Endless Scrolling: The Role of Self-Regulation and Psychological Factors in TikTok Usage

and the Impact on Mental Health

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Abstract

Aim: TikTok has become a popular social media platform among young adults, offering a highly engaging user experience due to its advanced algorithm and design. This challenges users' selfregulation ability and raises concerns about the impact on mental health. This study aims to examine the relationship between TikTok usage and mental health, and between self-regulation and TikTok usage, including the moderating roles of motivation to regulate TikTok usage and Fear of Missing Out (FoMO) in these relationships. Method: A quantitative research method was employed using an online survey (N = 164), including TikTok users aged 18 to 31 years. Participants' TikTok usage and level of self-regulation, anxiety, stress, depression, motivation to regulate TikTok usage, and FoMO were measured. Data were analyzed by performing bootstrapped linear regression and moderation analysis, and non-parametric correlation. Results: The findings revealed a significant association between TikTok usage and mental health, while no significant relationship between self-regulation and TikTok usage was found. Motivation to regulate TikTok usage and FoMO did not significantly moderate these relationships, although FoMO was directly linked to anxiety and stress. Conclusion: While the assumed relationship between self-regulation and TikTok usage was not confirmed by this study, the findings might suggest a lack of motivation to regulate TikTok usage. Given the negative impact of TikTok on mental health, this study highlights the importance of raising awareness among users. Practical implications for educators, platform developers, and policymakers include developing educational programs and designing platform features such as screen time reminders to promote more responsible usage of the platform.

Keywords: TikTok, Social Media Usage, Mental Health, Self-Regulation, Motivation, Fear of Missing Out

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Introduction

Social media platforms have created a new era of digital engagement, yet their growing influence raises concerns about the impact on users' behavior and mental health. The platforms are embedded in many individuals' lives (Gopal et al., 2024), leading users to spend several hours daily in digital environments. In 2024, the average global time spent on social media was 143 minutes per day (Statista, 2024), highlighting their presence in today's society. One of these platforms is TikTok, which has quickly become one of the most popular among young adults, surpassing many competitors both in terms of number of users and intensity of use (Montag et al., 2021), with an estimated two billion users worldwide in 2024 (Statista, 2025). Designed to be highly engaging, platforms like TikTok aim to hold users' attention for as long as possible (Montag et al., 2021), making it difficult for individuals to regulate their time online. The phenomenon of digital addiction is increasingly discussed in the literature, with excessive usage linked to negative mental health outcomes (Gopal et al., 2024). However, despite the negative effects of social media, users continue to scroll endlessly on TikTok, making it important to examine this behavior and its consequences further.

A growing body of research suggests that users are often unable to resist the highly engaging platform design, which is linked to broader mental health concerns. The increased time spent on platforms contributes to excessive social media usage, which has been found to negatively impact users' mental health (Naslund et al., 2020). Various studies indicated a relationship between social media use and negative outcomes such as higher levels of anxiety, stress, and depression (Conte et al., 2024; Gopal et al, 2024) The underlying reasons for this are mechanisms like social comparison (Vannucci et al., 2017) and information overload (Wolfers & Utz, 2022), which are all exacerbated through frequent social media usage. Therefore, it is important to further investigate TikTok's impact on users' mental health and factors leading to excessive usage.

One decisive factor in managing TikTok usage is self-regulation. Self-regulation can be described as an individual's ability to alter their behavior and the process of trying to restrain undesirable urges (Baumeister & Vohs, 2007). In the context of social media, Reinecke et al. (2022) argue that users' self-regulation ability distinguishes between problematic and non-problematic use. However, research shows that individuals often have difficulties regulating their time spent online (Arness & Ollis, 2023). The enjoyment of online entertainment and the desire to stay updated (Yang, 2023) can interfere with other goals and create a conflict of interest that individuals must balance through self-regulation. TikTok's advanced algorithm, offering highly personalized and endless content (Montag et al., 2021; Conte et al., 2024), further exacerbates this challenge. Yet, the role of self-regulation in TikTok usage remains underexplored, emphasizing the need for further research.

Given the challenge of balancing competing goals, psychological factors like motivation and Fear of Missing Out (FoMO) can help explain why individuals differ in their ability to regulate TikTok usage. Motivation plays a key role in the self-regulatory process, as it is considered an essential component in controlling behavior (Baumeister & Vohs, 2007). At the same time, individuals are concerned about missing out on information online and feel an urge to stay updated, which refers to the concept of FoMO (Przybylski et al., 2013). With new trends frequently emerging on TikTok, users have difficulties regulating themselves against the newness of content, as a study by Maharani et al. (2025) shows. This emphasizes the potential impact that motivation and FoMO might have on users' ability to regulate their behavior on highly engaging platforms like TikTok. Despite the growing interest in users' behavior and the effects of social media on mental health, much of the existing research has focused on platforms other than TikTok. However, TikTok's unique design and engaging nature make it especially prone to excessive use and risk of negative mental health outcomes. Moreover, TikTok's growing popularity and influence further emphasize the need to examine its potential consequences. While self-regulation is known to be a decisive factor in managing social media usage, its specific role in the context of TikTok remains underexplored. Furthermore, the impact of motivation and FoMO has not been fully addressed in this context. Although motivation is widely considered to drive behavioral change, the interaction between the motivation to regulate TikTok usage and self-regulation has not yet been investigated. Similarly, FoMO has primarily been examined concerning broader social media usage, but the unique design of TikTok might introduce new challenges to users' feelings of FoMO.

Therefore, this research aims to better understand the relationship between TikTok usage, mental health, self-regulation, motivation to regulate TikTok usage, and FoMO among young adults. The central research question guiding this study is as follows:

What is the relationship between TikTok usage, mental health, and self-regulation, and what role do motivation to regulate TikTok usage and Fear of Missing Out (FoMO) play in these relationships?

In the following sections, the variables of interest will be defined, and their relationships will be discussed. The methodology of this study will then be explained, followed by the presentation of the results. The findings will be further interpreted, and based on that, the central research question will be discussed, and practical and theoretical implications will be outlined. Ultimately, the study's limitations will be addressed, and suggestions for future research will be presented.

Theoretical Framework

For this study, the concepts of TikTok usage, mental health, self-regulation, and different psychological factors are of particular importance, which is why it is essential to define these concepts. This section outlines the key variables and their expected relationships, providing the foundation for the hypotheses to be tested.

Mental Health and TikTok Usage

Concerns about the impact of social media on users' mental health are increasingly being raised. The World Health Organization et al. (2004) define mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (p.12). While mental health is a multifaceted concept, going into detail would exceed the scope of this research, which is why this study refers to the conceptualization presented above.

Research has shown a link between social media usage and mental health. Various studies found that social media usage is associated with higher levels of anxiety, depression, distress, disordered eating, and sleep problems (Conte et al., 2024; Yu et al., 2024). Given that mental health is a multifaceted concept, this study focuses on anxiety, stress, and depression, as these factors are frequently linked to social media (Yu et al., 2024). By narrowing the focus, this study aims to gain a deeper understanding of the relationships between TikTok and specific mental health outcomes. *Anxiety*

According to Spielberger (1972), anxiety can be described as "an unpleasant emotional state or condition which is characterized by subjective feelings of tension, apprehension, and worry" (p. 482). In the context of social media, social comparison plays a key role in explaining why social media increases feelings of anxiety. Research has found that social media encourages

users to engage in social comparison due to the constant exposure to idealized content. Users can selectively share content and present their lives as supposedly perfect to others on platforms (Jiang & Ngien, 2020). As a consequence, individuals compare their lives to those presented on social media and perceive others as happier and more successful (Vannucci et al., 2017). The constant social comparison can cause individuals to question their worth and worry about how one is perceived by others, which increases feelings of anxiety (Jiang & Ngien, 2020).

Stress

Another mental health outcome that was found to be caused by social media usage is stress. While various conceptualizations exist, stress is commonly described as an interaction between an individual and their environment, which the individual perceives as overwhelming or beyond their capacity (Lazarus & Folkman, 1984). In terms of social media, the constant urge to stay up to date and to be available has been linked to increased stress levels (Vannucci et al., 2017; Wolfers & Utz, 2022). Additionally, the exposure to a wide variety of content on social media can lead to the experience of information overload, the feeling of not being able to process the amount of information, which can increase feelings of overwhelm and stress (Wolfers & Utz, 2022).

Depression

Research further shows a connection between social media usage and depression. Depression is a multifaceted concept that is typically characterized by a decreased mood and reduced motivation to engage in enjoyable activities (Licinio et al., 2002). In the context of social media, depression is closely linked to anxiety and stress, as these outcomes are often caused by similar platform characteristics. Likewise, negative social comparison with others was identified as a reason for feelings of depression (Naslund et al., 2020). Moreover, studies have found that increased social media usage is associated with greater feelings of loneliness. The engaging design of platforms encourages intense usage, which can weaken real-life social interactions and, in turn, heighten the risk of depressive feelings through loneliness (Bashir & Bhat, 2017; Naslund et al., 2020).

TikTok Usage and Its Relation to Mental Health

While most studies on the impact of social media usage on mental health have focused on platforms other than TikTok, several factors suggest that TikTok might show similar outcomes. Many popular creators are present on the platform, and TikTok serves as a starting point for trends (Xie & Gallo, 2024), fostering social comparison, which in turn can increase feelings of anxiety and depression. Additionally, TikTok's fast-paced nature and amount of content (Xie & Gallo, 2024) can make it difficult to stay up to date and lead to information overload, as users might not be able to process the abundance of presented content. Thus, suggesting that the continuous exposure to new content on TikTok might increase users' stress levels. Moreover, TikTok's design encourages extended usage by providing constant entertainment and aims to keep users as long as possible on the platform (Montag et al., 2021). As greater social media usage has been linked to weakened social relationships and feelings of loneliness (Bashir & Bhat, 2017; Naslund et al., 2020), TikTok's immersive nature might similarly lead to reduced offline interactions and increased depressive feelings.

Considering the existing link between social media usage and mental health, as well as the engaging design of TikTok, it is expected that greater TikTok usage leads to higher levels of mental health outcomes. Thus, the following hypothesis is proposed:

H1: Higher TikTok usage is associated with (a) higher anxiety, (b) higher stress, and (c) more depressive feelings.

Self-Regulation

Given the association between frequent social media usage and mental health, the ability to self-regulate might represent an important factor in managing usage behavior. Self-regulation refers to the ability to alter one's behavior and restrain undesirable urges to control the emerging reaction and bring the behavior in line with personal goals or standards (Baumeister & Vohs, 2007). The dynamic process involves setting a desired end state and taking actions to move toward it (Inzlicht et al., 2021). However, literature suggests that the ability to regulate one's behavior relies on limited cognitive resources that become depleted after a certain time, referring to the concept of ego depletion. When the resources are depleted, individuals enter a state in which their ability and willingness to function optimally are temporarily reduced (Baumeister & Vohs, 2007). Consequently, when individuals have previously engaged in effortful activities, their resources might be depleted, which further challenges their self-regulation ability.

The Self-Regulation Theory provides a comprehensive framework for understanding the multifaceted concept of self-regulation. According to Baumeister and Vohs (2007), self-regulation consists of four components: standard, monitoring, willpower, and motivation. As described above, self-regulation describes the process of bringing behavior in line with some end state, therefore requiring a defined standard. Next to that, Baumeister and Vohs (2007) argue that to regulate behavior, it is necessary to keep track of it and monitor it. Furthermore, changing behavior requires some kind of energy, which is why individuals need willpower to self-regulate. Lastly, the theory has been expanded by motivation, as the researchers argue that even if the other components are fulfilled, individuals must want to achieve the goal (Baumeister & Vohs, 2007).

Self-Regulation in the Context of Social Media

Applying this conceptualization of self-regulation to social media helps explain why it can be challenging for users to regulate their usage. Social media platforms are multifinal in their nature, meaning that the platforms can fulfill various purposes and gratifications at the same time, such as entertainment, interaction, or information acquisition (Arness & Ollis, 2022; Reinecke et al., 2022). Additionally, social media platforms offer immediate rewards, which make them more pleasing than long-term goals (Reinecke et al., 2022). This creates a conflict between the immediate gratification offered by social media and long-term goals, which challenges users' ability to maintain self-regulatory standards.

Another important factor influencing self-regulation on social media is platform design. Social media platforms are built to be highly immersive and engaging (Montag et al., 2021). This often leads to a flow experience, a state that creates a positive mood and feeling of time distortion, and causes users to spend more time on the platforms than intended (Montag et al., 2019). At the same time, by keeping users on the platform, companies can gain deep insights into users' interests and use the information for personalizing content (Montag et al., 2021). As a result, users are drawn into a cycle that reinforces usage and makes it increasingly difficult to regulate their behavior.

Self-Regulation and TikTok Usage

While most of the described literature focused on platforms other than TikTok, TikTok's nature shares many of the self-regulatory challenges and might even exacerbate them due to its unique design. TikTok offers its users a stimulating digital experience by enabling them to consume, create, share, and interact with short-form videos (Montag et al., 2021). Moreover, the platform allows for immediate and easily accessible content consumption, as users only need to swipe up the screen to get entertained (Qin et al., 2022; Conte et al., 2024). Thereby, TikTok offers

instant entertainment and gratification (Gopal et al., 2024), which presents an attractive alternative to other long-term goals.

Another central feature of TikTok is its "For You Page" (FYP), which uses one of the most advanced algorithm systems and artificial intelligence to tailor content to each user's interests (Montag et al., 2021; Qin et al., 2022; Xie & Gallo, 2024). This creates a highly personalized experience that keeps users engaged and increases the temptation to continue scrolling (Qin et al., 2022; Conte et al., 2024). Additionally, the FYP continuously presents new content and allows users to scroll endlessly, which fosters a flow experience and leads to a distorted sense of time (Conte et al., 2024). This entertainment loop (Qin et al., 2022), combined with TikTok's shortvideo format, encourages users to consume vast amounts of content in a short period (Xie & Gallo, 2024). Consequently, TikTok makes it difficult for users to monitor their behavior, which is an essential aspect of effective self-regulation.

Given TikTok's engaging design features, such as the personalized user experience and endless scroll, it is assumed that the platform challenges users' ability to maintain behavioral control and poses self-regulatory difficulties. Moreover, individuals vary in their ability to selfregulate behavior (Kuhl, 2018). Suggesting that some users can better resist the platform and control their usage, while others have more difficulties doing so. These individual differences might play a decisive role in how intensively TikTok is used. Therefore, it is expected that individuals with better self-regulation ability engage in less TikTok usage, and the following hypothesis is proposed:

H2: Higher self-regulation ability is associated with lower TikTok usage.

Psychological Factors

Several psychological factors might further help explain individual differences in the ability to self-regulate TikTok usage. This study focuses on motivation to regulate TikTok usage and FoMO. Motivation is considered an essential component of successful self-regulation and might explain why some users are better able to control their usage than others. Moreover, FoMO is particularly relevant in the context of frequent social media use and has been further linked to mental health. Given the significance of these two factors, this study aims to explore how motivation to regulate TikTok usage and FoMO moderate the relationship between self-regulation and TikTok use, and further how FoMO moderates the association between TikTok usage and mental health.

Motivation to Regulate TikTok Usage

Motivation can be conceptualized as any kind of urge or drive to engage in a certain behavior and further describes wanting certain things to happen and the desire to act in a specific way to make it happen (Baumeister & Vohs, 2007; Baumeister, 2015). In the context of selfregulation, motivation is crucial, and Baumeister and Vohs (2007) argue that even if all the other components needed for self-regulation are fulfilled, individuals may still fail to regulate their behavior if they do not want to reach the goal. This suggests that motivation might play an important role in self-regulating TikTok usage.

Moreover, motivation has been found as a predictor of success in goal attainment across various domains (Werner & Milyavskaya, 2018). For instance, studies have shown that motivation increases the likelihood of smoking cessation and can predict abstinence (Boardman et al., 2005; Pineiro et al., 2016). Even if these findings do not directly relate to social media, it can be suggested that similar mechanisms might apply. Literature increasingly refers to the term "digital addiction", which is characterized by problematic and excessive usage of platforms (Arness & Ollis, 2022;

Gopal et al., 2024). According to Baumeister (2015), addiction often begins with a satisfying experience that individuals start wanting again. Applying this conceptualization to the highly entertaining user experience that TikTok offers, it can be assumed that the platform can lead to addictive-like behaviors.

Considering motivations role in effective self-regulation and goal attainment, it is expected that higher motivation to regulate TikTok usage strengthens the relationship between selfregulation and TikTok usage. Hence, the following hypothesis is formulated:

H3: Higher motivation to limit TikTok usage strengthens the negative relationship between selfregulation ability and TikTok usage.

Fear of Missing Out (FoMO)

FoMO is another factor that might explain individual differences in self-regulation and the frequency of TikTok usage. Social media platforms provide easy access to information and allow users to know about others' activities, events, and conversations (Przybylski et al., 2013). However, this not only fosters connectivity, but also the risk of FoMO. FoMO can be described as the urge to stay continuously connected with others and the fear that others might have more fulfilling experiences (Przybylski et al., 2013). In the context of social media, the real-time information offered by the platforms can lead to users feeling compelled to be permanently online (Alutaybi et al., 2019). This creates a tension for users, as individuals might want to limit their social media usage, but the feeling of FoMO makes it difficult for them to resist the newness of the content (Maharani et al., 2025), thus requiring them to self-regulate their behavior.

A study by Przybylski et al. (2013) further showed that FoMO served as a key factor in explaining social media engagement and linked higher levels of FoMO to increased usage. This suggests that FoMO challenges individuals' self-regulatory processes and promotes frequent social

media usage. Although most research examined platforms besides TikTok, similar effects are expected. TikTok is one of the most used social media platforms worldwide and often the starting point for trends (Xie & Gallo, 2024), which might increase the fear of missing out. Moreover, a study by Maharani et al. (2025) found that users struggle regulating themselves against the newness of content on TikTok. This suggests that FoMO might weaken the negative relationship between self-regulation and TikTok usage. Therefore, the following moderating effect is hypothesized: *H4: Higher FoMO weakens the negative relationship between self-regulation ability and TikTok usage.*

Besides its role in the relationship between self-regulation and TikTok usage, FoMO is also expected to moderate the association between TikTok usage and mental health outcomes. As described above, FoMO is characterized by the urge to stay constantly connected, which can consequently lead to increased social media usage (Przybylski et al., 2013). The frequent social media usage, in turn, has been associated with negative mental health outcomes such as anxiety, stress, and depression (Gopal et al., 2024; Vannucci et al., 2017; Wolfers & Utz, 2022). As a result, individuals struggle to regulate their usage and feel pressured to stay constantly online to avoid missing out, and the greater usage can further exacerbate mental health outcomes.

Furthermore, FoMO has also been directly associated with negative mental health outcomes. A study by Gopal et al. (2024) showed that with greater levels of FoMO, mental health consequences also increased. This is consistent with the nature of FoMO, which is characterized by anxious feelings and an unpleasant state, as individuals constantly worry about missing out on things (Maharani et al., 2025; Przybylski et al., 2013). Moreover, the endless stream of content on platforms like TikTok makes it impossible to keep up with everything (Przybylski et al., 2013). This might increase mental health outcomes such as stress and anxiety, as users feel overwhelmed

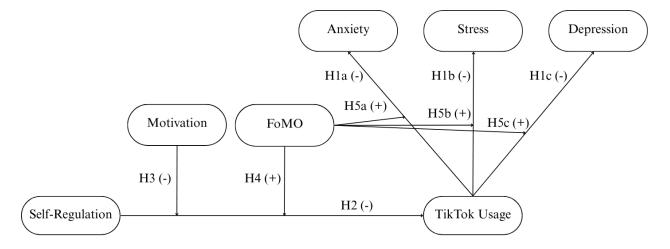
and worried about falling behind. Therefore, it is expected that FoMO strengthens the positive relationship between TikTok usage and mental health. Based on this, the following hypothesis is proposed:

H5: Higher FoMO strengthens the positive relationship between TikTok usage and (a) anxiety, (b) stress, and (c) depressive feelings.

The expected relationships between the different variables and the tested hypotheses are summarized in the following conceptual model (see Figure 1).

Figure 1

Conceptual Model



Note. a) This model was analyzed in separate steps in line with the order of the hypotheses. b) Direct relationships between self-regulation and mental health outcomes (anxiety, stress, depression) were not tested in this study.

Methodology

After conceptualizing the variables of interest and discussing their expected relationships, the following section elaborates on the research methodology. Thereby, the research design, sample, procedure, measurements, scale analysis, and data analysis will be explained.

Research Design

To address the overall research question of this study, a quantitative research method was applied. More specifically, a descriptive research method was employed by conducting an online survey. A survey is a well-suited method to describe the characteristics and behaviors of a large population by asking a series of structured questions to a sample. One of the main advantages of this method is the ability to collect data from a relatively large and diverse group, which enhances representativeness and allows for greater confidence in generalization (Ghanad, 2023). The survey was conducted online, as this increases both reach and flexibility, and enables participants to answer the questions at their convenience (Ball, 2019). Moreover, this study addresses the sensitive topic of mental health, which is why the online and anonymous format might have encouraged participants to respond more honestly and feel more comfortable.

The study (250811) was approved by the BMS ethics committee, domain humanities and social sciences (HSS) of the University of Twente on April 15, 2025.

Sample and Recruitment

TikTok is particularly popular among the younger generation, with most of its users between 18 to 34 years old (Statista, 2025), and the app is heavily influenced by youth culture (Xie & Gallo, 2024). Therefore, this study focused on young adults, as this age group might be most affected by the outcomes of TikTok. Hence, participants were required to be between 18 to 34 years old and use TikTok to be included in this study. A control question at the beginning of the survey confirmed whether participants use TikTok, and age was assessed through demographic questions. Since the survey was available in English and German, participants must also have sufficient proficiency in one of the languages to complete it. No other inclusion or exclusion criteria applied for this research.

To recruit participants, two non-probability sampling methods were used. Non-probability sampling means that not all individuals have a known or equal chance to be selected (Rahman, 2023). First, convenience sampling was applied, which describes a sample that is available and accessible for the researcher (Golzar et al., 2022). The survey was distributed by an anonymous link to the researcher's network and shared on the platforms WhatsApp, Instagram, LinkedIn, Facebook, and TikTok. Additionally, the survey was forwarded by individuals within the researcher's network to increase the diversity of the sample, known as snowball sampling (Hossan et al., 2023). Combining both methods helped to reduce the risk of a homogeneous sample.

In total, 211 responses were recorded. Incomplete responses and answers that took less than 120 seconds were excluded, as this duration was considered too short to pay enough attention and provide thoughtful and reliable answers. Consequently, 164 participants were included in the final sample. 120 participants identified as female, 43 as male, and 1 as another gender. The average age was 23.5 years (SD = 2.65). The largest group of participants was made up of 93 individuals with German nationality. This was followed by other nationalities, including 47 participants and 24 participants with Dutch nationality. A more detailed overview of the sample demographics can be found in Table 1.

Sample Demographics

Characteristics	n	%
Gender		
Female	120	73.2
Male	43	26.2
Other	1	0.6
Age		
18	3	1.8
19	5	3.0
20	11	6.7
21	20	12.2
22	18	11.0
23	26	15.9
24	24	14.6
25	26	15.9
26	8	4.9
27	12	7.3
28	5	3.0
29	0	0.0
30	4	2.4
31	2	1.2
Nationality		
German	93	56.7
Dutch	24	14.6
Other	47	28.7

Note. N = 164

Procedure

Before starting the survey, participants were informed about the general context of this research. The informed consent explained the anonymous and voluntary participation, as well as the right to withdraw from the study at any time without providing a reason. Moreover, participants were informed that the data would be handled and stored confidentially. After reading the information, participants were asked to indicate agreement with the presented information and willingness to participate in the study before proceeding.

The first set of questions asked about participants' demographics and TikTok usage. Therefore, participants needed to indicate their age, gender, and nationality, which was followed by asking about participants' average TikTok usage. Subsequently, participants were presented with four different scales measuring their motivation to regulate TikTok usage, self-regulation ability, FoMO, and mental health. The scale measuring mental health was further divided into three subscales, indicating participants' levels of anxiety, stress, and depression. After completing the survey, participants were informed that their responses had been recorded and thanked for their participation. On average, participants needed 5.69 minutes to complete the online survey. The data was collected from April 24, 2025, to May 3, 2025. Participation in this study was voluntary, and participants did not receive any kind of compensation.

Measurements

TikTok Usage

To measure TikTok usage, participants were asked to indicate how often they use TikTok on average on a scale ranging from 1 (Less than once a month) to 6 (Several times a day). Further, participants needed to report their average time spent (in hours) per day on the platform on a scale ranging from 1 (0-1) to 5 (4 or more). It must be noted that participants' average length and

frequency of TikTok usage were measured to better understand their usage behavior. However, for the subsequent analyses, TikTok usage only refers to the average length of usage, as the length better reflects participants' actual time spent on the platform.

Motivation to Regulate TikTok Usage

Next, participants' motivation to regulate TikTok usage was measured. Therefore, a scale consisting of 7 items was specifically designed for this study. The items were developed by conceptualizing motivation and regulation using varied formulations in the context of TikTok usage. The scale included items like "I am determined to control the amount of time I spend on TikTok" and "I actively look for ways to reduce my time spent on TikTok". Participants were asked to indicate the extent to which they agree with the presented items on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), whereby higher total scores referred to higher motivation to regulate TikTok usage.

Self-Regulation

Then, participants' self-regulation ability was examined. The items were adopted from the Short-Self-Regulation Questionnaire, which is a shortened version of the Self-Regulation Questionnaire and consists of 31 items (Carey et al. 2004). However, for this research, only 8 items from the scale were included to focus on the most relevant and to keep the overall number of items in the study balanced. Items like "I am able to resist temptation" and "I usually keep track of my progress toward my goals" were selected. The items were measured on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree), requiring participants to indicate to what extent the presented statements apply to them. A high total mean score indicated a strong self-regulation ability.

Fear of Missing Out (FoMO)

This was followed by measuring participants' FoMO using the Fear of Missing Out Scale by Przybylski et al. (2013), consisting of 10 items. For this study, 7 items from the validated scale were adopted to keep the overall length of the survey limited. Participants were asked to indicate to what extent items like "Sometimes, I wonder if I spend too much time keeping up with what is going on" and "I fear others have more rewarding experiences than me" apply to them on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Thereby, higher total scores referred to higher levels of FoMO.

Mental Health

Lastly, participants' levels of anxiety, stress, and depression were measured. To indicate participants' level of stress and depression, the items from the relevant subscales from the DASS-21 Scale have been adopted (Lovibond & Lovibond, 1995). For this research, the items were measured on a 5-point scale ranging from 1 (never) to 5 (always), instead of a 4-point scale, to ensure consistency within the survey and not confuse participants. Participants were asked to indicate the extent to which experiences applied to them during the past seven days. The scale included items like "I found it difficult to relax" to measure stress, and "I felt that I had nothing to look forward to" to indicate participants' level of depression.

To measure participants' anxiety, items from the GAD-7 scale by Spitzer et al. (2006) were adapted. The items were slightly rephrased, like "I felt that I was unable to stop or control worrying", to be consistent with the formulation of the other items measuring mental health. Participants were asked to indicate the extent to which experiences applied within the past seven days on a 5-point scale ranging from 1 (never) to 5 (always). For all three subscales, higher scores indicated higher levels of anxiety, stress, and depression.

Scale Analysis

Before conducting the data analysis, the validity and reliability of the scales were examined. Exploratory factor analysis (EFA) was performed to assess the validity, and Cronbach's alpha was computed to determine the reliability of the scales.

Motivation to Regulate TikTok Usage

Prior to the EFA, the Kaiser-Meyer-Olkin measure of sampling adequacy was computed and indicated suitability for EFA with a value of 0.83. To determine the appropriate number of factors, Kaiser's criterion and the elbow method were applied. While Kaiser's criterion suggested two factors, the elbow method and EFA supported a single factor, which was ultimately adopted. The results of the EFA showed that all items loaded on a single factor. A more detailed overview can be found in Table 2. Moreover, Cronbach's alpha showed good reliability of the scale ($\alpha =$.84).

Table 2

Factor Loadings for Scale Measuring Motivation to Regulate TikTok Usage

Item	Factor Loading
I feel the need to spend less time on TikTok.	.61
I am motivated to limit my TikTok usage.	.77
I often try to reduce the time I spend on TikTok.	.80
I am determined to control the amount of time spent on TikTok.	.52
I actively try to resist the urge to check TikTok when I do not need to.	.56
I often find myself wishing to spend less time on TikTok.	.59
I actively look for ways to reduce my time spent on TikTok.	.77

Self-Regulation

The Kaiser-Meyer-Olkin measure of 0.85 indicated suitability for factor analysis. According to Kaiser's criterion, two factors showed an eigenvalue above 1. However, the factor analysis and the elbow method suggested that one factor is appropriate, which is why it was proceeded with a single factor. The factor loadings ranged from .38 to .79. While most factor loadings were satisfactory, item 5 showed a relatively low loading (.38). Since the items were adopted from a validated scale, it was decided to keep item 5 to ensure the theoretical breadth of the construct. Moreover, the scale showed good internal consistency ($\alpha = .84$), and dropping item 5 would not have contributed to an increase in Cronbach's alpha.

Fear of Missing Out (FoMO)

The suitability for EFA was assessed with a Kaiser-Meyer-Olkin measure of 0.76. While Kaiser's criterion suggested two factors, the elbow method and EFA indicated a single factor, which is why it was proceeded with a single factor. The EFA showed factor loadings ranging from 0.40 to 0.66. While the factor loading for item 1 (0.40) was weaker compared to others, it was retained for the subsequent analyses to keep the theoretical breadth of the construct. Furthermore, the scale showed good internal consistency ($\alpha = .84$).

Mental Health

For the scale measuring anxiety, the Kaiser-Meyer-Olkin measure was 0.90, indicating good suitability for factor analysis. Kaiser's criterion and the elbow method both suggested one factor, which is why a single-factor analysis was conducted. All items showed good factor loadings, ranging from 0.68 to 0.82. Moreover, the scale indicated high internal consistency ($\alpha = .90$).

For the stress scale, the Kaiser-Meyer-Olkin measure was 0.89, confirming the suitability for factor analysis. Both Kaiser's criterion and the elbow method suggested one factor. All items

showed good factor loadings ranging from 0.66 to 0.86. Additionally, Cronbach's alpha indicated high internal consistency for the stress scale ($\alpha = .91$).

The scale measuring depression showed a Kaiser-Meyer-Olkin measure of 0.91, indicating suitability for factor analysis. A one-factor analysis was supported by both Kaiser's criterion and the elbow method. The EFA indicated that all items showed good factor loadings, ranging from 0.69 to 0.87. Moreover, the scale measuring depression demonstrated high internal consistency ($\alpha = .93$).

Data Analysis

After assessing the validity and reliability of the scales, the data were analyzed using the statistical software R-Studio. Following the data cleaning and removal of incomplete responses, descriptive statistics were computed to summarize the sample demographics and give an overview of the relevant variables. Therefore, frequency distributions for demographic variables and TikTok usage were calculated. Moreover, the mean values and standard deviations for the other variables were calculated to provide an overview.

Prior to conducting the linear regression analyses, all models were tested for compliance with assumptions of independence, linearity, homoscedasticity, and normality. The assumption test revealed multiple violations across models. An overview of the results of the assumption test for the various models is provided in Appendix B. Consequently, more robust analytical methods were applied. Therefore, bootstrapped simple linear regression and moderation analyses with 5000 replications were conducted to account for assumption violations and to test the proposed hypotheses. Additionally, non-parametric correlation analyses, specifically Spearman's rho and Kendall's tau, were used to further assess the bivariate relationships

Results

The subsequent section presents the results of the data analyses. First, the descriptive statistics will be reported, followed by the results of the bootstrapped simple linear regression and moderation analysis, as well as non-parametric correlation, to address the hypotheses. The non-parametric correlation analysis was conducted in addition to the bootstrapped simple linear regression analysis to account for assumption violations and increase the reliability of the findings. Both Spearman's rho and Kendall's tau were calculated. However, only Spearman's rho is reported in the following, as both measures showed consistent results regarding the tested hypotheses. The bootstrapped regression analysis served as the primary method to evaluate the statistical significance of the examined relationships. A significance level of p = .05 was applied to assess the statistical significance.

In the following analyses, self-regulation was treated as the independent variable and TikTok usage as the dependent variable when examining their relationship. When analyzing the association between TikTok usage and mental health outcomes, TikTok usage was considered the independent variable, and the mental health outcomes the dependent variables. Motivation to regulate TikTok usage and FoMO were additionally included as moderating variables in the models.

Descriptive Statistics

TikTok Usage

To measure TikTok usage, participants were asked to indicate their average length and frequency of usage. Table 3 shows an overview of the findings. As stated above, participants' average length and frequency of TikTok usage were measured to get a better understanding of their

usage behavior. However, for the subsequent analyses, TikTok usage only refers to the length of usage.

Table 3

Distribution of TikTok Usage

Construct	n	%
Frequency		
Less than once a month	4	2.4
Several times a month	5	3.0
Once a week	4	2.4
Several times a week	11	6.7
Once a day	13	7.9
Several times a day	127	77.4
Length (in hours)		
0-1	53	32.3
1-2	55	33.5
2-3	37	22.6
3-4	12	7.3
4 or more	7	4.3

Note. N = 164

Other Independent, Dependent, and Moderating Variables

The descriptive statistics for the other independent, dependent, and moderating variables are presented in Table 4. Participants reported a moderate level of anxiety and stress. In contrast,

the level of depression was perceived at a lower level, suggesting that participants experienced fewer depressive feelings compared to anxiety and stress. For self-regulation, FoMO, and motivation, participants similarly indicated moderate levels.

Table 4

Variable	М	SD
Anxiety	3.06	0.89
Stress	3.01	0.90
Depression	2.26	0.96
Self-Regulation	3.33	0.50
Motivation to Regulate TikTok Usage	3.30	0.85
FoMO	3.17	0.79

Mean and Standard Deviation of Independent, Dependent, and Moderating Variables

Note. a) Anxiety, Stress, and Depression were measured on a 5-point Likert scale ranging from 1 (Never) to 5 (Always) b) Self-Regulation, Motivation to Regulate TikTok Usage, and FoMO were measured on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree)

Bootstrapped Simple Linear Regression Analysis and Non-Parametric Correlation

TikTok Usage and Mental Health

First, the relationship between TikTok usage and the different mental health outcomes was analyzed. The regression analysis revealed a significant positive link between TikTok usage and anxiety ($\beta = 0.17$, SE = 0.07, p = .012, 95% CI [0.03, 0.30]), stress ($\beta = 0.12$, SE = 0.06, p = .048, 95% CI [0.0008, 0.25]), and depression ($\beta = 0.21$, SE = 0.07, p = .003, 95% CI [0.08, 0.36]). This

indicates that TikTok usage is significantly associated with anxiety, stress, and depression. Additionally, Spearman's rho showed a significant positive correlation between TikTok usage and anxiety ($\rho = 0.20$, p = .011) and depression ($\rho = 0.22$, p = .006). Spearman's rho indicated no significant correlation between TikTok usage and stress ($\rho = 0.15$, p = .063). Since bootstrapped regression analysis was used as the main analysis to assess statistical significance in this study, the hypothesis was not rejected. Hence, supporting hypothesis H1 that higher TikTok usage is associated with higher (a) anxiety, (b) stress, and (c) depression.

Self-Regulation and TikTok Usage

Furthermore, the relationship between self-regulation and TikTok usage was examined. The regression analysis showed no significant association between self-regulation and TikTok usage ($\beta = -0.21$, SE = 0.18, p = .241, 95% CI [-0.57, 0.16]). Similarly, Spearman's rho indicated no significant correlation between self-regulation and TikTok usage ($\rho = -0.15$, p = .059). Thus, rejecting hypothesis H2, which means that higher self-regulation is not significantly associated with lower TikTok usage.

Bootstrapped Moderation Analysis

Moderating Role of Motivation in the Relationship between Self-Regulation and TikTok Usage

To further examine self-regulation and TikTok usage, moderation analysis was conducted to test whether motivation to regulate TikTok usage moderates the relationship between selfregulation and TikTok usage. The moderation analysis revealed that motivation does not significantly moderate the relationship between self-regulation and TikTok usage ($\beta = 0.12$, SE =0.21, p = .552). Hence, hypothesis H3 was rejected, which means that higher motivation to limit TikTok usage does not strengthen the negative relationship between self-regulation and TikTok usage.

Bootstrapped Moderation Analysis: Role of Motivation in the Relationship between Self-Regulation and TikTok Usage

Effect	Estimate	SE	95%	6 CI	р
			LL	UP	
Intercept	4.31	2.35	-0.90	8.34	.077
Self-Regulation	-0.60	0.69	-1.82	0.89	.373
Motivation	-0.44	0.70	-1.65	1.08	.517
Self-Regulation*Motivation	0.12	0.21	-0.31	0.49	.552

Note. a) N = 164 b) CI = confidence interval, LL = lower limit, UL = upper limit

Moderating Role of FoMO in the Relationship between Self-Regulation and TikTok Usage

Moreover, the moderating role of FoMO in the relationship between self-regulation and TikTok was analyzed. The moderation analysis showed that FoMO does not significantly moderate the relationship between self-regulation and TikTok usage ($\beta = -0.25$, SE = 0.27, p = .350). Thus, rejecting hypothesis H4, which indicates that FoMO does not significantly moderate the negative relationship between self-regulation and TikTok usage.

Bootstrapped Moderation Analysis: Role of FoMO in the Relationship between Self-Regulation and TikTok Usage

Effect	Estimate	SE	95%	95% CI	
			LL	UP	
Intercept	-0.41	3.22	-6.86	5.85	.901
Self-Regulation	0.64	0.95	-1.21	2.56	.492
FoMO	0.97	0.92	-0.82	2.82	.282
Self-Regulation*FoMO	-0.25	0.27	-0.80	0.29	.350

Note. a) N = 164 b) CI = confidence interval, LL = lower limit, UL = upper limit

Moderating Role of FoMO in the Relationship between TikTok Usage and Anxiety

Next, moderation analysis was carried out to test the moderating role of FoMO in the relationship between TikTok usage and anxiety. The results indicated that FoMO does not significantly moderate the relationship between TikTok usage and anxiety ($\beta = -0.02$, SE = 0.07, p = .731). Hence, hypothesis H5a was rejected, which means that FoMO does not strengthen the positive relationship between TikTok usage and anxiety. However, the analysis revealed a significant positive direct link between FoMO and anxiety ($\beta = 0.51$, SE = 0.18, p = .002), indicating that higher FoMO is associated with increased anxiety.

Bootstrapped Moderation Analysis: Role of FoMO in the Relationship between TikTok Usage and Anxiety

Effect	Estimate	SE	95% CI		р
			LL	UP	
Intercept	1.15	0.57	0.02	2.25	.059
TikTok Usage	0.21	0.24	-0.27	0.68	.336
FoMO	0.51	0.18	0.16	0.86	.002
TikTok Usage*FoMO	-0.02	0.07	-0.17	0.12	.731

Note. a) N = 164 b) CI = confidence interval, LL = lower limit, UL = upper limit

Moderating Role of FoMO in the Relationship between TikTok Usage and Stress

Further, bootstrapped moderation analysis was conducted to test whether FoMO moderates the relationship between TikTok usage and stress. The moderation analysis revealed that FoMO does not significantly moderate the relationship between TikTok usage and stress ($\beta = -0.02$, SE =0.07, p = .745). Therefore, rejecting hypothesis H5b, which means that FoMO does not strengthen the positive relationship between TikTok usage and stress. However, the analysis showed a significant positive direct relationship between FoMO and stress ($\beta = 0.58$, SE = 0.17, p = <.001), suggesting that increased FoMO is associated with higher stress.

Bootstrapped Moderation Analysis: Role of FoMO in the Relationship between TikTok Usage and Stress

Effect	Estimate	SE	95%	ó CI	р
			LL	UP	_
Intercept	0.97	0.54	-0.08	2.01	.088
Self-Regulation	0.15	0.23	-0.28	0.61	.486
FoMO	0.58	0.17	0.25	0.92	<.001
Self-Regulation*FoMO	-0.02	0.07	-0.17	0.11	.745

Note. a) N = 164 b) CI = confidence interval, LL = lower limit, UL = upper limit

Moderating Role of FoMO in the Relationship between TikTok Usage and Depression

Lastly, bootstrapped moderation analysis was conducted to examine whether FoMO moderates the relationship between TikTok usage and depression. The moderation analysis showed that FoMO does not significantly moderate the relationship between TikTok usage and depression ($\beta = 0.12$, *SE* = 0.08, *p* = .204). Hence, hypothesis H5c was rejected, which indicates that higher FoMO does not strengthen the positive relationship between TikTok usage and depression.

Bootstrapped Moderation Analysis: Moderating Role of FoMO in the Relationship between TikTok Usage and Depression

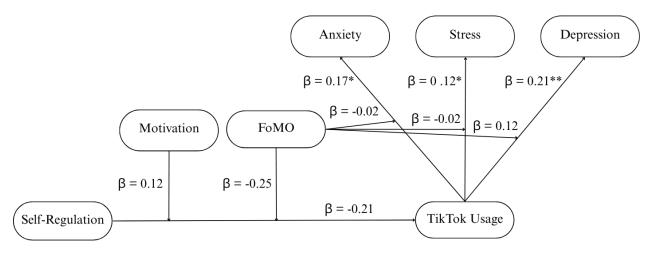
Effect	Estimate	SE	95% CI		р
			LL	UP	
Intercept	1.46	0.61	0.27	2.66	.022
TikTok Usage	-0.18	0.25	-0.65	0.33	.499
FoMO	0.12	0.20	-0.27	0.52	.506
TikTok Usage*FoMO	0.12	0.08	-0.06	0.26	.204

Note. a) N = 164 b) CI = confidence interval, LL = lower limit, UL = upper limit

Figure 2 provides a visual summary of the conceptual model with the regression coefficients. An overview of the outcomes of all tested hypotheses can be found in Table 10.

Figure 2

Conceptual Model with Regression Coefficients



Note. a) Standardized regression coefficients (β) are shown. b) * p < .05, ** p < .01.

Hypothesis	Relationship	Outcome
Hla	Higher TikTok usage is associated with higher anxiety.	Supported
H1b	Higher TikTok usage is associated with higher stress.	Supported
H1c	Higher TikTok usage is associated with higher depression.	Supported
H2	Higher self-regulation ability is associated with lower	Rejected
	TikTok usage.	
H3	Higher motivation to limit TikTok usage strengthens the	Rejected
	negative relationship between self-regulation ability and	
	TikTok usage.	
H4	Higher FoMO weakens the negative relationship between	Rejected
	self-regulation ability and TikTok usage.	
H5a	Higher FoMO strengthens the positive relationship between	Rejected
	TikTok usage and anxiety.	
H5b	Higher FoMO strengthens the positive relationship between	Rejected
	TikTok usage and stress.	
Н5с	Higher FoMO strengthens the positive relationship between	Rejected
	TikTok usage and depression.	

Outcomes of the Tested Hypotheses

Discussion

The primary objective of this study was to better understand the behavior of TikTok users and the impact TikTok has on users' mental health. Therefore, the relationship between TikTok usage and mental health (anxiety, stress, depression), as well as between self-regulation and TikTok usage, was examined. Moreover, the study aimed to investigate whether motivation to limit TikTok usage and FoMO moderate these relationships. The central research question guiding this study was as follows: *What is the relationship between TikTok usage, mental health, and self-regulation, and what role do motivation to regulate TikTok usage and Fear of Missing Out (FoMO) play in these relationships*? Overall, the findings indicated that TikTok usage is associated with negative mental health outcomes, while the influence of self-regulation, motivation, and FoMO did not align with the theoretical predictions, highlighting the complexity of TikTok users' behavior.

In the following section, the main findings will be discussed and interpreted, and practical and theoretical implications will be demonstrated. Furthermore, the limitations of this study will be addressed, and recommendations for future research will be provided.

Main Findings

TikTok Usage and Mental Health

Before elaborating on the relationship between TikTok usage and mental health, it is important to discuss the general intensity of TikTok usage. The present study found that most participants indicated using TikTok several times a day, with many participants spending between one and two hours per day on the platform. This highlights the extensive usage of the platform and demonstrates that TikTok is part of the daily lives of its users. Further, the results are consistent with existing research, which suggests that social media platforms, including TikTok, are embedded in individuals' lives due to their immersive and engaging design (Montag et al., 2021; Gopal et al, 2024).

The findings on the relationship between TikTok usage and anxiety, stress, and depression confirmed a link between TikTok usage and negative mental health outcomes. This aligns with existing research, which has similarly associated social media with negative mental health consequences, due to mechanisms such as social comparison, information overload, and loneliness (Bashir & Bhat, 2017; Vannucci et al., 2017; Wolfers & Utz, 2022).

These mechanisms can also likely explain the link between TikTok usage and mental health. The present study confirmed that users spend up to several hours per day on TikTok, whereby individuals are exposed to large amounts of content. The abundance of information and content can be overwhelming for TikTok users, as individuals might not be able to process all the presented information, which could explain the relationship between TikTok usage and stress. Additionally, spending several hours per day on TikTok can decrease offline social interactions and lead to feelings of loneliness and, consequently, depression, which could explain the findings between TikTok usage and depression. Lastly, TikTok is one of the leading platforms in terms of trends and popular creators (Xie & Gallo, 2024). In combination with the amount of content on TikTok, this encourages social comparison, which could explain the link between TikTok usage and anxiety.

The Moderating Role of Motivation in the Relationship between Self-Regulation and TikTok Usage

Furthermore, the relationship between self-regulation, TikTok usage, and motivation was examined. Both the direct link between self-regulation and TikTok usage and the moderating role of motivation in this relationship showed no significant association. These findings contrast with the expected relationships based on existing literature, where self-regulation was identified as a decisive factor in distinguishing between problematic and non-problematic social media usage (Reinecke et al., 2022) and motivation was found to be a predictor of success in goal attainment (Werner & Milyavskaya, 2018).

One possible explanation for these findings might be that TikTok's design affects users' time perception, making it difficult to monitor and self-regulate their usage. As described earlier, effective self-regulation requires keeping track of the behavior and monitoring it (Baumeister & Vohs, 2007). However, due to TikTok enabling its users to scroll endlessly and to consume vast amounts of content, the platform's design affects users' sense of time and makes it difficult to monitor their behavior (Conte et al., 2024; Xie & Gallo, 2024).

Another important explanation might be a general lack of motivation to regulate TikTok usage. As the findings of this study indicated, most participants did not show a desire to limit their TikTok usage. However, motivation was identified as a key component for successful self-regulation, and without motivation, a behavior change is unlikely to occur, even if the ability is present (Baumeister & Vohs, 2007). In the present study, most participants reported spending several hours every day on TikTok, making the platform part of their daily lives. Additionally, this suggests that users enjoy using the platform rather than perceiving it as a problematic behavior. Recent literature on TikTok further describes that the platform leads to positive feelings and amusement and satisfies users' desire for pleasure and entertainment (Rahayu et al., 2025). Therefore, the absence of a significant relationship between self-regulation, motivation, and TikTok usage might reflect a lack of perceived need to regulate usage rather than a lack of self-regulation ability.

The Moderating Role of FoMO in the Relationships between Self-Regulation, TikTok Usage, and Mental Health

Existing literature found that higher levels of FoMO lead to increased social media engagement (Przybylski et al., 2013) and negative mental health effects (Gopal et al., 2024). However, the present study indicated that FoMO did not significantly moderate the relationship between self-regulation and TikTok usage, nor between TikTok usage and mental health outcomes.

One possible explanation for the absence of the moderation role of FoMO in the tested relationships might be the nature of TikTok's content. Existing studies mostly focused on platforms other than TikTok; however, TikTok's content distinguishes it from social media platforms such as Instagram or Facebook (Virós-Martín et al., 2024). For instance, Instagram enables users to follow friends, share content with them, or create stories to capture everyday moments (Instagram, 2025). Consequently, users are mostly exposed to content from their personal networks. Platforms like Instagram emphasize social connectivity and enable users to stay informed about others' activities and events. As a result, individuals might experience FoMO on platforms such as Instagram in the sense of fearing missing out on social experiences and being excluded. In contrast, TikTok presents users with content based on their interests (Montag et al., 2021; Qin et al., 2022) rather than their social network. The content is less focused on interpersonal updates and instead more on entertaining the user (Virós-Martín et al., 2024). Therefore, users might experience FoMO on TikTok more in the sense of missing out on trends and popular content. This suggests that FoMO might be experienced differently on TikTok compared to socially driven platforms such as Instagram or Facebook, which could explain why FoMO did not function as a moderator in the expected relationships.

However, the present study found a direct effect of FoMO on anxiety and stress, indicating that FoMO is independently associated with negative mental health outcomes. This is in line with prior research, which found that FoMO itself is an unpleasant emotional state (Maharani et al., 2025) and negatively affects mental health outcomes (Gopal et al., 2024). Therefore, it can be suggested that FoMO impacts mental health regardless of self-regulation ability and TikTok usage, rather than acting as an interaction effect.

Practical and Theoretical Implications

While most of the findings did not align with the expected relationships, this research nevertheless offers several practical implications. The results confirmed the link between TikTok usage and negative mental health outcomes, while also revealing a lack of motivation to regulate usage. These provide valuable insights for the users themselves and further highlight the need to raise awareness about the importance of self-regulation and mental health consequences. Educational efforts should aim to inform users about the potential mental health risks of TikTok usage and encourage critical reflection on their usage behavior. This can further be supported by institutions and health campaigns that use the insights from this study to design programs that address excessive usage and promote regulation strategies. Such programs could encourage offline activities to foster social interactions, emphasize the importance of breaks, and increase media literacy by educating individuals on the selective and curated nature of the content. These campaigns could help reduce the risks of social comparison, information overload, and loneliness, all of which are linked to negative mental health outcomes.

Furthermore, the findings offer implications for both platform designers and public health authorities. Platform developers hold responsibility for the engaging nature of TikTok. Therefore, the platform designers themselves are encouraged to reflect on the impact TikTok has on its users. To support healthier usage, developers could implement customizable tools such as screen time and break reminders, usage limits, and stopping points in the endless scroll feature. Moreover, public health authorities and policymakers also play a crucial role in promoting responsible social media usage. On one hand, these could support the digital mental health campaigns elaborated on earlier. On the other hand, policymakers could consider implementing regulations for immersive platforms like TikTok, making features such as break reminders and usage limits mandatory for the platforms.

Besides the practical implications, this study also provides implications for scientific research and theory development. As elaborated earlier, the results indicated no significant association between self-regulation and TikTok usage, and further, a lack of motivation to regulate TikTok usage. These findings support existing theory and reinforce the idea that motivation is a necessary condition for successful self-regulation, as proposed by Baumeister and Vohs (2007). The insights suggest that this theoretical framework can also be applied to digital environments, where users might not act to control their usage without sufficient motivation, especially on highly engaging platforms such as TikTok. On the other hand, the concept of FoMO might need to be refined to apply it to different online environments. As the findings of this study indicated, FoMO might function differently across various social media platforms. While it is driven by concerns about missing out on social interactions on platforms such as Instagram, on TikTok, it might be more about missing out on popular content and trends instead. This suggests that research should differentiate between types of FoMO to better understand how this concept operates within different digital environments

Limitations and Future Research

Besides the valuable insights and implications that the findings provide, it is important to note that this study presents some limitations. One of them is the gender distribution within the sample, as a higher proportion of women than men and other gender identities was included. This imbalance might limit the generalization of the findings, particularly since prior research found that females tend to spend more time on social media and that usage is more strongly associated with low well-being among females (Twenge & Martin, 2020). In the context of TikTok, however, research on gender differences is still in its early stages. A study by Virós-Martín et al. (2024) showed that females spent more time on TikTok, but at the same time, found no significant gender difference in digital well-being. This suggests the gender differences observed on other platforms might not directly apply to TikTok, as initial research indicates ambiguous results. Therefore, future research should aim for a more diverse sample and examine how gender might moderate relationships, as the findings could differ from previous research on gender differences in social media usage.

Another limitation of the present study concerns the statistical assumptions underlying linear regression models. Across the different models, several assumptions were violated, which can affect the validity and reliability of the findings. Based on that, non-parametric correlation and bootstrapped regression analysis were conducted to increase the robustness and credibility of the findings. However, the moderated relationships were tested by performing only bootstrapped moderation analysis. Since bootstrapping relies on repeated random resampling from the data, the resampled estimates might be biased if the original sample is unrepresentative. Additionally, the sample size in the present study is moderate (n=164), which could impact complex moderation

models. Therefore, future research should aim to collect larger samples and could use more advanced statistical approaches that are less sensitive to assumption violations.

Furthermore, this study relied on self-reported data to measure TikTok usage, which presents a methodological limitation. Self-reported data are susceptible to under- or overestimation of usage, which could limit the accuracy and objectivity of the data. Therefore, future research is advised to use more objective usage measures, such as screen time tracking. Moreover, it might be interesting for future research to examine TikTok usage beyond length and frequency of usage. Exploring specific usage behaviors, such as active posting versus passive scrolling, might provide a more comprehensive understanding of how different behaviors are related to self-regulation and mental health. For instance, passive content consumption might encourage habitual usage and information overload, while active posting could be associated with pressure to perform. Additionally, situational factors such as time of the day, mood, and cognitive load could offer valuable insight. Understanding the impact of behavioral and situational factors could contribute to a more nuanced understanding, and this could further help to design targeted interventions and technical tools to better prevent excessive TikTok usage and negative mental health outcomes.

Lastly, this study focused on the specific mental health outcomes of anxiety, stress, and depression, based on their prominence in previous research on social media usage (Yu et al., 2024). However, numerous other mental health outcomes might also be affected by TikTok usage. Therefore, future research is advised to expand the scope and include more mental health outcomes, such as sleep disturbance, attention span, or self-esteem. This could contribute to a broader understanding of the association between TikTok usage and mental health and could further provide valuable insights for developing practical implications to prevent negative mental health outcomes.

Conclusion

Through its highly engaging and entertaining design, TikTok challenges users' selfregulation ability and raises concerns about its impact on users' mental health. Despite these risks, users continue to scroll endlessly on TikTok. Therefore, this study aimed to explore the relationship between TikTok usage, mental health, and self-regulation, as well as the moderating roles of motivation to regulate TikTok usage and FoMO in these relationships.

The results of this study indicated varied findings. This study confirmed the link between TikTok usage and anxiety, stress, and depression. However, no significant association between self-regulation and TikTok usage was found, and both motivation to regulate TikTok usage and FoMO did not moderate the relationships, although FoMO was found to have a direct relationship with anxiety and stress. Moreover, this study revealed that most individuals use TikTok several hours daily, reflecting the intensive usage of TikTok.

The insights suggest that self-regulation and psychological factors like motivation and FoMO might play a less direct role in shaping individuals' TikTok usage than previously assumed. Instead, the results indicate that many users might lack the motivation to self-regulate usage. Given the observed usage intensity and the link to negative mental health outcomes, this study highlights the need for more awareness and responsible use of TikTok. Overall, the study provides important practical implications for users, educators, platform developers, and policymakers and identifies several directions for future research to further explore motivational and behavioral factors in TikTok usage to deepen the understanding of TikTok's impact on its users.

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Appendix A

Online Survey in English

You can change the language in the top right corner/Du kannst die Sprache oben rechts ändern Dear participant, you are being invited to participate in the research study "The Role of Psychological Factors in TikTok Usage and the Impact on Mental Well-Being". This study is conducted by Paula Osterhaus from the Faculty of Behavioural, Management and Social Sciences at the University of Twente. The purpose of this research study is to analyze how psychological factors influence TikTok usage and its impact on mental well-being. You are asked to answer different questions, and it will take you approximately 5-10 minutes to fill out the survey. Your participation in this study is entirely voluntary, and you can withdraw at any time without providing any reason. We believe there are no known risks associated with this research study; however, as with any online-related activity, the risk of a breach is always possible. To the best of our ability, your answers in this study will remain confidential. We will minimize any risks by anonymizing your data and storing it safely and confidentially. If you have any further questions, you can contact the researcher: Paula Osterhaus, p.osterhaus@student.utwente.nl. Thank you!

Have you read the information and want to participate in the study?

• Yes, I want to participate (1)

The first couple of questions ask about your demographics. Please answer the questions below.

How old are you (in years)?

▼ 18 (1) ... Other (21)

What gender do you identify with?

O Female (1) O Male (2) O Other, please specify: (3) _____ What is your nationality? O German (1) \bigcirc Dutch (2) Other, please specify: (3) The next questions ask about your TikTok usage. Please give an honest estimate of your average TikTok usage.

Do you use the social media platform TikTok?

○ Yes (1)

O No (2)

How often do you use TikTok on average?

 \bigcirc Several times a day (1)

Once a day (2)

O Several times a week (3)

Once a week (4)

• Several times a month (5)

Less than once a month (6)

How long do you use TikTok on average per day (in hours)?

0-1 (1)
1-2 (2)
2-3 (3)
3-4 (4)

 \bigcirc 4 or more (5)

The next section asks about your thoughts regarding your TikTok usage. Please indicate honestly to what extent the statements apply to you.

	Strongly disagree (1)	Disagree (2)	Uncertain or unsure (3)	Agree (4)	Strongly agree (5)
I feel the need to spend less time on TikTok. (1)	0	0	0	0	0
l am motivated to limit my TikTok usage. (2)	0	\bigcirc	0	\bigcirc	\bigcirc
l often try to reduce the time I spend on TikTok. (3)	\bigcirc	\bigcirc	0	\bigcirc	0
l am determined to control the amount of time spend on TikTok. (4)	0	\bigcirc	0	0	0
I actively try to resist the urge to check TikTok when I do not need to. (5)	0	\bigcirc	0	\bigcirc	\bigcirc
l often find myself wishing I spent less time on TikTok. (6)	0	\bigcirc	0	\bigcirc	0
l actively look for ways to reduce my time spent on TikTok. (7)	\bigcirc	\bigcirc	0	\bigcirc	0

The following questions ask about how you manage your activities and make decisions in your daily life. Please indicate honestly to what extent the statements apply to you.

	Strongly disagree (1)	Disagree (2)	Uncertain or unsure (3)	Agree (4)	Strongly agree (5)
If I wanted to change, I am confident that I could do it. (1)	0	\bigcirc	0	0	0
l am able to accomplish goals I set for myself. (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l have a lot of willpower. (3)	\bigcirc	\bigcirc	0	0	0
As soon as I see a problem or challenge, I start looking for possible solutions. (4)	\bigcirc	\bigcirc	0	0	0
l learn from my mistakes. (5)	\bigcirc	\bigcirc	0	0	\bigcirc
l usually keep track of my progress toward my goals. (6)	\bigcirc	\bigcirc	0	0	0
l am able to resist temptation. (7)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Once I have a goal, I can usually plan how to reach it. (8)	\bigcirc	\bigcirc	0	0	0

Below is a collection of statements about your everyday experience. Please indicate honestly to what extent the statements apply to you.

	Strongly disagree (1)	Disagree (2)	Uncertain or unsure (3)	Agree (4)	Strongly agree (5)
It bothers me when I miss an opportunity to meet up with friends. (1)	0	0	0	0	0
l fear others have more rewarding experiences than me. (2)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l get worried when I find out my friends are having fun without me. (3)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Sometimes, I wonder if I spend too much time keeping up with what is going on. (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l get anxious when I do not know what my friends are up to. (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
When I miss out on a planned get- together it	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

bothers me. (6)					
l fear my friends have more rewarding experiences than me. (7)	0	\bigcirc	\bigcirc	\bigcirc	0

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
I felt that I was unable to stop or control worrying. (1)	0	0	0	0	0
l felt nervous, anxious, or on the edge. (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
I felt that I was worrying too much about different things. (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l found it difficult to relax. (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l felt so restless that it was hard to sit still. (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l noticed that l became easily annoyed or irritable. (6)	\bigcirc	\bigcirc	0	0	\bigcirc
l felt afraid, as if something awful might happen. (7)	\bigcirc	\bigcirc	0	0	\bigcirc

The last section asks about your mental well-being. As a reminder, your answers are anonymous. So please respond honestly how you felt during the **last 7 days**.

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
I was intolerant of anything that kept me from getting on with what I was doing. (1)	0	0	0	0	0
l felt I was rather touchy. (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l found it difficult to relax. (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l found myself getting agitated. (4)	\bigcirc	\bigcirc	\bigcirc	0	\bigcirc
l felt that I was using a lot of nervous energy. (5)	\bigcirc	\bigcirc	\bigcirc	0	\bigcirc
l found it hard to wind down. (6)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l tended to over-react to situations. (7)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
I					

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
l felt that life was meaningless. (1)	0	0	0	0	0
I felt that I had nothing to look forward to. (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
I could not seem to experience any positive feeling at all. (3)	0	\bigcirc	0	0	0
l was unable to become enthusiastic about anything. (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
l felt that l was not worth much as a person. (5)	\bigcirc	\bigcirc	0	\bigcirc	\bigcirc
l felt down- hearted and blue. (6)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
I found it difficult to work up the initiative to do things. (7)	0	\bigcirc	0	0	0

Appendix B

Assumption Test for Linear Models

Table B1

Results of the Assumption Test for Linear Models

Model	Assumptions					
	Independence	Linearity	Homoscedasticity	Normality		
TikTok Usage, Anxiety	Not Violated	Violated	Violated	Not Violated		
TikTok Usage, Stress	Not Violated	Violated	Violated	Not Violated		
TikTok Usage,						
Depression	Not Violated	Violated	Violated	Not Violated		
Self-Regulation, TikTok				Violated		
Usage	Violated	Violated	Violated			
Self-						
Regulation*Motivation,	Violated	Violated	Violated	Violated		
TikTok Usage						
Self-Regulation*FoMO,						
TikTok Usage	Violated	Violated	Violated	Violated		
TikTok Usage*FoMO,						
Anxiety	Not Violated	Violated	Violated	Not Violated		
TikTok Usage*FoMO,						
Stress	Not Violated	Violated	Violated	Not Violated		

TikTok Usage*FoMO,	Not Violated	Violated	Violated	Not Violated				
Depression								
Note. The assumptions were assessed through visual inspection of plots.								

Appendix C

Artificial Intelligence Statement

During the preparation of this work, the author used Grammarly and ChatGPT in order to improve spelling, grammar, and syntax errors. Moreover, ChatGPT was used to identify and correct errors in coding with RStudio. After using these tools, the author reviewed and edited the content as needed and takes full responsibility for the content of the work.