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EFFECTIVENESS OF COGNITIVE BEHAVIOUR THERAPY IN IMPROVING SELF ESTEEM AMONG SMARTPHONE ADDICTS - A PILOT STUDY

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ABSTRACT

This study aims to determine the effectiveness of CBT in improving self-esteem among smartphone addicts and to determine whether there is a correlation between the levels of self esteem and smartphone addiction. This study was conducted among college students (17-21). Pre-test and post-test assessments were obtained using Smartphone Addiction Inventory (SPAI) and Rosenberg Self Esteem Scale (RSE). A comprehensive 8 weeks CBT program was given in three-phase approach - Behaviour modification, Cognitive restructuring, Harm reduction therapy. Additionally, coping strategies were also taught to participants.Wilcoxon Signed Rank test was used to find the significant difference with p value of 0.001 result shows that there is a significant difference between pre and post-test values of the RSE score. Pearson correlation test was used to find out the correlation between levels of self-esteem and Smartphone addiction with r value of -0.488 in pre-test and - 0.958 in post-test, there exists a negative correlation between SPAI and RSE i.e., after intervention when the level of Self-esteem is increased there is a significant decrease in the level of Smartphone Addiction. Hence CBT is effective.

KEYWORDS: *Smartphone Addiction, Self Esteem, Cognitive Behavior Therapy.*

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INTRODUCTION

World's most rapidly growing cyber addicts are among smartphone use. Smartphones have completely changed the way people interact. Now, the mobile phone has become part and parcel of many people's lives.[1] A Smartphone is a term for distinguishing mobile phones with advanced features from basic feature phones.[2] Modern Smartphone's currently include all the features of a laptop, including web browsing, Wi-Fi, and third party apps etc. [3] Addiction is considered by WHO (WHO Expert Committee - 1964) as dependence, as the continuous use of something for the sake of relief, comfort, or stimulation, which often causes cravings when it is absent.[4] Among many technologies related to addictions, smartphone addiction is newer and more serious today.[5] A new kind of health disorder in this category among adolescents, "smartphone's addiction/ abuse/misuse" is now challenging health policy makers globally to think on this rapidly emerging issue.[3] Smartphone abuse is increasing in more and more adolescents who enjoy exploring their Smartphone's in their free hours. New research in US suggests that excessive use of Smartphone's, increases the risk for severe psychopathologies in adolescents and there is growing evidence of problematic use of Smartphone's that impacts both social and health. Due to globalization and extensive modernization, studies indicate that Indian adolescents were also affected by high smartphone engagement.[6] People who are addicted to the Internet make intense and frequent use of the Internet both in terms of days per week.[7] In DSM-5 internet gaming disorder was included in 2013.[8] Smartphone overuse seems to be affecting an increasing number of adolescents and young adults, who dedicate more and more time and attention to using these devices (eg. playing games, e-mailing, surfing the web, gambling, listening to music, watching videos, sending real-time chat messages, etc.), and whether or not particular aspects of their application are more common than others.[9] In addition, a variety of adverse health effects such as depression, social anxiety, low self-esteem, insomnia, hyperactivity or conduct problems, unhealthy lifestyle extrovert or neurotic personality traits, and maternal affectionate constraint in childhood have been associated with different forms of smartphone overuse.[10] At this point, emerges the importance of self-esteem.[11] Although neuroticism could not predict higher use or problem use, extraversion and low self-esteem appear to be important factors[12] and a recent study shows that there is a significant relationship between self-esteem and Smartphone addiction.[13] Therefore, it is thought that individuals' self-esteem levels may be a significant determinant of Smartphone addiction. Cognitive-behavioural therapy (CBT) has the best evidence base of all psychotherapeutic treatments.[14] Because cognitive therapy is more than a set of techniques, and incorporates the role of emotions and the therapeutic alliance into a working paradigm for people wanting change.[15] Cognitive behavioural therapy (CBT) has been suggested in treating Internet addiction as this modality has been shown to be an effective treatment for similar impulse control disorders. Their use in the context of "Internet addiction" appeared then as a potentially useful strategy. This is the right time to find a way to rehabilitate people from smartphone addiction at national level. Since there is no evidence based intervention in the field of Smartphone Addiction, the present research is aimed at experimenting the effectiveness of cognitive behaviour therapy in improving self-esteem for persons with Smartphone Addiction.

Need for the study

Since there is no appropriate intervention in the field of Smartphone Addiction, the present research is aimed at experimenting the effectiveness of CBT in improving self-esteem among Smartphone addicts and to correlate between the levels of self-esteem and smartphone addiction. Aim of the study is to determine the effectiveness of Cognitive behaviour therapy in improving self-esteem among Smartphone addicts and to determine whether there is a correlation between the levels of self-esteem and smartphone addiction. Hypothesis of the study is that CBT will be effective in improving self-esteem for persons with Smartphone addiction and there will be a negative correlation between the levels of self-esteem and smartphone addiction.

METHODS AND MATERIALS

A Quantitative, quasi experimental design and non-probability convenient sampling procedure was done for the selection of sample. The total sample size taken was 30. Participants should be aged between 17 - 21 years. Married students and students with other psychiatric disorders like depression were excluded. Informed consent form was obtained from each subject duly filled and signed.

Instrumentation
SPAI – Smartphone Addiction Inventory

The measure is a 26-items self-report assessment. Each question is scored on a Likert-type scale from 1 (very unfit) to 4 (very much fit). Test–retest reliabilities (intraclass correlations =0.74–0.91) and internal consistency (Cronbach's alpha =0.94) were all satisfactory. Total score of the scale is 104. Cut off score of 64 and above indicates smartphone addiction.

Rosenberg Self-esteem Scale (RSE)

The measure is a 10-items self-report assessment. Each question is scored on a Likert-type scale from 1 (strongly agree) to 4 (strongly disagree). The RSE demonstrates a Guttman scale coefficient of reproducibility of 0.92, indicating excellent internal consistency. Test-retest reliabilities correlations of 0.85 and 0.88, indicating excellent stability. Total score of the scale is 30. Scores below 15 suggests low self esteem

Procedure

College students were recruited based upon the inclusion and exclusion criteria.The purpose of the study was explained to the students. Demographic details were obtained. College students were screened with SPAI to quantify the extent of Smartphone Addiction. RSE was administered to assess the level of self esteem in participants with Smartphone addicts. Participant consent form was duly filled and signed.

Intervention
CBT uses a three-phase approach.

Phase 1
Behaviour modification
First assesses the participants' current use of the Smartphone. A Daily Smartphone Log can be used to evaluate Smartphone maladaptive behaviour and to establish a baseline for treatment. Participants are asked to record the date and time of each session, the antecedent events leading up to logging online, and the type of activity accessed (e.g., e-mail, chat, applications like Facebook, what's app, sites, stock quotes, online shopping, random Web surfing). Smartphone restructuring, or an entire reorganization of how one actually uses the Phone. In this step, participants should delete bookmarks or favourite files that lead to the problematic mobile phone use. Set clear time management goals with the participant.

Phase 2
Cognitive restructuring
Cognitive restructuring with participants will help them re-evaluate how rational and valid these interpretations are. Participants who use games to build self-esteem or feel better about their lives will start to see that they are using the Smartphone to satisfy needs that are not being fulfilled in their real lives. By doing so, participants do not find healthy ways to build self-esteem in their immediate relationships but they seek this out via the Phone. Cognitive restructuring can also help participants attack the assumptions and interpretations that keep them online.

Phase 3
Harm reduction therapy (hrt)
HRTis used to identify and address any coexisting factors associated. These factors can include personal, situational, social, psychiatric, or occupational issues. Participants with low self-esteem, work toward finding healthier ways of dealing with these feelings without using the Smartphone. COPING STRATERGIES: Coping Skills Training incorporates elements of cognitive behavioural therapy and helps develop new ways to cope without the use of Smartphone.

Data Analysis
Statistical analyses were performed with Statistical Package for Social Sciences (IBM SPSS 17.0 for windows) with the alpha level set at 0.05. Wilcoxon Signed rank test was used to find out the effectiveness of intervention by making comparison of pre and post therapy and also to find the difference between SPAI pre-test and post-test levels. Since the sample size is small, Non parametric analysis was done to find the significant effect of intervention. Pearson correlation test was used to find the correlation between the levels of Self-esteem and Smartphone addiction in Pre-test and post-test value. Graphical representations such as bar chart and scatter diagrams have been presented for describing visually the participant's demographic characteristics.

Ethical Consideration
This research was approved by Research team of SRM University College of Occupational Therapy, Chennai following thorough scrutinization of the relevant papers and consent letter approval from all participants.

RESULTS

Table 1
Wilcoxon Signed Rank Test - Effectiveness of CBT In Improving
Self-esteem for Smartphone Addicts
N=30

Rosenberg Self Esteem	Mean	Std. Deviation	Statistics	p Value
Pre test	10.64	4.88	-3.2794	0.001
Post test	14.6	2.47		

Since the p value is 0.001 (significant at < 0.05), There is significant difference in between pre test and post test scores. (i.e.,) After the intervention, the level of self esteem is increased. Hence alternate hypothesis is accepted
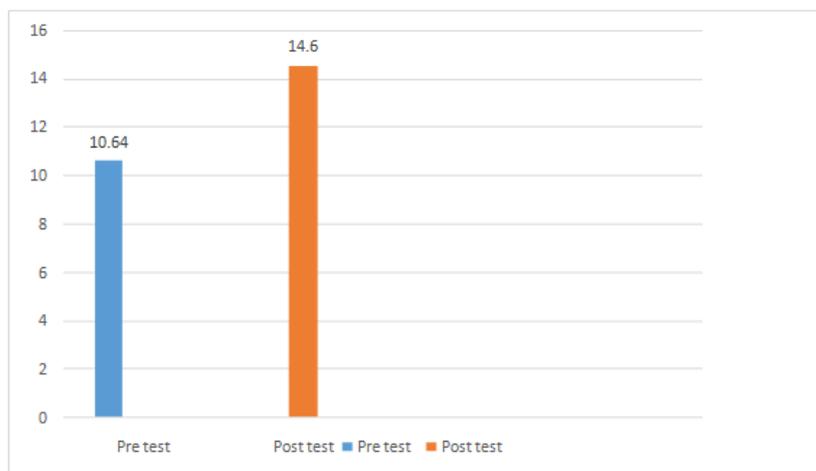

Figure 1
Wilcoxon Signed Rank Test - Effectiveness of CBT In Improving
Self-esteem for Smartphone Addicts

Table 2
Pearson correlation test - Correlation Between The Levels Of Self Esteem
and Smartphone Addiction In Pre-Test
N=30

Variables	Mean	Std. deviation	Pearson correlation, r
SPAI	74.37	6.32	-0.488
RSE	10.64	2.47	

With a r value of - 0.488, there is a negative correlation between RSE and SPAI i.e., in pre-test when the level of Smartphone addiction increases there is decrease in the level of self esteem.
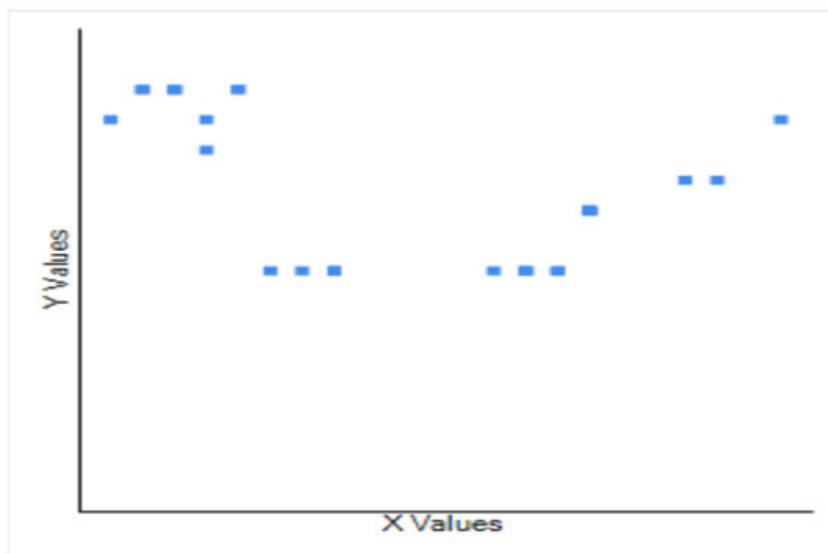

Figure 2
Pearson correlation test - Correlation Between The Levels Of Self Esteem
and Smartphone Addiction In Pre-Test

Table 3
Pearson correlation test - Correlation Between The Levels Of Self Esteem
and Smartphone Addiction In Post-Test
N=30

Variables	Mean	Std. Deviation	Pearson correlation, r
SPAI	56.53	12.86	- 0.958
RSE	14.6	2.47	

With an r value of - 0.958, there is a negative correlation between RSE and SPAI i.e., in post-test (ie) when the level of Smartphone addiction decreases there is an increase in the level of self esteem.
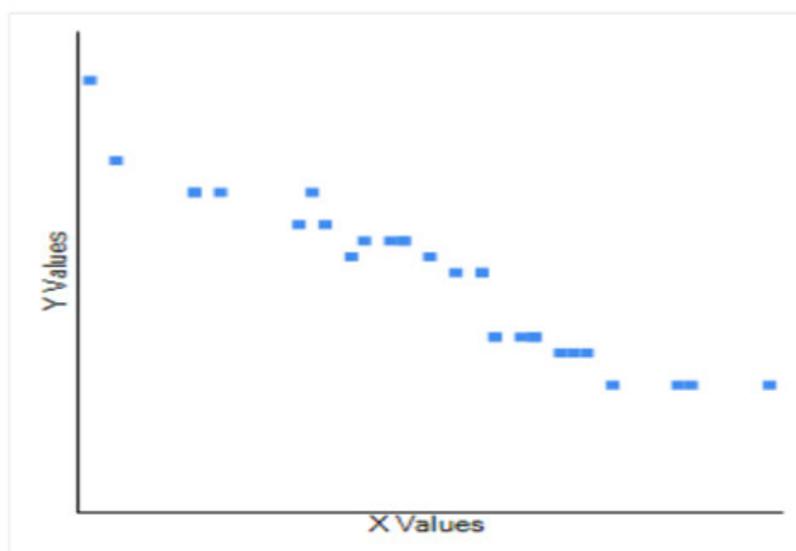

Figure 3
Pearson correlation test - Correlation Between The Levels Of Self Esteem
and Smartphone Addiction In Post-Test

Table 4
Wilcoxon Signed Rank Test - Difference Between SPAI
Pre-Test and Post-Test:
N=30

SPAI	Mean	Std. deviation	Statistic	p Value
Pre test	74.37	6.32	- 4.393	< 0.001
Post test	56.53	12.86		

Since the p value is <0.001 (significant at < 0.05), There is significant difference between pre test and post test scores. (i.e.,) After the intervention, there is reduction in the smartphone addiction inventory level.
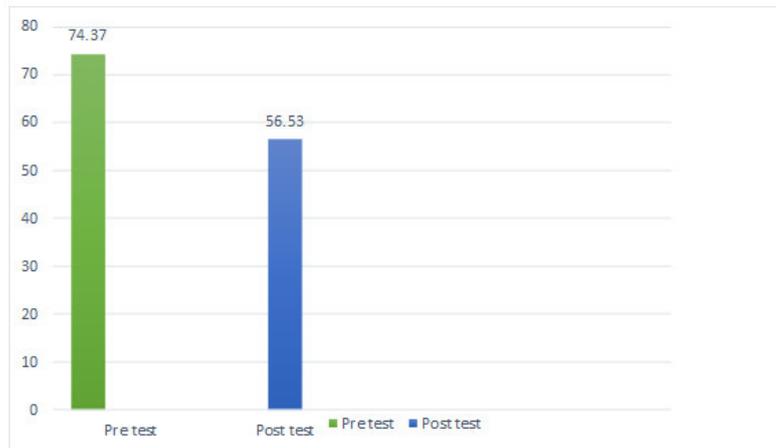

Figure 4
Wilcoxon Signed Rank Test - Difference Between
SPAI Pre-Test and Post-Test

DISCUSSION

The objective of the study is revealed in table 1. The mean level of self-esteem has been significantly increased (from 10.64 to 14.6) by the CBT. Hence CBT is effective. *Betül Aydin, SerkanVolkan Sari (2011)* did a similar study on internet addicts but however it is survey method and there is no experimental evidence. The findings showed that social self-esteem and family-home self-esteem were found to be significant predictors of Internet addiction. This study provides the first evidence based data to examine the effectiveness of CBT in improving self-esteem with Smartphone Addiction. Table 2 and 3 reveals that self-esteem was negatively correlated with Smartphone addiction among adolescents. With a r value of -0.488 in pre test and -0.958 in post test, there exists a negative correlation between SPAI and RSE i.e., after intervention when the level of Self-esteem is increased there is a significant decrease in the level of Smartphone Addiction. Results showed that an overwhelming majority of participants were able to improve self-esteem and manage symptoms of Smartphone Addiction. Most were able to fully manage their symptoms by the CBT. In general, it allows addicts to understand addictive feelings and action while learning new coping skills and ways to prevent a relapse. Table 4 illustrates the significant difference between pre-test and post test scores of SPAI. So, after intervention level of smartphone addiction is decreased. *Hyunna Kim (2013)* also presented various treatment methods to decrease Smartphone addiction but however lacked experimental evidence.

Implications
This study should be taken as an eye opener as it is evident that immediate measures are required to decrease the level of Smartphone addiction. This study will nurture an occupational therapist's knowledge that smartphone addicts will have a risk of low self-esteem and thereby gives a clear idea of how cognitive behaviour therapy helps in improving self-esteem. An Occupational therapist's duty is to work with a client to help them achieve a fulfilled and satisfied state in life through the use of "purposeful activity or interventions designed to achieve functional outcomes which promote health, prevent injury or disability and to develop, improve, sustain or restore the highest possible level of independence". And this role could be done with complete justice only after eliminating the associated causes by giving appropriate intervention.

CONCLUSION

This study reveals that CBT is proven to be effective in improving self – esteem and there is a negative correlation i.e., after intervention when the level of self-esteem is increased there is a significant decrease in the level of smartphone addiction.

Limitations
This study has several limitations such as self-report questionnaire was used, small sample size, limited time constraint, convenient sampling that lead to the lack of randomization and actualization of the study. The study yielded more men than women so the ratio is not qual. Age limit was restricted.

Suggestions for future research
Further studies can be carried out with low self-esteem with smartphone addicts other than adolescents and among various professionals, this study can be carried out with negative physical signs and symptoms like carpal tunnel syndrome, poor posture, backaches, migraine headaches, poor personal hygiene includes BADL and IADL, irregular eating, sleep deprivation, eye strain, dry eyes, lack of sleep, cardiovascular pattern.

CONFLICT OF INTEREST

Conflict of interest declared none.

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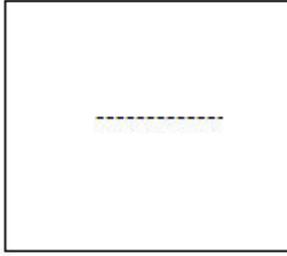
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