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Psychological Flexibility, Coronavirus Anxiety, Humor and Social Media Addiction During COVID-19 Pandemic in Turkey

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ABSTRACT

Psychological flexibility is associated with psychological health and affected by various factors. The aim of the present study is to examine the role of coronavirus anxiety, humor and social media addiction on psychological flexibility during the COVID-19 pandemic in Turkey. Variables were measured with online self-report surveys and data were gathered from December 2020 to January 2021 in Turkey. The sample consisted of 376 people (295 female, M = 29.88, SD = 11.05). The relationships between the variables were tested with path analysis using structural equation modelling (SEM). According to results, the constructed model showed that COVID-19 anxiety significantly and directly increased social media addiction ($\beta = .17$, $p < .01$), decreased coping humor ($\beta = -.11$, $p < .05$) and decreased psychological flexibility indirectly through social media addictions ($\beta = -.08$, $p < .01$). Humor coping significantly and directly increased psychological flexibility ($\beta = .25$, $p < .01$), and social media addiction significantly and directly decreased psychological flexibility ($\beta = -.31$, $p < .01$). Findings indicated that psychological flexibility is influenced by coronavirus anxiety, social media addiction and humor coping. Supporting humor coping and reducing anxiety and problematic social media use would be helpful to enhance psychological flexibility of individuals during the pandemic.

Keywords Psychological flexibility · Coronavirus disease (COVID-19) · Anxiety · Humor · Social media addiction

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Introduction

COVID-19 pandemic spread all over the world in a sort time and negatively affected both individuals and countries socially, economically, and psychologically. Governments carried out some restrictions and precautions like quarantines, lockdowns, working from home, distance education that resulted in changes the daily lives of many people (Bonaccorsi et al., 2020; Han et al., 2020; Landi et al., 2020). The most common psychological consequences of pandemic related stressors includes generalised mood disorders, anxiety disorders, post-traumatic stress disorders, and depression (Taylor, 2019). According to the results of studies, (Bendau et al., 2021; Liu et al., 2020; McCracken et al., 2021; Wang et al., 2020;) almost more than half of the individuals reported severe to moderate anxiety and depressive symptoms. Adaptive coping including the use of humor (Amici, 2020) or maladaptive coping strategies like excessive use of social media (Cauberghe et al. 2020) have an impact on the level of pandemic anxiety and related negative emotions (Rasskazova et al, 2020). Anxiety level of individuals during COVID-19 outbreak is also associated with other factors like psychological flexibility which is a resilient factor for mental health (McCracken et al., 2021). Psychological flexibility as an essential part of psychological health has a great role in supporting people at high risk of poorer mental health effects because of anxiety during a pandemic (Dawson & Golijani-Moghaddam, 2020; Landi et al., 2020; McCracken et al, 2021). Thus, it is important to understand the factors related to psychological flexibility to improve individuals' mental health during the pandemic time.

Psychological Flexibility

Relational frame theory (RFT) asserts that language and cognition play a great role on psychological problems (Hayes et al., 2001). In this approach, the context and the function of psychological events are given attention rather than the content, form, and frequency with which they occur (Hayes et al., 2011). Acceptance and commitment therapy (ACT) which benefits from relational frame theory is an evidence-based therapeutic approach combining acceptance and mindfulness approach with commitment and behavior change methods in order to improve psychological flexibility (Hayes et al., 2009).

Psychological flexibility model in acceptance and commitment therapy explains psychological health and functional behaviors through six core dimensions including contact with the present moment, committed action, acceptance, cognitive defusion, values, and self-as context. Contact with the present moment means paying attention to what is happening right now. Committed action is doing what is important for one's life, living by own values. Acceptance refers embracing of moment-to-moment experience actively and voluntarily. Cognitive defusion is the ability to distinguish thoughts and direct experiences, that is, thoughts are just thoughts not facts. Values mean what is important for a person

and guiding principles that direct one's life. Finally, self-as-context includes the experience that a person is not the content of her/his thoughts, but the one experiencing it (Chin & Hayes, 2017; Hayes et al., 1999; Hoffmann et al. 2019). Its negative form is called as psychological inflexibility which explains being in a psychologically unhealthy state (Fig. 1).

In ACT, the dimensions of psychological flexibility are mechanisms of change (Ciarrochi et al., 2010). There are evidences supporting the efficacy of acceptance and commitment therapy (ACT) for chronic pain (Scott & McCracken, 2015), substance use (Smout et al., 2010), somatization, depression, anxiety (Masuda and Tully 2012; White et al., 2013) and posttraumatic stress (Twohig, 2009). Recently, results of the studies related to the COVID-19 pandemic supported that psychological flexibility is a resilience factor reducing the adverse effects of the COVID-19 including depression, anxiety, insomnia (McCracken et al., 2021; Pakenham et al. 2020; Wielgus et al., 2020), stress (Arslan & Allen, 2021), and supporting adaptive COVID-19 coping responses (Dawson & Golijani-Moghaddam, 2020), well-being (Arslan & Allen, 2021).

Coronavirus Anxiety

The COVID-19 pandemic results in both physical health and psychological resilience challenges. The disease rapidly spread around the world and became an international outbreak. Increasing rate of infected cases and associated deaths brought an enormous panic and anxiety in public (Lin, 2020). Psychological impacts of COVID-19 outbreak, especially depression, anxiety and stress-related symptoms, have been examined with variety of populations including healthcare workers (Yeni-Elbay et al., 2020; Pourali-zadeh et al. 2020), patients (Hajure et al., 2020), teachers (Li et al., 2020), adolescents (Liu et al. 2020) and general population (Özdin and Bayrak-Özdin 2020; Wang et al., 2020) all around world. Especially, anxiety results from COVID-19 disease is common

Fig. 1 Dimensions of Psychological Flexibility Model. Note. This figure demonstrates the six core dimensions of psychological flexibility model in Acceptance and Commitment Therapy. From "Acceptance and commitment therapy: Model, processes and outcomes" by S. C. Hayes, J. B. Luoma, F. W. Bond, A. Masuda, A., & J. Lillis, 2006, Behaviour Research and Therapy, 44(1), 8. Copyright 2005 by Elsevier Ltd
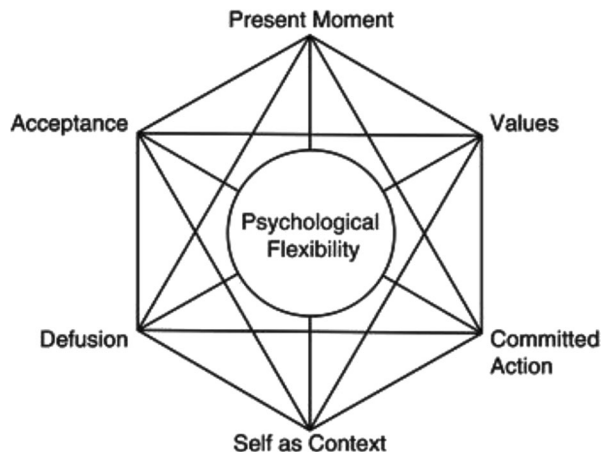
among people from different ages, professions and countries (Da Silva et al., 2021; Yeni-Elbay et al. 2020).

The term coronavirus anxiety is based on the psychology of fear and anxiety litera-ture. Trauma related reactions, anxiety as well as distressing bodily symptoms are at the center of coronavirus anxiety (Lee, 2020). COVID-19 pandemic resulted in anxiety among people due to the lockdowns determined by governments and social isolation. Furthermore, the reasons for fear are the severity of the disease, risk of crisis, the eco-nomic and financial impact on families as well as fear about life (Da Silva et al., 2021). Genetics, personality, past traumas and substance abuse recognizing in several ways like muscle pain, excessive worry, indigestion and sleep disorders are the factors that can increase anxiety rates (McAlonan et al., 2007).

Coping With Humor

Individuals can use various ways to cope with stressful and troublesome situations in life. Coping with humor, one of these ways, has become a frequently researched topic in recent years (Brunault et al, 2015; Satıcı & Deniz, 2017; Vela et al., 2013). It has been stated that humor is very important in protecting one's self in daily life, maintain-ing a positive mood and coping with traumatic experiences (Barry, 1994; Frankl, 1966; Ruch, 1998). Studies conducted in this context support that humor is a way to cope with stress and troubles (Abel, 2020; Fritz et al. 2017; Nezlek & Derks, 2001) because humor has been found to facilitate coping with stressful situations by contributing to cognitive reassessment (Kuiper et al., 1995). Based on the knowledge that humor is effective in coping with stress, according to Kuiper et al. (1993), using humor as a cop-ing mechanism in a stressful situation is an important self-protection strategy. In addi-tion, humor was found to be related to subjective well-being (Özbay et al., 2012) and psychological well-being (Maiolino & Kuiper, 2016). In fact, it is seen that individuals who use humor as a coping method are healthier and less depressed, and they are also liked by their social environment and are strong against psychological disorders (Celso et al., 2003; Nezlek & Derks, 2001). In other words, humor is a protective factor against psychological disorders (Thorson et al., 1997; Brunault et al., 2015) and is thought to have a positive relationship with the concept of psychological flexibility defined as the capacity of a person to cope with traumatic events, to have balanced, productive and positive emotions, and to have a healthy level of psychological and physical functional-ity (Bonnano, 2004). Humor as a coping mechanism has a predictive value for psycho-logical flexibility which is one of the fundamental aspects of psychological health (Pilz, 2018; Rieger & McGrail, 2013). Therefore, it is thought that humor will positively affect the psychological flexibility of individuals and it is an effective defense method that can be used to cope with the fear of coronavirus, which is frequently observed dur-ing the pandemic period.

Social Media Addiction

Social media addiction was another concept which was examined in this study. According to January 2021 digital report of We Are Social platform which provides the latest Internet statistics for Turkey and includes mobile and social statistics, social media users increased by 6 million that is more than 11% compared to the previous year. The number of social media users in Turkey with this data equal to 70.8% of our total population. Considering the purposes of using social media, the first place is to follow the agenda, to be informed about news and events, to watch entertaining videos and content, to fill leisure time, to interact with friends and family members, to share photos and videos. From this point of view, most of the users spend their time on social networks, online news sites, movie and music pages. Internet and social media usage increased with the impact of COVID-19. Since last year, the number of social media users has increased by 13% (WeAreSocial, 2021). Social media addiction is basically considered as a behavioral addiction (Griffiths, 2005, p.191). Studies have reported that approximately 12% of social media users experience social media addiction (Alabi, 2012; Wolniczak et al., 2013; Wu et al., 2013).

Researchers suggested that the overuse of new technologies (especially online social networks) can create a potential mental health problem, loneliness and addiction in young people (Al-Kandari & Al-Sejari, 2021; Echeburua & de Corral, 2010; Stankovska et al., 2016). Addiction causes individuals to socialize less and their social relationships to deteriorate (Savcı & Aysan, 2017; Balcı & Tiryaki, 2014). According to the research, uncontrolled use of social media decreases self-esteem (De Cock et al., 2014; Pelling & White, 2009), increases loneliness (Özgür, 2013; Sagioglou and Greitemeyer 2014) decreases life satisfaction (Chan, 2014; Valenzuela et al., 2009) and causes depression (Blachino et al., 2015; Khattak et al., 2017; Steers et al., 2014). In addition, some studies have shown that individuals who spend time on social media for a long time exhibit poor academic performance (Junco, 2012; Karpinski et al., 2013; Kirschner & Karpinski, 2010).

With the COVID-19 pandemic, people's lives have started to change both individually and socially (Taylor et al., 2020). It has been found that staying at home for a long time, social distance and hygiene measures gradually increase anxiety and negative mood in individuals (Gao et al., 2020). There are various studies on internet addiction during the COVID-19 pandemic. Based on the knowledge that the vast majority of internet users are social media users, it is thought that internet addiction and COVID-19 research will yield similar results on social media addiction. According to these studies, it has been found that with the COVID-19 pandemic, individuals increase internet use to cope with the resulting stress and anxiety and this increase may have an impact on the development of internet addiction disorder in some individuals (Gao et al., 2020; Király et al., 2020). In addition, a recent study found that problematic Internet use does not significantly affect fear of COVID-19, but anxiety mediates this effect (Hashemi et al., 2020). When the research is examined, it is seen that more research is required in order to better understand the relationship between social media addiction and the fear of COVID-19.

Present Study

Throughout the life, every individual encounters some difficulties. During these times, the ability to adjust to the situations by accepting that life can have positive aspects as well as negative aspects gains importance. Instead of avoiding the unwanted experiences, psychological flexibility serves as a core mechanism in order to cope with life struggles and support mental health (Hayes et al., 2006). Thus, it is important to explore the factors related to psychological flexibility to enhance mental health of people during pandemic.

With social life restrictions altering daily life, death rates, health problems, isolations, and ambiguity, COVID-19 outbreak negatively affect most of the indivuduals' mental health by increasing anxiety levels (Liu et al., 2020; McCracken et al., 2021; Wang et al., 2020). It is known that anxiety lowers psychological flexibility because it generally results in experiential avoidance and cognitive fusion (White et al., 2013). Furthermore, excessive social media use represents avoidance behavior that is trying or controlling unpleasant experiences and leads to reduce in psyhological flexibility (Chou et al., 2017). Also, systematic reviews indicate that there is an association between problematic social media use and mental health problems including anxiety issues (Keles et al., 2019; Marino et al., 2018). On the other hand, there is less study about humor and psyhcological flexibility but Pilz's study (Pilz 2018) showed that adaptive humor styles positively correlated with psychological flexibility. It also protective factor against anxiety (Menéndez-Aller et al., 2020; Smith et al., 1971). Considering all of the empirical evidences, it may assume that anxiety, social media addiction, and humor has a direct relationship with psychological flexibility. Moreover, anxiety has a relationship with social media addiction and humor, and these two mediate the relationship between anxiety and psychological flexibility.

In this study, we aimed to investigate the factors related to psychological flexibility during the COVID-19 pandemic. Besides, there is not any study investigating the relationship between humor as coping mechanism, social media addiction and psychological flexibility among adults. The main aim of the study is to explore the relationship between coronavirus anxiety, problematic social media use, coping humor, and psychological flexibility. We hypothesized that psychological flexibility is directly and positively associated with coping humor, and negatively related to social media addiction and coronavirus anxiety. It is also indirectly associated with

Fig. 2 Tested Model
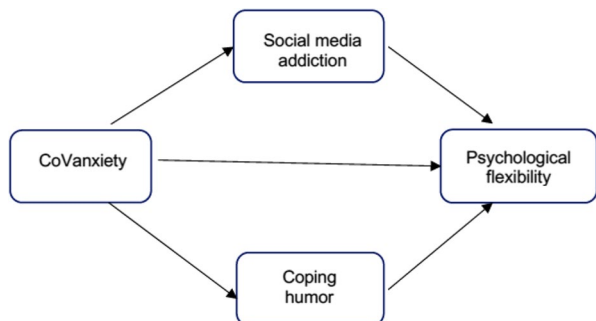
anxiety through social media addiction and coping humor. Based on the results, a path model will be constructed to show the interrelationship between coronavirus anxiety, problematic social media use, coping humor and psychological flexibility. The diagram of the Model created to test these relationships is presented below (Fig. 2).

Methods

Participants and procedure

Convenience sampling method was used (Gravetter & Forzano, 2012) to gather data from adult participants who are over 18 years. Individuals approved online consent form and completed survey in Turkish. The data were collected via online survey software which is Google Forms, taking into account social isolation due to the COVID-19 outbreak. Completing the survey took approximately 10 to 15 min. Data were collected from people living in Turkey during December to January, 2020. The study was approved by the Ethics Committee of Istanbul 29 Mayis University (Approval code: 2021/01–03) and conducted in accordance with the Declaration of Helsinki.

The sample of the study contained 376 participants and most of them were female [295 female 78.5%) and 81 male (%21.5)]. Kline (2015) suggested that an average sample size for structural equation model could be approximately 200 cases based on reviews of studies in different research areas, including education and psychology. Therefore the sample size of 376 was considered sufficient for this study. The average age of the participants was 29 years and range from 18 to 67 years (M = 29.88, SD = 11.05). 178 of the participants were working (47.3%), 38 of them were not working (10.1%) and 160 of them were students (42.6%).

Measures

Coronavirus Anxiety Scale

The scale was developed by Lee (2020) to identify cases of dysfunctional anxiety associated with the COVID-19 crisis. The scale is a one-dimensional 5-point Likert-type (0 = never, 4 = every day for the last two weeks) scale with 5 items. The scale was translated into Turkish by Akkuzu and colleagues (Akkuzu et al., 2020). In exploratory factor analysis, a single factor structure of the scale explained 58% of the total variance. Fit indices were within acceptable limits in the confirmatory factor analysis ($\chi^2 = 52,204$; p < 0,001; χ^2/sd = 10; GFI = 0,98; AGFI = 0,95; CFI = 0,97; RMSEA = 0,09). The internal consistency reliability coefficient was calculated to be 0.82 and test–retest reliability as r = 0.88. High scores on the scale reflect high coronavirus anxiety.

Psychological Flexibility Scale

The scale was developed by Francis et al. (2016) and adapted into Turkish by Karakuş and Akbay (2020). Factor analysis revealed factor loadings between 0.47 and 0.81. The scale explained 60% of the variance. The 7-point Likert-type scale consisted of 28 items and 5 factors. Values and behavior in values, being in the moment, acceptance, self as context, and decomposition comprised the 5 sub-dimensions. The internal consistency reliability coefficient of the scale was calculated to be 0.79. The reliability scores for the sub-dimensions were 0.84 for values and behavior in values, 0.60 for being in the moment, 0.72 for acceptance, 0.73 for self as context, and 0.59 for decomposition. High scores on the scale reflect high psychological flexibility.

The Coping Humor Scale (CHS)

The scale was developed by Martin and Lefcourt (1983) and adapted into Turkish by Yerlikaya (2009). The scale is used for determining the individual levels of coping with humor. The CHS is a one-dimensional 4-point Likert-type with 7 items. The possible scores range between 7 and 28, where a higher score represents better ability of the individual to use humor as a coping strategy in stressful situations. The adaptational study of the scale tested its criterion-related validity and reported an internal consistency reliability coefficient of 0.67 and that CHS significantly and negatively correlated with perceived stress, depression, and state and trait anxiety.

Bergen Social Media Addiction Scale

The scale was developed by Andreassen and colleagues (2016) and adapted into Turkish by Demirci (2019). In exploratory factor analysis, the scale explained 52.83% of the variance. The scale is a one-dimensional 5-point Likert-type scale with 6 items. The one-dimensional model had acceptable fit indices in the confirmatory factor analysis ($\chi 2 = 10.80$, df = 9, p = 0.29; CFI = 0.99; TLI = 0.99; SRMR = 0.031; RMSEA = 0.039). The scale was found to have an internal consistency reliability coefficient of 0.82 and a test–retest reliability coefficient of 0.83. High scores on the scale reflect high social media addiction.

Statistical Analyses

The present study investigated the relationships between COVID-19 anxiety, humor coping, social media addiction and psychological flexibility. First, descriptive statistics (mean, standard deviation, skewness, and kurtosis) were calculated. The relationships between the variables were tested with path analysis using structural equation modelling (SEM). In the first step, the suitability of the data for structural equation modeling (SEM) analysis was examined. For SEM analysis, multicollinearity and normality were explored (Teo et al., 2013) and the VIF values were found below 10 that indicates no multicollinearity in the data

set (Kline, 2015). For the assumption of normality, skewness and kurtosis values were calculated. It was found that the skewness of the variables varied between -0.13 and 1.82 while the kurtosis values varied between -0.74 and 2. For a normal distribution, skewness and kurtosis values within the range of -2 and $+2$ are considered as acceptable (George & Mallery 2009). Therefore, the results showed that the data were suitable for SEM analysis. In order to evaluate the adequacy of the structural model (Kline, 2015), $\chi 2$ /df ratio, SRMR, RMSEA, CFI, and NFI were calculated. 95% confidence interval was used for ensuring the significance of the indirect and direct effect of the variables that were included in SEM, in addition to application of Bootstrap analysis through 10,000 re-sampling (Preacher & Hayes, 2008). Data analyses were conducted using IBM SPPS Statistics and AMOS Graphics package.

A mediation model was used to examine direct and indirect effects of COVID-19 anxiety through social media addiction and humor coping. SEM analysis was performed in order to test the mediation model. The mediation model investigated the mediator variable's effect, which explains the relationship between independent and dependent variables, as well as the effects of the independent variables on the dependent variable (Baron & Kenny, 1986). Baron and Kenny (1986) stated there were steps to testing mediation: (1) significant relationship between the independent variable and the mediation variable is needed, (2) significant relationship between the mediation variable and dependent variable is needed, (3) relationship of independent variable to dependent variable diminishes when mediation model is added to the model. On the other hand, the initial steps outlined by Baron and Kenny have changed. The first step that direct effect of independent variable on dependent variable needs to be significant is not a requirement anymore. Indirect effects can exist even if a non-significant direct effect is initially found. The justification is based on the idea that there are suppressor effects that prevent the direct effect from being significant, but the indirect effect is still present (Collier, 2020, p. 172).

Table 1 Correlation Matrix and Descriptive Statistics

|	COVID-19 anxiety	Humor coping	Psychological flexibility	Social media addiction
COVID-19 anxiety	-	-0.108[*]	-0.147[**]	0.170[**]
Humor coping			0.248[**]	0.009
Psychological flexibility				-0.312[**]
M	0.90	18.61	132.02	16.6
SD	1.56	3.81	16.24	5.88
Skewness	1.83	-0.01	-0.13	0.13
Kurtosis	2.1	-0.05	0.69	-0.74
Cronbach Alpha	0.68	0.69	0.77	0.83

*N=376; **p=0.01; *p=0.05*

Results

The descriptive statistics and correlation coefficients of the study variables are displayed in Table 1. The skewness values of the variables range from -0.13 to 1.82 and kurtosis values are between -0.74 to 2. As such, the data represent normal distribution (-2.00 to 2.00) (George & Mallery, 2009). The internal consistency coefficients of the scales were found to be on acceptable levels (α = 0.67 to 0.83) (Büyüköztürk et al, 2010). According to Tavşancıl (2010) and Özdamar (2002), if the Cronbach α coefficient of the scale is less than 0.40, the measurement tool is not reliable, between 0.40- 0.59 has low reliability, and between 0.60- 0.79 it is reliable. When it is between 0.80 and 1.00, it is considered as highly reliable. The correlational analysis revealed a statistically significant negative correlation of COVID-19 anxiety with humor coping and with psychological flexibility (r = -0.11, p < 0.05; r = -0.15, p < 0.01, respectively) and a statistically significant positive correlation of COVID-19 anxiety with social media addiction (r = 0.17, p < 0.01). Additionally, a statistically significant positive correlation between humor coping and psychological flexibility (r = 0.25, p < 0.01) and a negative correlation between psychological flexibility and social media addiction (r = -0.31, p < 0.01) were found. There was no statistically significant relationship between humor coping and social media addiction (r = 0.01, p > 0.05).

Path Analysis

Table 1 shows that there is a significant relationship between the independent variable COVID-19 anxiety and the mediator variables social media addiction and humor coping. Another significant relationship was found between the mediator variables social media addiction, and humor coping and the dependent variable psychological flexibility. There is no significant relationship between social media addiction and humor coping, which is the other mediator variable. A significant relationship was found between COVID-19 anxiety and the dependent variable psychological flexibility. Since 5 out of 6 relationships were found to be significant; it was concluded that a mediation model could be created between these variables. Therefore, indirect and direct paths to psychological flexibility were tested from COVID-19 anxiety variable to psychological flexibility through social media addiction and humor coping. In the first model, the partial mediating role of social media addiction and humor coping in the relationship between COVID-19 anxiety and psychological flexibility were tested. Direct and indirect path coefficients from COVID-19 anxiety through social media addiction and humor coping to psychological flexibility were examined. The tested model adequately fitted with the data [(χ2/df (1) = 2.87, p = 0.59), RMSEA = 0.000, CFI = 1.00, TLI = 0.97, GFI = 1.00, AGFI = 0.99]. However, there were no statistically significant direct path coefficient between COVID-19 anxiety and psychological flexibility (β = -0.07, p = 0.15). Secondly, only indirect path coefficients from COVID-19 anxiety through social media addiction and humor coping to psychological flexibility, the modified model was tested. The tested
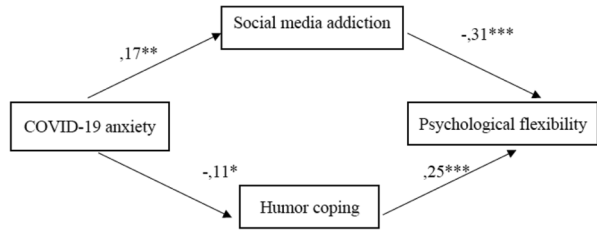
model adequately fitted with the data [(χ2/df(2) = 1.18, p = 0.31), RMSEA = 0.022, CFI = 0.995, TLI = 0.986, GFI = 0.997, AGFI = 0.984, SRMR = 0.018](Hu & Bentler, 1999; Kline, 2015; Şimşek, 2007). Therefore, the second model (the full mediating model) was preferred because of the insignificant path in the partial mediating model. These results generally showed that COVID-19 anxiety predicted indirectly psychological flexibility through social media addiction. The standardized path coefficients for the second Model were presented in Fig. 3.

To support the significance of the indirect effects of the COVID-19 anxiety to psychological flexibility, a 95% confidence interval was selected and the bootstrap analysis was applied through 10,000 re-sampling. According to SEM results, COVID-19 anxiety, social media addiction (β = 0.17, p = 0.001, 95% CI = 0.073, 0.264), and coping with humor (β = -0.11, p = 0.03, 95% CI = -0.198, -0.010) estimates significantly. Also social media addiction (β = -0.31, p < 0.001, %95 CI = -0.394, -0.231), and humor coping (β = 0.25, p < 0.001, %95 CI = 0.164, 0.335) significantly predicted psychological flexibility. The results of the study generally imlpy that the indirect effect of COVID- 19 anxiety on psychological flexibility through social media addiction (β = -0.55, p = 0.002, 95% CI = -0.995, -0.206), and humor coping (β = -0.28, p = 0.013, 95% CI = -0.595, -0.052) were statistically significant. The standardized path coefficients for the model are presented in Table 2.

Discussion

The present study examined the relationship of psychological flexibility with COVID-19 anxiety, humor coping, and social media addiction. Path analysis was conducted to determine the effect of COVID-19 anxiety, humor coping, and social media addiction on psychological flexibility. COVID-19 anxiety directly and significantly increased social media addiction while decreasing humor coping levels. Social media addiction directly and significantly decreased psychological flexibility. Humor coping directly and significantly increased psychological flexibility. Additionally, COVID-19 anxiety indirectly and significantly decreased psychological flexibility.

Results showed that coronavirus anxiety has a positive relationship with social media addiction. During the COVID-19 pandemic, the role of the social media has become widely crucial as a source of information and communication. However, frequency, duration, and diversity of media exposure are positively related to more

Table 2 Standardized path coefficients and 95% CIs for the Model.

Variables			Estimated	95% Lower, Upper	p
Direct Paths					
Social media addiction	→	COVID-19 anxiety	.17	.073, .264	.001
Humor coping	→	COVID-19 anxiety	-.11	-.198, -.010	.03
Psychological flexibility	→	Social media addiction	-.31	-.394, -.231	.000
Psychological flexibility	→	Humor coping	.25	.164, .335	.000
Indirect Paths					
Psychological flexibility	←Social media addiction	COVID-19 anxiety	-.554	-.995, -.206	.002
Psychological flexibility	← Humor coping	COVID-19 anxiety	-.283	-.595, -.052	.013

symptoms of COVID-19 specific anxiety (Bendau et al., 2020). People with higher anxiety about coronavirus tend to use social media more frequently and for a long period of time. This addictive use of social media may be a coping mechanism for coronavirus anxiety as well as side effects of the pandemic including social isolation and loneliness. Anxious people using more social media may try to adapt current situation. Similarly, the results of Cauberghe and her collagues's (2020) study indicated that adolescents frequently use social media to cope with feelings of loneliness and anxiety during COVID-19 lockdown.

The findings indicated that the level of coronavirus anxiety does not directly affect psychological flexibility but indirectly decreases psychological flexibility through social media addiction. As discussed in the previous paragraph, people's social media addiction increases as their COVID-19 anxiety rises, and the resulting addiction reduces their psychological flexibility. There is a mediator variable in the indirect effect of anxiety on psychological flexibility. Experiential avoidance is one of the six aspects of psychological inflexibility that is mentioned in the ACT Psychopathology Model, which is manifested by reduced psychological flexibility (Hayes et al., 2006), and is particularly evident in different forms of addiction. Addictions including social media addiction frequently serve the purpose of controlling or diminishing undesirable thoughts, feelings or any other experiences (Wilson et al., 2000). Excessive use of social media may offer anxious people to avoid uncomfortable experiences that may influence psychological flexibility during COVID-19 pandemic. In other words, while the person avoids anxiety, the behavioral repertoire begins to narrow (Twohig, 2012). It is defined as the narrowing of the behavioral repertoire of the individual, who has to spend a long time in a certain area with the call to stay at home and the curfews applied at certain times, turning to social media whenever he has a negative thought about today and the future. This will lead to the deterioration of the person's psychological, familial, social and professional functionality. According to the result of our research, this explains the role of social media addiction as a mediating variable, negatively affecting psychological flexibility, as the anxiety of COVID-19 increases.

This study showed that social media addiction significantly decreases psychological flexibility. The relationship between social media addiction and psychological flexibility has not been specifically studied before. However, psychological flexibility is a feature strengthening the mood and makes it easier to cope with difficult and stressful events. Studies examining the relationship between social media addiction and depression, life satisfaction, psychological resilience, etc. provide predictive perspectives about the relationship between social media addiction and psychological flexibility. Studies have revealed that there is a positive and significant relationship between intensive internet/ social media use and depression (Agrawal & Singh, 2018; Eraslan-Capan, 2015; Hoare et al., 2017; Scherr & Brunet, 2017). According to the study of Donnelly and Kuss (2016), people with social media addiction and long hours of Instagram use also had significant depression. Similarly, Hoare et al. (2017) stated that individuals with problematic internet use have high levels of depressive symptoms. According to the findings of the study of Soysal (2016), which deals with the relationship between Facebook addiction and psychological resilience, there is a negative and significant relationship between Facebook

addiction and psychological resilience. In short, as people's addiction to Facebook increases, their psychological resilience levels decrease. Similiar to our results, all these studies support the finding that social media addiction reduces psychological flexibility.

According to the results, there is a negative and significant correlation between coronavirus anxiety and humor as a coping style. Studies showed that positive use of humor has anxiety-lowering effect and serves as a protective factor against the symptoms of anxiety (Ford et al., 2012; Menéndez-Aller et al., 2020; Szabo, 2003). Conversely, as anxiety level increases, the use of humor as a form of coping decreases. However, humor has a positive relationship with psychological flexibility and moderates the negative effect of coronavirus anxiety on psychological flexibility. Similar to our finding, Pilz (2018) found that adaptive humor styles have a positive relationship with psychological flexibility. Pilz (2018) concluded in a study conducted with 245 participants that there is a potentially significant relationship between psychological flexibility and adaptive humor styles. It is stated that *self-enhancing* humor style which is benevolent is used to improve the self and is an effective method used to cope with stressful and challenging situations. The *affiliative* humor style is also benevolent but is used to develop social relationships with other people (Martin et al., 2003). The findings of Pilz (2018) are thought to support the findings of this study.

On the other hand, counselors and other mental health professionals may benefit from acceptance commitment therapy (ACT) to help their clients to manage their anxiety and problematic social media use. They should consider the results of this study that the relationship between psychological flexibility, coronavirus anxiety, and social media addiction. It could be argued that problematic social media use serves as an avoidance behavior which undermines psychological flexibility. According to relational frame theory, because of the relational repertoire of language-able individuals, once a specific event acquires avoidance functions a large number of applicable contextual cues can elicit the same response (Vilardaga et al., 2012). Surely, evaluating and intervening this "unwanted" behavior by exploring the function of the behavior would be appropriate. Different types of behaviors may begin as pleasurable, but the outcome is actually a result of escape (Rachlin, 2000). In this situation, ACT interventions help individuals to reduce experiential avoidance underlying the compulsive behavior of social media use. It supports them to accept unpleasant experiences, create meaningful lives based on values, and commit to useful actions inspite of negative experiences (Hayes & Levin, 2012; Hayes & Smith, 2006). As applied to anxiety problems, ACT aims to encourage more flexible and mindful ways of relating to anxiety, and thus people can pursue their valuable life goals (Eifert et al., 2009).

The concept of addiction is generally discussed under two headings. When we examine behavioral addiction and substance addiction etiologically, it is understood that both addictions are similar (Karaman & Kurtoğlu, 2009). For this reason, if the studies examining the effect of ACT on various types of addiction are reviewed, addiction-focused ACT studies are effective in both categories of addiction, behavioral and substance addiction. Twohig and Crosby (2010) found that there was a significant decrease in participants' levels of internet addiction after

an ACT-focused group study. Similarly, Berenjabadi, Pourhosein, and Argene (2021) investigated the effect of ACT on high school students' internet addiction and interpersonal difficulties, and found that internet addiction and interpersonal difficulties were reduced at the end of the study. Another study results examining the effects of ACT on smartphone addiction level, self-control and anxiety levels of university students, showed that ACT was effective in reducing the level of anxiety and increasing the level of self-control, and indirectly in the treatment of smartphone addiction (Yu & Son, 2016). Furthermore, Ercengiz (2019) examined the effect of the ACT-based psychoeducation program on social media addiction of individuals and determined that there was significant decrease in social media addiction that continued in the follow-up test. All these finding considered, ACT is and evidence based method effectively dealing with various types of addictions.

There is one study with the ACT approach, which pioneered the development of humor as a useful coping mechanism. Baisley and Grunberg (2019) tried to make the participants evaluate the humor they use as offensive, participatory, self-improving or self-defeating beyond mere intent, with the method they used in their research. It has also sought to provide a practical approach to understanding how and when humor can be adaptive using the techniques of the ACT. According to the findings of the study, participants' self-reported satisfaction levels increased and their sense of humor improved, but no change was observed in their motivation and self-efficacy levels. The preliminary data supported the validity and applicability of the developed application as a working humor education model.

Limitations

Findings from this study should be interpreted considering the limitations. While collecting data in our research, it was paid attention not to collect data only through social media in order to reduce the possibility of reaching those who use social media frequently. For this reason, the research link was delivered by using various communication platforms such as mail groups, instant messaging, and social media. There was no support or advertising from any organization. All scores obtained in the study showed a normal distribution. The fit indices of the tested model were on acceptable levels.

On the other hand, all the data were focused on the population of just one country. The generalizability of findings were limited due to the convenience sampling and the bias towards female participants. In this study, one hypothesised model was tested and it fitted the data. Alternative models that could produce the same result may also be examined with the same variables. Another limitation is that the study was designed as cross-sectional which is not sufficient to establish a causal relationship. Hence, the interpretation of the present findings should be made with caution. In spite of these limitations, this study is the first to explore the role of coronavirus anxiety, problematic social media use and coping humor on psychological flexibility during COVID-19 pandemic.

Future Directions

Future research should investigate the causal links among these variables over time through a longitudinal or an experimental design. Moreover, while examining the relationship between COVID-19 anxiety and psychological flexibility in future studies, it is recommended to examine the effects of mediating variables such as intolerance to uncertainty, mindfulness, and social support. Besides, experimental designs will be useful to verify that enhancing the outcomes investigated can improve psychological flexibility. Also in this study, social media addiction, one of the sub-branches of technology addiction, was studied. Different branches of technology addiction can be included in the study and a more comprehensive content can be studied. Finally, the data was gathered in the later late period of the outbreak in Turkey. There might be differences between level of coronavirus anxiety at initial stage and latter (Lee, 2020).

Conclusion

During COVID-19 pandemic, psychological flexibility is affected by social media use, humor and coronavirus anxiety. The pandemic has adverse effects on mental health in approximately a quarter of the general population and psychological flexibility is one of the factors moderating these adverse effects on mental health (Pakenham et al., 2020). Besides, conducting training sessions and seminars which include various practices that will enable the increase of psychological flexibility can positively affect the mental health of the population. The effectiveness of these studies can be determined by experimental studies. Moreover, considering the findings, regulating the use of social media and supporting humor as a coping mechanism will have a positive influence on psychological flexibility of individuals that promotes mental health of population.

Declarations

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