대학교 의료정보학과

### Abstract

This study is to develop a model of medical information for mitigation of smartphone addicted patients in urban. The subjects of the study conducted a survey and an interview with 72 people who visited the neuropsychiatric department of a general hospital from June 12 through August 14, 2025. Symptoms and practices before and the application of medical information were performed by a t-test. The results of this study are as follows. Firstly, the average time and limit of smartphone usage was 21.53 points after application of medical information, which was significantly lower than the average 34.97 points before application( $t=-4.16$ ,  $p<.05$ ). Secondly, anxiety decreased significantly from the 18<sup>th</sup> compared to before the application of medical information. The results of this study proved that the application of medical information is effective in alleviating smartphone addiction.

## 1. Introduction

Smartphones have become commonplace in banking, contact etc[1]. Smartphones have become very convenient in everyday life in the modern era when smartphones are common. However, as we are overly obsessed with mobile phones, smartphone addiction is pointed out as one of the serious social problems among modern people. Smartphone addiction goes beyond simple habits and can interfere with daily life and negatively affect sleep, mental and physical health[2]. Measures need to be taken to cure smartphone addiction.

Previous studies have analyzed only the symptoms of smartphone addiction[2],[3]. Therefore, this study is to develop a model of medical information for mitigation of smartphone addicted patients in urban area.

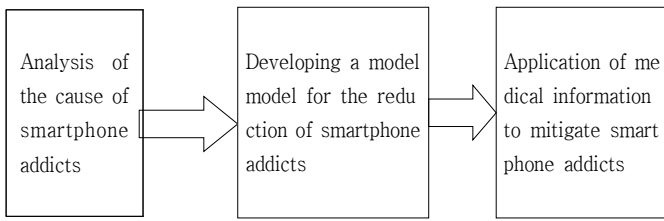
## 2. Material and Methods

### 2.1 Materials

The subjects of the study conducted a survey and an interview with 72 people who visited the neuropsychiatric department of a general hospital from June 12 through August 14, 2025. Figure 1 presents the development of a medical information model to alleviate smartphone addiction.

### 2.2 Methods

Symptoms and practices before and the application of medical information were performed by a t-test. On the other hand. A t-test was analyzed to compare the symptoms of smartphone addicts over time. The measurements of smartphone addicts over time were 9, 18, 27 and 36 before and after the application of medical information. The experimental group is classified as the group that applied medical information management, and the control group is classified as the group that did not apply medical information management.



[Fig. 1] Development of A Medical Information Model to Mitigate Smartphone Addiction

### 3. Results

#### 3.1 Before and after the application of medical information on symptoms of smartphone addicts.

Table 1 shows before and after the application of medical information on the symptoms of smartphone addicts. The average time and limit of smartphone usage was 21.53 points after application of medical information, which was significantly lower than the average 34.97 points before application ( $t = -4.16, p < .05$ ).

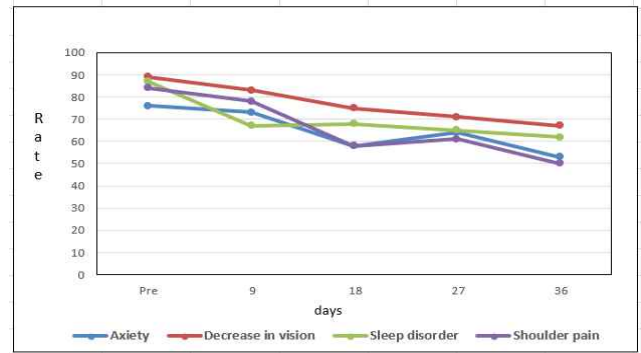
[Table 1] Symptoms and practices before and after application of the medical information

Variables	Pre	Post	t
Smartphone usage time and limit	34.97±2.08	21.53±1.86	4.16*
Smartphone minimizing access	33.15±4.26	27.48±3.23	1.82
Alternative activities and rest areas	30.83±0.37	23.19±0.45	3.17
Silent/airplane mode	15.44±2.51	31.54±1.38	-1.46**
Number of encounters	24.18±3.46	26.37±3.51	3.19
Time spent at home	28.61±0.52	24.95±0.27	1.72
Meditation	19.08±4.15	31.53±3.62	-3.25
Symptoms			
Decrease in vision	33.91±0.63	31.75±0.49	1.63
Shoulder pain	31.57±2.51	24.18±3.45	3.47
Sleep disorder	29.14±0.48	23.76±2.63	2.53
Shoulder pain	27.63±3.19	26.18±3.47	1.86

\*  $p < 0.5$ , \*\*  $p < 0.01$

#### 3.2 Comparison of the symptoms of smartphone addicts over time

Figure 2 compares the symptoms of smartphone addicts over time. Sleep disorder decreased significantly after 9 days of application compared to before application of medical information. Anxiety decreased significantly from the 18<sup>th</sup> compared to before the application of medical information.



[Fig. 2] Comparison of the symptoms of smartphone addicts over time

### 4. Discussion

This study is to measure of the medical information for mitigation of smartphone addicted patients in urban area. As a result, smartphone usage time decreased significantly after application compared to before medical information. This was found to be similar to previous studies on the prevention of internet addicts[3],[4]. To alleviate smartphone addiction, should start with ‘recognition and recording’ change the usage environment, increase alternative activities, and receive professional counseling if necessary.

In this study, sleep disorder has been decreased after application than before medical information was applied. This is a similar result to the cataract in previous studies[5],[6]. It has been reported that melatonin secretion is reduced by more than 38% when using a smartphone. Therefore, it is necessary to provide medical information so that the smartphone is not used an hour before sleeping. As a result of this study, shoulder pain tended to decrease after application than before application of medical information. This was similar to the results of previous studies showing that diseases occur in people who does not move.

Smartphone addiction emphasizes a step-by-step response system for preventive education, counseling, and healing. The results of this study proved that the application of medical information is effective in alleviating smartphone addiction. The key to developing a model for alleviating smartphone addiction is to specify the cause of addiction(notification, design, and social factors) and to design and verify interventions that control usage and environment.

## References

- [1] A. Tuba, G. C. Melis and Y. C. Ozaydin, “Servational Study Medicine (Baltimore)”, Nov 14:104, p. 46, 2025.
- [2] L. Yanzhi, L. Yi-F, W. Herui, Y. Liwen, Z Liwan, S, Xinchang, D, W. Wanxin, Y. Lei, Y. Bin, and L. Ciyong, “Changes in Smartphone Dependence and Depressive and Anxiety Symptoms Among Chinese Adolescents”, BMC Med Sep 30:23(1), p.523, 2025.
- [3] A. Tuba, G. C. Melis, O, Sefa and C Yilmaz, “The Relationship Between smartphone Addiction and Sleep Quality in Patients with Epilepsy in the Digital Age”, Medicine, Nov 14, p.104, 2025.
- [4] M. Johan, G. Tove, W. Maria, D. H. Markku and A. Karl, “Smartphone-based Drug Testing in the Hands of Patients with Substance-use Disorder A Usability Study”, Distal Health, Sep 2:6, 2024
- [5] E. E. Ibrahim and B. Gokhan, “ The Effect of Smartphone Addiction on Vessel Wall Thickness, Which is A Predictor of Atherosclerosis”, Cardiol Young, Mar:34(3), pp. 559–562, 2024
- [6] A. B. Taylor, E. D. Sarah, E. C. Paul, R. Magdalena, B. Aubrey, W. Jennifer and N. Jacqueline, “Reactions to Naturalistic Smartphone Deprivation Among Psychi atrically Hospitalized A Doldescents“, J Psychiatr Res. Nov:155, pp. 17–23, 2022.