

Doomscrolling and Fear of Missing Out (FOMO): Exploring their Roles in Anxiety Among Young Adults

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Abstract

In the digital age, social media's pervasive influence has reshaped how individuals perceive themselves and their environment, presenting significant public health challenges. This study systematically reviews the relationship between doom scrolling, fear of missing out (FOMO), and anxiety in young adults. A comprehensive search of PubMed and ScienceDirect yielded 839 articles published between 2018 and 2024, capturing the impact of social media use across the COVID-19 pandemic. After removing duplicates and conducting relevance assessments, 18 articles were critically appraised and included in the final review, focusing on studies measuring FOMO, doom scrolling, and anxiety. The findings reveal a strong correlation between heightened FOMO and increased doom scrolling, which exacerbates anxiety symptoms. These patterns were particularly pronounced post-pandemic, reflecting the surge in social media usage during the global crisis and its lingering psychological effects. The study underscores the importance of targeted interventions to address FOMO and digital consumption patterns, aiming to reduce anxiety in young adults. Future research should prioritize longitudinal studies to establish causal relationships and develop effective strategies for managing FOMO and social media use, crucial for improving mental health outcomes in the post-pandemic era.

Keywords: Fear of missing out, FOMO, anxiety, doom scrolling, problematic smartphone use (PSU), young adults, addiction, social media

1. Introduction

In the modern digital era, social media has become an integral component of daily life, particularly for young adults [4]. Platforms such as Facebook, Instagram, Twitter, and TikTok provide avenues for instant connectivity, enabling users to share their experiences and interact with a global audience. While these platforms create opportunities for social interaction and self-expression, they also introduce significant psychological challenges [12]. One

prominent concern arises from the constant exposure to curated and idealized representations of others' lives, which can distort self-perceptions and intensify feelings of inadequacy [13]. Among the psychological phenomena linked to this issue is the fear of missing out (FoMO), a pervasive apprehension that others might be experiencing rewarding events in one's absence. Research indicates that FoMO is closely associated with heightened anxiety and dissatisfaction, particularly among individuals who frequently engage with social media [20].

A related phenomenon, doomscrolling, involves the compulsive consumption of negative news and information on social media platforms. This behavior has been recognized for its adverse emotional effects, including increased anxiety and stress [25]. During the COVID-19 pandemic, both FoMO and doomscrolling became more pronounced as individuals turned to their devices for updates amidst heightened social isolation and uncertainty. Young adults, already navigating a critical stage of emotional and social development, appeared particularly vulnerable to the psychological consequences of these behaviors [8]. Although a growing body of literature has explored the psychological effects of FoMO and doomscrolling independently, limited attention has been given to the interrelationship between these behaviors and their combined impact on anxiety in young adults.

Furthermore, existing studies often overlook the broader contextual factors, such as the pandemic, which may exacerbate these behaviors. This study seeks to address this gap by examining the interconnected dynamics of FoMO and doomscrolling and their implications for mental health. Given the increasing prevalence of anxiety among young adults, understanding these phenomena is essential for designing targeted public health interventions and fostering mental well-being.

The primary objectives of this systematic review are to investigate the relationship between FoMO and doomscrolling in young adults, to assess their combined impact on anxiety levels, and to explore the implications of these findings for public health strategies and future research. By analyzing these dynamics, this study aims to provide a deeper

understanding of how digital consumption patterns influence mental health and to offer actionable insights for interventions that promote resilience and well-being in the post-pandemic era.

2. Theoretical framework

In this section the researcher explains the conceptual framework of Fear of Missing Out (FOMO) and the impact.

Fear of Missing Out (FOMO)

Fear of Missing Out (FoMO) has emerged as a significant psychological phenomenon in the digital age. It is defined as "a pervasive apprehension that others might be having rewarding experiences from which one is absent" [2], FoMO is characterized by an intense desire to remain continually connected with others' activities. This phenomenon has gained substantial attention due to its association with problematic social media use and adverse psychological outcomes, particularly among young adults.

Research has also identified personality traits, such as high neuroticism and low self-esteem, as significant predictors of FoMO. These traits make individuals more susceptible to relying on external validation to regulate emotions, further reinforcing the cycle of FoMO [17].

Historical and Sociocultural Roots of FoMO

FoMO is prominently associated with the digital age, it is not an entirely novel phenomenon. Historically, the fear of exclusion has been deeply rooted in human social behavior, evolving from concerns over missing communal events to the current digital manifestations driven by social networking platforms. However, social media platforms have amplified this phenomenon through features such as algorithmic feeds, notifications, and temporary stories, which create a sense of urgency and promote continuous engagement [1]. Cultural differences also significantly influence how FoMO manifests. In collectivist societies, FoMO often revolves around group belonging and participation, while in individualistic cultures, it may emphasize the need to outperform peers in personal or professional domains [16]. These variations highlight the complex interplay between sociocultural factors and individual experiences of FoMO.

FoMO and social media engagement

Research consistently links FoMO to increased social media engagement and addiction-like behaviors. Individuals who exhibit high levels of FoMO often use social media more frequently and

intensively, compulsively checking platforms for updates. This heightened engagement is associated with diminished well-being and elevated levels of anxiety [8]. Neurobiological studies suggest that FoMO is closely tied to the brain's reward pathways, particularly involving dopamine, which is triggered by the anticipation of social validation or updates [1]. This cycle of compulsive engagement not only reinforces FoMO but also exacerbates anxiety and dissatisfaction. The constant exposure to curated and idealized portrayals of others' lives on social media further intensifies feelings of inadequacy and promotes harmful social comparison processes [8].

Psychological and Social Implications

FoMO has been correlated with various negative psychological outcomes, including anxiety, depression, and stress [4]. These effects are particularly pronounced during adolescence and young adulthood, stages marked by identity development and heightened social comparison. Beyond individual mental health, the implications of FoMO extend to broader social dynamics. For instance, it can create a feedback loop in which individuals feel compelled to document their experiences to match their peers, inadvertently perpetuating the very environment that fuels FoMO [1]. Additionally, FoMO impacts professional settings, where employees may feel pressured to remain constantly available to avoid missing networking opportunities or team activities. This hyper-connectivity can contribute to burnout and decreased job satisfaction, as individuals struggle to balance personal and professional demands [20].

2.1. Doom Scrolling

Doomscrolling, a relatively new phenomenon, refers to the compulsive consumption of negative news on social media platforms. This behavior has gained prominence, particularly among young adults, as a potential contributor to anxiety and other mental health concerns [8]. Recent studies have linked doomscrolling to increased levels of stress, anxiety, and depression. For instance, Sharma et al. [see Tables 1 and 2] found that doomscrolling behavior was associated with higher levels of cynicism and that individuals with neurotic tendencies were more likely to engage in this behavior. The constant exposure to negative information can create a cycle of anxiety and compulsive checking, potentially exacerbating existing mental health issues. Doomscrolling is closely related to the concept of information overload, where individuals are exposed to an excessive amount of information, often beyond their processing capacity [9]. In the context of social media, this overload can lead to cognitive fatigue, decreased decision-making abilities, and increased anxiety [10]. The combination

of doomscrolling and information overload may contribute to a state of heightened anxiety among young adults. As they attempt to stay informed and connected, they may inadvertently expose themselves to a barrage of negative news, potentially intensifying feelings of helplessness and worry. This cycle can be particularly problematic for individuals already prone to anxiety or those experiencing fear of missing out (FoMO). Understanding the interplay between doomscrolling, information overload, and anxiety is crucial for developing effective interventions and promoting healthier social media habits among young adults.

2.2. Problematic social media use (PSMU) and anxiety among young adults

Research on anxiety and social media use among young adults has revealed a complex relationship with both positive and negative outcomes. Studies have consistently shown a correlation between increased social media use and higher levels of anxiety, particularly in young adult populations [6]. Social media platforms can serve as both a source of social support and a trigger for anxiety [11]. While these platforms offer opportunities for connection, they also expose users to constant social comparisons, cyberbullying, and information overload. The anxiety associated with social media use often manifests as fear of missing out (FoMO) and social anxiety [12]. FoMO can drive compulsive checking behaviors, leading to increased time spent on social platforms and heightened anxiety about offline activities [13]. Furthermore, the phenomenon of doomscrolling, where users compulsively consume negative news content, has been linked to increased anxiety levels [14]. This behavior, particularly prevalent among young adults, can create a cycle of anxiety and continued problematic social media use.

2.3. Interconnections between FOMO, Doom Scrolling and Anxiety

The interconnections between Fear of Missing Out (FoMO), doom scrolling, and anxiety represent a complex web of psychological phenomena particularly relevant to young adults in the digital age. FoMO, characterized by a pervasive apprehension of missing out on rewarding experiences, often leads to increased social media use and compulsive checking behaviors. This constant need to stay connected can seamlessly transition into doom scrolling, where individuals compulsively consume negative news content. Both behaviors are driven by anxiety and the need to stay informed, creating a self-reinforcing cycle. Research indicates that FoMO is associated with higher levels of anxiety and depression, particularly among young adults [13]. Similarly, doom scrolling has been linked to increased stress and

anxiety [8]. The combination of these behaviors can exacerbate existing anxiety or trigger new anxiety symptoms, as users are constantly exposed to both social pressures and negative news content. Furthermore, the information overload resulting from both FoMO-driven social media use and doom scrolling can overwhelm an individual's cognitive capacities, potentially leading to decision fatigue and increased anxiety [18]. This interconnected cycle of FoMO, doom scrolling, and anxiety can significantly impact young adults' mental well-being and social functioning. Understanding these interconnections is crucial for developing effective interventions and promoting healthier digital habits among young adults.

3. Materials and methods

The systematic review was conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist [16]. The critical appraisal tools that were used are based on JBI critical appraisal tools [3].

3.1. Search strategy and information sources

Before initiating the keyword search and using search engines, a set of key preliminary parameters was defined to better focus and streamline the exploration of the subject. An initial search was conducted in July 2024 and the final search was done in August 2024. The search strategies for each database was developed by one of the authors. The search was done using the following terms. For fear of missing out and anxiety: "Fear of Missing Out" OR "FoMO" AND "Anxiety". For doom scrolling and anxiety: "Doom scrolling" OR "Mindless scrolling" AND "Anxiety". For FoMO, Doom scrolling and anxiety: "Fear of Missing Out" OR "FoMO" AND "Doom Scrolling" OR "Mindless Scrolling" AND "Anxiety". Free word search and MESH terms were used during the search strategy. Studies published in English were only considered for inclusion in the review. Publication dates were set from 2016 to 2024 to investigate the timeframe pre and post pandemic. The data were collected from electronic databases (Scopus, PubMed and Psycinfo) and manually from reference lists of the included studies.

3.2. Inclusion criteria

The review considered studies that included young adults with an average age of 18-35 years in home, school, work or other everyday environments. The age criterion was applied at the screening during the abstract stage to obtain the widest possible search and limit the number of missed studies. Studies concerning participants with a mean age below 18 years or above 35 years were excluded.

Exposure of interest

In this review, FOMO was understood as a pervasive apprehension that others might be having rewarding experiences from which one is absent. Studies that focused on FOMO measured with a scale were included, whereas studies that defined FOMO only by qualitative descriptions or anecdotal evidence were excluded. Besides that, doom scrolling was understood as the compulsive consumption of negative news on social media platforms studies that focused on doom scrolling measured with a scale were included, whereas studies that defined doom scrolling only by subjective observations, non-validated metrics or vague conceptual definitions were excluded. In the context of this review, anxiety was included only if measured using validated scales such as the Depression Anxiety Stress Scales (DASS) or the Generalized Anxiety Disorder Scale (GAD-7). Studies that assessed anxiety through non-standardized or informal methods were excluded.

Outcomes

This systematic review only included studies that reported on how FoMO and doomscrolling among young adults' impact indicators of mental health, specifically anxiety. Studies were included if they measured anxiety using validated scales such as the Depression Anxiety Stress Scales (DASS) or the Generalized Anxiety Disorder Scale (GAD-7). Additionally, studies measuring FoMO and doomscrolling were included only if they utilized validated scales such as the Fear of Missing Out Scale by Przybylski et al., [24], and the Doomscrolling Scale by Sharma et al. [see Tables 1 and 2]. Studies that relied solely on qualitative descriptions, anecdotal evidence, or non-validated metrics for FoMO, doomscrolling, or anxiety were excluded from the review.

Types of studies

This review considered descriptive and analytical quantitative studies (e.g. analytical and descriptive cross-sectional studies, longitudinal studies, correlational studies) and quantitative data from mixed methods of studies. Qualitative studies, theoretical studies, editorials, opinion-based texts and conference proceedings were excluded from the review.

3.3. Study selection

Following the search, all identified citations were collated and uploaded into Zotero (version 7.0), after which any duplicates were removed. Following a pilot test, titles, abstracts and full-text papers were screened by a reviewer for assessment against the inclusion

criteria. Any disagreements at each stage of the selection process were resolved through discussion by consensus among authors. The results of the search and study inclusion process are reported and presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [16] flow diagram in Figure 1

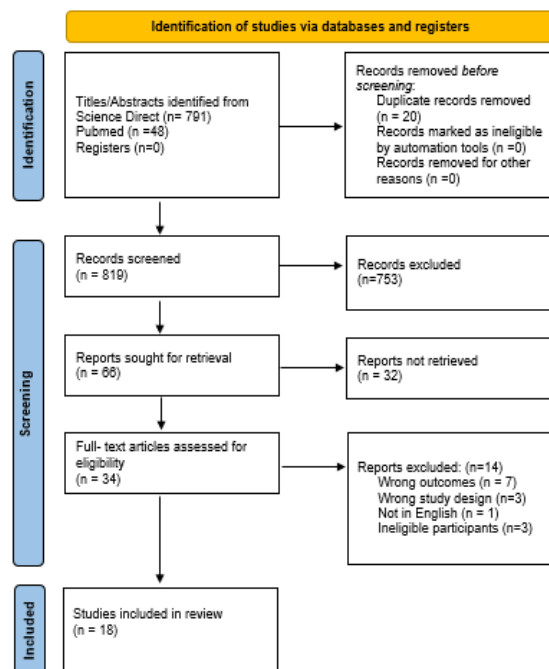


Figure 1. PRISMA flow diagram depicting the process of study selection [16]

3.4. Data extraction and synthesis

Data extraction for this review was conducted using Zotero as a reference management tool to organize and manage all relevant studies identified during the systematic search. The extracted data included specific details regarding the exposures of interest (FoMO and doomscrolling), the study populations (participants aged 18 to 35 years, with a defined mean age falling within this range), study methodologies (e.g., cross-sectional and longitudinal designs), and the outcomes or dependent variables (the effects on anxiety) relevant to the review question. Additionally, information about the first author, publication year, journal, country where the study was conducted, sample size, population characteristics, mean age or age range, and gender distribution was collected whenever available. As the included studies did not provide data suitable for statistical meta-analysis, the results are presented in a narrative synthesis.

4. Results

A total of 839 records were found by the search

strategy and one study were identified from the references for included studies. After removing duplicates ($n=20$), 819 papers were screened based on their titles and abstracts. Sixty-six reports were sought for retrieval, with thirty-two unable to be retrieved. Hence, 34 reports were screened at the full-text stage. Finally, 17 studies were included in the review (Fig. 1). Reasons for excluding the other 15 studies at the full-text screening stage were wrong outcomes ($n=9$), ineligible participants ($n=1$), poor quality ($n=3$), not in English ($n=1$) and wrong study design ($n=1$).

The included studies were critically appraised by two independent reviewers using standardized critical appraisal instruments from the JBI. Attempts were made to contact some of the study authors for additional information but were not successful. The results of the critical appraisal are reported in Table 1. Conflicts were discussed and settled by the two reviewers. Studies whose methodological quality was at least 50% were included and progressed to data extraction and synthesis.

Table 1. Critical appraisal of included analytical cross-sectional studies using a JBI critical appraisal instrument

Author (year)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Total	%
Satici et al. 2022	N	Y	Y	Y	Y	N	Y	Y	6/8	75
Yang et al. 2024	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Elhai et al. 2016 (a)	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Ng and Fam 2024	Y	Y	N	N	Y	N	N	Y	4/8	50
Stead and Bibby 2017	Y	Y	Y	Y	Y	N	Y	Y	7/8	87.5
Schwartz et al. 2024	Y	Y	Y	N	Y	N	N/A	N/A	4/8	50
Zhang, Wu and Liu 2023	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Catiker, Buyuksoy and Ozdil 2021	Y	Y	Y	Y	Y	N	Y	Y	7/8	87.5
Akyol et al. 2021	Y	Y	Y	Y	Y	N	Y	Y	7/8	87.5
Varchetta et al 2023	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Kovan, Yildirim and Gulbahce 2024	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Hylkila et al 2023	Y	Y	Y	Y	Y	N	Y	Y	7/8	87.5
Shahabang et al 2024	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Elhai et al. 2018 (b)	N	Y	Y	Y	Y	N	Y	Y	6/8	75
Perazzini et al 2023	N	Y	Y	Y	Y	Y	Y	Y	7/8	87.5
Elhai et al. 2020	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Akbari et al 2021	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100
Elhai et al. 2020	Y	Y	Y	Y	Y	Y	Y	Y	8/8	100

Note. Y- Yes; N – no; N/A – not applicable

JBI critical appraisal checklist for analytical cross-sectional studies.

Q1: Were the criteria for inclusion in the sample clearly defined?

Q2: Were the study subjects and the setting described in detail?

Q3: Was the exposure measured in a valid and reliable way?

Q4: Were objective, standard criteria used for measurement of the condition?

Q5: Were confounding factors identified?

Q6: Were strategies to deal with confounding factors stated?

Q7: Were the outcomes measured in a valid and reliable way?

Q8: Was appropriate statistical analysis used?

4.1. Study characteristics

Table 2 illustrates the summary of the study characteristics. The included studies were published between 2016 and 2024, and all the studies used a cross-sectional study design (Refer to Appendix A for full references in included studies). The studies were conducted in various countries [see Tables 1 and 2]: four in the United States (Elhai et al (a), Schwartz et al., Elhai et al (b), Elhai et al. [6]), one in United Kingdom (Stead and Bibby, one in Finland (Hylkila et al.), three in China (Yang et al., Zhang, Wu and

Liu., Elhai et al.[6]), one in Italy (Perazzini et al.), one in Spain (Varchetta et al.), one in Malaysia (Ng and Fam), and four in Turkey (Satici et al., Catiker, Buyuksoy and Ozdil., Akyol et al., Kovan, Yildirim, and Gulbahce. One study (Shahabang et al.), was conducted in multiple countries (Iran and United States). One article did not state where the study was conducted (Akbari et al. [see Tables 1 and 2]).

In the studies included, data were collected by surveys and the number of participants varied between 97 (Catiker, Buyuksoy and Ozdil [see Tables 1 and 2]) and 55,134 (Akbari et al. [see Tables 1 and

2])). All the studies reported gender data and in the majority of studies, most participants were women. Only Schwartz et al., and Shahabang et al. [see Tables 1 and 2] reported genders other than female and male. One study (Yang et al. [see Tables 1 and 2]) did not provide gender data. Participants ages varied between 18 and 35. Most of the included studies did not report

exact ages but rather ranges (Zhang, Wu and Liu., and Stead and Bibby [see Tables 1 and 2]) and/or mean ages. Only (Catiker, Buyuksoy and Ozdil [see Tables 1 and 2]) reported participants exact ages with percentages. One study (Yang et al. [see Tables 1 and 2]) reported ages only by educational level.

Table 2. Characteristics of the included studies

Authors, (year)	Country, size	Sample	Study Design	Characteristics (Gender, age)	Outcomes of the included studies
Satici et al. 2022	Turkey Study I: (n=378) Study II: (n= 419) Study III: (n= 460)		A cross-sectional study	Study I: Gender: not specified Mean age: 23.45 years old Study II: Gender: Female (74%), Male (26%) Mean age: 24.47 Study III: Gender: Female (74.6%), Male (25.4%) Mean age: 23.68	Doomscrolling demonstrated positive correlations with social media addiction, fear of missing out (FoMO), neuroticism, and the number of hours spent on social media daily. Furthermore, it was positively associated with indicators of psychological distress. Conversely, negative correlations were observed between doomscrolling and traits such as conscientiousness, extraversion, and agreeableness, as well as with indicators of mental well-being.
Yang et al. 2024	China (n= 2938)		A cross-sectional study	Gender: not specified Age were not specified but study categorize samples by educational level: freshmen (79.58%) Sophomores (18.99%)	The excessive consumption of negative information has been associated with both psychological and behavioral issues. Evidence suggests that as little as 15 minutes of exposure to negative news can significantly elevate state anxiety levels among college students. Furthermore, the personalized content delivery algorithms utilized by social media platforms may exacerbate this issue by amplifying users' exposure to negative information.
Elhai et al. (a) 2016	United States (n=308)		A cross-sectional study	Gender: not specified Mean Age: 33.15 years	Fear of missing out (FoMO) has been identified as a strong predictor of problematic smartphone use, with individuals exhibiting high FoMO feeling a compulsion to remain constantly connected to their social networks. Anxiety also plays a significant role, as heightened levels of distress are observed when individuals are separated from their smartphones. Smartphones are frequently utilized as an ineffective coping mechanism for managing negative emotions, further complicating their role in emotional regulation. Problematic smartphone use reflects complex interactions among psychological needs, emotional regulation processes, and social connectivity, rather than being solely determined by usage frequency. This underscores the multifaceted nature of problematic smartphone use and its intricate connections to emotional and psychological factors.
Ng and Fam 2024	Malaysia (n=149)		A cross-sectional study	Gender: Female (80.8%) Male (19.2%) Age: 18-25 years old	Malaysian undergraduates with higher levels of fear of missing out (FoMO) demonstrated a preference for engaging in in-person relationships rather than relying on smartphones to avoid missing out. Contrary to expectations, neither FoMO-Fear, FoMO-Control, nor unidimensional FoMO emerged as significant predictors of problematic smartphone use. Approximately 80% of Malaysian young adults reported experiencing anxiety when separated from their smartphones. Malaysian

					undergraduates were more inclined to use smartphones in a functional manner rather than impulsively, indicating more regulated usage patterns despite concerns related to FoMO. These findings suggest that young adults in Malaysia prioritize maintaining balanced smartphone use while addressing their social connectivity needs.
Stead and Bibby 2017	United Kingdom N= 495	A cross-sectional study	Gender: Female (69%) Male (31%) Age: ranges 18-30 years old, mean age: 20.62 years		Individuals with high levels of fear of missing out (FoMO) tend to experience heightened anxiety, low self-esteem, and feelings of inadequacy. FoMO is positively associated with problematic internet use, suggesting its contribution to unhealthy and obsessive behaviors. Both FoMO and problematic internet use have been shown to negatively affect emotional well-being and the quality of personal relationships, irrespective of personality traits. Moreover, individuals who engage extensively with the internet and social media exhibit elevated anxiety levels when separated from their smartphones. These findings highlight the pervasive impact of FoMO and excessive internet use on mental health and interpersonal dynamics.
Schwartz et al. 2024	United states N= 349	A cross-sectional study	Gender: Female (63.6%) Male (33.2%) Non-binary/other gender (3.2%) Mean age: 20.37		Passive scrolling during the pandemic has been shown to increase susceptibility to stress through "doomscrolling," a behavior characterized by a narrowed focus on COVID-19 dangers due to the constant consumption of negative online content. Problematic aspects such as "fear of missing out" and negative social comparisons further compounded these effects during this period. Despite assumptions that online activity could provide coping mechanisms for isolated youth, interactions on social media platforms appear to have exacerbated the impact of pandemic-related stress on the psychological well-being of college students.
Zhang, Wu and Liu 2023	China, N=531	A cross-sectional study	Gender Female (66.1%) Male (33.9%) Age: 18-22 years old		Significant relationships between neuroticism, fear of missing out (FoMO), and social media use. Higher levels of neuroticism were found to predict increased FoMO, which subsequently led to more frequent passive use of mobile social networks. Anxiety is a crucial factor affecting neurotic individuals' mental health and social media behavior. Furthermore, individuals with higher anxiety levels showed increased tendencies toward passive social network use. The findings also indicated that FOMO significantly influences passive use of social networks, with those experiencing higher levels of FOMO showing greater likelihood of overusing social networking sites.
Catiker, Buyuksoy and Ozdil 2021	Turkey N= 97	A cross-sectional study	Gender Female (82.5%) Male (17.5%) Age: 19-21 years old (63.9%) 22-24 years old (36.1%) Mean age: 21.39 years old		A positive correlation was found between smartphone addiction and fear of missing out, with increased smartphone use leading to higher levels of FoMO. The research demonstrated that as smartphone use increased, students experienced greater anxiety about missing social developments. Additionally, the study found that excessive smartphone use and FoMO were associated with fear, anxiety, and stress among nursing students. These findings suggest an interconnected relationship between smartphone usage patterns and psychological distress among nursing students.

Akyol et al. 2021	Turkey N= 235	A cross-sectional study	Gender Female (84.7%) Male (15.3%) Mean age: 21.72 years old	Significant associations between mental health problems and problematic mobile phone use among Turkish university students. Higher levels of Fear of Missing Out (FoMO) were found to be directly associated with increased anxiety and mental health problems. Participants who exhibited elevated levels of mental health issues, including anxiety and FoMO, demonstrated higher levels of problematic mobile phone use. The findings indicated a positive correlation between FoMO and anxiety symptoms. However, while the direct relationships were significant, the study found that FoMO and escapism did not mediate the association between problematic mobile phone use and mental health problems.
Varchetta et al 2023	Spain N=589	A cross-sectional study	Gender Female (80%) Male (20%) Mean age: 21.56 years old	Significant relationships between emotional dysregulation, Fear of Missing Out (FoMO), and problematic internet use among Spanish university students. The study demonstrated that emotional dysregulation directly influenced FoMO and problematic social media use, which together contributed to internet addiction. The results also indicated that women more frequently exhibited symptoms associated with social media addiction. Notably, while emotional dysregulation affected FoMO and social media use directly, it did not show a direct effect on internet addiction, suggesting these relationships are mediated through other psychological factors.
Kovan, Yildirim and Gulbahce 2024	Turkey, N=256	A cross-sectional study	Gender Female (80%) Male (20%) Mean age: 20.31 years	Increased levels of FoMO were positively associated with social media addiction, particularly when students felt compelled to constantly check social media platforms to stay updated with current events. The research indicated that individuals experiencing FoMO were more likely to engage in intensive social media use as a coping mechanism, which could subsequently lead to addiction. Additionally, the constant need to access information and stay updated contributed to heightened anxiety levels, especially during crisis events such as the COVID-19 pandemic.
Hylkila et al 2023	Finland, N=381	A cross-sectional study	Gender Female (80.6%) Male (19.4%) Mean age: 26.01 years old	Those who strongly experienced fear of missing out were more likely to gravitate towards excessive social media use. During the COVID-19 pandemic, increased social media use was linked to heightened levels of fear of missing out, depression, and feelings of loneliness. The study demonstrated that social media users' psychological well-being was impacted by whether they engaged in passive scrolling or active interaction, with passive use potentially leading to more negative outcomes.
Shahabang et al 2024	Iran and United States N= 800	A cross-sectional study	Gender Iranian Female (26.7%) Male (73.2%) Other gender (0.1%) Mean age: 26.75 United States Female (75%) Male (23.9%) Other gender (1.1%) Mean age: 20.06 years old	Doomscrolling was significantly associated with elevated levels of existential anxiety in both Iranian and American samples. Research findings demonstrated that compulsive consumption of negative news was linked to psychological distress, including lower well-being, decreased life satisfaction, and increased fear of missing out. Additionally, individuals who engaged in doomscrolling exhibited higher levels of generalized anxiety, with personality traits such as lower self-control and higher neuroticism predicting increased

					doomscrolling behavior. The study also found that excessive exposure to negative news through doomscrolling could potentially lead to media-induced PTSD and heightened anxiety levels.
Elhai et al. (b) 2018	United States N=296	A cross-sectional study	Gender Female (76.7%) Male (23.3%) Mean age: 19.44 years old		FOMO demonstrated significant associations with anxiety severity, and individuals with higher FOMO levels showed increased problematic smartphone use. The research found that anxiety, stress, and rumination remained significant predictors of FOMO even after controlling for other negative affectivity variables. Additionally, each negative affectivity variable mediated the relationship between FOMO and problematic smartphone use, with rumination specifically mediating between FOMO and smartphone use frequency.
Perazzini et al 2023	Italy N= 192	A cross-sectional study	Gender Female (78.65%) Male (21.4%) Mean age: 23.24 years old		Significant associations between fear of missing out (FoMO) and negative emotional experiences including anxiety, showing that individuals experiencing FoMO demonstrated increased anxiety symptoms. The research found that FoMO was closely linked to negative emotional experiences, feelings of inadequacy, and low life satisfaction. Additionally, individuals experiencing FoMO showed a tendency to spend more time comparing others' lives to their own, leading to increased social anxiety and decreased face-to-face interactions. The study also indicated that mindful attitudes mediated the relationship between adult attachment and FoMO, suggesting potential protective mechanisms against negative emotional experiences.
Elhai et al. 2020	China, N=1034	A cross-sectional study	Gender Female (65.3%) Male (34.7%) Mean age: 19.34 years old		The study revealed significant relationships between fear of missing out (FOMO) and problematic smartphone use severity among Chinese young adults. FOMO served as a significant mediator between anxiety and smartphone use frequency/severity. The relationship between FOMO and problematic smartphone use severity demonstrated a bivariate correlation of $r=0.30$, which was notably lower than findings from Western samples. Importantly, anxiety symptoms showed stronger associations with FOMO compared to depression symptoms, suggesting FOMO may be more closely linked to anxiety-related variables. The study also found that FOMO's relationship with smartphone use was not significantly different between social and non-social usage patterns.
Akbari et al 2021	Multi-national study N= 55,134	A cross-sectional study	Gender Female (58.37%) Male (41.63%) Mean age: 22.07 years old		Significant associations between fear of missing out (FoMO) and internet use, with correlation strengths varying from $r = 0.11$ to $r = 0.63$ across different populations. During the COVID-19 pandemic, the relationship between FoMO and internet use strengthened considerably, suggesting increased anxiety and digital dependency during periods of social restriction. The research also demonstrated that FoMO's relationship with social media platforms varied, showing no significant correlation with Facebook use in some populations, while displaying stronger associations with Instagram usage, potentially indicating

				platform-specific anxiety patterns. These findings highlight the complex interplay between FoMO, anxiety, and digital media consumption across different demographic groups and contexts.
Elhai et al. 2020	United States, N=316	A cross-sectional study	Gender Female (66.8%) Male (33.2%) Mean age: 19.21 years old	Significant relationships between psychological factors and smartphone use behaviors. Fear of missing out (FOMO) was found to mediate the relationship between depression severity and problematic smartphone use ($\beta = 0.23$, $p < .001$), as well as between anxiety and problematic smartphone use ($\beta = 0.16$, $p = .04$). Additionally, FOMO demonstrated stronger associations with process-oriented (non-social) smartphone use compared to social use. The research indicated that individuals experiencing FOMO may engage in process-oriented smartphone use as a means of avoiding stressful social engagement, particularly among those with social anxiety tendencies.

Scales used for measuring FOMO

The measurement of Fear of Missing Out (FOMO) levels in recent research has primarily utilized the 10-item FOMO scale developed by Przybylski et al. [24]. This scale assesses respondents' experiences of anxiety related to missing out on rewarding social experiences, with items rated on a 5-point Likert scale ranging from 1 (not at all true of me) to 5 (extremely true of me).

Scales used for measuring anxiety

Several validated scales were employed to assess anxiety levels in this study. The primary instrument utilized was the Generalized Anxiety Disorder 7-item scale (GAD-7), a widely recognized self-report questionnaire that evaluates the severity of anxiety symptoms over a two-week period. Additionally, the Depression Anxiety Stress Scale-21 (DASS-21) was administered, with particular focus on its anxiety subscale, providing a comprehensive measure of psychological distress. To capture both state and trait anxiety, the Existential Anxiety Questionnaire was included, offering insights into both temporary and more stable anxiety tendencies. Some participants also completed the Adult attachment scale-revised (AAS-R) to assess worry severity, a key component of anxiety disorders. These instruments collectively provided a multifaceted assessment of anxiety, ensuring a robust evaluation of participants' anxiety levels across various dimensions.

Scales used for measuring doom scrolling

The assessment of doomscrolling behavior primarily utilized the Doomscrolling Scale, a 15-item self-report measure developed by Sharma et al. [see Tables 1 and 2]. This scale evaluates individuals'

tendency to consume negative news content on social media platforms. Items are rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating a stronger inclination toward doomscrolling. The scale demonstrated high internal consistency, with Cronbach's alpha coefficients of 0.960 in the original study and 0.982 in subsequent research. A brief 4-item version of the scale was also developed, showing good psychometric properties.

4.2. Main findings

Recent studies shed light on the complex interplay between fear of missing out (FOMO), doomscrolling behavior, and problematic smartphone use among young adults. A significant association has been observed between elevated levels of FOMO and increased doomscrolling, with correlations ranging from 0.30 to 0.60 for problematic smartphone use. Individuals with higher levels of FOMO tend to engage more frequently with their devices and social media platforms, driven by a compulsion to remain connected (Elhai et al. [see Tables 1 and 2]). This compulsive engagement is further exacerbated by negative affectivity, including anxiety, stress, and rumination, which strongly correlate with FOMO ($r = 0.4$ to 0.5).

Doomscrolling behavior, characterized by excessive consumption of distressing news, has been found to correlate significantly with psychological distress, including depression and anxiety (Akyol et al., Satici et al. [see Tables 1 and 2]). Evidence suggests that frequent engagement in doomscrolling can exacerbate adverse mental health outcomes (Shahabang et al., Yang et al. [see Tables 1 and 2]). Notably, FOMO has emerged as a mediator in the relationship between anxiety and problematic smartphone use, indicating its pivotal role in driving

excessive digital engagement [6]. Moreover, the consumption of negative news during doomscrolling has been linked to reduced prosocial behavior, diminished self-control, and heightened negative emotions, illustrating the broader detrimental effects of these behaviors on overall mental well-being (Shahabang et al. [see Tables 1 and 2]).

Impact of Social Media Usage During and Post-Pandemic

The COVID-19 pandemic significantly altered social media usage patterns, with a notable increase in engagement during lockdowns as individuals sought connection and information online (Zhang, Wu and Liu [see Tables 1 and 2]). This heightened usage was particularly evident among younger users and women, who experienced elevated levels of depression, anxiety, and fear of missing out (FoMO) during this period. Social media became a primary coping mechanism for pandemic-related stress, with evidence suggesting that the quality of interactions such as meaningful conversations and supportive exchanges which had a greater impact on well-being than the sheer quantity of use (Schwartz et al. [see Tables 1 and 2]).

However, the pandemic also accelerated the prevalence of problematic social media use (PSMU), characterized by compulsive and maladaptive patterns of engagement. Many of these habits persisted post-lockdown, highlighting a shift in digital behaviors that could have long-term implications for mental health and social connectivity (Schwartz et al. [see Tables 1 and 2]). These findings underscore the dual role of social media as both a source of support and a potential risk factor during crises, emphasizing the urgent need for evidence-based guidelines to foster healthier digital engagement. Future research should prioritize the development of interventions aimed at mitigating the adverse effects of social media use while leveraging its benefits as a tool for connection and support during challenging times.

Demographic Variations in FOMO and Anxiety

This study identified significant demographic variations in fear of missing out (FOMO) and anxiety levels. FOMO was inversely correlated with age, with younger individuals reporting higher levels of FOMO compared to older individuals (Elhai et al., and Catiker, Buyuksoy and Ozdil [see Tables 1 and 2]). Women exhibited significantly higher FOMO scores than men (Elhai et al., and Akyol et al. [see Tables 1 and 2]) while individuals identifying as white reported elevated FOMO levels relative to racial or ethnic minorities (Elhai et al., and Akbari et al., [see Tables 1 and 2]). Relationship status also emerged as a relevant factor, with those in non-cohabiting relationships experiencing higher FOMO than

individuals in cohabiting relationships (Elhai et al. and Akyol et al. [see Tables 1 and 2]). Anxiety was strongly associated with FOMO, as well as with stress and rumination (Elhai et al., Akbari et al. 2021., and Akyol et al. [see Tables 1 and 2]). FOMO was found to mediate the relationship between anxiety and problematic smartphone use (PSU) severity, indicating that anxiety may manifest through technology-related behaviors via heightened FOMO [6]. However, no mediation effect was observed between depression and PSU, suggesting that FOMO may have a more direct link to anxiety-related technology use (Elhai et al. [see Tables 1 and 2]). These findings underscore the complex relationships between demographic factors, psychological constructs, and digital behaviors, emphasizing the need for targeted interventions to address FOMO and anxiety across diverse populations.

5. Discussions

The systematic review has illustrated the significant relationship between elevated levels of fear of missing out (FOMO), increased doom scrolling behavior, and heightened anxiety among young adults. Our findings indicate that as social media usage surged during and after the COVID-19 pandemic, these psychological issues became more pronounced. Specifically, the analysis demonstrates that young adults experiencing high levels of FOMO are more likely to engage in prolonged doom scrolling, which in turn exacerbates anxiety symptoms.

5.1. Elevated FOMO levels and Doom Scrolling Behaviour

The findings of this study provide valuable insights into the intricate relationships between FOMO, doomscrolling behavior, and problematic smartphone use among young adults, with significant implications for mental health. The strong association between FOMO and increased doomscrolling (correlations of 0.30-0.60) highlights the role of FOMO in encouraging excessive digital engagement, particularly with distressing content [17]. This behavior appears to be intensified by negative affectivity, such as anxiety, stress, and rumination, which show moderate to strong correlations with FOMO ($r = 0.4-0.5$) [20].

The identification of FOMO as a mediator between anxiety and problematic smartphone use underscores its pivotal role in driving compulsive digital behaviors [16]. Individuals experiencing higher levels of FOMO may engage in doomscrolling to reduce anxiety or stress, yet this behavior may inadvertently worsen psychological distress, creating a cyclical pattern [17]. The significant correlation between doomscrolling and indicators of

psychological distress, such as depression and anxiety, further supports the notion that these behaviors contribute to poor mental health outcomes [18].

In addition, the consumption of negative news during doomscrolling is associated with reduced prosocial behavior and diminished self-control, further emphasizing the harmful effects of these behaviors on mental well-being and social interactions [19]. These findings suggest the need for targeted interventions aimed at reducing FOMO and mitigating its impact on digital behaviors. Potential strategies could include promoting mindfulness practices, fostering digital literacy, and encouraging intentional device usage to break the cycle of compulsive engagement [20].

5.2. Impact of Social Media Usage During and Post-Pandemic

The COVID-19 pandemic has profoundly reshaped social media usage patterns, revealing both its potential benefits and inherent risks [21]. This study highlights a significant surge in social media use during lockdowns, driven by the need for connection and access to information, particularly among vulnerable demographics such as younger users and women [20]. This increased engagement correlated with higher levels of depression, anxiety, and FoMo, suggesting that these groups may be more susceptible to the psychological effects of heightened digital interaction during crises [22]. While social media served as an essential coping mechanism, the findings emphasize the importance of interaction quality over quantity for maintaining mental well-being [8]. Supportive and meaningful online exchanges appeared to buffer against some of the negative emotional impacts of the pandemic, whereas superficial or negative interactions contributed to poorer outcomes [23]. The acceleration of PSMU during the pandemic, characterized by compulsive and excessive use, further underscores the need to address the psychological underpinnings of these behaviors, as some patterns have persisted beyond the lockdown period [14]. These results highlight the complex role of social media during crises: it functions as a critical support system while also posing risks to mental health. Moving forward, developing evidence-based guidelines that promote mindful and balanced digital engagement is crucial [10]. Such strategies should focus on enhancing the quality of online interactions, setting healthy boundaries for usage, and addressing the needs of vulnerable groups [9]. Future research should also investigate the long-term effects of pandemic-induced changes in digital behavior and explore innovative interventions that harness social media's potential for positive connection and support in both crisis and non-crisis contexts.

5.3. Demographic Variations in FOMO, Doom Scrolling and Anxiety

The findings of this study underscore the intricate relationships between demographic factors, psychological constructs, and technology use, particularly in relation to fear of missing out (FOMO) and anxiety [16]. Younger individuals reported higher levels of FOMO, supporting previous research suggesting that younger generations may be more vulnerable to social media-induced anxieties due to their heightened reliance on digital communication and social validation [17]. Women's higher FOMO scores compared to men may reflect gendered differences in social connectivity and perceived social expectations [18]. Similarly, the elevated FOMO levels among individuals identifying as white could highlight cultural or contextual factors influencing their experiences of social exclusion and online engagement [16].

Relationship status further shaped FOMO experiences, with individuals in non-cohabiting relationships reporting higher levels than those in cohabiting relationships [13]. This finding points to the role of relationship dynamics in social anxieties, as individuals in non-cohabiting relationships may feel more pressure to stay connected digitally to maintain their relationships.

The association between FOMO and psychological constructs such as anxiety, stress, and rumination reveal the potential mental health toll of perceived social exclusion [16]. Importantly, the mediating role of FOMO in the relationship between anxiety and PSU severity suggests that FOMO could be a key mechanism driving compulsive technology use among individuals with high anxiety [23]. The absence of a mediation effect between depression and PSU indicates that FOMO's influence may be more closely tied to anxiety-related behaviors than depressive symptoms [13].

These findings highlight the need for tailored interventions that address the interplay between demographic factors and psychological well-being to promote healthier technology use. Strategies could include fostering digital literacy, teaching emotion regulation techniques, and designing culturally sensitive programs that consider demographic variations in FOMO and anxiety. Further research should explore the specific mechanisms through which FOMO impacts mental health and technology use across diverse populations.

5.4. Limitations

While this systematic review offers valuable insights into the relationship between Fear of Missing Out (FOMO), doomscrolling, and anxiety, several limitations must be acknowledged. First, the review primarily includes cross-sectional studies, which limit

the ability to establish causal relationships between these variables. The reliance on self-reported measures of FOMO, anxiety, and doomscrolling behaviors introduces the possibility of social desirability bias, where participants may underreport problematic behaviors or overreport socially acceptable responses. Additionally, the included studies often used different scales and definitions to measure FOMO and doomscrolling, which could affect the consistency and comparability of the findings. Another limitation is the demographic focus on young adults, which may restrict the generalizability of the results to other age groups. The exclusion of qualitative studies also limits a deeper understanding of the contextual factors that influence these behaviors. Finally, the review only considered studies published in English, potentially excluding relevant research conducted in other languages, thus introducing a language bias.

5.5. Future Directions

Future research should prioritize longitudinal studies to better understand the causal pathways between FOMO, doomscrolling, and anxiety. This will provide more definitive evidence of how these behaviors evolve over time and contribute to mental health outcomes. Investigating the role of individual differences, such as personality traits or pre-existing mental health conditions, could offer a more nuanced understanding of why some individuals are more susceptible to FOMO and doomscrolling than others. Furthermore, future studies should explore intervention strategies aimed at reducing FOMO and promoting healthier social media habits. Experimental research on digital literacy programs or mindfulness-based interventions could yield practical solutions to mitigate the negative effects of doomscrolling and excessive social media use. Lastly, it would be beneficial to expand the demographic focus beyond young adults and consider cross-cultural studies to explore how FOMO and doomscrolling manifest in different cultural contexts. This broader approach could offer insights into how societal norms, technology access, and cultural values shape digital consumption patterns and their psychological impacts.

6. Conclusion

In conclusion, this systematic review highlights the intricate relationship between Fear of Missing Out (FOMO), doomscrolling, and anxiety among young adults. The findings demonstrate that elevated FOMO is strongly associated with increased doomscrolling behavior, which in turn exacerbates anxiety symptoms. The COVID-19 pandemic has intensified these behaviors due to heightened social media usage, amplifying mental health challenges in this

demographic. Addressing these interconnected issues is critical for developing effective interventions that promote healthier digital habits and reduce the psychological toll of FOMO and doomscrolling. Future research should focus on longitudinal studies to explore the causal pathways and further investigate how digital consumption patterns can be managed to mitigate anxiety and improve mental well-being in young adults. Additionally, tailored strategies targeting vulnerable demographics, such as younger individuals and women, are essential for addressing these pervasive mental health concerns in the post-pandemic era.

7. References

- [1] Aromataris E, Fernandez R, Godfrey C, Holly C, Kahlil H, Tungpunkom P. (2015). Summarizing systematic reviews: methodological development, conduct and reporting of an Umbrella review approach. *Int J Evid Based Healthc.* 13(3):132-40.
- [2] Barry, Christopher T., and Wong, Megan Y. (2020). Fear of missing out (FoMo): A generational phenomenon or an individual difference?. *Journal of Social and Personal Relationships*, 37(12), 2952-2966. DOI: 10.1177/0265407520945394.
- [3] Bawden, David, and Robinson, Lyn (2008). The dark side of information: overload, anxiety and other paradoxes and pathologies. *Journal of Information Science*, 35(2), 180-191. DOI: 10.1177/0165551508095781.
- [4] Boulianne, Shelley, and Theocharis, Yannis (2018). Young People, Digital Media, and Engagement: A Meta-Analysis of Research. *Social Science Computer Review*, 38(2), 111-127. DOI: 10.1177/0894439318814190.
- [5] Buchanan, Kathryn et al. (2021). Brief exposure to social media during the COVID-19 pandemic: Doom-scrolling has negative emotional consequences, but kindness-scrolling does not. *Plos One*, 16(10), e0257728. DOI: 10.1371/journal.pone.0257728.
- [6] Elhai, Jon D. et al. (2020). Health anxiety related to problematic smartphone use and gaming disorder severity during COVID -19: Fear of missing out as a mediator. *Human Behavior and Emerging Technologies*, 3(1), 137-146. DOI: 10.1002/hbe2.227.
- [7] Elhai, Jon D., Yang, Haibo, and Montag, Christian (2021). Anxiety and stress severity are related to greater fear of missing out on rewarding experiences: A latent profile analysis. *PsyCh Journal*, 10(5), 688-697. DOI: 10.1002/pchj.455.
- [8] Keles, Betul, McCrae, Niall, and Grealish, Annmarie (2019). A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal of Adolescence and Youth*, 25(1), 79-93. DOI: 10.1080/02673843.2019.1590851.
- [9] Matos, Marcela et al. (2021). The role of social

connection on the experience of COVID-19 related post-traumatic growth and stress. *Plos One*, 16(12), e0261384. DOI: 10.1371/journal.pone.0261384.

[10] Milyavskaya, Marina et al. (2018). Fear of missing out: prevalence, dynamics, and consequences of experiencing FOMO. *Motivation and Emotion*, 42(5), 725-737. DOI: 10.1007/s11031-018-9683-5.

[11] Naslund, John A. et al. (2020). Social Media and Mental Health: Benefits, Risks, and Opportunities for Research and Practice. *Journal of Technology in Behavioral Science*, 5(3), 245-257. DOI: 10.1007/s41347-020-00134-x.

[12] Newson, Martha et al. (2021). Digital contact does not promote wellbeing, but face-to-face contact does: A cross-national survey during the COVID-19 pandemic. *New Media and Society*, 26(1), 426-449. DOI: 10.1177/14614448211062164.

[13] Nurmi, Niina, and Hinds, Pamela J. (2020). Work Design for Global Professionals: Connectivity demands, connectivity behaviors, and their effects on psychological and behavioral outcomes. *Organization Studies*, 41(12), 1697-1724. DOI: 10.1177/0170840620937885.

[14] M. J. Page et al., "The PRISMA 2020 statement: an Updated Guideline for Reporting Systematic Reviews," *British Medical Journal*, vol. 372, no. 71, Mar. 2021, DOI: 10.1136/bmj.n71.

[15] Srinivasan, Preeti (2020). "Am I Overwhelmed with this Information?". Companion Publication of the 2020 Conference on Computer Supported Cooperative Work and Social Computing. DOI: 10.1145/3406865.3418371.

[16] Tran, Jonathan A. et al. (2019). Modeling the Engagement-Disengagement Cycle of Compulsive Phone Use. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, 1-14. DOI: 10.1145/3290605.3300542.

[17] Vogel, Erin A. et al. (2014). Social comparison, social media, and self-esteem.. *Psychology of Popular Media Culture*, 3(4), 206-222. DOI: 10.1037/ppm0000047.

[18] Widdicks, Kelly (2020). When the Good Turns Ugly: Speculating Next Steps for Digital Wellbeing Tools. *Proceedings of the 11th Nordic Conference on Human-Computer Interaction: Shaping Experiences, Shaping Society*. DOI: 10.1145/3419249.3420117.

[19] Wiederhold, Brenda K. (2020). Social Media Use During Social Distancing. *Cyberpsychology, Behavior, and Social Networking*, 23(5), 275-276. DOI: 10.1089/cyber.2020.29181.bkw.

[20] Wong, Li Ping et al. (2021). Escalating progression of mental health disorders during the COVID-19 pandemic: Evidence from a nationwide survey. *Plos One*, 16(3), e0248916. DOI: 10.1371/journal.pone.0248916.

[21] Ytre-Arne, Brita, and Moe, Hallvard (2021). Doomscrolling, Monitoring and Avoiding: News Use in COVID-19 Pandemic Lockdown. *Journalism Studies*,

22(13), 1739-1755. DOI: 10.1080/1461670x.2021.1952475.

[22] Zhang, Zhuofan, Jiménez, Fernando R., and Cicala, John E. (2020). Fear Of Missing Out Scale: A self-concept perspective. *Psychology and Marketing*, 37(11), 1619-1634. DOI: 10.1002/mar.21406.

[23] Zhao, Nan, and Zhou, Guangyu (2020). Social Media Use and Mental Health during the COVID-19 Pandemic: Moderator Role of Disaster Stressor and Mediator Role of Negative Affect. *Applied Psychology: Health and Well-Being*, 12(4), 1019-1038. DOI: 10.1111/aphw.12226.

[24] Przybylski AK, Weinstein N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *J Soc Pers Relat*. May;30(3): 237–246.