

The Effectiveness of Reality Therapy Based Psycho-Education Program Regarding Decreasing the Level of Problematic Internet Usage of Adolescents

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ABSTRACT

The aim of this study is to examine the effectiveness of 10 session psycho educational program which was developed within the scope of the research to decrease the problematic internet usage level of adolescents. Embedded design, which is one of the mixed method types of research, was used in the research. In the quantitative experimental stage of the research, experiment, control, and placebo x pretest-posttest-follow-up test design was used. In addition, qualitative data were obtained with the focus group interview after the experiment. The study was started with 12 adolescents in each group, but it was completed with 11 adolescents in the experimental and control group, 12 in the placebo group, due to the loss of test subjects during the experiment. The data of the research was collected via Problematic Internet Usage Scale-Adolescent Form, Basic Needs Scale and Personal Information Questionnaire. The quantitative findings obtained from the research indicated that as a result of the experimental process the program has a significant effect on decreasing problematic internet usage levels of adolescents and meeting the need for love and belonging; however, it does not have a significant effect on the level of meeting other psychological needs. There was no significant difference between the control and placebo groups. Moreover, the findings of the focus group interview conducted with the experimental group revealed that adolescents gained awareness of internet use, their frequency of internet use decreased, and their aims changed, and they tried to meet their psychological needs in a social environment.

Today, adolescents tend to meet their developmental needs through internet experiences instead of real-life experiences, due to the wide environment and opportunities provided by internet technology. This may cause an increase in the level of internet use, as well as unhealthy internet use (Morahan-Martin and Schumacher, 2003). Also, excessive internet use, which affects adolescents in different dimensions, brings along the risk of problematic internet use or internet addiction (Ceyhan, 2014), and that the internet gives opportunities for behaviors towards the need for fun and these behaviors have addictive features (Greenfield, 2011). Thus, adolescents today have become a considerable risk group in terms of internet addiction, and the internet environment and applications have become important in meeting the basic psychological needs such as love-belonging, fun, power, and freedom which are mentioned by reality therapy. As a matter of fact, Yalçın (2006) states that at the root of internet addiction there are cognitive structures as “the internet is the only place where I get respected” and “the internet is my only friend”. In this context, adolescents try to meet their need for power and love-belonging through their internet usage behavior. Also, the internet gives individuals freedom in different areas such as communication, socialization, and access to information (Satan, 2013). Thus,

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adolescents can do identity experiments via internet use, as well as meeting the need for freedom, friendship, and communication. In this context, meeting the psychological needs of adolescents healthily is quite important during adolescence when identity achievement takes place. However, one can observe that as the internet use of adolescents increases, they try to meet their psychological needs, which they can meet in social life, through the internet. (Shen, Liu, and Wang, 2013).

To understand and explain adolescents' internet usage behaviors, it is crucial to consider the basic concepts of reality therapy, as well as basic psychological needs. In this context, a successful identity achievement of individuals is emphasized in Reality Therapy and adolescence is a critical development period in terms of successful identity achievement. In this respect, the internet provides a wide environment for adolescents to develop their identity and they can do identity experiments on the internet. As a result of a qualitative study conducted with adolescents, problematic internet use caused loneliness, depression, addiction to virtual environment, inefficient use of time, postponement or failure to fulfill responsibilities, learning wrong values, displaying angry or aggressive behaviors, emergence of health problems; It is stated that it has negative effects such as decreased social interaction, failure to develop social skills, decreased academic success, and academic problems (Doğan and Ersoy, 2020). Similarly, in the research conducted with university students, it is seen that there is difficulty in controlling internet use, and that their family and social relations and academic life are negatively affected (Baltacı, Akbulut and Zafer, 2020). It can be said that many of these negative effects are related to reality therapy concepts. While conducting such experiments on the internet, individuals can create the identity they want, and act without fear of being criticized, unlike social communication and relationships. Therefore, the internet becomes available to test various forms of relationships and identities (Griffiths, 1998). In this context, it is noteworthy that adolescents' identity experiments in the internet environment and their focus on the internet environment to meet their developmental needs or basic psychological needs can contribute to their development as well as prevent and disrupt this development, since the internet can cause to negative social, academic, emotional and psychological consequences, especially for adolescents, when it is not used properly (Kurtaran, 2008). Also, those seeking identity are observed to be facing the risk of problematic internet use, and those with successful identity are healthy internet users (Ceyhan, 2010). Similarly, the study conducted with adolescents has shown that diffuse avoidant identity style increases problematic internet use (Pednekar and Tung, 2017).

In terms of reality therapy, it is also vital for individuals to take responsibility and control their behaviors. It is stated that self-control is associated with problematic internet use (Park, Kang, and Kim, 2014) and it acts as a buffer (Li, Zhang, Li, Zhen, and Wang, 2010). Also, it is indicated that adolescents have difficulties in controlling their internet usage behaviors and the desire to control what is happening in the virtual environment can cause them to constantly turn to the internet (Öztabak, 2018, p.1032). However, it is stated that responsibility has a protective effect against problematic internet use (Diana and Xavier, 2014), as problematic internet use increases, responsibility decreases (Yavuzaslan-Gök, 2017) and problems in school, family, and social environment are neglected (Lin, Chen, Chang, and Lin, 2013). The decrease in control and responsibility, accompanying procrastination, due to problematic internet use during adolescence cause adolescents to face many developmental problems.

To understand adolescents' internet usage behaviors, it is also important to consider reality therapy's concepts of total behavior, which addresses the relationship of emotion, thought, behavior and physiology, and quality world, which includes everything that one cares about. In this context, the findings in the literature regarding problematic internet use's association with cognitive distortions and anxiety (Şahan and Eraslan-Çapan, 2017), loneliness and social anxiety (Caplan, 2006), irrational beliefs and feeling of inadequacy (Aydın, 2017), emotion regulation and depressive symptoms (Gámez-Guadix, 2014; Kızıldağ, Arıkan, and Koç, 2019), cyberbullying (Brighi, Menin, Skrzypiec and Guarini, 2019), depression and substance use (Gámez-Guadix, Smith and Calvete, 2013) reveal the importance of evaluating adolescents' internet usage behaviors in the context of total behavior. Besides, another study on adolescents' feelings about the internet reveals that when using the internet, adolescents experience positive emotions such as excitement, relaxation, and pleasure, negative emotions such as sadness and boredom, and neutral emotions such as feeling nothing and empty (Öztabak, 2018). Based on this finding, it is of great importance to reveal the relationship between the things

people care about and problematic internet use in terms of quality world, and to understand the meaning attributed to internet use and its place in quality world.

In the light of all these explanations, one can consider that a psycho-education program to be prepared in the context of reality therapy concepts for reducing adolescents' problematic internet use will make a significant contribution to adolescents' being healthy internet users, gaining awareness of the consequences of unhealthy internet use, and developing skills to prevent this. Also, the need in the literature for developing and diversifying various intervention programs for adolescents' problematic internet use is increasing day by day. The literature shows that different intervention programs are prepared with different theoretical perspectives to reduce adolescents' problematic internet use. The studies on adolescents' problematic internet use include intervention programs based on cognitive-behavioral approach (Erol, 2019; Lindenberg, Halasy, Schoenmaeker, 2017; Young, 2007), solution-focused approach (Busari, 2016; Şermet-Kaya, 2017), video-based education (Turel et al., 2015), focusing on human values (Peker and İskender, 2015), motivational interviewing based (van Rooij, Zinn, Schoenmakers, and Van de Mheen, 2012), peer education (Ruggieri et al., 2016), and parent education (Schatz, 2017). But there is no intervention program based on reality therapy for adolescents' problematic internet use. However, there are studies showing that reality therapy-based programs for problematic internet use are effective during different developmental periods, as "primary school and secondary school" (Shafie, Kahar, Anuar, Rahimi, and Ahmad, 2019), and "university" (Odacı and Berber-Çelik, 2017). As a result, an intervention program based on reality therapy for problematic internet use of adolescents is thought to be effective. In this context, this study aims to reveal the effectiveness of a 10-session reality therapy-based psycho-education program developed to reduce adolescents' level of problematic internet use. Therefore, the study predicts that the developed program will significantly reduce the adolescents' level of problematic internet use and significantly increase their level of meeting their basic psychological needs (love-belonging, power, freedom, and fun). As a result, programs based on different approaches to reduce the effects of problematic internet use on adolescents (Erol, 2019; Lindenberg, Halasy, Schoenmaeker, 2017; Ruggieri et al., 2016; Turel et al., 2015; van Rooij, Zinn, Schoenmakers, and Van de Mheen, 2012; Young, 2007). The first study on problematic internet use among adolescents was carried out in Indonesia and Malaysia by Mulawarman et al. In this study, it is emphasized that reality therapy is effective in reducing problematic internet use of 14 middle school and 14 high school adolescents (Mulawarman et al., 2021). As a matter of fact, it is also known that the effects of problematic internet use on adolescents (Doğan and Ersoy, 2020) are related to reality therapy concepts. Despite this, there is no intervention program in the context of reality therapy for problematic internet use in Turkey. For this reason, it is thought that the intervention applied in this study will contribute to reducing the problematic internet use of adolescents. In addition, the effectiveness of reality therapy in intervening problematic internet use in samples other than adolescents (Odacı and Berber-Çelik, 2017; Shafie, Kahar, Anuar, Rahimi, and Ahmad, 2019) supports this hypothesis.

Method

Research Design

The study was carried out with embedded design which is one of the mixed methods research designs. In this design, data are qualitatively and quantitatively collected and analyzed. In the process of this study, individual interviews were conducted in order to create the program at the qualitative stage before the experiment. Afterward, the program developed in the quantitative stage was applied in a 3x3 design (experimental-placebo/interaction-control group x pretest-posttest-follow-up test) from true experimental designs. While determining the members in the experimental phase of the research, the scores obtained from the scales applied first were ordered from high to low according to the arithmetic mean and standard deviation criteria. Preliminary interviews were held with eligible participants and participants who met the research criteria were included in the participant pool to be determined randomly. In this context, a 10-session reality therapy-based psycho-education program for reducing the problematic internet level was applied to the experimental group while the placebo/interaction group received a 10-session interactive psychological group counseling. No procedure was applied to the control group. After the experiment, focus group interviews were held at the qualitative stage.

Subjects

A total of 36 subjects participated in the experiment: 12 high school-age adolescents in each of the experimental, placebo/interaction, and control groups. All three groups included adolescents studying the ninth, tenth, and eleventh grades of a Science High School, Anatolian High School, or Vocational and

Technical Anatolian High School in a district of Eskişehir during the fall semester of the 2019-2020 academic year. While there were 8 girls and 4 boys each in the experimental and placebo/interaction groups (average age 15.08 and 15.25, respectively), there were 7 girls and 5 boys in the control group (average age 14.92).

Measures

Details of the measurement tools utilized to use the quantitative and qualitative data of the study are as follows.

Problematic Internet Usage Scale-Adolescent Form (PIUS-A). The scale was developed by Ceyhan et al. (2007) to determine primarily university students' problematic internet usage levels. Then, validity and reliability studies for adolescents were carried out by Ceyhan and Ceyhan (2014). The scale's adolescent form requires a 5-point Likert type descriptive rating and consists of 27 items in total. The scale has three sub-dimensions: the internet's negative consequences, excessive use, and social benefit/social comfort. Sub-dimension scores and a total score can be obtained from the scale, and the total score can range from 27 points as the lowest to 135 as the highest. High scores regarding the total score mean that adolescents have high levels of problematic internet use and may tend to internet addiction. Within the scope of the validity assessments for the scale, the findings of exploratory factor analysis revealed that the scale consisted of three sub-dimensions explaining 49.35% of the total variance: the internet's negative consequences (14 items), excessive use (6 items), and social benefit/social comfort (7 items) (explaining 37.73%, 6.48%, and 5.14% of the total variance, respectively). Within the scope of the reliability assessment for the scale, the overall internal consistency coefficient (α) was found to be 0.93 (Ceyhan and Ceyhan, 2014), while in this study, the internal consistency coefficient (α) was calculated as 0.83.

Basic Needs Scale. Based on Glasser's Choice Theory, the scale was developed by İkinci (2003) to measure the level of meeting the basic needs of adolescents. The scale consists of four sub-dimensions that include four basic psychological needs except for survival, namely love-belonging, power, freedom, and fun. It is a five-point Likert-type scale with 26 items. From the scale, a sub-score can be obtained for each psychological need, and a high score means that the level of meeting the needs is high. Within the scope of the validity assessments for the scale, the factor analysis results showed that the four-factor structure of the scale explained approximately 45% of the total variance. Within the scope of the reliability assessments for the scale, the calculations were made using the Cronbach's Alpha (α) internal consistency method. The overall scale internal consistency reliability coefficient (α) was found to be .83 (İkinci, 2003). In this study, the internal consistency reliability coefficient (α) of the scale was calculated as .78.

Individual Interview Form. To be used in the individual interviews, the interview form was prepared by the researcher in the process of creating the program content before the experiment, with the aim of understanding adolescents' internet usage experiences and how they meet their psychological needs. The form consists of 14 open-ended questions. While preparing it, expert opinion was received, and its final form was reached after a pilot interview was held with five adolescents. The form consists of the following questions:

1. What is the internet usage status of adolescents?
2. For what purpose do adolescents use the internet?
3. What do adolescents experience after intense internet use?
4. What feelings and thoughts do adolescents experience when they are deprived of the internet?
5. Which psychological needs do adolescents prefer to use the Internet to meet?
6. What are the metaphors that reflect adolescents' perceptions of the Internet?

Focus Group Interview Form. A form was prepared by the researcher for the focus group interview, which was carried out to determine the effectiveness of the research and to support the quantitative data in more detail. Theoretical explanations of reality therapy and problematic internet use process were used, and the final form was given by taking expert opinion. This form was used in the post-experiment focus group meeting in the 6th week following the end of the Reality Therapy Based-Psycho-Training Program for Reducing the Problematic Internet Use Levels of Adolescents. It consists of four open-ended questions and aims to enable the adolescents participating in the program to evaluate their experiences of the program and their experiences after the program.

Information Questionnaire. The information questionnaire was prepared by the researcher to obtain general information about the participants/subjects. This questionnaire includes questions about the subjects such as gender, age, grade level, the high school they study, contact address (email, phone number), willingness/volunteering to participate in the study.

Process

The processes carried out within the scope of the study are briefly summarized below under three headings: pre-experiment, experiment process, and post-experiment.

Pre-experiment. During the pre-experiment, these were followed respectively: a) preliminary preparation for creating the program, b) creating the program, c) the pilot application, d) determining the subjects for the experiment, and creating the experimental, placebo, and control groups. These are briefly as follows.

a) In the study, firstly the literature was examined, and the ethics committee and application approvals were obtained. Then, the Individual Interview Form was prepared to be used in semi-structured interviews and a pilot application was carried out with 5 adolescents. Afterward, using the interview form, the interviews were conducted with a total of 11 volunteer adolescents who are from 3 different high schools, 6 of whom were girls and 5 of whom were boys. The participant ages vary between 14 and 18, and the average age is 15.63. The interviews lasted about twenty minutes each. The sound recordings were analyzed through NVivo 12. Coding for the themes was completed. Then, to ensure coding reliability, the outputs were examined by an academician who is an expert in the field of psychological counseling and rearranged in the light of feedback. Thus, four different themes were reached: purposes of internet use, consequences of excessive internet use, experiences of internet deprivation, and psychological needs met through the internet.

b) As creating the program, the literature review and the themes obtained from the interviews were taken into consideration. In this framework, the program's general objectives and each session's specific objectives were determined. Activities were designed to suit these objectives. Then, the researcher presented the draft program to 4 academicians who are experts in the field of psychological counseling and 2 academicians who are experts in the field of program development, and opinions were received from the experts.

c) The pilot study was carried out with 12 volunteer high school-age adolescents (9 girls, 3 boys) during 9 weeks in the spring term of 2019. After the pilot, some arrangements were made in the group program from the feedback about the program. For example, in the second session, the members had difficulty understanding the form of "psychological needs in the scale". Thus, the form was revised.

d) As determining the subjects, a data booklet was applied to a total of 522 students from four different high schools at the end of September 2019. 129 adolescents who stated that they wanted to voluntarily participate in the group were ranked from the highest to the lowest in terms of problematic internet use and psychological needs scores. Thus, starting from the adolescents with the highest scores, 36 volunteer adolescents who do not have any psychiatric diagnosis, do not use psychiatric medicines, and whose parental consent was received, were determined as the subjects. With 12 members in each group, the subjects were neutrally assigned to the experimental, placebo, and control groups, considering gender balance.

e) After the groups were created the researchers examined whether the groups were equal in terms of the levels of problematic internet use and the levels of psychological needs. Kruskal-Wallis H test, one of the nonparametric statistics, was used since the number of members in the groups was very small and did not show the normal distribution assumptions as a result of the analyses. The conclusions of this test revealed that there was no significant difference in problematic internet use and psychological need pretest scores of the adolescents in the experimental, placebo, and control groups.

Experiment process. Within the scope of the experiment process, the group applications were carried out for 10 weeks between October and December in 2019. The sessions lasted between 62 and 107 minutes approximately. The sessions in the placebo/interaction group were conducted in the context of the interaction group within the scope of psychological group counseling. The content of the 10 sessions applied to the experimental group was briefly as in Table 1:

Table 1. The content of the reality therapy/approach-based psycho-educational program regarding decreasing problematic internet use of adolescents

Session theme	Content
1. Session: Hello to the group	<ul style="list-style-type: none"> • Introduction activity • Structuring the group process: The List of The Group Rules • Setting expectations and goals: Activity "I am Here Because?" • Understanding the Relationship of Thought - Behavior - Emotion - Physiology: Activity "Which One Would You Be?" • Summing up the group
2. Session: Explaining Problematic Internet Use and Psychological Needs	<ul style="list-style-type: none"> • Warm-up Activity: • Lecture: Problematic Internet Use and Psychological Needs • To help them discover the meanings they attribute to internet use and psychological needs: Internet Use and Psychological Needs Metaphor Activity • Members' review of the relationship between their psychological needs and the internet: Activity of Meeting Psychological Needs • Group interaction • Non-group activity: Internet Usage Chart
3. Session: What do I want?	<ul style="list-style-type: none"> • Initiation of the group process: Internet Usage Chart • Lecture: DDEP (Desire-Doing-Evaluation-Planning) • Discovering their desires: DDEP Desire Activity • Consequences of meeting psychological needs through the internet: Activity "What Do I Do?" • Alternative Activity Development: Activity "Even if Desires Do Not Change, The Ways Change" • Group interaction • Non-group activity: Desire Fulfillment Control Chart
4. Session: Control and Problematic Internet Use	<ul style="list-style-type: none"> • Warm-up activities • Initiation of the group process: Desire Fulfillment Control Chart • Lecture: Control and the Concept of Quality World • Regarding the importance of the internet in their lives and discovering their desires and: Quality World Activity • Recognizing and controlling the effects of the internet on them: Situation Scale Activity • Group interaction • Non-group activity: Internet Control Chart
5. Session: What am I doing?	<ul style="list-style-type: none"> • Initiation of the group process: Internet Control Chart • Lecture: DDEP "Doing" • Discovering their behavior: DDEP Activity "What am I doing?" • Activity for the consequences of internet use: Activity for the Consequences of Internet Use • Group interaction • Non-group activity: Control Chart for the Things I Do
6. Session: Total Behavior and Problematic Internet Use	<ul style="list-style-type: none"> • Warm-up Activity: Creating a car • Initiation of the group process: Control Chart for the Things I Do • Lecture: Total Behavior • Exploring emotion, thought, behavior, and physiology while using the internet: Total Behavior Activity • Creating a Story on Total Behavior with Finger Puppet • Group interaction • Non-group activity: Total Behavior Control Chart
7. Session: I Evaluate and Plan	<ul style="list-style-type: none"> • Initiation of the group process: Total Behavior Control Chart • Lecture: Evaluation and Planning • The consequences of meeting psychological needs through the internet: Activity "Testing My Behavior" • Evaluating their psychological needs and making plans: DDEP Evaluation and Planning Activity • Group interaction • Non-group activity: Plan Control Chart
8. Session: Responsibility and Problematic Internet Use	<ul style="list-style-type: none"> • Initiation of the group process: Plan Control Chart • Lecture: Responsibility • Discovering their delayed responsibilities: Sentence Completion Activity • Recognizing how their delayed responsibilities affect their lives: Responsibility and Irresponsibility Ways Activity • Group interaction • Non-group activity: Responsibility Tracking Chart
9. Session: Identity and Quality World	<ul style="list-style-type: none"> • Initiation of the group process: Responsibility Tracking Chart • Lecture: Successful-Failed Identity • Comparison of meeting psychological needs: Activity of Comparing Psychological Needs in Real and Internet Environment • Understanding the change in their quality worlds: Quality World Activity II • Group interaction • Non-group activity: Development Evaluation Chart
10. Session: Evaluation, Terminating the Group	<ul style="list-style-type: none"> • The members' evaluation of their development throughout the process: Development Evaluation Activity • To discover the change in the meanings they attribute to internet use and psychological needs: Internet Use and Psychological Needs Metaphor Activity II • The group members saying goodbye to each other in a healthy way: Positive Emotion and Imaginary Gift Activity

The 10-session program shown in Table 1 was applied as the experiment to the experimental group. To the placebo/interaction group, interaction group/psychological group counseling where the agenda was determined by the group was applied with sessions such as self-knowledge, emotions, past experiences, communication, conflicts, future, creating plans for the future, and evaluating the process. The losses of the test subjects were experienced in the experimental and control groups during the experiment. Thus, the data of the two members, as one member from the experimental group and one from the control group, were excluded from the study. Then, whether there was a difference among the groups was analyzed again with Kruskal-Wallis H Test. The analysis results found that there was no significant difference among the groups in terms of the pretest scores.

Post-Experiment As completing the experiment, the posttests were made to the experimental, placebo/interaction, and control groups, as well as the follow-up test at the end of the following 6th week. In the statistical comparisons of the groups' quantitative data, it was decided to use non-parametric tests in the analyses, since the number of members in the groups was very small as 12 and the normal distribution thus could not be achieved. Thus, Friedman Test was used for the pretests, posttests, and follow-up tests within the groups themselves, and Wilcoxon Signed Ranks Test was used when significant. Kruskal-Wallis H Test was utilized for the pretests, posttests, and follow-up tests among the groups, and Mann Whitney U Test was made when significant.

After the experiment, the quantitative follow-up tests were conducted with the adolescents participating in the experimental group 6 weeks after the completion of the group process; afterward, the focus group interview was made, too. A total of 10 volunteer adolescents (7 girls and 3 boys) from the experimental group participated in the focus group interview. The data from this group interview were analyzed using NVivo 12. Expert opinion was obtained from three qualitative analysis experts. One of the experts coded independently from the researcher, and then the similarities and differences were compared. Afterward, the other two experts gave their opinions on the code and theme suitability. In the qualitative analysis, the reliability rate between the coders was calculated as 79%.

Findings

The findings related to the analyses conducted within the scope of the study are given below under the two headings: "findings regarding the levels of problematic internet use" and "findings regarding the levels of meeting basic psychological needs".

The levels of problematic internet use

To understand whether the program led to a significant decrease in the problematic internet usage level of adolescents (general problematic internet usage level and its sub-dimensions such as the internet's negative consequences, excessive use, social benefit/social comfort), the statistical analyses were carried out regarding the pretests, posttests, follow-up tests of the experimental, placebo/interaction, and control groups. Table-2 shows the summary findings including the nonparametric statistical analysis results regarding the tests.

Table 2. Summary Findings Regarding the Comparison of the Groups According to Problematic Internet Use and Its Sub-dimensions

Intragroup Comparisons	Sub-dimensions of problematic internet use			
	Problematic internet use (general)	The internet's negative consequences	Excessive use	Social benefit/ social comfort
Experimental Group	Pre>Post Pre>Follow *	Pre>Post Pre>Follow *	Pre>Post Pre>Follow Follow>Post *	Pre>Post * *
Placebo/Interaction Group	*	*	*	*
Control Group	*	*	*	*
Intergroup Comparisons				
Experimental-Placebo	E.Post < P.Post E.Follow < P.Follow	E.Post < P.Post E.Follow < P.Follow	E.Post < P.Post E.Follow < P.Follow	*
Experimental Control	E.Post < C.Post E.Follow < C.Follow	E.Post < C.Post E.Follow < C.Follow	E.Post < C.Post E.Follow < C.Follow	*
Placebo-Control	*	*	*	*

Pre=Pretest, Post=Posttest, Follow=Follow-up test, E=Experimental group, P=Placebo/Interaction group, C=Control group
*No significant difference

As could be understood from Table 2 a significant decrease was seen in the level of problematic internet use in the experimental group as a result of the experiment. Notably, this decrease was also seen in the sub-dimensions of problematic internet use: the internet's negative consequences, excessive use, and social benefit/social comfort. In the post-experiment follow-up process, any significant difference was not found

between the follow-up score and the pretest score only in the social benefit/social comfort sub-dimension. In addition, in the problematic internet use and its sub-dimensions as the internet’s negative consequences and excessive use, both posttest and follow-up tests of the experimental group were significantly lower than that of the placebo/interaction and control groups. However, no significant difference was seen among the groups in the social benefit/social comfort dimension of problematic internet use. All these findings indicate that the program applied to the experimental group was generally effective in reducing problematic internet use and after the application was completed, the effect of the program continued, however, the effect of the program in the social benefit/social comfort dimension decreased.

The Levels of Basic Psychological Needs

To understand whether the program led to a significant increase in the adolescents’ level of meeting their basic psychological needs, the statistical analyses were carried out on the pretests-posttests-follow-up tests of the experimental, placebo/interaction, and control groups. Table-3 shows the summary findings including nonparametric statistical analysis results regarding the tests.

Table 3. Summary findings on the comparison of the groups according to psychological needs

Intragroup Comparisons	Sub-dimensions of psychological needs			
	Love/Belonging	Power	Freedom	Fun
Experimental Group	Pre<Follow	*	*	*
Placebo/Interaction Group	*	*	*	*
Control Group	*	*	*	*
Intergroup Comparisons				
Experimental-Placebo	*	*	*	*
Experimental-Control	*	*	*	*
Placebo-Control	*	*	*	*

Pre=Pretest, Post=Posttest, Follow=Follow-up test, E=Experimental group, P=Placebo/Interaction group, C=Control group

*No significant difference

As could be understood from Table 3, as a result of the experiment, a score increase in the experimental group was observed only in the love/belonging sub-dimension among the psychological need sub-dimensions. Also, no change was observed in the psychological need sub-dimensions of the placebo and control groups. In this context the findings revealed that the general psychological need sub-dimension levels of the experimental, control, and placebo groups did not show a significant difference before and after the experiment and in the 6th week following the experiment. Although the experimental group’s pretest, posttest, and follow-up test scores for the psychological need sub-dimensions did not differ significantly, except for the love/belonging dimension, the scores of the adolescents participating in the study changed.

The Qualitative Follow Up for The Effectiveness of The Program

To determine the change more widely in the experimental group adolescents’ level of problematic internet use, the focus group interview was also conducted, and the effect of the experiment was examined. After the content analysis of the focus group interview, three main themes emerged as “before the group”, “the group process” and “after the group”. Sub-themes were created under these three main themes. In this context, through the sub-themes as the purpose of internet use, internet use, perception of internet, and social impact of internet use, negative effects of the internet were focused under the “before the group” theme. Also, through the sub-themes as the changes, the evaluation of group activities, the effects of group life, and its indirect effects, the changes and their effects on the participants’ lives were emphasized in “the group process” theme. In the “after the group” theme, the changes in the purposes and the group’s effect on this were stressed through the sub-themes as the purpose of internet use, the effect of the group, and the changes. In summary, it was observed that the adolescents used the internet for fun/activity, communication, and social media before the group process, but after the group process, they used it for obtaining information and conducting professional research as well as for fun and communication purposes. In addition, while the negative effects of internet usage on different areas of their lives were mentioned before the group program, this was not stated at the end of the experiment program, and it was stated that the duration and purpose of internet use and the environment to meet the psychological needs changed after the program. Moreover, the program was stated to affect

communication skills, school success, self-confidence, and socialization, as well as changes in problematic internet use behaviors.

Discussion

At the end of the program applied in the study, the adolescents' levels on general problematic internet use and its sub-dimensions as its negative consequences, excessive use, and social benefit/comfort were found to decrease, and via the follow-up tests, this effect was seen to continue, except for the social benefit/comfort sub-dimension. This result indicates that the program developed based on reality therapy is effective in reducing adolescents' level of problematic internet use. Previous research indicates that reality therapy is particularly effective in helping adolescents cope with problematic situations and reduce their negative behaviors (Barker, 1995). Although there is no reality therapy-based program for adolescents' problematic internet use in Turkey, the results of a reality therapy-based program that reduced problematic internet use among adolescents in Malaysia and Indonesia (Mulawarman et al., 2021) supports the findings of this study. It is also similar to the results of research showing that "primary and secondary school" reduces problematic internet use (Shafie, Kahar, Anuar, Rahimi and Ahmad, 2019) and "university" (Odacı and Çelik, 2017) students.

Adolescence is a period in which developmental changes and identity achievement process intensify. Therefore, adolescents who have not yet reached physiological and psychological maturity are more likely to be affected by the harmful aspects of addictive behaviors, compared to adults (Liu and Potenza, 2010). As a matter of fact, in the focus group interview, the adolescents stated that they used the internet excessively before participating in the program and that they were at risk of becoming problematic internet users and internet addicts. In the focus group interview, the adolescents added that internet use behavior had negative effects on their family and friend relationships, eating and sleeping patterns, and school success. With the program applied within this framework, reality therapy's concepts of responsibility, control, psychological needs, total behavior, quality world, and successful identity are thought to be supportive for adolescents to gain awareness of their own internet use behaviors and to take responsibility for change, because it is stated that those who use the internet in a problematic way cannot control time effectively but spend most of their time on the internet (Cao and Su, 2007) and meet their psychological needs on the internet (Canoğulları, 2014). It is reported that spending excessive time on the internet brings along with not spending time for daily work, delaying, and problematic internet use (Günlü and Ceyhan, 2017), while problematic internet use is associated with identity seeking and having a successful identity (Ceyhan, 2010).

As a result, in the case of problematic internet use, there is a tendency to avoid responsibility, decrease behavioral control, and meet certain psychological needs such as fun, power, and belonging unhealthily in the virtual environment (Ögel, 2012). In this respect, problematic internet use is seen to be related to reality therapy concepts. When the lives of adolescents are evaluated in terms of responsibility and control, authoritarian structures such as family, teachers, or school administration can often make choices on behalf of adolescents. Choice brings along responsibility since responsibility is the result of freedom of choice. Adolescents are unlikely to take responsibility for their behavior and choices in an environment where authorities such as family, teachers, or school administration decide on behalf of them (Yorgun and Voltan-Acar, 2014). Adolescents who do not take responsibility for their behaviors and choices inevitably prefer external control. Thus, during the group process carried out within the scope of the study, leaving the control to the adolescents, making them aware that their choices are up to them, and not being an authority position contributed to the effectiveness of the study.

In today's world where the internet is used frequently, the risk of problematic internet use or internet addiction inevitably arises. Furthermore, due to the COVID-19 pandemic, isolation and distance education have also increased adolescents' internet usage time. Increasing the time spent on the internet can pose a risk in terms of problematic internet use (Balcı, Durmuş, and Sezer, 2021; Göker and Turan, 2020). Therefore, protective and preventive studies to be carried out with adolescents gain importance. There are programs prepared with different theoretical perspectives on problematic internet use or addiction (Erses and Müezzın, 2018; Ruggieri et al., 2016; Schatz, 2017). This study, on the other hand, reveals the findings of the first study which was prepared in the context of reality therapy for adolescents' problematic internet use, and the effectiveness of which was presented. A study carried with adolescents to prevent problematic internet use, and compiling the effective intervention programs, states that the contents of preventive studies generally focus on cognitive,

affective, and behavioral themes (Bagatarhan and Siyez, 2017). When the effectiveness of the program is evaluated in this respect; the adolescents in the focus group interview stated that the group process indirectly contributed to communication skills, school success, self-confidence, and socialization, and after the group process, changes occurred in the purpose, duration, and behavior of internet use, and the environment to meet psychological needs. According to this finding, it can be said that the program is effective in coping with negative results such as loneliness, postponement, or failure to fulfill responsibilities, decrease in social interaction, inability to develop social skills, decrease in academic achievement, and academic problems (Doğan and Ersoy, 2020) that adolescents express about problematic internet use. As a result, the adolescents' statements and the changes they experienced in cognitive, affective, and behavioral dimensions can be seen as a sign of the effectiveness of the intervention program.

At the end of the program applied in the study, an increase was observed only in the follow-up tests of the love/belonging sub-dimension among the adolescents' basic psychological needs. Obtained during the focus group interviews in the theme of the changes under the main theme of the group process, the participants' statements about the environment of meeting psychological needs reveal that; the participants living at home would often meet the need for love/belong in a social environment. On the other hand, the participants staying in a dormitory would use the internet as a tool to meet the need for love/belong in social life. Turkish society has a structure giving importance to relations, it cares about group attachments and has intensive family ties, and parents in Turkish society have protective attitudes; all these make it easier for adolescents to meet their love-belonging needs; However, protective-oppressive parental attitudes make it difficult for adolescents to make choices themselves and take responsibility for these choices (Yorgun and Voltan-Acar, 2014). Thus, adolescents can be resistant to meeting their need for power or they make the change more slowly. According to Glasser (1998), there are many options to meet the need for fun and not many obstacles are encountered while meeting this need. In a qualitative study conducted with adolescents, adolescents' purposes of internet use are as follows; 17 adolescents stated that they used it for social media (Facebook, Twitter, Instagram, etc.), 7 adolescents for watching movies and TV series, 5 adolescents for playing games, and 4 adolescents for listening to music (Erol, 2019). The study demonstrated that the purposes of adolescents are generally to meet their needs for fun. The participant adolescents' statements in the focus group interviews in the themes of "before the group" revealed that the participants reduced their internet use for fun or they are now using it for other purposes. In this respect, their inability to create new options to meet the need for fun may have prevented their scores for this need from increasing. On the other hand, realizing that they can meet this need not only through the internet but also from the social environment enabled adolescents to tend to meet their need for fun healthily. Considering the relationship between making choices and the need for freedom, it is thought that this need is not fully met in Turkish culture and the most lacking need is the need for freedom. For example, the pressure of the family on the decision about the school and profession of adolescents may be an obstacle to the need for freedom (Yorgun and Voltan-Acar, 2014). It can be said that the need for freedom remains in the background, due to family attitudes and individuals leaving the choice to someone else instead of taking responsibility. On the other hand, the fact that most of the adolescents participating in the group process stay in dormitories, everything they will do relating power is determined by external control, and they do not have a chance to make choices can also be considered as an obstacle to the need for freedom. The result of the decrease in the problematic internet usage scores in the quantitative data of the research provides supportive findings about which areas and how this decrease occurs thanks to the qualitative data. In addition, although significant changes could not be reached in the part of the quantitative findings related to psychological needs, the qualitative data reveal that the participants tried to meet their psychological needs more in the social environment after the program, and it was the meeting environment that changed, not the psychological needs. This result, on the other hand, provides a perspective on the reason why psychological needs do not differ significantly in quantitative data.

As a result, the program offers an alternative intervention opportunity that can be used by psychological counselors to reduce adolescents' level of problematic internet use and increase the healthy use. However, the study results need to be considered in the context of its limitations. First, the study subjects are limited to adolescents who are high school students from different types of high schools and staying at home or in a dormitory. Therefore, applying the program in different regions and educational institutions is considered

important in evaluating its effectiveness. Accordingly, the current program contributes to reducing and controlling the problematic internet use of adolescents, and thus, serves as an effective tool to be used by mental health professionals in the context of preventive counseling services.

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Data Availability: The datasets generated and analyzed during the current study are available from the corresponding author on request.

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and its later amendments or comparable ethical standards. This study was approved by The University of Anadolu Social and Humanitarian Sciences Scientific Research and Publication Ethics Committee on 31.05.2018 (ReferenceNo: 54583).

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