

The Mediating Role of Coping with Stress in Problematic Internet Use and Cognitive Flexibility Relation¹

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ABSTRACT

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Cognitive flexibility is a term encompassing three basic domains and meaning the ability to adjust individuals' cognition depending on varying circumstances. Problematic internet use may be related to psychological structures. In addition, studies have shown that the internet is both a stress-making tool and a safe haven in which individuals can seek to cope with stress. Taken all together, the purpose of the study was to observe the mediating role of coping with stress in the relationship between problematic internet use and cognitive flexibility. Chosen by convenient sampling, the participants were 706 volunteered secondary school pupils from Turkey. All data were collected with Cognitive Flexibility Scale, Strategies for Coping with Stress Scale and Young Internet Addiction Test-Short Form. As the study results revealed, problematic internet use had a negative significant effect on cognitive flexibility without the inclusion of strategies for coping with stress. Accordingly, the prediction effect of problematic internet use on cognitive flexibility became non-significant after the inclusion of strategies for coping with stress.

Problemli İnternet Kullanımı ile Bilişsel Esneklik Arasındaki İlişkide Stresle Baş Etmenin Aracı Rolü

Makale Bilgileri

ÖZ

Makale Geçmişi

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Problemli İnternet Kullanımı,

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Bilişsel esneklik değişen koşullara göre bireylerin bilişlerini değiştirebilme yeterliliklerini ifade eden, üç temel alanı kapsayan bir kavramdır. Problemli İnternet kullanımı psikolojik yapılarla ilişkilidir. Alanyazın İnterneti hem bireylerde stres yaratan bir araç, hem de stresli durumlarda baş etme becerisi olarak kullanılan bir kaçış yeri olarak kullanıldığını göstermektedir. Bilişsel esneklik ile problemli İnternet kullanımı arasındaki ilişkide stresle baş etme becerilerinin aracılık etkisi analiz edilerek aslında bu iki değişken (problemli İnternet kullanımı ve bilişsel esneklik) arasındaki doğrudan ilişkinin derecesini ortaya çıkarmak amaçlanmıştır. Bu çalışmada uygun örnekleme yöntemi kullanılarak 706 lise ve ortaokul öğrencisinden veriler toplanmıştır. Veriler, Bilişsel Esneklik Ölçeği, Stresle Başa Çıkma Ölçeği ve Young İnternet Bağımlılığı Ölçeği - Kısa Formu kullanılarak elde edilmiştir. Çalışmanın bulgularına göre problemli internet kullanımı herhangi bir aracı değişken modele dahil edilmediğinde bilişsel esneklik üzerinden negatif etkiye sahiptir. Ancak stresle başa çıkma becerileri problemli internet kullanımının bilişsel esnekliği yordadığı ilişkide aracılık ettiğinde, problemli internet kullanımının etkisinin anlamsız hale geldiği ortaya konulmuştur.

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INTRODUCTION

Cognitive flexibility is a term encompassing three basic domains and meaning the ability to adjust individuals' cognition depending on varying circumstances. These domains are: (a) inclination of perceiving formidable circumstances as controllable, (b) ability to perceive the fact that circumstances and behaviors could have alternatives, and ability to generate multi-solutions for formidable circumstances (Martin & Anderson, 1998; Dennis & Vander Wal 2010). As individuals grow up, they learn to cope with formidable circumstances and adjust required settings cognitively. This skill of coping and adjusting is defined as cognitive flexibility (Crone et al., 2004).

Through cognitive flexibility, individuals can adapt to differing circumstances quickly and effectively (Hampshire & Owen, 2006; Loose, et al., 2006). While doing this, a series of sub-thinking functions are assumed to be performed (Logan & Gordon, 2001) and accordingly, a series of controlling functions is needed to perform this process (Dong, et al., 2014). Available literature indicates that individuals with problematic internet use have deterioration in ability to handle these sorts of cognitive skills (Dong et al., 2012; Dong et al., 2013; Dong et al., 2014; Dong, Shen, Huang, & Du, 2013; Dong, Zhou, & Zhao, 2011; Lee et al., 2012; Mazhari, 2012; Zhou, Yuan, & Yao, 2012). Hence, it might be spoken of a potential relationship between cognitive flexibility and problematic internet use. Therefore, it may be useful to elaborate on problematic internet use and internet technologies which are assumed to be in relation with cognitive flexibility.

In today's world in which internet technologies are becoming more and more widespread, more than half of the world's population (approximately 5 billion of 8) uses the internet (Internet World Stats, 2022; We Are Social, 2022). In Turkey, the number of internet users has already reached up to 70 million (We Are Social, 2022). However, such rapid spread in internet use, along with easing people's lives (Caplan, 2007; Chou, et al., 2005), may be said to pose a number of challenges and problems. These challenges and problems are discussed under a general title of problematic internet use. This problem domain has become a social problem to be seriously concerned. Chiefly children and teenagers, users from any age groups have the potential to have problematic internet use (Üneri & Tanıdır, 2011). Recent studies have shown that inability to control internet use may negatively affect individuals' psychological stimulation levels, sleep patterns, eating habits and physical activities (Young, 1998). Problematic internet use has been found to be correlated with desolation (Odacı & Kalkan, 2010), well-being (Odacı & Çıkrıkçı, 2014), eating disorders (Berber-Çelik, et al., 2015), depression (Kim et al., 2006; Young & Rogers, 1998) and anxiety (Lee, et al., 2001). Studies have also shown that teenagers' problematic internet use is dramatically higher than it is among any other age groups (Anderson, et al., 2017; Cao & Su, 2007; Ciarrochi, et al, 2016; Johansson & Götestam, 2004; Tsai & Lin, 2003).

Problematic internet use may be related to psychological structures. Due to biological, psychological and social modifications, adolescence is especially a critical period of development in which individuals must cope with many challenges in family, school and peer environment. These environmental stress sources might lead to problematic internet use. Davis (2001), one of the prominent researchers on problematic internet use, found that individuals with problematic internet use were observed to have stress-driven internet use. Also, prolonged internet use was reported to cause stress-related problems (Arisoy, 2009; Lee, et al., 2016; Shapira, et al., 2000). Furthermore, young individuals facing intense stress were observed to use the internet more in order to avoid truths, to become socialized, and to control their moods (Leung, 2006, 2007; Lei & Wu, 2007; Li, et al., 2009; Li & Lei, 2005; Seepersad, 2004, Yen, et al., 2007). In addition, studies have shown that the internet is both a stress-making tool and a safe haven in which individuals can seek to cope with stress. The cognitive-based internet using model proposed by Davis (2001) may particularly be valued as a cornerstone of these findings. A hypothesis that the internet is a safe haven during stress was developed in line with the purpose of the current study. Taken all together, the purpose of the study was to observe the mediating role of

coping with stress in the relationship between problematic internet use and cognitive flexibility.

The researcher aimed to examine, as the literature indicated, if problematic internet use predicted cognitive flexibility or not. It was also tested if coping with stress, which was assumed to positively correlate both with cognitive flexibility and problematic internet use, mediated the relation between the two. Figure 1 displays the structural model.

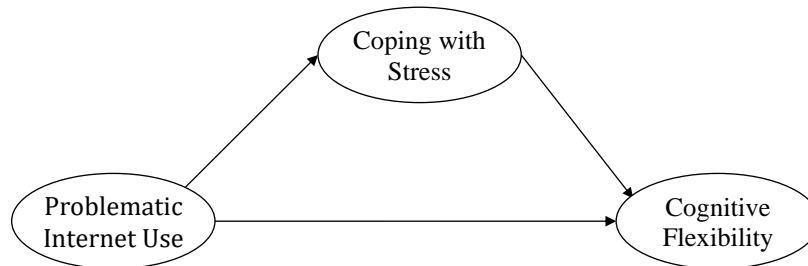


Figure 1. Structural model

METHOD

Participants

Chosen by convenient sampling, the participants were 706 volunteered secondary school pupils (444 females, %62.9; 262 males, %37.1) from Turkey. The ages ranged from 10 to 19 and the average age was 15.03 (SD = 1.81).

Research Instruments and Processes

All data were collected in the classrooms with hardcopy forms of the assessment tools. The participants were all informed about the aim and the scope of the study, and they all volunteered to participate, given an informed consent form. They were also reassured about confidentiality and anonymity lest they lose motivation and have bias in item response.

Cognitive Flexibility Scale (CFS)

Developed by Martin and Ruben (1995) and adapted to Turkish by Çelikkaleli (2014a), the Cognitive Flexibility Scale is a 6-Likert type (1=Strongly Disagree; 6= Strongly Agree) unidimensional scale composed of 12 items. Confirmatory factor analysis for the adapted version yielded acceptable model fit as $\chi^2= 83.8$, $N= 392$, $sd= 43$, $p= 0.00$; $\chi^2/sd= 1,93$, $RMSEA=.059$, $NFI=.85$, $CFI=.92$, $IFI=.92$, $GFI=.95$, $AGFI=.92$). Cronbach's alpha was .74, and test – re-test reliability was .83. Items 2, 3, 6 and 10 are reverse-coded. Scores range from 10 to 60, and higher score means higher cognitive flexibility. Cronbach's alpha for the current study sample was .69.

Strategies for Coping with Stress Scale (SCSS)

Developed by Aydın (2005, 2008) by drawing on Csikszentmihalyi's (1990) flow theory, SCSS measures strategies for coping with stress arising out of classroom environment, homework, exams, school rules, teachers, friends, self-perception and future anxiety among 14 – 17-year-old teenagers. The SCSS consists of 48 items and three sub-scales as struggle (S), self-control (SC) and active contact with environment (ACE). Higher score indicates higher effective strategies for coping with stress. Cronbach's alpha was .88 for the total score, .85 for S, .83 for SC, and .81 for ACE. Test-retest reliability coefficients were as follows: R-total score = .91, R-S = .84, R-PC = .91, and R-ACE = .84. Criterion validity was measured with BDI. Pearson's correlations were as follows: R-total scale = -.40**, R-S = -.16**, R-PC = -.23**, R-ACE = -.57**. Cronbach's alpha for the current study was .89 for total score, .88 for S, .69 for SC, and .82 for ACE.

Young Internet Addiction Test-Short Form (YIAT-SF)

Developed by Young (1998) and adapted as a short form by Pawlikowski, Altstötter Gleich, and Brand (2013), The Young Internet Addiction Test-Short Form (YIAT-SF) is a 5-point Likert-type scale with 12 items. The Turkish adaptation of YIAT-SF was conducted by Kutlu, Savcı, Demir, and Aysan (2016) for both teenagers and undergraduates. Exploratory factor analysis showed that the scale was one-factor structured, and confirmatory factor analysis for the one-factor structure yielded acceptable fit: $\chi^2 = 144.930$, $df = 52$, $RMSEA = .072$, $RMR = .70$, $GFI = .93$, $AGFI = .90$, $CFI = .95$, $IFI = .91$ for the sample of undergraduates, and $\chi^2 = 141.934$, $df = 51$, $RMSEA = .080$, $GFI = .90$, $CFI = .90$, $IFI = .90$ for teenagers. Cronbach's alpha was .91 for undergraduates and .86 for teenagers. YIAT-SF test-retest reliability was found .93 for undergraduates and .86 for teenagers. Higher scores indicate higher internet addiction. There are no reverse-coded items. Cronbach's alpha for the current study was .86.

Data Analysis

Descriptive statistics and Pearson's correlation were analyzed using IBM SPSS Statistics 22.0. For testing the mediational effect of coping with stress in the relationship between problematic internet use and cognitive flexibility (Preacher & Hayes, 2008), structural equation modeling (SEM) via IBM SPSS AMOS was utilized using maximum likelihood estimation. Certain indices were considered for model fit: $2/df < 5$, CFI , TLI , GFI , $IFI > .90$, $SRMR$ and $RMSEA < .08$ (Hu & Bentler, 1999; MacCallum et al., 1996; Tabachnick & Fidell, 2007). Then, bias-corrected bootstrap analysis (10000 resampling with 95% confidence interval) was performed in order to examine the validity of parameters and estimates of direct and indirect effects to observe the potential mediational effect. down the data analysis of your research without changing the format. Write down the data analysis of your research without changing the format.

Ethic

The authors declare that all procedures performed in the study were in accordance with the ethical standards of Gaziosmanpaşa University (IRB approval number: 07.01–04) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

RESULTS

Table 1 shows the means, standard deviations, kurtosis and skewness for all variables. Skewness and kurtosis values revealed that no variables showed severe non-normality (i.e., skew > 2 , kurtosis > 7 ; Kim, 2013).

Table 1. Descriptive and Reliability Statistics for All Measures

	Mean	SD	Skew	Kurtosis	Cronbach's Alpha
Strategies for Coping with Stress (SCSS)	154.59	24.10	.03	.09	.89
Self-control (SC)	39.41	7.22	-.11	-.16	.65
Struggle (S),	68.88	14.41	-.30	-.12	.88
Active Contact with Environment (ACE)	46.29	9.34	-.60	-.15	.82
Inter1	10.16	3.63	.43	-.10	.71
Inter2	10.25	3.86	.29	-.56	.71
Inter3	9.42	3.68	.46	-.22	.70
Young Internet Addiction Test-Short Form (YIAT-SF)	29.82	9.81	.37	-.12	.87
Flex1	12.96	3.82	.49	-.28	.60
Flex2	17.59	3.77	-.39	-.15	.65
Flex3	17.38	3.85	-.46	-.05	.65
Cognitive Flexibility Scale (CFS)	47.93	8.32	.20	-.02	.69

Table 2 displays the product-moment correlations among all study variables.

Table 2. Product-Moment Correlations Between Study Measures

	1	2	3	4	5	6	7	8	9	10	11	12
1. (SCSS)	1											
2. (SC)	.79	1										
3. (S)	.86	.54	1									
4. (ACE)	.66	.41	.25	1								
5. Inter1	-.28	-.34	-.10	-.32	1							
6. Inter2	-.34	-.38	-.12	-.38	.69	1						
7. Inter3	-.31	-.32	-.13	-.37	.60	.70	1					
8. (YIAT-SF)	-.35	-.36	-.13	-.40	.86	.91	.87	1				
9. Flex1	.16	.09	.18	.06	-.05	-.04	-.01	-.04	1			
10. Flex2	.38	.27	.30	.31	-.21	-.22	-.23	-.25	.17	1		
11. Flex3	.38	.25	.31	.32	-.16	-.21	-.25	-.23	.13	.58	1	
12. (CFS)	.42	.28	.36	.32	-.19	-.21	-.22	-.24	.60	.80	.79	1

The structural model was specified with the three main variables treated as unitary latent constructs. This was done in order to assess the mediational role of coping with stress in a straightforward way. While SCSS was already reflected by three subscales, the situation was not the same for problematic internet use and cognitive flexibility scales. These two scales did not have any subscales and thus must have been represented as unitary latent constructs reflected on the item level, each of which as observed variables. However, this arose the problem of not being able to set theoretical connections among all the observed variables in a single structural equation. Hence, the researcher opted to take the parceling approach basing on Kline’s (2011) recommendations and created three parcels (summing the consecutive four items; i.e., 1 to 4, 5 to 8) from the two scales (both scales have 12 items), and finalized the structural model with each three parcels representing the two unitary dimensions.

Before running and assessing the values with directional paths among all variables (i.e., from problematic internet use to both coping with stress and cognitive flexibility, and also from coping with stress to cognitive flexibility), the researcher first aimed to test their predictive strength on each other by replacing bidirectional arrows with the directional ones to ensure that all correlations were significant and displayed acceptable model fit. Estimated correlations were as follows: Internet Addiction-Coping Stress, $r = -.52$; Coping Stress-Cognitive Flexibility, $r = .65$; Internet Addiction-Cognitive Flexibility, $r = -.39$ and fit indices were $\chi^2(45, N = 661) = 178.388, p < .001; \chi^2/df = 7.433; CFI = .92; TLI = .90; GFI = .95; SRMR = .062; RMSEA = .09$. Next, the structural model was finalized and run using directional paths to observe the estimates both before and after the inclusion of the mediating variable. Figure 2 displays the finalized model with all regression weights.

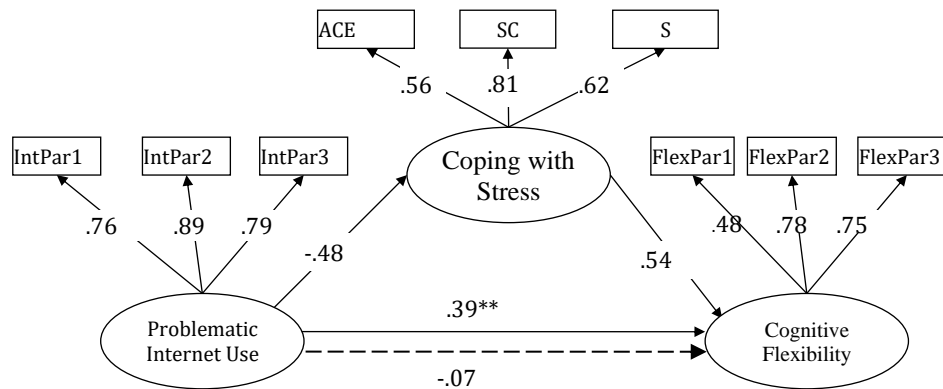


Figure 2. Finalized structural model

Overall fit indices provided noticeable support for the full model: $\chi^2(45, N = 661) = 126.344, p < .001$; $\chi^2/df = 5.493$; GFI = .96; CFI = .95; NFI = .94; TLI = .92; SRMR = .051; RMSEA = .075.

To measure the degree to which strategies for coping with stress serves as a mediator between problematic internet use and cognitive flexibility, the researcher employed two approaches. First, estimates of direct and indirect effects were examined in a manner consistent with the causal steps approach described by MacKinnon et al. (2002, 2012). To employ this approach, direct effects of problematic internet use on cognitive flexibility, problematic internet use on strategies for coping with stress, and strategies for coping with stress on cognitive flexibility were estimated in separate regression analyses. Then, the full structural model was run to examine the variation between direct and indirect effects of problematic internet use on cognitive flexibility with the mediation of strategies for coping with stress. The results of these analyses can be seen in Table 3 and Table 4, and provide evidence that strategies for coping with stress serves as a partial mediator.

Table 3. Estimates of Direct Effects (Causal steps)

Path	Standardized Direct Effect	R ²	S.E.	t	p
Problematic Internet Use → Cognitive Flexibility	-.39	.15	.030	-6.63	<.001
Problematic Internet Use → Strategies for Coping with Stress	-.47	.22	.17	-8.15	<.001
Strategies for Coping with Stress → Cognitive Flexibility	.54	.30	.01	4.38	<.001
Problematic Internet Use → Cognitive Flexibility	-.39	.15	.030	-6.63	<.001

Table 4. Estimates of Direct and Indirect Effects (Full SEM)

Path	Standardized Direct Effect	Standardized Indirect Effect	R ²	S.E.	t	p
Problematic Internet Use → Strategies for Coping with Stress (Direct)	-.48	---	.23	.18	-9.44	<.001
Strategies for Coping with Stress → Cognitive Flexibility (Direct)	.54	---	.33	.01	4.18	<.001
Problematic Internet Use → Cognitive Flexibility (Indirect)	-.07	-.26	---	.02	-1.36	.18

The second approach was to employ bootstrapping to examine bias-corrected percentile method confidence intervals (10000 resampling; 95% confidence interval), following Hayes’s (2018)

recommendations for the direct and indirect effect of problematic internet use on cognitive flexibility after the mediating role of strategies for coping with stress. For the direct effect, the confidence interval ranged from $-.20$ to $-.01$ and for the indirect effect it ranged from $-.34$ to $-.19$ with that both were significant indicating that strategies for coping with stress served as a partial mediator in the relation of problematic internet use and cognitive flexibility.

DISCUSSION, CONCLUSION, RECOMMENDATIONS

Problematic internet use is becoming a more serious question in public health. It is common especially among adolescents and irreversibly impacts the future generations. The findings of the current study showed that problematic internet use negatively predicted cognitive flexibility without the inclusion of a mediator variable ($r = .39$). Previous research has shown that negative and incorrect use of internet caused deterioration in cognitive functions (Dong, et al., 2012; Dong, 2013; Dong, et al., 2013; Dong, et al., 2011; Lee et al., 2012; Mazhari, 2012; Zhou, et al., 2012) and in functional neural connections (Hong et al., 2013; Lin et al., 2012). Both the current study results and available literature indicated that adolescents with problematic internet use may lose their cognitive flexibility with time. Taken together, the current study results show compliance with available literature in that problematic internet use predicted cognitive flexibility.

The second significant finding of the study was that problematic internet use negatively predicted strategies for coping with stress ($r = .47$) indicating that teenagers failed to develop strategies almost half-and-half because of problematic internet use. Related literature showed that self-blame level was higher in individuals using the internet as a communication tool (Caplan, 2006). Individuals with high problematic internet use were observed to adopt online gaming as a safe haven from reality. (Shaw & Gant, 2002). Teenagers with high problematic internet use were reported to be more evasive than the ones using internet properly (Milani et al., 2009). They were inclined to evade potential risks (Ha et al., 2007). On the whole, the internet itself was termed as a safe haven for them (Kandell, 1998). Individuals developing strategies for coping with stress have been reported not to take on evasive behaviors but excessive or inappropriate internet use hinders individuals from having right choices for their good. Therefore, they may be having difficulty in giving right decisions for the purpose of evading stress as a result of excessive or inappropriate internet use. In light of these, individuals with problematic internet use may be said to be developing negative coping skills. The results of the current study therefore correspond with the related literature.

The last and the most remarkable finding of the study was that teenagers' problematic internet use levels did not positively predict cognitive flexibility after the inclusion of strategies for coping with stress ($r = -.07$; $p > .05$). This shows parallelism with the related literature as no findings which have reported problematic internet use have had a positive direct effect on cognitive flexibility were encountered. In other words, this finding might be deemed that problematic internet use predicted cognitive flexibility through coping with stress. That is, as teenagers' problematic internet use levels increase, they fail to develop strategies for coping with stress and thus their cognitive flexibility is impaired. Though related literature has already shown that cognitive flexibility and mental functions deteriorate due to problematic internet use, the current study results suggest that it may be not only directly because of problematic internet use but also of failure to develop strategies for coping with stress.

Certain limitations are evident in the current study. First of all, the responses of participants may include social desirability biases, since the data were collected using self-reported measures. The sample included only a limited number of schools in terms of variety. Therefore, the findings of the study should not be generalized as being typical of all adolescents. Additionally, the findings are related to a general sample, and the behaviors of the male and female participants were not examined separately. It is recommended that more detailed information, using qualitative or other research methods, be obtained in future studies, and that the data obtained be investigated in terms of gender and age variables.

The purpose of the current study was to observe if coping with stress served as a mediator between problematic internet use and cognitive flexibility. Cognitive flexibility is a skill that helps individuals develop

problem-solving skills and accommodate to differing circumstances (Ellis et al., 2018; Martin & Anderson, 1998; Mittal et al., 2015; Somer et al., 2011). Individuals will necessarily need to develop this skill especially in adolescence as it may be the most compelling period of life (Aery, 2019; Bedel & Ulubey, 2015; Öztürk, 2019). As the study results revealed, problematic internet use had a negative significant effect on cognitive flexibility without the inclusion of strategies for coping with stress ($\beta = -.39, p < .01$). Accordingly, the prediction effect of problematic internet use on cognitive flexibility became non-significant after the inclusion of strategies for coping with stress ($\beta = -.07, p > .05$). Considering this finding, the conclusion might be that helping individuals develop and regulate strategies for coping with stress is more useful than regulating their problematic internet use. Çuhadaroğlu (2011) examined the relationship between cognitive flexibility and coping with stress and found no positive correlations. However, some other studies (Gess, 2001; Kırpan et al., 2007) revealed that there was a positive relation between cognitive flexibility and stress. Another study by Laçın and Yalçın (2018) reported a positive prediction of cognitive flexibility by coping with stress. The study results showed that individuals with self-confident ability to manage stress had higher cognitive flexibility while individuals with submissive ability to manage stress had lower cognitive flexibility. Thus, it might be concluded that teenagers having coping skills in a positive manner may have higher cognitive flexibility when they face negative situations and easily adapt themselves to that current situation and solve it compared to those who have lower cognitive flexibility.

Teenagers have intense stressful experiences in adolescence (Aery, 2019; Bedel & Ulubey, 2015; Öztürk, 2019). Stress level may go up with problematic internet use. Gaining an effective skill for coping with stress is crucial to teenagers' healthy development. The current study displayed that having effective skills for coping with stress was the key factor for teenagers in that they expose their potentials, give right decisions, gain academic achievement and perform developmental functions properly. It may be substantial in accordance with this to provide practices and activities especially in secondary school period. Parents and teachers should also let teenagers face stress factors to help them develop coping skills for the purpose of helping them have confidence and belief to cope with stressful circumstances and get experienced.

Practices should be organized considering internet – stress relation in studies to examine problematic internet use. The current study results showed that although problematic internet use did not have a direct effect on teenagers' problem solving, decision-making, and adapting to current circumstance skills, it created an indirect help for individuals in handling the situation properly by creating a stress factor. In light of this, it is suggested that problematic internet use be evaluated and its effects on individuals' lives be examined.

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GENİŞLETİLMİŞ ÖZET

Giriş: Bilişsel esneklik değişen koşullara göre bireylerin bilişlerini değiştirebilme yeterliliklerini ifade eden, üç temel alanı kapsayan bir kavramdır. Bu alanlar: Zor durumları kontrol edilebilir algılama eğilimi, durum ve davranışların alternatiflerinin olabileceğini algılama becerisi, zor durumları çözebilmek için birden fazla çözüm üretebilme becerisidir (Martin & Anderson, 1998; Dennis & Vander Wal 2010). Bilişsel esneklik becerisi sayesinde bireyler farklı durumlara hızlı ve etkili bir şekilde uyum sağlayabilirler (Hampshire & Owen, 2006; Loose, et al., 2006). Bunu gerçekleştirirken bir dizi alt düşünce işlevinin yerine getirildiği varsayılmaktadır (Logan & Gordon, 2001) ve bu durumu gerçekleştirmek için bir dizi yönetici işlevlere de ihtiyaç vardır (Dong, et al., 2014). Alanyazındaki çalışmalar, problemlili İnternet kullanımına sahip bireylerin bu tarz bilişsel süreçleri yönetebilecek becerilerde bozulmalar yaşadıklarını ortaya koymaktadır (Dong, et al., 2012; Dong, et al., 2013; Dong, et al., 2014; Dong, Shen, Huang, & Du, 2013; Dong, Zhou, & Zhao, 2011; Lee et al., 2012; Mazhari, 2012; Zhou, Yuan, & Yao, 2012). Problemlili İnternet kullanımı psikolojik yapılarla ilişkilidir. Problemlili İnternet kullanımı ile ilgilenen en çok bilinen çalışmacılardan biri olan Davis (2001) problemlili İnternet kullanımı olan bireylerde İnternet kullanımının stres kaynağı olduğunu ortaya koymuştur.

Ölçme Araçları ve Yöntem: Bu çalışmada kolayda örnekleme yöntemi kullanılmıştır. Ekim ve Aralık 2018 tarihleri arasında Türkiye'nin kuzeybatısındaki 706 gönüllü lise ve ortaokul öğrencisinden oluşan örneklem alınmıştır. Katılımcıların yaş ortalaması 15.03 yıl (Standart Sapma = 1.81) olup, 10 ile 19 yıl arasında değişmektedir. Bunların %62.9'u (N = 444) kadın ve %37.1'i (N = 262) erkektir. Çalışma kapsamında Martin ve Rubin (1995) tarafından geliştirilen ve Çelikkaleli (2014a) tarafından Türkçeye uyarlanan "Bilişsel Esneklik Ölçeği" kullanılmıştır. Stresle Başakçımaya Ölçeği Aydın (2005, 2008) tarafından Türkiye bağlamı göz önünde bulundurularak ve Csikszentmihalyi'nin (1990) akış teorisi temelinde geliştirilmiştir. 14-17 yaşındaki ergenlerin dersler, ödevler, sınavlar, okul kuralları, öğretmenler, arkadaşlar, benlik algısı ve gelecek yaşam nedeniyle stresle başa çıkma stratejilerini ölçer. İnternet bağımlılığı ölçeği Young (1998) tarafından geliştirilen ve Pawlikowski, Altstötter Gleich ve Brand (2013) tarafından kısa form olarak uyarlanan YIAT-SF, 12 maddeden oluşan 5'li Likert tipi bir ölçektir. YIAT-SF'nin Türkçe uyarlaması hem ergenler hem de üniversite öğrencileri için Kutlu, Savcı, Demir ve Aysan (2016) tarafından yapılmıştır. IBM SPSS Statistics 22.0'da betimsel analiz ve Pearson korelasyon analizi yapılmıştır. AMOS Graphics'te ölçüm modeli ve aracılık modellerini incelemek için yapısal eşitlik modellemesi (SEM) kullanılmıştır. Tek boyutlu ölçümlerden kaynaklanan hataları önlemek için parselleme tekniği kullanılmıştır (Little ve diğerleri, 2002). Bilişsel Esneklik Ölçeği ve Young İnternet Bağımlılığı Testi-Kısa Formdan üç parsel elde edilmiştir.

Bulgular: Problemlili internet kullanım parselleri ile stresle baş etme faktörleri ($r = -.10 \leq r \leq -.37, p < .01$) arasında ve problemlili internet kullanım parselleri ile bilişsel esneklik parselleri arasında negatif yönde anlamlı bir ilişki vardır ($r = -.16 \leq r \leq -.27, p < .01$). Ayrıca stresle başa çıkma faktörleri ile bilişsel esneklik parselleri arasında pozitif yönde anlamlı bir ilişki bulunmuştur ($r = .21 \leq r \leq .35, p < .01$). Araştırmanın ikinci aşamasında, bilişsel esneklik ve problemlili internet kullanımı arasındaki ilişkide stresle başa çıkmanın aracı rolünü belirlemek amacıyla yapısal eşitlik modeli test edilmiştir. Analizde tüm yol katsayılarının anlamlı olduğu gözlemlendi. Problemlili internet kullanımı bilişsel esnekliği olumsuz ($\beta = -.39, p < .01$) ve stresle başa çıkma düzeylerini olumsuz ($\beta = -.48, p < .01$) yordamaktadır. Ayrıca stres düzeyleriyle baş etme bilişsel esnekliği olumlu yönde yordamaktadır ($\beta = .54, p < .01$). Ayrıca problemlili internet kullanımının stresle başa çıkma düzeyleri aracılığı ile bilişsel esnekliği yordayan etki katsayısı $-.07 (p > .05)$ olarak tahmin edilmiştir. yapısal eşitlik modelindeki tüm etkiler anlamlıdır. Hem doğrudan hem de dolaylı etkilerin önyükleme güven aralıkları alt ve üst sınırları sıfır değildir. Dolayısıyla önyükleme sonuçlarına göre ergenlerin problemlili internet kullanımının stresle başa çıkma aracılık yoluyla bilişsel esneklikleri üzerinde etkili olduğu söylenebilir.

Tartışma: Bu çalışmada ortaya çıkan sonuçlara göre, problemlı İnternet kullanımı aracı deęişken olmadan bilişsel esneklięi negatif yönde yordamaktadır ($r=-.39$). Hem mevcut çalışma hem de alandaki çalışmalar benzer şekilde problemlı İnternet kullanımına sahip ergenlerin zamanla bilişsel esnekliklerini kaybedebilecekleri ifade etmektedir. Çalışmanın bir dięer önemli bulgusu, ergenlerde problemlı İnternet kullanımı stresle baş etme becerilerini negatif yönde yordamaktadır ($r=-.48$). Ergenlerin İnterneti problemlı bir şekilde kullanması sonucunda giderek stresle baş etme becerilerini neredeyse yarı yarıya kaybettięi sonucu ortaya çıkmıştır. İlgili literatürde İnterneti iletişim amacıyla uzun süreli kullanan kişilerde kendini suçlama durumu yüksek düzeyde görölmektedir (Caplan, 2006). Problemlı İnternet kullanımı yüksek düzeyde olan ergenlerin, İnterneti saęlıklı kullanan akranlarına oranla sorunlarından daha fazla kaçınmacı davrandıkları ifade edilmektedir (Milani, et al., 2009). Çalışmadan çıkan dięer bir sonuca göre ergenlerin stresle baş etme becerileri bilişsel esneklik düzeylerini pozitif yönde yordamaktadır ($r=.54$). Bilişsel esneklik düzeyi belirli davranışlardan ve eylemlerden etkilenmektedir. Stresle baş etme becerileri de bilişsel esneklik düzeylerini etkileyen faktörlerden birisi olarak deęerlendirilebilir. Stres, konsantrasyon konusunda zorluklara (Dennis, et al., 2010; Schaufeli, et al., 2017), karar verme konusunda zorlanmaya ve sıklıkla dikkat ve hafıza konusunda zayıflıklara (Farquharson, 2012) yol açabilir. Araştırmanın son ve en önemli bulgusu ise, ergenlerin problemlı İnternet kullanım düzeyleri stresle baş etme becerileri aracılık ettięinde bilişsel esneklik düzeyini anlamlı şekilde yordamamaktadır ($r=-.07$, $p>.05$). Bu bulgudan hareketle, aslında ilgili literatürde de karşılık bulan problemlı İnternet kullanımının bilişsel esneklik düzeyini doğrudan yordamadıęı ifade edilebilir. Aslında bu bulgu problemlı İnternet kullanımının stresle baş etme üzerinden bilişsel esneklięi açıkladıęı şeklinde de deęerlendirilebilir. Ergenlerin problemlı İnternet kullanım düzeyleri arttıkça, stresle baş etme becerileri azaldıęı, akabinde de bilişsel esneklik düzeylerinin olumsuz etkilendięi ifade edilebilir.

Sonuç ve Öneriler: Bireylerin mevcut potansiyellerini açığa çıkarmaları ve bilişsel esnekliklerini kullanarak doęru kararlar vermeleri, akademik olarak başarı göstermeleri ve gelişimsel dięer görevleri saęlıklı bir şekilde yerine getirebilmeleri için anahtar rol olumlu stresle baş etme tarzına sahip olmalarından geçmektedir. Bunu saęlamak için özellikle ortaokul ve lisede stresle baş etme ile ilgili etkinlik ve uygulamalara yer verilmesi gerekmektedir. Ailelerin ve öğretmenlerin ergenlerin üstesinden gelebilecekleri stres faktörleriyle karşılaşmalarına izin vermesi gerekmektedir. Böylece stresli durumlarla baş edebileceklerine olan inançlarının artması ve deneyim sahibi olmaları saęlanmış olacaktır.

Özellikle problemlı İnternet kullanımı ile ilgili yapılacak çalışmalarda, stres ile ilişkisi göz önüne alınarak uygulamaların planlanması gerekmektedir. Bu çalışma sonucu da göstermektedir ki problemlı İnternet kullanımı bireylerin doğrudan sorun çözme, karar verme, mevcut duruma ayak uydurma gibi yetilerine etki etmese de stres faktörü oluşturarak, bireylerin durumu saęlıklı ele almasında dolaylı bir sonuç meydana getirmektedir. Bu bilgi ışığında problemlı internet kullanımının deęerlendirilmesi ve bireylerin yaşamına etkisinin araştırılması önerilmektedir.