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The Mediating Role of Doomscrolling in the Relationship Between Perceptual– Concentration Errors and Anxiety

Kübra TAN YILDIRIM

kubratan@artvin.edu.tr

Artvin Coruh University

Vesile ADIGÜZEL

Yalova University

Yalçın KANBAY

Artvin Coruh University

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Abstract

Background

The widespread use of social media has increased individuals' exposure to negatively valenced online content, contributing to emerging maladaptive behaviors such as doomscrolling. Although both cognitive vulnerabilities (e.g., perceptual–concentration errors) and maladaptive media consumption patterns have been linked to anxiety, the underlying mechanisms connecting these variables remain insufficiently understood. In particular, the potential mediating role of doomscrolling in this relationship has received limited empirical attention.

Methods

The sample of the study consisted of 400 adults aged 18 years and older residing in Türkiye. Data were collected via an online survey, which included a Personal Information Form, the Cognitive Failures Scale (Perceptual–Concentration subscale), the Doomscrolling Scale, and the Anxiety Assessment Scale. Statistical analyses were conducted using SPSS 26 and the PROCESS macro developed by Andrew F. Hayes. Model 4 was employed to test the mediation effects, and bias-corrected bootstrap confidence intervals were estimated based on 5,000 resamples.

Results

The findings indicated that perceptual–concentration errors significantly predicted both doomscrolling behavior and anxiety, while doomscrolling had a significant positive effect on anxiety ($p < .001$). Although the total effect of perceptual–concentration errors on anxiety was significant, the direct effect decreased when doomscrolling was included in the model. Bootstrap results further revealed that the indirect effect was statistically significant, with confidence intervals that did not include zero.

Conclusions

These findings indicate that the relationship between perceptual–concentration errors and anxiety is partially mediated by doomscrolling. The results underscore the need to consider cognitive processes and patterns of digital media use in conjunction when examining anxiety.

Introduction

Problem Definition and Theoretical Framework

Doomscrolling is defined as the persistent consumption of negative online news and its detrimental effects on mental health (Jennings, 2020). This behavior has become increasingly salient with the

widespread and intensive use of social media. According to the 2023 We Are Social Report, 83.4% of the population in Türkiye uses social media, indicating that a substantial proportion of individuals rely on these platforms for daily information flow and access to global events (Kemp, 2023). The increase in time spent on social media further elevates the likelihood of exposure to negative news and content, thereby intensifying their psychological impact on individuals (Zenelaj et al., 2016).

Research indicates that not only in Türkiye but also across different countries, social media platforms are extensively used as arenas of public discourse, particularly during periods of ongoing developments or crisis-related events (Fergen et al., 2021). Individuals' search for information in such contexts is often shaped within a framework of collective engagement with negative content (Huang, 2023). Considering ongoing wars, economic crises, and natural disasters, individuals' desire to stay informed may, at times, evolve into excessive engagement with distressing news, reflecting a pattern of prolonged exposure to potentially harmful content (Güme, 2024).

Recent research highlights the associations between intensive social media use and increased levels of depression and anxiety (Vannucci et al., 2017). A study conducted during the COVID-19 pandemic found that individuals who frequently followed pandemic-related news on social media reported higher levels of anxiety (Wathelet et al., 2020). Similarly, the World Health Organization and various public health authorities have indicated that continuous exposure to COVID-19-related news may significantly elevate anxiety levels (Department of Health, 2020; Mannell & Meese, 2022). Following adverse life events, individuals tend to increase their frequency of social media use and adopt a more active approach to accessing information and monitoring current developments through online platforms (Kartol et al., 2023). The psychological impact of persistent exposure to distressing or disaster-related news has been widely emphasized. In the face of uncertainty, individuals experience a fundamental drive to remain informed; however, even when such engagement exacerbates negative emotions, they often find it difficult to disengage from the continuous flow of information (Ytre-Arne & Moe, 2021).

The Relationship Between Perceptual–Concentration Errors and Doomscrolling

Doomscrolling is a relatively recent construct characterized by the repetitive and difficult-to-control consumption of negative or distressing content, typically through smartphones and other digital devices (Taskin et al., 2024). Although precise prevalence rates remain limited, emerging empirical evidence suggests that this behavior is particularly common among young adults and individuals with high levels of social media use (Buchanan et al., 2021; Price et al., 2022). One of the key mechanisms underlying the link between continuous exposure to disaster-related news and adverse psychological outcomes is rumination, defined as a pattern of passive and repetitive negative thinking. This cognitive process has been consistently associated with both anxiety and depressive symptoms (Nolen-Hoeksema et al., 2008).

Recent studies suggest that continuous exposure to disaster-related news may activate such repetitive negative thought processes (Hughes et al., 2024; Lask et al., 2021). In their study, Lyubomirsky et al. (2003) reported that individuals engaged in negative thought cycles tend to exhibit lower levels of

concentration. Excessive focus on distressing content, combined with social media algorithms that amplify the visibility of negative information, may lead to a narrowing of selective attention and reinforce threat-oriented perception. This, in turn, can increase attentional biases and intensify cognitive errors characterized by an over-fixation on negative stimuli (Sharpe et al., 2026). **Within this framework, it is hypothesized that there is a significant relationship between perceptual–concentration errors and doomscrolling (H1).**

The Relationship Between Doomscrolling and Anxiety

Individuals tend to allocate more time to following disaster- and crisis-related news in digital environments—such as after earthquakes or pandemics—even though they are aware of the potential adverse emotional effects of such content (Rodrigues, 2022). Following the earthquakes that occurred in Türkiye on February 6, 2023, it has been reported that the resulting traumatic impact was not limited to survivors or those who lost loved ones; individuals who were exposed to the disaster through media coverage were also significantly affected (Kaya et al., 2025).

Empirical studies indicate that continuous exposure to earthquake-related news is associated with a relationship between death anxiety and doomscrolling (Kaya et al., 2025). In a study conducted by Mannell and Meese (2022), individuals who avoided news during the COVID-19 pandemic reported decreases in stress, anxiety, hopelessness, and frustration, along with improved concentration on work. Considering that individuals who intensively follow earthquake-related negative content are frequently exposed to death-related news, this exposure may contribute to elevated levels of death anxiety (Buchanan et al., 2021). **Within this framework, it is assumed that doomscrolling is significantly associated with anxiety (H2).**

The Relationship Between Perceptual–Concentration Errors and Anxiety

Excessive exposure to media and information overload has been associated with adverse mental health outcomes, including anxiety (Li et al., 2023; Matthes et al., 2020). According to Attentional Control Theory (Eysenck et al., 2007), anxiety impairs cognitive performance by overloading limited attentional resources. Within this framework, individuals with higher levels of anxiety experience greater difficulty filtering out irrelevant stimuli under conditions of high perceptual load, leading to increased distractibility, selective attentional biases, and reduced processing efficiency. In contrast, under low perceptual load conditions, these cognitive impairments appear to be less pronounced (Sadeh & Bredemeier, 2011; Faerman et al., 2025). Longitudinal evidence further suggests that anxiety contributes to difficulties in concentration, highlighting its role in the development of attentional inefficiencies (Blendermann et al., 2025). Based on these findings, perceptual–concentration errors may be closely associated with anxiety, as deficits in attentional control and increased cognitive load can exacerbate both attentional lapses and anxiety symptoms. **Accordingly, it is hypothesized that there is a significant relationship between perceptual–concentration errors and anxiety (H3).**

The Mediating Role of Doomscrolling in the Relationship Between Perceptual–Concentration Errors and Anxiety

Repeated and uncontrolled exposure to negative news content (doomscrolling) has been conceptualized as a significant source of indirect or vicarious trauma. Recent evidence indicates that intensive media-based exposure to large-scale traumatic events can increase anxiety levels and may trigger symptoms of acute stress and post-traumatic stress (Abdalla et al., 2021; Shabahang et al., 2024).

Initially motivated by the need to stay informed, continuous engagement with disaster-related content may, over time, lead to a narrowing of attentional processes, selective perceptual biases, and a fixation of attention on negative stimuli. These cognitive patterns can reinforce attentional inefficiencies and evolve into a persistent behavioral pattern in the form of doomscrolling (Shabahang et al., 2024). Supporting this view, a study conducted among youth in Egypt reported a statistically significant positive association between doomscrolling and digital "brain rot," reflecting cognitive deterioration linked to excessive short-form content consumption (Nakhla, 2025). Within this framework, doomscrolling may function as a behavioral mechanism through which perceptual–concentration errors contribute to increased anxiety. **Accordingly, it is hypothesized that doomscrolling mediates the relationship between perceptual–concentration errors and anxiety (H4).**

Although the concept of doomscrolling has been addressed in recent studies, it has not yet been comprehensively examined. With the increasing use of digital media, this behavior—characterized by the repetitive consumption of negative content—has emerged as a contemporary research focus with implications for individuals' cognitive and emotional processes. While the literature has demonstrated significant associations between anxiety and perceptual–concentration errors, the mechanisms underlying this relationship remain insufficiently clarified. In particular, although doomscrolling is assumed to play a mediating role between anxiety and disruptions in attentional processes, empirical studies that simultaneously examine these variables are limited. Accordingly, the present study aims to address this gap by investigating the mediating role of doomscrolling in the relationship between perceptual–concentration errors and anxiety.

Methods

Aim of the Study

The primary aim of this study is to examine the mediating role of doomscrolling in the relationship between perceptual–concentration errors and anxiety among adults who use social media. Although prior research has established that excessive social media use is associated with anxiety, stress, and adverse psychological outcomes, the cognitive and behavioral mechanisms underlying these relationships remain insufficiently understood. In this context, the study seeks to determine whether perceptual–concentration errors, as a form of cognitive vulnerability, predispose individuals to random and intensive consumption of negative content on social media (doomscrolling), and whether this, in turn, contributes to increased levels of anxiety.

Study Design

This study was conducted using a quantitative research design and employed a correlational survey approach. A cross-sectional design was utilized to examine mediation relationships among the variables within a causal modeling framework.

Population and Sample

The target population of this study consisted of adults aged 18 years and older residing in Türkiye who actively use social media. A convenience sampling method was employed to recruit participants from this population. An online survey was disseminated via social media platforms (e.g., Instagram, Twitter, WhatsApp), and data collection was conducted on a voluntary basis. The final sample comprised 400 participants who were 18 years or older, actively used social media, consented to participate in the study, and completed the online survey in full.

Sample Characteristics

Of the participants, 73% were female, and 29.5% were married. The average daily social media use was most commonly reported as 3–4 hours (41.3%). Additionally, 42% of the sample reported spending 1–2 hours per day on messaging activities. A majority of participants (74.3%) indicated that they regularly browsed specific websites. Regarding platform use, 99.8% reported using YouTube, 86% Twitter, and 58% TikTok. The mean age of the participants was 30.3 years (M = 30.3, SD = 14.7).

Data Collection Instruments

Data were collected using a Personal Information Form developed by the researchers, the Cognitive Failures Scale (Perceptual–Concentration subscale), the Doomscrolling Scale, and the Anxiety Assessment Scale.

Personal Information Form

The Personal Information Form, developed by the researchers, includes items assessing participants' demographic characteristics and patterns of internet use.

Cognitive Failures Scale – Perceptual–Concentration Subscale

The Cognitive Failures Scale was developed to assess everyday cognitive errors (Broadbent et al., 1982). It is a 25-item self-report measure that evaluates simple mistakes made over the past six weeks. The Turkish adaptation of the scale was conducted by Şenkal et al. (2015). In the adaptation study, the internal consistency coefficient was reported as ≤ .89, test–retest reliability as r = .82, and its correlation with related measures as r = .62 (Şenkal et al., 2015). In the present study, the 8-item Perceptual–Concentration subscale of the instrument was used. The Cronbach's alpha coefficient calculated for this study was .83.

Doomscrolling Scale

The Doomscrolling Scale was developed by Sharma et al. (2022) and adapted into Turkish by Satici et al. (2023). In the adaptation study, both the 15-item and 4-item versions were validated using confirmatory factor analysis with a sample of 378 participants. Item response analyses indicated that all items demonstrated strong discriminative power. Higher scores on the scale indicate higher levels of doomscrolling behavior. The Cronbach's alpha coefficient of the scale was reported as .94. In the present study, the 15-item version of the scale was used, and the Cronbach's alpha coefficient was calculated as .94.

Anxiety Assessment Scale: The Anxiety Assessment Scale, developed by Malakcıoglu (2022), consists of 10 items. The scale does not include any reverse-coded items, and the total anxiety score is obtained by summing all items. It comprises three subdimensions: physiological tension (items 1, 4, 7, and 10), worry (items 2, 5, and 8), and feeling unsafe (items 3, 6, and 9). The lowest possible score on the scale is 10, and the highest is 50. A higher score indicates an increased level of anxiety. The Cronbach's alpha internal consistency coefficient was reported as .85 in the original study and was calculated as .90 in the present study.

Data Analysis

The analyses were conducted using the AMOS software package. Given that the data were collected through self-report measures at a single time point, the potential for common method bias was assessed using Harman's single-factor test. The unrotated factor analysis indicated the presence of multiple factors, with the largest factor accounting for 33.4% of the total variance. As this value is below the 50% threshold, common method bias was not considered a serious threat (Podsakoff et al., 2003).

To evaluate the measurement models, multiple goodness-of-fit indices were considered simultaneously. A chi-square to degrees of freedom ratio (χ^2/df) below 5 indicates acceptable fit, while RMSEA values of ≤ .08 indicate acceptable fit and ≤ .05 indicate good fit. CFI, GFI, and IFI values of ≥ .90 suggest adequate model fit, and an SRMR value below .08 indicates acceptable fit (Hair et al., 2019; Kline, 2016).

Additionally, composite reliability (CR) and average variance extracted (AVE) were calculated to assess the reliability and validity of the measurement models. A CR value above .70 indicates adequate internal consistency, while an AVE value of .50 or higher indicates satisfactory convergent validity (Fornell & Larcker, 1981; Hair et al., 2019).

Results

In this section, the results of the statistical analyses conducted on perceptual–concentration errors, doomscrolling, and anxiety are presented based on the data obtained in the study. First, descriptive statistics, reliability coefficients, and correlation values for the variables are reported. Next, the results of the confirmatory factor analysis (CFA), conducted to evaluate the structural validity of the measurement

instruments, are presented. Finally, the findings of the mediation analysis, performed to examine the mediating role of doomscrolling in the relationship between perceptual–concentration errors and anxiety, are reported. The results are interpreted in line with the relevant tables and the existing literature, and are organized to address the research questions.

Table 1
Confirmatory Factor Analysis Results for the Measurement Instruments

Measurement Instruments	χ²/df	CFI	GFI	IFI	RMSEA	SRMR	AVE	CR
Perceptual–Concentration	38.450/18	0,98	0,98	0,97	0,053	0,041	0,61	0,78
Doomscrolling	43.624/17	0,92	0,95	0,92	0,07	0,049	0,73	0,86
Anxiety Assessment	97.649/31	0,96	0,95	0,96	0,073	0,035	0,66	0,75

Note: *CFA = Confirmatory Factor Analysis; χ²/df = chi-square/degrees of freedom; CFI = Comparative Fit Index; GFI = Goodness-of-Fit Index; IFI = Incremental Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; AVE = Average Variance Extracted; CR = Composite Reliability. CFA analyses were conducted using the AMOS software package. AVE and CR values were calculated based on the final measurement models.*

The measurement models of the instruments used in the study were examined through Confirmatory Factor Analysis (CFA) (Table 1). Model fit was evaluated by jointly considering χ²/df, CFI, GFI, IFI, RMSEA, and SRMR indices.

The CFA results for the Perceptual–Concentration factor of the Cognitive Failures Scale indicated that the model demonstrated an acceptable level of fit (χ²/df = 38.450/18; CFI = 0.98; GFI = 0.98; IFI = 0.97; RMSEA = 0.053; SRMR = 0.041). The AVE (0.62) and CR (0.79) values suggest that the scale has adequate convergent validity and composite reliability.

For the Doomscrolling Scale, the findings confirmed the unidimensional structure and indicated an acceptable level of model fit (χ²/df = 43.624/17; CFI = 0.92; GFI = 0.95; IFI = 0.92; RMSEA = 0.070; SRMR = 0.049). The AVE (0.63) and CR (0.76) values further support the validity and reliability of the measurement model. The three-factor structure of the Anxiety Assessment Scale was confirmed, and the model fit was found to be at an acceptable level (χ²/df = 97.649/31; CFI = 0,96; GFI = 0,95; IFI = 0,96; RMSEA = 0,073; SRMR = 0,035). The AVE (0.66) and CR (0.75) values of the scale also indicate that its measurement properties are adequate.

Table 2
Descriptive Statistics, Reliability Coefficients, and Pearson Correlations for the Study Variables

Measurement Instruments	$\bar{X}$	SS	SK	KU	1	2	α	VIF	T	DW
1. Perceptual–Concentration	14.9	6.1	.09	− .07	1		.83	1.129	.886	1.942
2. Doomscrolling	31.3	17.3	1.18	.65	.338**	1	.94			
3. Anxiety Assessment	28.3	9.4	.09	− .57	.648**	.403**	.90			

Note

$\bar{X}$ = mean; SS = standard deviation; SK = skewness; KU = kurtosis; α = Cronbach's alpha; VIF = variance inflation factor; T = tolerance; DW = Durbin–Watson coefficient. Correlation coefficients were calculated using the Pearson method. p < 0,05; p < 0,01.

Descriptive statistics, normality, reliability, and Pearson correlation coefficients for the study variables are presented in Table 2. Skewness and kurtosis values within the range of ± 1.5 indicate that the data meet the assumption of normal distribution (Kline, 2016; Hair et al., 2019).

In the multicollinearity analysis, the VIF (1.129) and tolerance (.886) values were found to be within acceptable limits, while the Durbin–Watson coefficient (1.942) indicated that the assumption of independence of error terms was satisfied (Hair et al., 2019; Field, 2018).

According to the Pearson correlation analysis, there were positive and significant relationships between Perceptual–Concentration and Doomscrolling (r = .338, p < .01), between Anxiety and Perceptual–Concentration (r = .648, p < .01), and between Anxiety and Doomscrolling (r = .403, p < .01). These findings indicate that the necessary preconditions for conducting mediation analysis were met (Baron & Kenny, 1986; Hayes, 2018).

Testing the Research Model and Hypotheses

The hypotheses developed in this study were tested within the framework of mediation analysis. Mediation analysis is a robust method that allows for the examination of the mechanisms or processes through which an independent variable affects a dependent variable (Baron & Kenny, 1986; Hayes, 2018). In this context, the mediating role of doomscrolling in the relationship between perceptual–concentration errors and anxiety was investigated.

To test the hypotheses, the PROCESS macro (Model 4) developed by Hayes (2018) was employed. The PROCESS approach relies on bootstrap resampling to assess the statistical significance of indirect effects and is considered more reliable than traditional methods (Preacher & Hayes, 2008). In this study,

indirect effects were tested using 5,000 bootstrap samples and 95% confidence intervals. The findings are presented in Table 3, and the hypotheses are evaluated based on these results.

Table 3
Mediation Analysis Results for Direct, Indirect, and Total Effects of the Research Model (Model 4)

Effect	b	SE	t	p	[LLCI, ULCI]
X → M	.962	.135	7.155	.000	.698; 1.227
M → Y	.112	.021	5.272	.000	.070; .154
Total Effect (X → Y)	1.002	.059	16.981	.000	.886; 1.118
Direct Effect (X → Y)	.894	.061	14.734	.000	.775; 1.013
Indirect Effect (X → M → Y)	.108	.026	-	-	.061; .161

Note: *X = Perceptual–Concentration Errors; M = Doomscrooling; Y = Anxiety. b = unstandardized regression coefficient; SE = standard error; t = t statistic; p = significance level; LLCI = lower limit confidence interval; ULCI = upper limit confidence interval. The indirect effect was tested using the bootstrap method (5,000 resamples, 95% confidence interval) as recommended by* Hayes (2018*). Confidence intervals that do not include zero indicate that the indirect effect is statistically significant..*

In the first stage of the mediation model, the effect of perceptual–concentration errors on doomscrolling (path a) was examined. The results indicated that perceptual–concentration errors significantly and positively predicted doomscrolling (b = .962; SE = .135; t = 7.155; p < .0001; 95% CI [.698, 1.227]). As perceptual–concentration errors increased, levels of doomscrolling also increased. Accordingly, **H1 was supported.**

In the second stage of the model, the effect of doomscrolling on anxiety (path b) was tested. The analysis revealed that doomscrolling significantly and positively predicted anxiety levels (b = .112; SE = .021; t = 5.272; p < .001; 95% CI [.070, .154]). These findings indicate that higher levels of doomscrolling are associated with higher levels of anxiety. Therefore, **H2 was supported.**

When examining the total effect of perceptual–concentration errors on anxiety, a positive and statistically significant relationship was observed (b = 1.002; SE = .059; t = 16.981; p < .001; 95% CI [.886, 1.118]). Subsequently, the mediator was included in the model, and the direct effect (path c') was tested. The findings indicated that perceptual–concentration errors continued to significantly predict anxiety even after controlling for doomscrolling (b = .894; SE = .061; t = 14.734; p < .001; 95% CI [.775, 1.013]). Accordingly, higher levels of perceptual–concentration errors were associated with higher levels of anxiety. Based on these results, **H3 was supported.**

Finally, the indirect effect of perceptual–concentration errors on anxiety through doomscrolling was tested using the bootstrap method. The bootstrap analysis (5,000 resamples) showed that the confidence interval for the indirect effect did not include zero (95% CI [.061, .161]), indicating that

doomscrolling plays a statistically significant mediating role in this relationship (Hayes, 2018; Preacher & Hayes, 2008). Therefore, **H4 was supported.**

When the explained variance values are examined (Fig. 1), perceptual–concentration errors account for 33.8% of the variance in doomscrolling (R^2 = .338), while perceptual–concentration errors and doomscrolling together explain 67.9% of the variance in anxiety (R^2 = .679). These findings indicate that the model has strong explanatory power, particularly in accounting for anxiety levels.

Discussion

In this study, the relationships among perceptual–concentration errors, doomscrolling, and anxiety were examined within a comprehensive framework, with particular emphasis on testing the mediating role of doomscrolling. The findings indicate that cognitive attentional processes and patterns of digital media use are interrelated structures, and that this interaction can have significant implications for individuals' anxiety levels.

The study contributes to the literature by demonstrating that perceptual–concentration errors are not only directly associated with anxiety but also exert an indirect effect through the consumption of negative content in digital environments. In this section, the findings are interpreted in light of the relevant literature.

The Relationship Between Perceptual–Concentration Errors and Doomscrolling

In the present study, the relationship between perceptual–concentration errors and doomscrolling was examined. The findings indicated a significant association between perceptual–concentration errors and doomscrolling. Accordingly, as individuals experience greater difficulties in perceptual and attentional processes, their engagement in doomscrolling—characterized by the consumption of negative content—also increases. Doomscrolling is often triggered in contexts where uncertainty, perceived threat, and a sense of loss of control are heightened. Consistent with this, intolerance of uncertainty and higher anxiety levels have been shown to be associated with increased doomscrolling, whereas psychological resilience may serve a protective role (Türk-Kurtça & Kocatürk, 2025). Furthermore, exposure to negative news has been found to adversely affect anxiety, distress, and overall mood, with these effects intensifying systematically as exposure increases (de Hoog & Verboon, 2020).

An increase in anxiety and negative affect may weaken attentional control, thereby increasing perceptual–concentration errors and susceptibility to doomscrolling (Eysenck et al., 2007). Studies examining the relationship between doomscrolling, psychological distress, and well-being indicate that this behavior is not limited to content consumption but is also associated with decreased psychological well-being (Satici et al., 2023). In this context, a behavior that initially emerges as an attempt to achieve

relief by staying informed may, over time, intensify emotional burden, further impair attentional processes, and evolve into a self-reinforcing cycle.

The Relationship Between Doomscrolling and Anxiety

The present study demonstrates a positive and statistically significant relationship between doomscrolling and anxiety levels. Accordingly, as levels of doomscrolling increase, individuals' anxiety levels also tend to increase. Consistent with this finding, the literature reports strong associations between doomscrolling and anxiety (Usman et al., 2025). Similarly, a study conducted with university students showed that doomscrolling behavior significantly increased anxiety levels (Al Wafa et al., 2024). This relationship may be explained by the effects of doomscrolling on attentional fragmentation, mental fatigue, and reduced concentration, whereby the resulting cognitive and emotional burden exacerbates anxiety symptoms (Türk-Kurtça & Kocatürk, 2025).

University students constitute a relatively vulnerable group in terms of anxiety due to academic pressure, concerns about the future, economic uncertainty, and challenges in social relationships. Therefore, repeated exposure to negative, crisis-related, and threat-laden content in digital environments may further elevate their existing anxiety levels. Continuous consumption of negative content can fuel ruminative thought processes, increase emotional burden, and contribute to the persistence of anxiety. In this context, the findings suggest that doomscrolling represents a significant digital risk behavior that may adversely affect psychological well-being among university students.

The Relationship Between Perceptual–Concentration Errors and Anxiety

In the present study, a positive and statistically significant relationship was found between perceptual–concentration errors and anxiety levels. University life involves numerous stressors, including heavy coursework, exam pressure, difficulties in time management, expectations of academic success, and uncertainty about the future. Within this context, errors in perceptual and attentional processes may lead students to experience difficulties in completing academic tasks, reduced efficiency in learning, and more negative evaluations of their cognitive abilities. Consistent with this, Sadeh and Bredemeier (2011) demonstrated that individuals with high trait anxiety exhibit impaired attentional control and reduced performance efficiency, particularly under conditions of high cognitive load. Similarly, Moser et al. (2013) reported that error-monitoring systems become hyperactive in anxious individuals, imposing additional demands on cognitive resources.

Moreover, the tendency of anxious individuals to orient toward threat-related or task-irrelevant stimuli makes it more difficult to sustain attention and increases susceptibility to concentration errors (Moriya & Tanno, 2011; Koster et al., 2006). A student who struggles to maintain attention while studying, has difficulty comprehending reading material, or frequently notices making errors may gradually develop negative expectations regarding their academic performance. This process may weaken self-efficacy, increase fear of failure, and further elevate anxiety levels. Accordingly, the findings suggest that

perceptual–concentration errors in university students are not merely indicators of cognitive inefficiency but also represent an important vulnerability factor that can exacerbate anxiety, hinder academic performance, and negatively affect psychological adjustment.

The Mediating Role of Doomscrolling in the Relationship Between Perceptual–Concentration Errors and Anxiety

In the present study, the indirect effect of perceptual–concentration errors on anxiety was examined, and doomscrolling was found to play a statistically significant mediating role in this relationship. This finding suggests that, among university students, cognitive attentional difficulties are not only directly associated with anxiety but also contribute to increased anxiety through a tendency to repeatedly engage with negative content in digital environments. Consistent with this, a study conducted with university students reported a positive and significant relationship between doomscrolling and anxiety (Al Wafa et al., 2024). Additionally, doomscrolling has been shown to be positively associated with psychological distress and negatively associated with well-being indicators (Satici et al., 2023).

Furthermore, hypervigilance has been found to increase doomscrolling behavior, suggesting that individuals who experience difficulties in attentional and perceptual processes may have greater difficulty disengaging from negative content (Blacha et al., 2024). Within this context, the findings indicate that the relationship between perceptual–concentration errors and anxiety is shaped not only by direct effects but also by an indirect mechanism operating through doomscrolling. Therefore, it can be argued that cognitive attentional difficulties, in interaction with patterns of digital media use, may intensify anxiety and constitute a significant psychological risk factor, particularly among university students.

Implications for Practice and Research

Based on the findings of this study, perceptual–concentration errors and doomscrolling behavior appear to contribute to increased anxiety levels. Therefore, it is recommended that awareness initiatives regarding social media use be strengthened within the fields of mental health, education, and public health. In particular, interventions aimed at improving attention, concentration, and cognitive awareness may help reduce anxiety among individuals with intensive social media use.

From the perspective of digital platforms and policy makers, it is important to support designs and digital health tools that can limit users' exposure to cycles of negative content. Promoting applications that help users regulate screen time and manage content selection may contribute to enhanced digital well-being.

For future research, given the cross-sectional nature of this study, it is recommended that the relationships among variables be re-examined using different methodological approaches. In particular, longitudinal, experimental, and multi-method studies could provide a more comprehensive understanding of the effects of doomscrolling on psychological processes. Additionally, conducting

research across different age groups and cultural contexts would enhance the generalizability of the findings.

Limitations

This study has several limitations, and the findings should be interpreted within this context. First, the study employed a cross-sectional research design. Therefore, the relationships among the variables should not be interpreted as causal but rather as correlational. Future studies using longitudinal or experimental designs may yield stronger evidence regarding causality.

Second, the data were collected using self-report measures. This approach may increase the risk of measurement bias due to social desirability, recall bias, or subjective evaluations. Accordingly, future research is encouraged to incorporate objective indicators such as digital usage data, observational methods, or multiple data sources.

Third, the sample was selected using a convenience sampling method, and only volunteers reached through social media platforms were included. This limits the representativeness of the sample, and caution should be exercised when generalizing the findings to broader populations. Studies conducted with more diverse samples in terms of age, socioeconomic status, and cultural background would enhance generalizability.

Finally, the social and contextual conditions during the period in which the study was conducted (e.g., current events, economic conditions, and digital platform dynamics) may have influenced participants' levels of anxiety and doomscrolling. Longitudinal studies examining changes in these variables over time may provide additional depth and insight into the phenomenon.

Conclusions

The results of the mediation analysis supported all hypotheses of the study. First, perceptual–concentration errors were found to significantly predict doomscrolling behavior. Second, doomscrolling levels had a positive and significant effect on anxiety. Third, both the total and direct effects of perceptual–concentration errors on anxiety were statistically significant. Finally, based on the bootstrap analysis of the indirect effect, it was determined that the effect of perceptual–concentration errors on anxiety was partially mediated by doomscrolling. The fact that the confidence interval for the indirect effect did not include zero indicates that the mediation effect was statistically significant.

Overall, these findings suggest that cognitive tendencies related to perceptual–concentration errors may increase individuals' propensity to engage with negative content on social media, thereby elevating their anxiety levels. These results are important in demonstrating how the interaction between cognitive processes and digital behaviors can translate into psychological outcomes such as anxiety.

Abbreviations

CFA Confirmatory Factor Analysis

Declarations

Ethics approval and consent to participate

This study was conducted with the approval of the Scientific Research and Publication Ethics Committee of Artvin Çoruh University (ETK-489FC41C8C). In addition, informed consent was obtained from the participants. Participant confidentiality was ensured throughout the data collection process. The survey link was distributed to participants via social media platforms, and participation was voluntary. Participants completed the survey after giving their informed consent by ticking the appropriate option on the online form. All procedures were conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (World Medical Association, 2013). Participants' personal information was kept confidential, and the data was used solely for scientific purposes. Participants had the right to withdraw from the study at any time without facing any consequences. In this study, the generative artificial intelligence tool (ChatGPT, OpenAI) was used solely for language editing and grammar correction. All scientific content was produced by the authors, who bear full responsibility for the integrity and accuracy of the study. No generative artificial intelligence tool was listed as an author.

Consent for publication

Not applicable

Clinical trial number

Not applicable.

Availability of Data and Materials

Data sets may be obtained from the corresponding author upon reasonable request for research purposes.

Competing interest

The authors declare no competing interests.

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Authors' contributions

Conceptualization: KTY, VA, YK; Methodology: KTY, VA; Data gathering: KTY, VA,YK; Writing—original draft preparation: KTY, VA; Writing—review and editing: KTY, VA,YK. All authors read and approved the final manuscript.

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Figures

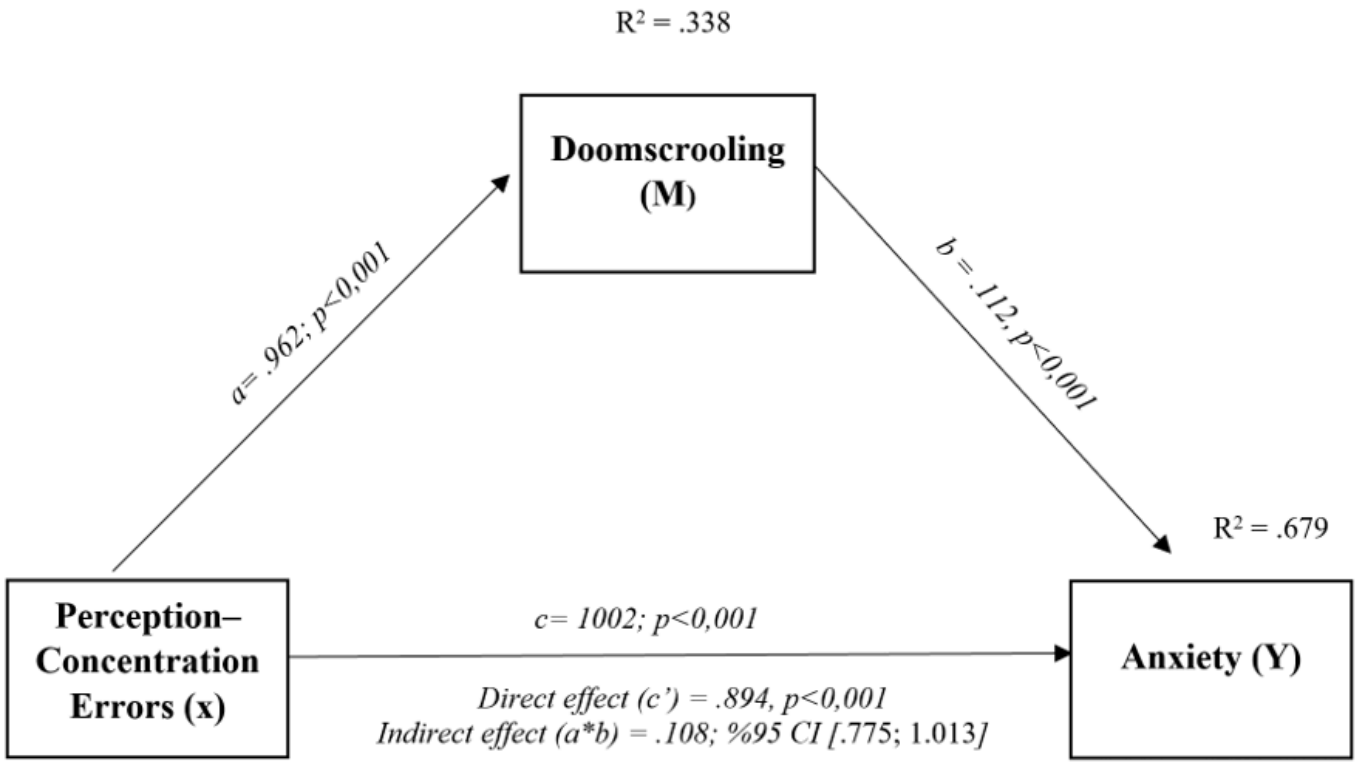


Figure 1

The Mediating Role of Doomscrolling in the Relationship Between Perceptual–Concentration Errors and Anxiety

Note: *The coefficients reported in the figure are unstandardized regression coefficients (b). Values in parentheses represent standard errors. p < .05; *p < .01; **p < .001. The indirect effect was tested using the bootstrap method (5,000 resamples, 95% confidence interval).*