

The Effectiveness of the MSARE program for multi-screen addiction in university students: A mixed methods study

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Abstract

The aim of this study was to reduce the levels of multi-screen addiction by implementing the "Multi-Screen Addiction Reduction Education (MSARE)" program among university students. This study, designed using mixed research methods, employed a nested embedded design. Interviews were used for the qualitative aspect of the study, while a control group experimental design with pre- and post-tests was used for the quantitative aspect. A total of 86 volunteer students (44 experimental, 42 control) participated in the study. The Multi-Screen Addiction Scale was used for quantitative data collection, and a semi-structured interview form was used for the qualitative aspect. The collected data were analyzed using SPSS with techniques such as mean, standard deviation, ANOVA, and t-test. According to the findings, the MSARE program was found to reduce multi-screen addiction among university students. It was also found that the MSARE program increased university students' awareness of multi-screen addiction. The MSARE program taught university students that they should engage in self-improvement activities to move away from multi-screen addiction. It is recommended that programs that empower individuals in the fight against addiction be expanded.

Keywords: multi-screen addiction, MSARE program, university students

Main points

- The MSARE program has been found to reduce addiction among university students.
- The MSARE program has been shown to raise university students' awareness of multi-screen addiction.
- The MSARE program has taught university students that they should engage in self-improvement activities to distance themselves from multi-screen addiction.
- The number of siblings and internet use at home do not affect university students' multi-screen addiction.

Introduction

Addiction can be defined as an individual's uncontrollable desire for a substance or behavior and the frequent need to engage in that behavior or use that substance to maintain this desire (Singh et al., 2026). In the field of psychiatry, addiction is generally divided into two main categories: substance addiction and behavioral addiction. Substance addiction refers to addictions to substances such as alcohol and drugs, while behavioral addiction encompasses the inability to control behaviors such as gambling, internet use, or shopping (Kıriloğlu et al., 2023; Rincon et al., 2025). The basis of addiction lies in chemical changes related to the individual's reward system in the brain. For example, when a substance is taken or a certain behavior is performed, the release of chemicals

such as dopamine increases, which makes the individual feel good (Kim & Picciotto, 2023). However, over time, the need for more substances or behaviors to achieve these effects leads to the progression of addiction (Volkow, 2005). The interaction of genetic, environmental, and psychological factors is important in the development of addiction. For example, individuals with a family history of addiction are at higher risk of developing this condition. Furthermore, adverse life circumstances such as stress, trauma, or social isolation can also trigger the development of addiction (Albal et al., 2025; Koob & Volkow, 2010). Addiction can severely impact an individual's quality of life, leading to health problems, the deterioration of social relationships, and financial losses. Therefore, addiction treatment requires a multidisciplinary approach to improve both the physical and psychological

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health of individuals. Breaking free from the cycle of addiction is often possible with professional support and therapy, highlighting the importance of treatment processes (Marlatt & Donovan, 2005; Yılmaz Tuncel et al., 2025). The rise of technology has also influenced the types of addiction.

Multi-Screen Addiction

Technology-related addictions refer to individuals' excessive and uncontrolled use of technological devices and digital platforms. These addictions can manifest in various forms. Screen addictions include internet addiction, social media addiction, video game addiction, mobile device addiction, and general digital device addiction (Günel & Ergün, 2025; Şimşir Gökcalp, 2023), as well as shopping addiction (digital shopping) or multi-screen addiction (Kuss & Griffiths, 2012). Multi-screen addiction is a term that refers to an individual's tendency to use multiple screen sources simultaneously. With the proliferation of devices such as smartphones, tablets, computers, and televisions, people have changed their habits of information consumption and social interaction by using different screens simultaneously (Çakmak & Gökçeşlan, 2025). Additionally, some sectors (media, academia, etc.) require individuals to use multiple screens. Multi-screen addiction is also known as using multiple screens (Muraro & Kononova, 2025). This can lead to distraction, superficial social interactions, and a decrease in overall quality of life. While rare, multiple screen use can also be beneficial and enriching. For example, some young people receiving distance learning may use a second screen during class to review points they don't understand or to get reinforcement during exams. Generally, multiple screen addiction stems from negative emotions (anxiety and depression) in the individual. Factors such as cognitive load from studies, or depression caused by family or social factors, can lead an individual to use multiple screens (Shin et al., 2025). Therefore, the individual may be more inclined to use multiple screens rather than a single screen. Addiction caused by multiple screen use is particularly common among younger generations. Research shows that young people are increasingly inclined to use another screen simultaneously while spending time on platforms like social media and video games. This addiction can negatively impact individuals' attention and focus abilities and increase anxiety and stress (Göçer & Çevirme, 2022). Switching between screens can impair individuals' ability to think deeply and solve problems. Furthermore, multi-screen addiction can lead to physical health problems, including eye strain, sleep disturbances, and a sedentary lifestyle (Council on Communications and Media, 2016). This can have negative effects on the developmental processes of children and adolescents. It is especially important for university students to prevent multi-screen addiction or implement habit changes. Measures such as limiting daily screen time, periodically stopping screen use (digital detox), avoiding the use of multiple devices simultaneously, turning off notifications, and using "Do Not Disturb" mode can be taken (Çakmak Karapinar et al., 2024). However, it is generally believed that developing hobbies, strengthening social relationships, and receiving counseling are more effective. In conclusion, screen addiction, or multi-

screen addiction, is a significant issue that has emerged as a consequence of modern life (especially during the Covid-19 period) and threatens the psychological and physical health of individuals (Deniz, 2022; Kor & Shoshani, 2023). Therefore, this study aims to combat multi-screen addiction among university students.

Purpose of the Study

Addiction is defined as an individual's uncontrolled desire for substances or behaviors and the need to maintain this state. Addictions have increased due to the rise in technology use. Multi-screen addiction refers to the simultaneous use of multiple screen sources, leading to negative effects such as distraction and superficial social interactions. To prevent this addiction, which is prevalent among younger generations, screen time should be limited, digital detoxification should be implemented, and participation in social activities should be encouraged. Therefore, our research priority is to determine the levels of multi-screen addiction among university students and then implement planned educational programs to reduce these levels. The prevailing view in the literature is that such educational programs are insufficient (Rincon et al., 2025). Therefore, it is necessary to strengthen the response to multi-screen addiction among university students. The purpose of this research is to reduce the levels of multi-screen addiction by implementing the "Multi-Screen Addiction Reduction Education (MSARE)" program among university students. To achieve this goal, the following questions were addressed:

1. Did the MSARE program produce a significant difference between the pre- and post-training scores of the experimental and control group students?
2. Did the number of siblings and home internet use create a significant difference in the multi-screen addiction scores of the university students?
3. Did the MSARE program make a difference in terms of behavior or awareness among university students?
4. Did the MSARE program produce positive outcomes for the university students?

Method

This study, designed using mixed research methods, employed a nested embedded design. Mixed methods aim to provide an in-depth analysis of the research problem by supporting it with qualitative and quantitative data. Furthermore, this method is preferred for ensuring consistency and objectivity in scientific data (Büyüköztürk et al., 2013; Yıldırım & Şimşek, 2013). Face-to-face interviews were used for the qualitative part of the study, while an experimental design was used for the quantitative part. A quasi-experimental design with a pre-post test control group was used in the experimental study. The university has two child development program classes. One of these was randomly assigned as an experimental group and the other as a control group. The implementation phase of the research training program lasted 8 weeks. The training program is presented in Table 1.

Table 1. Multi-screen addiction reduction education (MSARE) program

Weeks	Subjects	Practitioner	Hour
1	Pre-test and introduction	Researchers	2 lessons
2	Addiction and Its types	A psychiatric nurse with a doctorate specializing in this field	2 lessons
3	Ways to protect yourself from addiction	A psychiatric nurse with a doctorate specializing in this field	2 lessons
4	Multi-screen addiction	A psychiatric nurse with a doctorate specializing in this field	2 lessons
5	Activities to prevent multi-screen addiction	A psychiatric nurse with a doctorate specializing in this field	2 lessons
6	Pursuing hobbies in daily life	Associate professor and 2 doctoral educators specialized in this subject	2 lessons
7	Pursuing hobbies in daily life	Associate professor and 2 doctoral educators specialized in this subject	2 lessons
8	Post-test and closing	Researchers	2 lessons

As shown in Table 1, a training program was developed to reduce multiple screen addiction. This program was delivered to volunteer students by academics specializing in addiction (one associate professor of education, four psychiatric nurses with doctoral degrees, and two doctoral educators). During the training program, the control group students continued their normal educational activities. In other words, no addiction-related interventions were performed in the control group. After the posttests were completed, the same training program was also administered to the control group.

Sample

The sample for this study consisted of volunteer students from Muş Alparslan University's Malazgirt Vocational School. In this study, the samples were clarified based on two existing groups. One of the two groups attending the Child Development program at the school was randomly selected as the experimental group, and the other as the control group. Subsequently, students in these groups were informed about the study, and their voluntary participation was confirmed. Students who did not wish to participate were excluded from the study. Therefore, a "two-stage selection" method was used in sample selection. Ninety students volunteered to participate in the study. Six students were unable to continue the process for various reasons (such

as condolences or inability to attend school) and withdrew from the study. The study was completed with 86 students. There were 44 students in the experimental group and 42 in the control group. Participants gave their voluntary consent to participate in the study. Face-to-face interviews were conducted with 5 volunteer participants (information about the students participating in the interviews was confidential, and their names were coded as P1, P2, P3, etc.). A convenient sampling method was used to collect qualitative findings. Since qualitative data were collected through face-to-face interviews, the process involved volunteers as far as possible. In qualitative data collection, data quality is more important than sample size. In general, it can be said that the number of participants was sufficient for the study population (Akçay & Koca, 2024; Merriam, 2013). The participants generally had similar socioeconomic characteristics. Most of their families were involved in farming and agriculture.

According to Table 2, it is understood that the majority of the participants in the experimental group (79.55%) and the control group (76.19%) had more than 4 siblings, had internet access at home, and had family members who used the internet.

According to Table 3, all participants had at least one social media account. The vast majority of participants (95.35%),

Table 2. Demographic information of the participants

Variable	Groups	Experimental		Control	
		f	%	f	%
Number of siblings	3 or less	9	20.45	10	23.81
	4 or more	35	79.55	32	76.19
How many of your family members have internet access?	A small part 25%	2	4.55	0	0.00
	Half 50%	15	34.09	7	16.67
	Most 75%	14	31.82	16	38.10
	All 100%	13	29.55	19	45.24

Table 3. Social media usage rates in the experimental and control groups

Groups	Facebook	Instagram	TikTok	WhatsApp	Snapchat	X
Experimental	3	30	13	44	22	2
Control	5	35	17	38	28	0
Total	8	65	30	82	50	2
Percentage	9.30	75.55	34.88	95.35	58.14	2.33

and even the entire experimental group, used WhatsApp. Accordingly, the least-used social media account was X (2.33%). It can also be said that the majority of participants used more than two social media accounts.

Data Collection Tools

In collecting quantitative data, the Multiple Screen Addiction Scale developed by Saritepeci (2021) was used with permission. The fit indices of this scale ($\chi^2 / df=2.206$, RMSEA= .075, GFI=.901, CFI=.938) are at an acceptable level. Cronbach's alpha values, including the subdimensions of the scale, were determined to be between .70 and .93 (acceptable values). In this study, the Cronbach's alpha value of the scale was calculated as .94 (Compulsive Behavior=0.88, Loss of Control= 0.78, Excessive Screen Time=0.84). In this study, the fact that the reliability values of the scale were higher than the original values is purely coincidental. The scale consists of 15 items, starting from "strongly disagree" and ending with "strongly agree," and is scored between 1 and 5. In the qualitative dimension, the questions below were prepared to be used in face-to-face interviews. These questions were prepared with the consensus of both psychiatric nurses and education experts:

How often do you use multiple screens in your daily life?

- What was it like before you received this training?
- What was it like after you received this training?

Could you please share your thoughts on the training and the program with regards to teaching new behaviors?

- What hobbies can you pursue in your daily life?

Data Analysis

The quantitative data obtained within the scope of the study were analyzed using SPSS software using techniques such as mean, standard deviation, ANOVA, and t-test. Content analysis was conducted on the qualitative data using the Theme-Category-Code trilemma. A power analysis was performed on the 86 participants in the study using the G*Power 3.1.9.4 program with values such as probability of error of 0.05 and effect size of 0.058. The power analysis of the study was determined to be 0.854.

Results

The findings (quantitative and qualitative) obtained within the scope of the study are presented below, respectively.

Quantitative Findings: These are the findings obtained through the analysis of the Multiple Screen Addiction Scale data used in the study.

Table 4 shows the independent samples t-test data conducted to analyze the significant difference between the participants before and after the training program. According to these data, it can be said that there was no significant difference between the experimental and control groups before the training program ($p=.074>.05$). In addition, an analysis of covariance (ANCOVA) was conducted to clarify the significance of the pre-test results. According to this analysis, the p-value was found to be 0.165, meaning that there was no significant difference between the individuals who took the pre-tests. However, a significant difference was observed between the experimental and control groups after the training program ($p=.025<.05$). In addition to this finding, the significant difference was determined to have a medium-sized effect (partial eta squared, $\eta^2=.058$) (Cohen et al., 2007). In addition to these findings, the data showing the status of this difference in the experimental group regarding the number of siblings are presented in Table 5.

According to Table 5, there is no significant difference between the number of siblings and the multi-screen addiction scores of the experimental group students ($p=0.419>0.05$). Furthermore, the findings regarding the internet use of family members at home and the multi-screen addiction scores are also presented in Table 6.

Table 6 shows an ANOVA analysis to determine the difference between the internet usage status of the experimental group participants' family members (including the student) and their multi-screen addiction. The analysis found no significant difference between the internet usage status of the experimental group students themselves and their family members and their multi-screen addiction ($p=0.624>0.05$).

Qualitative data: These are the findings obtained from the analysis of data from face-to-face interviews conducted with five volunteers from the experimental group.

Table 4. Pre- and post-test score analysis for the experimental and control groups

Tests	Groups	N	Mean	Std. Deviation	Std. Error Mean	t	p
Pre	Experimental	50	3.14	.80	.11	1.805	.074
	Control	40	2.85	.69	.11		
Post	Experimental	44	3.21	.72	.11	2.283	.025
	Control	42	2.88	.63	.10		

The effect size (η^2) of the post-test, which resulted in a significant difference, was calculated as .058.

Table 5. Difference between the number of siblings of the participants in the experimental group and their multiple screen addiction

Number of Siblings	N	Mean	Std. Deviation	Std. Error Mean	t	p
3 or less	9	3.06	.79	.26	-0.817	0.419
4 or more	35	3.34	.94	.16		

Table 6. Difference between the internet ownership status of family members of the experimental group participants and the multi-screen addiction scores

	Sum of Squares	df	Mean Square	F	p
Between Groups	.811	2	.406	.478	.624
Within Groups	34.810	41	.849		
Total	35.621	43			

Theme: MSARE Program

The implemented training program initially raised participants' "awareness" of multi-screen addiction, and two categories were created to demonstrate some "gains" in overcoming this addiction. These categories are listed below.

Category 1. Multi-Screen Addiction Awareness

The statements indicating participants' awareness of multi-screen addiction are listed below.

I don't use multiple screens much; I always have a limit. This was the case before and after the training, but I've reduced my usage time even further (P1).

Before the training, I spent more time using technology in my daily life, but after the training, I started using it less and more regularly (P2).

I used to use technology a lot. During the training, I learned that it was harmful to my health. That's why I reduced the amount of time I use it (P3).

I use it constantly. I was unconscious, but I've become conscious. I know (P4).

In my daily life, I only use the television for three hours a day, but I spend most of the day on my phone. I use my phone frequently throughout the day, whether for work or leisure. Before the training, I spent every minute of my free time on my phone (P5).

As can be seen from the statements received from the participants above, there is an "awareness" that the "amount of time" spent on "multiple screens" such as "technology," "television," and "phone" in daily life is excessive, and that this amount needs to be "reduced". Based on these findings, it appears that the participants realized that the time they spent on multiple screens was excessive as a result of the MSARE program and that this needed to be reduced.

Category 2. Gains of the Training Program

Participants' views on how to reduce this addiction as a result of the MSARE program are stated below.

I can acquire hobbies like reading, knitting, listening to music, and walking in my daily life (P1).

After the training, I no longer spend my free time solely on technology, but on my existing hobbies or discovering new ones (P2).

The training had many benefits. I'm so glad I took this training. I can go for walks and read books (P3).

Instead of engaging with technology and social media, that time can be spent on other things like exercising, listening to music, and reading books (P4).

With the training I received, I'm becoming more aware of the time we spend using our mobile phones for multi-screen use, instead of the experience we'll add to ourselves and our lives. Hobbies like reading, listening to music, dancing, and sports are attracting my attention (P5).

As can be seen from the participant quotes, at the end of the training process, they made "decisions" such as "taking up new hobbies," "spending more time on their hobbies," and spending less time on their "phones" or using "multiple screens". It appears that they "dedicated time" to hobbies such as "reading," "knitting," "listening to music," "walking," and "dancing" and considered "improving themselves" in these areas. Based on these findings, it can be said that participants gained the understanding that, at the end of the MSARE program, they should take up new hobbies, dedicate time to their hobbies, and focus on self-improvement activities (reading, knitting, listening to music, walking, dancing).

Qualitative and quantitative findings are compared in Table 7.

Table 7. Comparison of quantitative and qualitative findings

Quantitative	Conclusion	Qualitative	Conclusion	Explanation
The difference between pre-post test scores of the experimental and control groups regarding multiple screen addiction.	positive	Multi-Screen Addiction Awareness	positive	The qualitative and quantitative data in this section support each other.
		Outcomes of the Training Program		
The difference between demographic variables and multi-screen addiction	negative	No data has been collected.		

Table 7 presents a comparison of the qualitative and quantitative findings of the study. Accordingly, the negative results of the analyses based on demographic variables and the lack of any qualitative data to support these results appear to be a weakness of the study. However, the significant difference between the pre- and post-test results of the experimental and control groups, supported by qualitative data (in both categories), can be considered a strong and conclusive aspect of the study.

Discussion

According to the findings of the study, while there was no difference between the experimental and control group students before the MSARE program, a significant difference was observed afterward in favor of the experimental group. This difference indicates the effectiveness of the MSARE program. The scale used to determine the effectiveness of the MSARE program relates to dependency on using multiple screens. In other words, it can be said that the MSARE program decreased the experimental group students' multiple screen addiction scores. Similarly, Gülen and Doğan (2024) found that the "Addiction Awareness Program" they developed had positive effects on students' addiction scores. Similarly, Kor and Shoshani (2023) determined that the Positive Psychology Addiction Prevention program applied to adolescents resulted in a decrease in adolescent internet addiction. These programs demonstrate that educational programs designed to prevent addiction have a positive effect. Indeed, Ickes et al. (2015) stated that easy, short, and personalized programs related to addiction can significantly support target behaviors. These findings are consistent with the research findings. In general, programs like MSARE are known as action-oriented behavioral activation programs that increase motivation to reduce addictive behaviors during the addiction process, and these programs are known to be effective on individuals (Frohlich et al., 2026). Furthermore, Avci and Kayiran (2023) determined that students in the child development associate degree program were not addicted to screens. This finding also shows that the same sample group in different places may not have dependencies.

According to the research data, no significant difference was found between the experimental group students' multiple screen addiction scores and whether they had fewer than three or more siblings, or whether their family members (including themselves) had internet use at home. It can be said that the number of siblings and home internet use did not affect

university students' multiple screen addiction. Similarly, Günel and Ergün (2025) found no significant difference between the number of siblings and screen addiction in primary school students. Çakmak and Gökçeşlan (2025) found no difference between university students' multiple screen addiction and grade level. These findings are consistent with the research findings. In general, it can be said that there is no difference between these measured demographic values of university students and multiple screen addiction.

The qualitative findings of the study indicate that participants realized that the time they spent on multiple screens was excessive as a result of the MSARE program and that this time needed to be reduced. Based on the qualitative findings, it can be said that participants gained the insight that they should pursue new hobbies and dedicate time to self-improvement activities (reading, knitting, listening to music, walking, dancing) as a result of the MSARE program. Similarly, Boyacı Yıldırım (2024), Erginsoy Osmanoğlu (2017), and Palad and Snyder (2019) emphasized the importance of artistic and sporting activities, particularly for protection from addiction. Theopilus et al. (2026) also stated that activities such as family time, in addition to artistic and sporting activities, are effective in overcoming addiction. Conversely, de Grace et al. (2017) determined that individuals with low self-esteem may be more likely to become addicted in competitive sports environments. Considering these findings, it can be argued that artistic and sporting activities, when kept under control, can generally be effective in protecting against addiction.

Considering the overall findings, it can be said that both quantitative and qualitative findings support each other. There is a significant difference in university students' multiple screen addiction scores following the implementation of the MSARE program. This is supported by the qualitative results, which indicate that students become more aware of their addiction through the MSARE program, are aware of their addiction, and should prioritize activities (hobbies) they can spend time on to reduce it. Indeed, according to Yeşilyurt and Caner (2025), it is known that individuals who are bored or distracted during a lesson prefer to use a second screen. Therefore, there is a need for educational activities that will capture the attention of students in trainings and lessons. Based on these findings, it can be said that the MSARE program reduces multiple screen addiction in university students. As supported by similar studies, it is understood that addiction programs implemented with academic training are vital (Kader et al., 2024). School-based programs, especially those that support life skills development, are known to be effective in preventing

addiction (Göçmen et al., 2021). In addition, parental education programs also contribute to reducing behavioral addictions such as multiple screen addiction and technology addiction (Rincon et al., 2025). Considering all the findings of the study, it can be said that the MSARE program can be effective in protecting against multiple screen addiction.

Limitations and Directions/Suggestions for Future Research

The study was completed at a university in eastern Türkiye with only 86 students. Two scales were used to collect data: one for qualitative data and one for quantitative data. The study focused solely on young people's multiple screen addictions. In light of the study's findings, it is recommended that the program be widely used and that similar programs be implemented for similar addiction situations. Studies are needed to thoroughly investigate the effects of families with many or few children on such addictions. It is believed that such programs will help individuals recognize their addiction. It is suggested that activities such as self-awareness, developing hobbies, and spending time on different activities are effective in combating addiction. The quantitative findings of the study, when analyzed according to demographic variables, yielded negative results. Furthermore, no qualitative data was collected to support these findings. This is one of the limitations of the research. Also, the qualitative data in this study do not claim to be generalizable. The sample size was determined based on a "case study" approach rather than on saturation. Due to logistical limitations, cluster assignment (class-based) was used instead of individual randomization in this study. The effect of intra-cluster correlation could not be directly controlled in statistical analyses, which constitutes a limitation in terms of the generalizability of the results.

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Author contributions

Conception and design: S.K., E.B., S.G.; Data acquisition: S.K., E.B.; Data analysis: S.K., E.B., S.G.; Data interpretation: S.K., E.B., S.G.; Drafting of the manuscript: S.K., E.B., S.G.; Critical revision of the manuscript: S.K., E.B., S.G. All authors reviewed the results, approved the final version of the manuscript, and agreed to be accountable for all aspects of this study.

Ethical approval

This study was approved by the Mus Alparslan University Scientific Research and Publication Ethics Committee (Date: December 27, 2024, Decision/Protocol No: 16th meeting 82 number). Informed consent was obtained from all participants involved in this study.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of interest

The authors declare that this study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Generative AI statement

The authors declare that no generative AI or AI-assisted technologies were used in the writing or preparation of this study.

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