



The Effect of Mindfulness Training on Mobile Phone Addiction in College Students

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Abstract. The relationship between modern science and technology and human civilisation has always been one of the topics of general concern in society. Mobile phone addiction is now very common in universities, and it has serious impacts on the physical and mental health of university students. There is currently a great deal of interest in positive thinking as an effective way to correct addictive behaviour. Since it is an easy-to-implement and highly feasible intervention, positive thinking training has been widely used as a new intervention in the medical and educational fields. This paper provides a systematic review of research on mobile phone addiction and positive thinking training among university students between 2015 and 2021, indicating whether positive thinking training is effective for the treatment of mobile phone addiction, the mechanism of action and whether this effect is long-lasting.

Keywords: Key words: Mindfulness training, smartphone addiction, college students, review paper, health psychology

1 Introduction

According to a report released by the China Internet Network Information Center, by December 2021, the number of mobile phone Internet users in China reached 1.029 billion, an increase of 43.73 million from December 2020, and the proportion of Internet users using mobile phones to access the Internet was 99.7%[1]. Mobile phones have gradually and slowly integrated into our daily lives, and this trend is still growing. However, in 2020, the daily mobile phone contact time per adult national in China is 100.75 minutes, an increase of 0.34 minutes compared to 100.41 minutes in 2019; the daily Internet contact time per capita is 67.82 minutes, an increase of 1.77 minutes compared to 66.05 minutes in 2019, which also shows that Chinese residents are spending a lot of time on mobile phone use[2]. As for the mobile phone use of university students, the China Communist Youth League conducted a survey on the amount of time university students spent on mobile phones (including the cumulative time spent on making phone calls, sending text messages, surfing the Internet and playing games) every day, and the results showed that 31.3% of students spent more than 2 hours cumulatively, 28.3% spent between 1 and 2 hours, 37.9% spent less than 1 hour, and only 2.5%. There are differences between grades, with the higher the grade

the less time they spend on their mobile phones each day, male students spending slightly more time on their mobile phones each day than female students, and arts students slightly more than science students. According to the survey, 11% of university students spend more than one hour on the phone, 25.1% spend between 30 minutes and one hour, 35.6% spend less than 30 minutes, and 28.3% do not make any phone calls.

Due to the portability, speed, convenience, personalization, and aggregation of functions of smartphones. [After all, a device that follows people around is likely to be a better vehicle for addiction. For example, in Adrian f. waded's experiments, it was concluded that even when people successfully avoided the temptation to check their phones, these devices still reduced available cognitive capacity [4]. In the experiments of Yang Ding, Li Yun and Mei Dongmei, it was clearly shown that the higher the level of mobile phone addiction among university students, the more lonely they felt, and that girls experienced higher levels of mobile phone addiction and loneliness than boys. [5]

According to a report released by the China Internet Network Information Center, by December 2021, the number of mobile phone Internet users in China reached 1.029 billion, an increase of 43.73 million from December 2020, and the proportion of Internet users using mobile phones to access the Internet was 99.7%[1] Mobile phones have gradually and slowly integrated into our daily lives, and this trend is still growing. Moderate use of mobile phones can provide great convenience to our lives, but excessive use of mobile phones can obviously have a huge negative impact on our physical and mental health[6]

2 Definition of mobile phone addiction

Mobile phone addiction is also called mobile phone dependence, problematic mobile phone use, no mobile phone anxiety, mobile phone syndrome, etc. Scholars are currently defining the problem of mobile phone addiction from their own research perspectives, so there is no uniform concept proposed by scholars about mobile phone addiction.

Liu Qinxue et al. summarised four common characteristics of "smartphone addiction" based on previous studies: loss of control of behaviour, psychological dependence, psychological withdrawal symptoms and adverse effects on real life [4]. Su Shuang et al. defined mobile phone addiction as the misuse of a smartphone that leads to problematic psychological and behavioural problems for mobile phone users. Mobile phone addiction, also known as mobile phone dependence or problematic mobile phone use, has become a worldwide phenomenon[7].

Some foreign scholars, such as Young, consider technology addiction to be a state of excessive use of a technology that results in a high level of psychological dependence, while Walsh, white and mcd young suggest that mobile phone addiction is an uncontrollable desire to use a mobile phone.

3 The dangers of mobile phone addiction

The dangers of mobile phone addiction manifest themselves in a number of ways, firstly mobile phone addiction can affect our cognitive functioning to a large extent in a study by Andrian F. Ward, Kristen Duke, Ayele Gnitz and Marten found that people even if they avoided the temptation to check their phones the presence of these devices reduced available cognitive abilities and more importantly, these cognitive costs were highest for those with the highest levels of smartphone dependence were highest for those with the highest levels of smartphone dependence [5]. In her experiment, Kang Yunxi confirmed that college students with higher mobile phone addiction scores had lower test scores and ranked lower in age. In addition, low mobile phone addicts had better sleep quality and better concentration than high mobile phone addicts; low mobile phone addicts were more likely to perceive positive emotions; high mobile phone addicts were more aware of the role of ability in academic attributions, but were also more likely to attribute good grades to luck and external circumstances. [8]

4 Positive thoughts

4.1 Definition of positive thinking

The term "positive thinking" is of Buddhist origin and originally connoted "awareness", "attention" and "remembering". (Wang Fen, Huang Yuxia). [9] Kabagin defines mindfulness as the process by which an individual pays intentional, non-judgmental attention to the experience of the here and now. Positive thinking interventions such as meditation training can significantly increase an individual's level of positive thinking [10]

4.2 The direct effect of positive thinking on mobile phone addiction

Li Li, Niu Zhimin and Mei Songli used the Mindfulness Awareness Scale, Smartphone Addiction Scale, barratt Impulsivity Scale and Anxiety Self-Rating Scale to conclude that positive cognitive behavioural group therapy was effective in improving smartphone addiction, impulsivity and anxiety in medical students and enhancing individual mindfulness awareness levels [11-13]. Zhang Xiaoxu and Zhu Haixue found that college students' total mobile phone dependence withdrawal scores were significantly reduced and the level of positive thinking was significantly increased after exposure to positive cognitive therapy training. [14] Daioi suggested that positive thinking training improved the level of positive thinking of mobile phone dependent people and that positive thinking training was effective in reducing the level of mobile phone dependence and craving of mobile phone dependent people. [15]

4.3 Effect on mood

Lien Shuailei, Feng Quanshang et al. investigated the relationship between mobile phone addiction, irrational procrastination and depression and anxiety by using questionnaires, the Positive Stress Scale and the Depression and Anxiety Stress Scale and concluded that mobile phone addiction, irrational procrastination, depression and anxiety were significantly positively correlated with each other and negatively correlated with positive thoughts, and that mobile phone addiction not only directly predicted depression and anxiety, but positive thoughts even moderated the relationship between mobile phone addiction and depression. However, the moderating effect on the relationship between mobile phone addiction and anxiety was not significant. [16] Liu Yunbo also investigated the effect of mobile phone addiction on anxiety and depression through a questionnaire, but showed that there were gender differences in mobile phone addiction, with boys having a slightly higher level of addiction than girls, and Liu Yunbo graded the level of positive thoughts. The study also showed that the effects were only significant among adolescents with moderate and low levels of positive thinking, but not among adolescents with high levels of positive thinking. [7] Sheng Yuanyuan in 2019 showed that smartphone problems were negatively associated with levels of positive thoughts and positively associated with levels of depression, and levels of positive thoughts were negatively associated with levels of depression; the higher the levels of positive thoughts, the lower the tendency to use smartphone problems, and positive thoughts may be a protective factor for problematic smartphone use. [18] Bajaj et al. showed that positive thinking is effective in increasing positive emotions and life satisfaction, and can significantly reduce anxiety and depression, with self-esteem and mental toughness playing a mediating role. [19] As a protective factor for individual development, positive thinking is likely to mitigate the effects of mobile phone addiction on adolescent anxiety and depression, and individuals with low levels of positive thinking are more sensitive to mobile phone

4.4 Effects on cognitive function

Current research in the area of cognitive personality focuses on the relationship between demographic variables, personality traits, loneliness, self-esteem and social support, procrastination, academic burnout, and sleep quality.

Some of the previous studies on demographic variables have shown that gender and age do not have a serious impact on mobile phone addiction, therefore, there is no strong association between basic personal characteristics such as gender and age and the tendency to become addicted to mobile phones. The degree of mobile phone addiction was the most severe among freshmen and the lowest among postgraduates. [8] In Kang Yunxi's experiment, it was shown that the positive thinking intervention could reduce people's addiction to mobile phones. After 8 weeks of training, the participants' level of positive thinking was significantly improved. After the intervention, most people were able to consciously control their mobile phone use and reduce their anxiety about not being able to use their mobile phones for external reasons. By improving one's ability to accurately describe one's reactions and focus on the present moment,

one is able to adopt a non-judgmental attitude towards thinking and feeling, thereby regulating one's emotional well-being and improving one's cognitive development. It is likely that the mechanisms that produce action in the five dimensions of positive thinking are acting consciously and not judging. [8] Chen Nia, Chen Jingyi, Zhu Lifang, Lin Haiting, and Xu Xiaotong found that mobile phone dependence was significantly and negatively related to attentional control and positive thought perception, respectively. [17] Individuals with more severe mobile phone dependence had lower attentional control, which is consistent with the findings of Chai et al [20]. Over-dependence on mobile phones leads to automatic activation of the bodily attachment system, which hinders the cultivation of positive thoughts, thus having a greater impact on their self-judgment in the present moment and weakening their ability to be aware of positive thoughts. In addition, mobile phone dependent individuals spend a lot of time on their phones, which affects the quality of their sleep, and difficulties in falling asleep and poor sleep quality induce a significant reduction in the individual's ability to pay non-judgmental attention to internal and external experiences, i.e. the ability to maintain positive thoughts is diminished. [15] Attentional control partially mediates the relationship between mobile phone dependence and positive thought perception in university students. In other words, mobile phone dependence can indirectly affect the ability to perceive positive thoughts through attentional control. Mobile phone dependence had a negative effect on attentional control, as a variety of behaviours in the experimenter's daily activities depleted mental resources, such as excessive use of mobile phones for entertainment and social interaction[17] . The individual's inability to focus and shift attention and to use resources flexibly results in severe attentional concentration deficits, while poor attentional control reduces the ability to think positively, resulting in a series of knock-on effects. Thus, attentional control partially mediates the relationship between mobile phone dependence and positive perception, and is the link between mobile phone dependence and positive perception.

4.5 Role for physiology

Liu Qingqi, Zhou Zongkui, Niu Qianfeng, Fan Cuiying et al. used positive thinking as a mediating and moderating role in their study exploring mobile phone addiction and adolescent sleep quality. In their study, [21] they found that the direct effects of mobile phone addiction on sleep quality and the mediating effect of emotional balance were weaker in adolescents with higher levels of positive thinking compared to those with lower levels of positive thinking. Previous studies have suggested that positive thinking traits not only contribute positively to individual self-development and psychosocial adjustment, but also play a protective role in the effects of negative factors on individuals' physical and mental health. [16]

5 Conclusion

This article systematically summarises the definition and mechanisms of the harm caused by mobile phone addiction, and examines the relationship between positive thinking training and the direct effects of mobile phone addiction and whether positive thinking training can intervene with the cognitive, emotional and physical effects of mobile phone addiction. Overall, most studies have shown a negative association between mindfulness training and mobile phone addiction, and that the effect of mindfulness training on mobile phone addiction is affected by the level of the mindfulness practitioner. Usually in studies of mobile phone addiction it is obtained that mobile phone addiction is related to gender but some experiments have found that the effect of positive thinking training on mobile phones is strongly related to demographic factors, for example, in a study by Liu Hong and Wang Hongli on the tendency of mobile phone dependence and loneliness among university students, it was found that the addiction rate of female students was lower than that of male students and the addiction rate in urban areas was higher than that in rural areas. . [22] This article mainly summarizes the previous viewpoints, and through such a summary can better provide a reliable theoretical basis for future positive thinking training for the treatment of mobile phone addiction. Some of the limitations of the article are due to the fact that the referenced literature itself has certain limitations review literature cannot improve the limitations of the article. For example, in the study of the relationship between mobile phone dependence, attentional control and positive thinking awareness among university students by Nia Chen and Jingyi Chen et al. there is a single research method, with only a cross-sectional design and no longitudinal study or follow-up survey. [17] In their study of the effects of positive cognitive therapy on mobile phone dependence among college students, mobile phone use itself had little impact on the social functioning of individuals due to the portability and lack of time and space constraints of mobile phones, even though they were dependent. Due to the increasing impact of mobile phone addiction on society, it is important to address the problems associated with mobile phone addiction in a scientific and rational manner. Therefore, conducting such a research summary can provide more intuitive information for future research.

6 Reference

1. CNNIC: The 49th Statistics of China's Internet Development in 2022 www.199it.com/archives/1405773.html
2. Results of the 18th National Reading Survey released
3. Research Report on College Students' Use of Mobile Phones - China Communist Youth League (gqt.org.cn)
4. Liu Q X, Yang Y, Lin Y, Yu S, Zhou Zong Kui. Smartphone addiction:concept, measurement and influencing factors[J]. Chinese Journal of Clinical Psychology,2017,25(01):82-87.DOI:10.16128/j.cnki.1005-3611.2017.01.019.

5. Adrian F. Ward,Kristen Duke,Ayelet Gneezy,Maarten W. Bos. Brain Drain: The Mere Presence of One's Own Smartphone Reduces Available Cognitive Capacity[J]. Journal of the Association for Consumer Research,2017,2(2).
6. Yang D,Li R,Mei D,Me Dongmei. The relationship between mobile phone addiction and loneliness among college students [C]//. Collection of abstracts of the Twenty-third National Psychology Conference (below). [Publisher unknown],2021:399-400.DOI:10.26914/c.cnkihy.2021.040055.
7. HE Jinbo, CHEN Changrun, BAO Yuanchun, LEI Yuju. Measurement, harms and mechanisms of adolescent mobile phone dependence[J]. Chinese Journal of Clinical Psychology,2012,20(06):822-825.DOI:10.16128/j.cnki.1005-3611.2012.06.013.
8. Liu Yunbo. The effect of mobile phone addiction on adolescent anxiety and depression: the moderating role of positive thinking [D]. Huazhong Normal University,2017.
9. Kang Yunxi. Study on the impact of mobile phone addiction on academics and positive thinking intervention among college students[D]. Xi'an University of Technology, 2020. DOI:10.27391/d.cnki.gxagu.2020.000206.
10. Wang F, Huang YX. Why journaling can improve mood[J]. New Education,2017(27):20.
11. Hanstede Marijke,Gidron Yori,Nyklicek Ivan. The effects of a mindfulness intervention on obsessive-compulsive symptoms in a non-clinical student population.[J]. The Journal of nervous and mental disease,2008,196(10).
12. Shi Junyu. A review of research on mobile phone addiction among college students[J]. Science and Education Wenhui(A late issue), 2020(01):37-38.DOI:10.16871/j.cnki.kjwhc.2020.01.018.
13. Su Shuang, Pan Tingting, Liu Qinxue, Chen Xiaowen, Wang Yujing, Li Mingyue. Preliminary development of a smartphone addiction scale for college students[J]. Chinese Journal of Mental Health,2014,28(05):392-397.
14. Li L, Niu C-M, Mei S-L. Positive cognitive behavioral group therapy for smartphone addiction among medical students in a group counseling program[J]. China Higher Medical Education,2017(05):37-38.
15. ZHANG Xiaoxu,ZHU Haixue. Impulsive behavioral characteristics of mobile phone dependent people and their psychological mechanisms[J]. Journal of Anhui University of Technology (Social Science Edition),2017,34(05):117-119.
16. Dai Yuan. A randomized controlled study of positive thinking training to reduce the level of mobile phone dependence in mobile phone dependent people[D]. Zhejiang Normal University,2018.
17. Lian Shuailei,Feng Quanshang,Yan Jinglei,Zhang Yanhong. The relationship between mobile phone addiction, irrational procrastination and depression and anxiety: the protective role of positive thinking[J]. Chinese Journal of Clinical Psychology,2021,29(01):51-55+18.DOI:10.16128/j.cnki.1005-3611.2021.01.010.
18. Chen Nia, Chen Jingyi, Zhu Lifang, Lin Haiting, Xu Xiaotong. A study on the relationship between mobile phone dependence, attention control and positive perception among college students[J]. Journal of Guizhou Normal University,2020,36(12):38-44.DOI:10.13391/j.cnki.issn.1674-7798.2020.12.007.
19. Sheng, Yuan Yuan. The protective effect of positive thinking on the problematic use of smartphones among college students [D]. Tianjin Medical University,2019. doi:10.27366/d.cnki.gtyku.2019.000326.
20. Badri Bajaj,Richard W. Robins,Neerja Pande.Mediating role of self-esteem on the relationship between mindfulness, anxiety, and depression[J]. Personality and Individual Differences,2016,96.

21. Chai XY, Ke YY. The relationship between sameness style, self-control and mobile phone dependence among college freshmen who begin adulthood[J]. Chinese Journal of Health Psychology,2015,23(06):881-885.DOI:10.13342/j.cnki.cjhp.2015.06.023.
22. Liu QQ, Zhou ZQ, Niu QF, Fan CuiY. Mobile phone addiction and adolescent sleep quality:An analysis of mediating and moderating effects[J]. Journal of Psychology,2017,49(12):1524-1536.
23. Liu H, Wang H-L. Mobile phone dependence tendency and loneliness among college students[J]. Chinese Journal of Mental Health,2012,26(01):66-69.

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