# The Influence of Information Overload on Social Media on Individuals' Happiness

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**Abstract**

Individuals' processing capacities are limited, and with the growing access and use of social media, individuals face vast amounts of information daily. If individuals face more information than they can process, information overload appears. The increased connections and news updates through social media initially appear only beneficial, but there is a flip side. Researchers already identified that this constant use and possibly overuse of social media channels can have severe consequences. This dissertation explores what influence information overload on social media has on individuals' happiness. The dissertation hypothesizes that information overload mediates the relationship between daily time spent on social media and happiness. By conducting an online survey and combining my findings with those of a comprehensive literature review, I identified several relationships. Unlike hypothesized, daily time spent on social media has no positive effect on information overload. Furthermore, information overload does not affect individuals' happiness. However, this dissertation's findings revealed a negative connection between individuals' daily time spent on social media and their happiness. These insights demonstrate and highlight the risks associated with increased social media usage. This dissertation will later discuss these findings and outline theoretical and practical implications.

**Title:** The Influence of Information Overload on Social Media on Individuals' Happiness

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**Keywords:** Information overload, Social media, Social media channels, Time spent online, Happiness

**Sumário**

As capacidades de processamento das pessoas são limitadas e, com o crescente acesso e utilização dos meios de comunicação social, as pessoas são confrontadas diariamente com grandes quantidades de informação. Se as pessoas se deparam com mais informação do que conseguem processar, surge a sobrecarga de informação. O aumento das ligações e das actualizações de notícias através das redes sociais parece inicialmente apenas benéfico, mas há um outro lado. Os investigadores já identificaram que esta utilização constante e possivelmente excessiva dos canais das redes sociais pode ter consequências graves. Esta dissertação explora a influência que a sobrecarga de informação nas redes sociais tem na felicidade dos indivíduos. A dissertação coloca a hipótese de que a sobrecarga de informação medeia a relação entre o tempo diário passado nas redes sociais e a felicidade. Ao realizar um inquérito online e ao combinar os meus resultados com os de uma revisão abrangente da literatura, identifiquei várias relações. Ao contrário da hipótese, o tempo diário passado nas redes sociais não tem um efeito positivo na sobrecarga de informação. Além disso, a sobrecarga de informação não afecta a felicidade dos indivíduos. No entanto, os resultados desta dissertação revelaram uma relação negativa entre o tempo diário que os indivíduos passam nas redes sociais e a sua felicidade. Estas conclusões demonstram e realçam os riscos associados ao aumento da utilização das redes sociais. Esta dissertação discutirá posteriormente estas conclusões e delineará implicações teóricas e práticas.

**Título:** A influência da sobrecarga de informação nas redes sociais na felicidade dos indivíduos

**Autor:** Valerie Olivia Brinkmann

**Palavras-chave:** Sobrecarga de informação, Redes sociais, Canais de redes sociais, Tempo passado em linha, Felicidade

## Table of Content

## List of Figures

## List of Tables

**List of Abbreviations**

| | |
|---|---|
| SMP | Social Media Platform |
| SNS | Social Networking Sites |
| SDT | Self-determination Theory |
| IV | Instrumental Variable |

# 1. Introduction

## 1.1. Topic Presentation and Problem Statement

Social media usage and overload concerns intensify (Jabeen et al., 2023; Ledzińska & Postek, 2017). At first glance, it looks like the benefits of social media, the ability to connect with everyone, may outweigh (Ellison et al., 2007). However, with technology comes responsibility and the problem of emerging information overload (Dean & Webb, 2011). The question is, can we take in too much information? Looking back, the rise of technology and digitalization meant increased access to information, which was considered a significant opportunity (Blair, 2011). The number of social network users has risen enormously over the last decade, with worldwide 5.24 billion people using social networks (Kemp, 2025). Those statistics imply that a significant part of the world's population can access information anywhere, at any time, and in the amount they desire. Today, social media is part of most individuals' daily routines, which includes checking messages, reading posts, and connecting with people around the world (Kapoor et al., 2018). Due to this evolution, many questions arise: What do we do with all the information provided online? Is there too much information spread so that we cannot cope with this amount of information anymore? Does this exposure affect our happiness?

## 1.2. Relevance of the Topic and Previous Research

Researchers are increasingly evaluating the consequences of information overload and the use of social media independently but also combining the two (e.g., Chen & Wei, 2019; Jabeen et al., 2023; Zhang et al., 2016). Investigating overload was already a topic of research in 1980, and since then, particular attention has been paid to the emergence of information overload (Blair, 2011; Ledzińska & Postek, 2017; O'Reilly, 1980). On top of that, researchers have already summarized the effects of great exposure to social media content on a variety of channels on individuals' well-being under the concept of *the dark side of social media* (Talwar et al., 2019; Tandon et al., 2021b). According to several previous studies, such as the study of Maier et al. (2015) on social media exhaustion, those effects are primarily negative.

With the emergence of social media, it was quickly clear that the topics should be considered from a joint perspective (e.g., Maier et al., 2015). Zhang et al. (2016), as well as Fu et al. (2020) identified that information overload is positively connected to social media exhaustion. This finding indicates that if information exposure is too great, individuals feel increasingly exhausted by social media. Moreover, the first coping strategies for information

overload were brought up already, but for them to work, individuals must be more aware of what extensive social media usage can activate (Maier et al., 2015; Tarafdar et al., 2020).

Kapoor et al. (2018) stated that investigating emotional tones on social media belongs to the 100 most relevant topics on social media, which includes online happiness. Therefore, happiness is a factor to take into consideration when conducting research in the field of social media and its accompanying effects. Considering these variables together is becoming increasingly important, and individuals would greatly value from further research.

### 1.3. Research Objective

This dissertation aims to explore what role information overload plays when individuals spend a considerable amount of time per day on social media on their happiness. As already stated, information overload is not new and has deep roots (Blair, 2011). Likewise, social media and its consequences are also being increasingly studied (e.g., Dhir et al., 2019; Ledzińska & Postek, 2017; Maier et al., 2015; Tandon et al., 2021a). On the other hand, research has not yet deeply looked at the connection between information overload, the daily time spent on social media, and individuals' happiness. Therefore, this dissertation combines the three variables: information overload, daily time spent on social media, and individuals' happiness and aims to answer the following research question:

**Research Question:** *What influence does information overload on social media have on individuals' happiness?*

In evaluating this research question, this dissertation wants to provide clarity in the understanding of what happens to individuals' happiness when social media is used, and information overload is present. By conducting an online survey, this dissertation wants to test the significance of those relationships. The present dissertation hypothesizes that increased time spent on social media per day increases information overload. Furthermore, this dissertation explores the mediating role of information overload between time spent on social media and happiness. Lastly, the dissertation hypothesizes that individuals' happiness is negatively influenced by the time spent on social media and information overload.

The analysis and its results are of interest to society at large and individuals who use social media regularly. They can be beneficial for individuals who are already aware of the adverse side effects of social media and are aiming to gain deeper insights. Moreover, this dissertation will address those who are not aware yet. The purpose of this dissertation is to

provoke questioning their current social media usage behavior and potentially change their behavior to positively influence their happiness.

### 1.4. Structure of the Dissertation

This dissertation aims to provide a clear understanding of the effect of time spent on social media and information overload on individuals' happiness. Therefore, this dissertation entails six sections. This chapter (Chapter 1) introduces the topic of this dissertation and gives a first glance at the problem of information overload through social media. Chapter 2 looks at the existing literature and previously conducted research on the three components of this dissertation, which are information overload, social media, and happiness. This chapter builds a basis for the following analysis conducted with the data collected through an online survey. Chapter 3 focuses on the methodology. It presents the method of recruitment and describes the design of the survey. Moreover, it provides a detailed description of the procedure for the survey, and the selection of the measurement items included in the survey. Chapter 4 analyses the survey responses and presents the corresponding results found. Afterwards, Chapter 5 discusses those results and highlights the theoretical and practical relevance of the findings and the limitations of this dissertation. Lastly, Chapter 6 reflects on the dissertation, summarizes the main findings of this dissertation, and concludes with a final takeaway.

## 2. Literature Review

The literature review was conducted in several steps and built the basis for this dissertation. The first step included gathering general information in the context of information overload. Then, the identified keywords were used to perform a keyword-based search on Google Scholar. The initial search for academic literature involved the separate scanning of the keywords: "information overload," "information overload online," "social media," and "happiness." Afterwards I searched for academic literature that combines the key terms: "information overload through social media," and "time spent online and happiness" to find the existing literature on those relationships. After selecting the most relevant papers, their reference list was scanned to get an overview of other appropriate scientific papers for this dissertation. A forward-backward literature review was conducted to identify relevant literature (Webster & Watson, 2002). This chapter aims to inform about the research that has already been conducted and what information and links between the topics have already proved to be significant and of relevance.

## 2.1. Information Overload

"Is more necessarily better"? (O'Reilly, 1980, p. 684). The term information overload has a long history and is nothing individuals just recently experienced. In the article from Blair (2011), it becomes clear that its first occurrence goes back to the Renaissance and before, when individuals had the drive to collect and save information. Blair (2011) described how overload became more widespread once other people besides the elite could afford to read and buy books until accessing the books was easier than reading them and remembering all the information written in them. The article highlights that increased access to information has the tremendous potential of finding innovative solutions to problems and provides methods for processing data in various ways. However, besides the privilege of accessing information, the development of digital technologies and overload have their costs (Blair, 2011).

We live in a time where speed is essential, so it does not allow individuals to process information properly (Ledzińska & Postek, 2017). When humans receive so much information that they can no longer process it, their brain is overloaded (Cazaly, 2021). Therefore, information overload arises when the amount of information an individual has to process exceeds one's capability of processing it (Eppler & Mengis, 2004). Information processing capabilities must match the information load, if this balance is unequal, an individual is confronted with information overload (O'Reilly, 1980). The young generations, in particular, are prone to constantly absorb more information but are, on the other hand, processing that information less (Ledzińska & Postek, 2017). The limited capacity theory by Lang (2000) says that individuals have a limited cognitive capacity, allowing them to absorb and process information until a certain point. Exceeding this point leads to a system overload (Lang, 2000).

Information overload is associated with choice overload, which describes the paradox of choices (Iyengar & Lepper, 2000; Scheibehenne et al., 2010). In the first instance, having many choices may be seen as desirable, but, in the end, too many choices are considered too much and can trigger overload and demotivation (Iyengar & Lepper, 2000). Closely related to information overload is social overload. Maier et al. (2015) mentioned that social overload occurs when too much social interaction is required. This negative perception arises when people feel that they receive too much social support online and have to provide it to other users in their online social network (Maier et al., 2015). Some might assume that information overload and social overload are similar, but as Maier et al. (2015) mentioned, they differ in their outcomes. Therefore, it is important to note that this dissertation focuses on information overload on social media and shifts the focus away from social overload.

The feeling of overload is generally associated with something that creates stress therefore, Zhang et al. (2016) assumed that information overload is a stressor for individuals. The constant flow of information and the continuous provision of data creates stress (Ledzińska & Postek, 2017). Ledzińska and Postek (2017, p. 785) specifically dealt with "infostress" as a type of stress. In their work, the researchers discussed the intensity of infostress, the mechanism behind its emergence, and the distinction from other sorts of stress. Accordingly, infostress is the overload an individual experiences when their own processing capabilities are not sufficient to process and use information effectively (Ledzińska & Postek, 2017). Moreover, the authors addressed the topic of data hyperproduction and its relevance in the context of information overload. Data hyperproduction implies that information is untrustworthy, meaning it is hard to control who publishes and accesses information (Ledzińska & Postek, 2017). Additionally, information is difficult to understand, which implies that not enough time is assigned to the processing of information (Ledzińska & Postek, 2017). Lastly, information growth is not controlled, which indicates that the scale at which information increases, and the speed under which information is distributed is not supervised (Ledzińska & Postek, 2017).

Information overload will not stop and will rise even more; therefore, strategies are needed to cope with and somehow escape this constant overload (Dean & Webb, 2011). A strategy of coping with information overload, named in the work of Tarafdar et al. (2020), is distraction. Tarafdar et al. (2020), believed in two ways for individuals to distract themselves from the stress generated using social media platforms (SMP). The first way is to do something completely different and move the attention away from the SMPs. The second option is to stay with the same social networking site but use it in a different way. However, this does not eliminate the stress factor of excessive social media use, so the strategy is to distract themselves from the overload by using SMP even more excessively (Tarafdar et al., 2020).

### 2.2. Social Media

Social media allows individuals to connect with others online and enables them to form relationships beyond nations and nationalities (Kapoor et al., 2018). Social media applications are among others Facebook, Instagram, Twitter, YouTube and more (Kapoor et al., 2018). Social networking sites (SNS) are a subcategory of social media and are online services that empower easy communication and interaction, whether with existing contacts or to make new connections (Ellison et al., 2007; Maier et al., 2015). Users can share messages, photos, and videos with each other (Swain & Pati, 2019). Kapoor et al. (2018) pointed out that this, however, goes hand in hand with great amounts of information. That information can be news

and updates individuals aim to receive daily and consider important to them (Kapoor et al., 2018). On the other hand, a survey among Facebook users identified that much of the information is considered irrelevant, such as spam or fake news, as well as a significant amount of gossip (Rainie et al., 2013).

The use of social media has undergone a significant change in the last years and researchers identified an enormous growth in the usage of SNS by organizations and individuals, depending on its function and usage (Maier et al., 2015). According to recent statistics by Kemp (2025), the number of social media users worldwide is increasing by 4.1% on a year-on-year change, which equals 206 million. Consequently, in January 2025 the social networks are counting 5.24 billion users worldwide (Kemp, 2025). Moreover, the report indicated that in 2024, Kenya was the country with the highest average duration of use of social networks, with 4 hours and 13 minutes per day. Germans spend approximately 1 hour and 41 minutes per day on social media, and Japan has the lowest average duration of social media usage, with 46 minutes per day (Kemp, 2025). The top three primary reasons individuals above 16 years old use social media are to stay in touch with their family and friends, to fill their spare time, and to read news stories (Kemp, 2025).

This dissertation looks at the German statistics more in detail, as the survey identified this as the major participant group. In Germany, the population's share of active social media users is 77.6% (Kemp, 2025). The reasons why people use social media vary (Kemp, 2024). According to Kemp (2024), most Germans (48.2%) have stated that they primarily use social media to stay in contact with their well-knowns. Secondly, the report by Kemp (2024) identified that 39.2% of Germans use social media to view and read news stories. Only 20.5% use social media to purchase products (Kemp, 2024). Among the 14- to 29-year-olds Germans, Instagram is the most used social network platform, which 82% of them use on a weekly basis (ARD/ZDF-Medienstudie 2024, 2024). Looking at the statistics worldwide, in February 2025 Facebook measured the most tremendous amount of monthly active users (3.07 billion), followed by 2.53 billion active accounts on YouTube and Instagram placed third with 2 billion active monthly users (Kemp, 2025).

Studies revealed that using SMPs has become part of people's daily routines (Krishen et al., 2016). Individuals are constantly available, connected, and can be contacted anywhere and at any time (Yin et al., 2014). They want to keep up with the posted content and cannot self-regulate their usage (Jabeen et al., 2023). Consequently, individuals devote much energy and time to social media (Pang et al., 2024). According to Jabeen et al. (2023), users spend a considerable amount of time on SNSs, more than two hours per day.

But why do individuals use social media? Even though this dissertation targets a different aspect of analysis, it may help in the further analysis and understanding of the context for this dissertation to look at the reasons for using social media. The study from Jabeen et al. (2023) found out that individuals seek relatedness; they use SMPs to cope with loneliness and as a form of self-presentation. Self-presentation means presenting oneself in the best way in front of others, getting the attention of others, and being able to interact (Chua & Chang, 2016). This dissertation bases its reasoning for using social media on the Self-determination theory (SDT) by Ryan and Deci (2000). The SDT (Ryan & Deci, 2000) looks at individuals' psychological needs and their intrinsic and extrinsic motivation and how those shape individuals' behavior. The theory by Ryan and Deci (2000) is categorized into three basic needs: competence, autonomy, and relatedness. The feeling of effectiveness and control of one's surrounding environment is the need for competence (Ryan & Deci, 2000). Autonomy is the ability to decide based on one's desires and not being controlled by others (Ryan & Deci, 2000). Thirdly, relatedness is the desire to belong to others and connect to individuals and groups to experience belonging (Ryan & Deci, 2000).

The positive effects of social media use, to name a few, are the connections to other people, staying social, and getting quick updates about friends, relatives, and the contacts individuals follow (Ellison et al., 2007; Ravindran et al., 2014). Nevertheless, the constant use of SMPs is associated with several problematic consequences, which are summarized under the term *dark side of social media* (Talwar et al., 2019; Tandon et al., 2021b). This dissertation will not go into detail about each of them; however, it is useful to give an overview of SMP usage and its negative effects on individuals. Outcomes that can arise through using social media are a social media addiction (Andreassen et al., 2017), social media fatigue (Dhir et al., 2019), exhaustion (Maier et al., 2015) as well as the fear of missing out (FoMO) (Tandon et al., 2021a). Shi et al. (2020) claimed that SMP use negatively affects academic performance. Another major problem associated with social media usage is overstimulation (Ledzińska & Postek, 2017) and the confrontation with misinformation (Acemoglu et al., 2010; Acemoglu et al., 2024). Misinformation implies that the information provided is incorrect (Acemoglu et al., 2010). When it comes to a large amount of information and its spreading among individuals, misinformation is an emerging problem (Acemoglu et al., 2010).

Another big topic on SMPs with the potential to induce problems is social comparison and, consequently, social overload, which influences the usage of those platforms (Fu et al., 2020; Jabeen et al., 2023). The social comparison theory by Festinger (1954) is very crucial in this context. Festinger (1954) talked about human's instinct to evaluate their abilities and

opinions, which also affects their behavior. Individuals compare themselves, especially to those who have similar abilities and opinions (Festinger, 1954). The problem, however, named by Festinger (1954) is that Western culture strives to be better and better, which shapes individuals' tendency to compare. This topic is very present in the world of social media (Jabeen et al., 2023). Nevertheless, social comparison in general and social comparison online are such extensive topics on their own that this dissertation does not have the capacity to cover this aspect of social media usage in depth (Jabeen et al., 2023).

Through spending much time on SNSs, a social media addiction can emerge, which can be, among other activities, constantly refreshing the social media feed pages (Jabeen et al., 2023). Checking one's phone every few minutes is not an isolated case; documentaries such as *The Social Dilemma* by Orlowski (2020) demonstrated how addicting social media can be and that generations are moving away from having a healthy relationship with it. Social media is a bubble, and people are addicted to using it (Orlowski, 2020). As Dr. Anna Lembke stated in an interview with Waters (2021), social media is turning out to be a dopamine addiction. She mentioned that for many people, it has become a habit to constantly scroll on, e.g., Instagram, TikTok, and others. They need to be stimulated, which creates a form of addiction (Waters, 2021). In contrast, limiting social media use can significantly improve well-being and reduce depression (Hunt et al., 2018).

### 2.3. Behavior Change

Because social media is not a newly emerging tool, but has been present for a few decades, researchers have already observed the behavior of individuals and their reactions to social media use and its consequences (e.g., Jabeen et al., 2023; Maier et al., 2015). After some time, individuals alter their behavior concerning the use of social media (Fu et al., 2020; Maier et al., 2015). If the overload individuals experience on social media is too great, reducing its use is a logical conclusion (Fu et al., 2020). Researchers have investigated this theme and identified several reasons why discontinuance intentions arise and how users change their perceptions and behavior about social media use (Zhang et al., 2016). Discontinuance usage refers to a change in patterns associated with usage behavior and reducing the intensity of use (Maier et al., 2015). Researchers have analyzed this behavior as a coping strategy for escaping the negative outcomes of SNS usage (Maier et al., 2015). According to Ravindran et al. (2014), discontinuous behavior is categorized in three ways: individuals can take breaks in between, decrease their usage, or quit using social networks. Researchers expect that once individuals experience information overload, they may consider information systems as less useful and

associate something adverse with it, which ultimately affects their satisfaction level (Zhang et al., 2016). However, it is important to emphasize that individuals have the autonomy to control their usage and can decide whether they want to reduce their social media activities and, therefore, the information they are exposed to daily (Zhang et al., 2016). This autonomy is a need of the SDT by Ryan and Deci (2000). In addition to relatedness and competence, autonomy enables human beings to control their life and decide with what they identify (Ryan & Deci, 2000). Autonomy in this context, therefore, enables individuals to change their behavior, and this can influence their well-being and impact their level of satisfaction (Ryan & Deci, 2000).

### 2.4. Happiness

What does it mean if an individual says, "I feel happy"? (Mogilner et al., 2011, p. 395). Immanuel Kant said "[…] The concept of happiness is such an indeterminate concept that, although every human being wishes to attain this, he can still never say determinately and consistently with himself what he really wishes and wills." (Gregor & Wood, 1998, p. 49). Happiness is seen as a measure of well-being (Easterlin, 2013). The definition of happiness, however, is quite a hard question (Lu, 2010). There seems to be no fixed definition of happiness, and the number of definitions is large (Mogilner et al., 2011). This implies that it would go beyond the course of this dissertation to list all definitions. Instead, this dissertation provides an overview of the different angles of definitions and interpretations of the term happiness. Lu (2010) found out, by interviewing students, that they specifically define happiness in terms of certain aspects, abilities, or the presence and fulfillment of certain conditions. Those can differ depending on an individual's cultural background and are, for instance, their emotional state, positive or negative, personal achievements or their inner well-being, and the state of satisfaction (Lu, 2010). Some researchers argue that who is happy is generally not determined by age, race, gender, or income (Myers & Diener, 1995). Others believe that the concept of happiness underlies a very individual definition and is shaped by personal standards (Berezan et al., 2018).

Mogilner et al. (2011) expected the definition to be between the two, suggesting that the definition of happiness underlies a dynamic shift. They believed that the meaning of happiness shifts with age and the progression of life. Young people may associate happiness more with feelings of excitement, whereas older adults see happiness as a peaceful state (Mogilner et al., 2011). The authors mentioned that this may be the underlying reason that attention to the future

and present shifts. The more people age, their focus moves to the present, not the future (Mogilner et al., 2011). Mogilner et al. (2011) grounded their supposition, among others, on Williams and Drolet's (2005) research on aging and the psychology behind it. Researchers identified that the amount of time an individual has left in their life has important consequences on their actions and intentions (Williams & Drolet, 2005). As claimed by Carstensen et al. (1999), people who still have a long life ahead of them are looking for new relationships and valuable information for the future. On the other hand, individuals who know that they have little time left focus on the present moment and center their attention on satisfying relationships in the present (Carstensen et al., 1999). Therefore, they narrow down social interactions and their exposure to them (Williams & Drolet, 2005).

Another considerable ground for dissent is whether happiness is an emotional state or a mood state, whereby scientists primarily view happiness as a mood state (Lu, 2010; Williams & Drolet, 2005). A mood is considered more stable and less intense than emotions (Lu, 2010; Luomala & Laaksonen, 2000). Moreover, it is possible to distinguish between several aspects of happiness. Psychological happiness and cyber happiness (virtual happiness) are two primary dimensions (Ong et al., 2015). Psychological happiness is an indicator of the overall happiness of human beings, measured through, e.g., a nation's happiness index (Easterlin, 2013). In comparison, an internet user's overall level of enjoyment of their virtual existence can be defined as cyber happiness (Ong et al., 2015). It is also interesting to mention what satisfaction means in comparison to happiness. If happiness is associated with the actions that drive people, life satisfaction, on the other hand, can be seen as an overall assessment of an individual's quality of life, depending on the criteria chosen by the individual that has shaped them (Shin & Johnson, 1978).

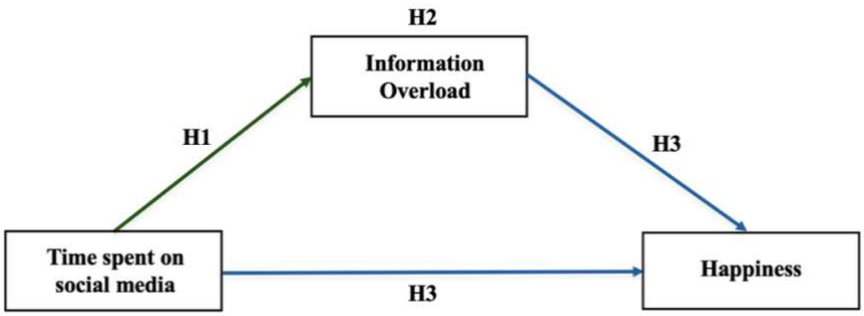
Happiness and social media are especially brought into context when examining social comparisons (Chae, 2018). Researchers, e.g., found a positive correlation between Instagram and comparisons on social media (Chae, 2018). By conducting a deep analysis of the existing literature on social media (until 2017), Kapoor et al. (2018) showed that investigating emotional tones on social media belongs to the 100 most relevant topics on social media, which includes online happiness.

### 2.5. Conceptual Model

The following model (Figure 1, p. 11) aims to visualize and provide a better understanding of the relationships and the influence of the three variables this dissertation wants

to test: information overload, daily time spent on social media, and happiness. Time spent on social media is the independent variable in this framework. One of the consequences of information overload and the time spent on social media can be a change in happiness. Therefore, happiness is labeled as the dependent variable. Information overload is the mediator between the two variables in this framework: time spent on social media and happiness. Information overload is considered the mediator because this dissertation assumes that too much time spent on social media leads to information overload, influencing individuals' happiness. This dissertation aims to find out more about the influences and relationships between the variables by conducting several analyses.

***Figure 1:*** *Conceptual Model*




After analyzing the relevant literature in depth and taking into consideration the three components: information overload, daily time spent on social media, and happiness, this dissertation hypothesizes that:

**H1:** *Time spent on social media has a positive effect on information overload.*

**H2:** *Information overload mediates the relationship between time spent on social media and individuals' happiness.*

**H3:** *Individuals' happiness correlates negatively with the time spent on social media and information overload.*

In Chapter 4, the analysis of the survey responses will identify whether the posed hypotheses find support and have a significant impact or if they have no significant impact.

## 3. Methodology

This chapter describes the chosen research process, which includes a thought-through study design, sample, and suited procedure to collect the needed data. The selected process is used to ensure a qualitative analysis. Close attention was paid to the data preparation and cleaning to conduct a reliable, valid, and objective research analysis. In the following, the term "survey" refers to the survey conducted as part of this dissertation, and "time spent on social media" implies the daily time individuals spend on social media.

### 3.1. Study Design

The dissertation aims to investigate the relationship between the time spent on social media and the confrontation with information overload on individuals' happiness. In addition to the literature review, a quantitative approach was identified as most appropriate for this dissertation. Therefore, this dissertation gathered data through a survey instead of any other approach, as e.g., interviews, as surveys enable the collection of a wider variety of data (Evans & Mathur, 2005). This dissertation collected data through an online survey to gather participants' evaluations on the topics of social media usage, happiness, and perception of information overload. Online surveys are beneficial because they have low administration costs and can be easily accessed by and distributed to participants (Evans & Mathur, 2005; Lefever et al., 2007).

### 3.2. Sample and Procedure

The survey was conducted using the online software tool Qualtrics to collect data and distribute it to the participants in an accessible way. To gather responses and distribute the survey among individuals, I predominantly posted the survey on social media channels/apps such as Instagram, LinkedIn, and WhatsApp to recruit voluntary participants. This way, the survey was shared with business contacts via LinkedIn and with friends and family via Instagram and WhatsApp, allowing me to get a variety of responses.

In total, 173 participants answered the survey. Of those 173 answers, 11 could not be included in the analysis as the participants did not complete the survey. Moreover, three responses had to be removed because participants answered the control question incorrectly. This led to the assumption that the participants did not fill out the survey consciously, resulting in an invalid response. Therefore, 159 responses were taken into consideration for the analysis. Among the 159 participants, 57,2% were female and 50,9% German. Most participants were

between 18 and 24 years old and had a bachelor's degree. The appendix contains the demographic information of all participants.

### 3.3. Measurement Scales

The measurement items were based on and adjusted on previously tested and verified scales from existing literature. A pilot study among 10 participants was conducted to measure the appropriateness of the questions and measures and their comprehensibility. After the pilot round, slight modifications were implemented before publishing the survey.

A 7-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7) was used in most questions and statements. Exceptions are the questions that require information on time, duration information, and probabilities. Information overload was measured using the items adapted from Zhang et al. (2016). The questions related to happiness were adapted from the Oxford Happiness Questionnaire (Hills & Argyle, 2002). In correspondence with the Oxford Happiness Questionnaire (Hills & Argyle, 2002), the questions about happiness measured individuals' overall happiness and did not classify happiness as a mood or emotion (Lu, 2010). The measurement items for social media exhaustion were adapted from the work of Dhir et al. (2019). WhatsApp is excluded as a SMP in the survey as it functions as a social networking app (Jabeen et al., 2023). This dissertation emphasizes the use of social media for private purposes, besides the option to use social media in a corporate or organizational context. It is also crucial to emphasize that questions were phrased according to this research needs rather than to gain insights for marketing purposes.

In the survey, participants were asked to answer 26 questions anonymously. Questions 1-4 wanted to know more about participants' general and daily social media usage. Question 4 was included to test a similar relationship to that found by Chen and Wei (2019), who identified a curvilinear relationship between ESM (Enterprise social media use) and overload. Therefore, question 4 asked individuals about their daily social media usage behavior to later test whether there is a curvilinear relationship between information overload and social media usage.

Afterwards, questions 5-9 focused on questions concerning participants' happiness. Questions 10-13 asked individuals how much they disagree or agree with statements about information overload. The survey incorporates question 14 to check and test participants' attention and identify if they filled out the survey consciously. Then, questions 15-19 aimed to gather information on individuals' perception of social media exhaustion. Question 20 asked the participants whether reducing their exposure to social media updates and notifications would improve their overall happiness. The last six questions were demographic questions that

requested information about participants' age, gender, nationality, highest level of education, occupation, and current marital status.

### 3.4. Data Preparation

The statistics program RStudio was used to evaluate the results collected through the dissertation. Before analyzing the data, the first steps in RStudio were data cleaning and data transformation. The two primary steps were: First, to remove the incomplete responses from the dataset and those participant responses that failed the attention check. Secondly, the scale scores had to be transformed to integrate and analyze them correctly in the further data analysis. Moreover, one question in the survey was posed in a reversed way to reduce compliant responses and implement "speed bumps" (Podsakoff et al., 2003, p. 884). However, those questions have to be used cautiously (Weijters & Baumgartner, 2012). This is why the survey only contained one reversed question and adapted it in alignment with the Oxford Happiness Questionnaire (Hills & Argyle, 2002). The original question in the survey was "I feel that I am not especially in control of my life.", with a response scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). When transforming the data into the statistics program, the variable was labeled *not_in_control*. The question was reversed in RStudio, meaning that the scale was inverted, and a high value (7) now means that someone stated that they are in control of their life to ensure that the results are undistorted. Consequently, the reversed variable is called *in_control.*

All the questions in the survey required a response from participants; therefore, *NA* in the dataset means no use. These responses were recorded several times in the questions concerning individuals' daily usage of the social media channels: Instagram, Facebook, TikTok, Snapchat, Twitter/X, Pinterest, and YouTube. If an individual does not use one of those social media channels, they could select "Not used" in the survey. Therefore, *NAs* in the dataset represent those responses. To ensure objectivity of implementation, evaluation, and reliability, I recoded those NAs in the dataset into zero.

Another minor adjustment was necessary concerning the question about individuals' nationality as it was an open question in the survey. It required a little more cleaning in the dataset due to spelling mistakes and handling rare responses. As individuals of many different nationalities filled out the survey, it often occurred that nationalities were only presented by one person. Therefore, the dataset was scanned for the major nationalities to ensure a reliable analysis. Those were *German, American, Indian, British, French, Malaysian, Lithuanian,*

*Mexican, Dutch, Canadian, Filipino, South African, Austrian, Italian, Romanian, Portuguese,* and the remaining countries with less than two responses were labeled *Other*.

The survey covered three main topics, for each of which the participants had to answer several questions. Information overload was measured in the survey by asking the participants four questions. The questions used to ask individuals about their happiness consisted of five questions. In order to understand individuals' perception of social media exhaustion, the survey contained five questions on this topic. In the data evaluation, I combined the questions of each topic area (items) into an index to use the data in the upcoming model analysis and to measure the internal consistency with Cronbach's $\alpha$.

Although the scales used in the survey were based on previously verified scales, Cronbach's $\alpha$ was used to perform a reliability analysis (Table 1). The questions about information overload, happiness, and social media exhaustion in the survey were all based on Likert-type scales. Therefore, the scales can be evaluated according to Cronbach's $\alpha$ reliability coefficient (Gliem & Gliem, 2003). Table 1 shows that all $\alpha$ are above .7 and close to .8, which indicates good consistency.

***Table 1:*** *Cronbach's Alpha*

| Index | Cronbach's alpha | Items |
|---|---|---|
| Happiness | 0.816 | 5 |
| Information overload | 0.781 | 4 |
| Social media exhaustion | 0.852 | 5 |

## 4. Results

This chapter presents the results obtained from conducting various analyses with the survey data. These findings provide valuable insights and reveal relevant correlations for research on information overload and social media.

### 4.1. Descriptive Statistics

The dissertation aimed to test the influence of information overload through time spent on social media on individuals' happiness. The following tables display the descriptive statistics of the tested variables. The first information collected through the survey was the amount of time individuals spent on SMPs daily. This variable is based on an ordinal scale level and for

the descriptive statistics a frequency table and percentage distribution allow the best presentation of the variable and its categories. This information is displayed in Table 2 and gives a first hint of the survey's participants social media usage.

***Table 2:*** *Frequency Table with Absolute and Relative Frequencies*

| **Category** (Time spent daily on social media…) | **N** | **%** |
|---|---|---|
| Less than 30 minutes | 6 | 3.77 % |
| 30-60 minutes | 28 | 17.61 % |
| 1-2 hours | 54 | 33.96 % |
| 2-3 hours | 36 | 22.64 % |
| 3-4 hours | 15 | 9.43 % |
| More than 4 hours | 20 | 12.58 % |

The percentage (Column 3) shows that most survey participants spent between one and two hours on social media daily. Whereas only very few participants use social media less than 30 minutes per day.

Table 3 shows the Mean (*M*) and Standard Deviation (*SD*) of the variable measuring the daily time spent on social media for the entire sample, not individual categories. These values were calculated by taking the average value of each category (Table 2) and assuming that the category "more than 4 hours" corresponds to an average value of 5 hours.

***Table 3****: Table with Mean and Standard Deviation of Time spent for the entire sample*

| **Variable** (Time spent daily on social media…) | **M** | **SD** |
|---|---|---|
| For the entire sample | 2.18 | 1.36 |

Moreover, another survey question revealed that most participants (41.51%) said they definitely use social media within 30 minutes of waking up in the morning. In total, 74.21% of the participants responded with either *probably yes* or *definitely yes* to the question of whether they use social media within 30 minutes after waking up (see Appendix 2).

The variables asking about daily social media channel usage are metric, so the Arithmetic Mean (*M*) and Standard Deviation (*SD*) are informative. Table 4 shows the descriptive statistics of the six social media channels, their average time spent in minutes, and the dispersion of the data values around their mean value.

***Table 4:*** *Descriptive Statistics for the Variable about Daily Usage of Social Media Channels*

| **Variable** (Daily time spent in minutes on…) | **M** | **SD** |
|---|---|---|
| Instagram | 47.80 | 31.76 |
| Facebook | 8.05 | 19.86 |
| TikTok | 27.48 | 40.49 |
| Snapchat | 12.14 | 18.08 |
| Twitter/X | 9.18 | 24.26 |
| Pinterest | 6.48 | 15.06 |
| YouTube | 42.33 | 39.28 |

The analysis found that, on average (*M*), individuals spent the greatest amount of time on Instagram and YouTube. However, the scatter (*SD*) for the daily usage of YouTube is relatively high. The same impression is generated for the daily time spent on TikTok. A further analysis revealed that the survey participants aged 18-24 years spend on average the most time on Instagram (*M* = 49.88, *SD* = 29.22), followed by the 25–34-year-olds (*M* = 48.71, *SD* = 34.24), see Appendix 2.

Table 5 presents the descriptive statistics of the three topic indices measured in the survey: happiness, information overload, and social media exhaustion. As mentioned above, the questions of each topic area in the survey were combined into an index. When the questions of each topic (items) were combined into an index, their scale shifted from ordinal to metric. Therefore, Table 5 indicates the Mean and Standard Deviation of the three indices.

***Table 5:*** *Descriptive Statistics of the Indices*

| **Index** | **M** | **SD** |
|---|---|---|
| Happiness | 4.87 | 1.14 |
| Overload | 4.81 | 1.18 |
| Exhaustion | 4.19 | 1.31 |

The second column (*M*) displays the average rating for the respective index. The third column (*SD*) indicates how much the responses scatter around the Mean. The results show that the index *happiness* has the highest average value, whereas *exhaustion* has the lowest value. Furthermore, the index of *happiness* shows the greatest consent within the responses. The greatest dispersion in responses, on the other hand, is seen in the index *exhaustion*.

In question 20, the variables tested in this dissertation were combined by asking individuals whether reducing their exposure to social media would impact their happiness. Table 6 illustrates the results.

***Table 6:*** *Descriptive Statistics of Variable Relationship*

| Variable | M | SD |
|---|---|---|
| Reducing Usage Improved Happiness | 4.91 | 1.42 |

The responses show a slight tendency towards approval, suggesting that reducing social media usage would improve their overall happiness. However, a certain dispersion is present in the responses.

Table 7 presents the results of the curvilinear relationship (Question 4 in the survey) between information overload and social media usage. Creating the square of the variable enabled the testing of this relationship.

***Table 7:*** *Curvilinear Relationship between Information Overload and Social Media Usage*

| | *Dependent variable:* |
|---|---|
| | info_overload |
| socialmedia_onceperday | $0.318^{*}$ |
| | (0.183) |
| I(socialmedia_onceperday2) | $-0.041^{*}$ |
| | (0.025) |
| socialmedia_severalperday | 0.196 |
| | (0.165) |
| I(socialmedia_severalperday2) | -0.016 |
| | (0.022) |
| socialmedia_allday | 0.074 |
| | (0.189) |
| I(socialmedia_allday2) | -0.005 |
| | (0.026) |
| Constant | $3.812^{***}$ |
| | (0.407) |
| Observations | 159 |
| $R^2$ | 0.047 |
| Adjusted $R^2$ | 0.010 |
| Residual Std. Error | 1.171 (df = 152) |
| F Statistic | 1.257 (df = 6; 152) |
| *Note:* | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

The analysis revealed that the model is not significant ($F = 1.257$, $R^2 = .047$) and that no curvilinear relationship exists between information overload and social media usage. Even though the coefficient *socialmedia_onceperday* and its square score were slightly significant, the relation is not strong enough to be significant and prove a curvilinear relationship.

### 4.2. Hypotheses Testing

The following section analyses the posed hypotheses in depth to explore and answer the dissertation's research question: *What influence does information overload on social media have on individuals' happiness?*

**H1: Time spent on social media has a positive effect on information overload.**

The dissertation first hypothesized that the time individuals spend on social media positively affects information overload. H1 wanted to find out if social media usage increases information overload. The hypothesis was tested using a linear regression model, with information overload as the dependent variable and the time spent on social media as the independent variable. As shown in Table 8, the intercept is highly significant with $p < .01$, which implies that without using social media, the information overload indicated by the survey participants is 4.421. Overall, the regression model is, however, not significant ($F = 2.410$, $p > .05$). Moreover, only 1.15% ($R^2 = .015$) of information overload is explained through the time spent on social media. This indicates no statistically significant relationship exists between the time spent on social media and information overload. Therefore, H1 found no support.

***Table 8:*** *Direct Effect of Time Spent on Social Media on Information Overload*

| | *Dependent variable:* |
|---|---|
| | info_overload |
| time_spent_daily | 0.108 |
| | (0.070) |
| Constant | $4.421^{***}$ |
| | (0.264) |
| Observations | 159 |
| $R^2$ | 0.015 |
| Adjusted $R^2$ | 0.009 |
| Residual Std. Error | 1.172 (df = 157) |
| F Statistic | 2.410 (df = 1; 157) |
| *Note:* | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

**H2: Information overload mediates the relationship between time spent on social media and individuals' happiness.**

The second hypothesis tested whether information overload mediates the relationship between the time individuals spend on social media and their happiness. Preacher and Hayes's (2004) bootstrapping-mediation analysis was used to test this hypothesis, as their approach is very precise. The bootstrapping-mediation analysis (Preacher & Hayes, 2004) determines the indirect effect by taking 1,000 random samples from the data set and then calculating the model multiple times to obtain precise confidence intervals. I first created two regression models for the mediation to perform the analysis. The first model tested whether social media usage influences information overload. This is the relationship already tested in H1. The second model intended to test whether the time spent on social media and information overload influence happiness. The third step was the mediation analysis via bootstrapping. Table 9 presents the analysis results.

***Table 9:*** *Mediation Analysis through Bootstrapping-Mediation*

| Effect | Estimate | Lower_95_CI | Upper_95_CI | p_value |
|---|---|---|---|---|
| ACME (Indirect effect) | 0.006 | -0.012 | 0.036 | 0.516 |
| ADE (Direct effect) | -0.207 | -0.357 | -0.060 | 0.006 |
| Total Effect | -0.201 | -0.352 | -0.051 | 0.009 |
| Proportion Mediated | -0.032 | -0.322 | 0.067 | 0.525 |

The ACME (Average Causal Mediation Effect) is the indirect effect of time spent on social media on happiness through information overload. The p-value for ACME ($p$ = .516), and the 95% confidence interval (-.012 to .036) indicated that no mediation exists. This implies that information overload does not mediate the relationship between the time spent on social media and happiness. The ADE (Average Direct Effect) is the direct effect of time spent on social media on happiness, after considering information overload. Table 9 shows a significant effect of this relationship ($p$ = .006). Moreover, the confidence interval is negative (-.357 to -.060) and stable. This indicates that social media has a significant effect on happiness, which is negative. The total effect is also highly significant ($p$ = .009), which shows that using social media is negatively associated with happiness. Once more, the confidence interval is negative for the total effect (-.352 to -.051) and stable. Lastly, the Proportion Mediated demonstrates that information overload only accounts for 3.2% (Prop. Mediated = -.032) of social media usage's

impact on happiness. This percentage is not significant, and the 95% confidence interval (-.322 to .067) confirms the nonexistent mediation.

Overall, information overload does not mediate the relationship between time spent on social media and happiness. Consequently, H2 found no support. However, another interesting relationship appeared when testing for mediation. The analysis revealed that the time spent on social media negatively correlates with happiness.

**H3: Individuals' happiness correlates negatively with the time spent on social media and information overload.**

The Pearson correlation analysis was used to test whether the time spent on social media and information overload negatively influence happiness. First, I measured the correlation between the time spent on social media and happiness. As shown in Table 10, the correlation is significant and negative ($p$ = .003, $r$ = -.234). This implies, as already seen when testing for parts of H2 with another statistical method, that more time spent on social media negatively correlates with individuals' happiness.

***Table 10:*** *Pearson's Correlation between Time Spent on Social Media and Happiness*

| Variable_1 | Variable_2 | Correlation | t_value | df | p_value | CI_Lower | CI_Upper |
|---|---|---|---|---|---|---|---|
| cor Time spent on social media | Happiness | -0.234 | -3.014 | 157 | 0.003 | -0.376 | -0.081 |

In a second step, I measured the correlation between information overload and happiness. The results are displayed in Table 11 and clearly show that no significant correlation ($p$ = .701, $r$ = .031) exists between the two variables.

***Table 11:*** *Pearson's Correlation between Information Overload and Happiness*

| Variable_1 | Variable_2 | Correlation | t_value | df | p_value | CI_Lower | CI_Upper |
|---|---|---|---|---|---|---|---|
| cor Information Overload | Happiness | 0.031 | 0.385 | 157 | 0.701 | -0.126 | 0.185 |

Consequently, these findings do not support H3, as only parts of the hypothesis (the negative relationship between time spent on social media and happiness) were significant. The Pearson correlation analysis showed that time spent on social media negatively correlates with happiness but not with information overload. The bootstrapping-mediation analysis (Preacher

& Hayes, 2004) already identified the negative relationship between time spent on social media and happiness; therefore, the results hold.

At this point, I also tested if the variable measuring the daily time spent on social media is nonlinear. Performing a regression with the squared term of time spent on social media revealed no significant nonlinear relationship between time spent and happiness ($p = .567$), see Appendix 2. The above-conducted correlation test between time spent and happiness identified a significant negative relationship ($p = .003$, $r = -.234$). This means that the correlation identified the general negative relationship between time spent on social media and happiness. The regression with the squared term of time spent on social media, on the other hand, indicated that the relationship is not causal. Nevertheless, this dissertation identified that a strong negative correlation between time spent on social media and happiness exists. This indicates that more time spent on social media is negatively associated with happiness.

In summary, all three hypotheses did not find support and are not significant. The primary reason for this was that information overload had no influence as a mediator but also not when looking at the individual relation between 1. Time spent on social media and information overload and 2. Information overload and happiness. The conducted research on the hypotheses enables to answer the posed research question. The influence of information overload on social media on individuals' happiness is limited or not present, as information overload does not function as a mediator between the two variables. The discussion section of this dissertation will go into depth about these findings and state why these results may have appeared.

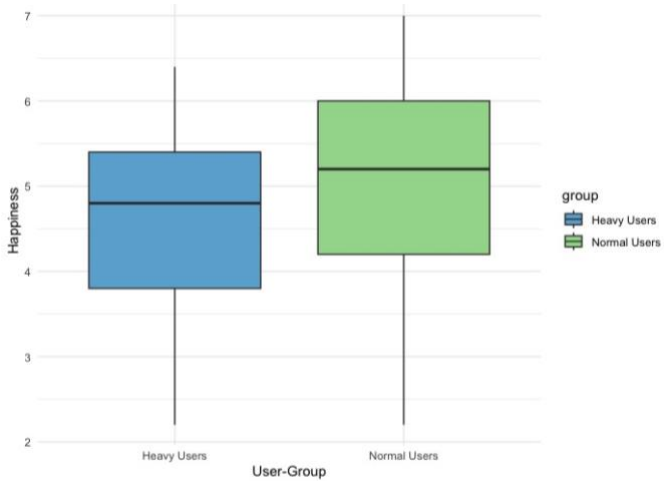
### 4.3. Further Relevant Analyses

In addition to the three hypotheses, this dissertation tested a few other relationships within the dissertation parameters. First and foremost, this dissertation wanted to find out if age influences individuals' time spent on social media. This relationship was tested with the Spearman correlation analysis. The relationship between age and time spent on social media was not significant ($p = .116$, $rho = -.126$). Secondly, the dissertation investigated whether age influences individuals' happiness. This relationship was also tested using the Spearman correlation analysis to check whether a monotonous relationship exists between age and happiness. The results revealed that the correlation is not significant ($p = .215$, $rho = .100$). Therefore, the results collected through this dissertation identified no significant relationship between age and happiness. Then, I tested what influence age has on individual's level of social media exhaustion. Once more, the Spearman correlation analysis was used to verify whether

age and social media exhaustion correlate. The results are explicit, no significant monotonous relationship exists between age and social media exhaustion ($p$ = .748, *rho* = -.026).

Furthermore, I examined whether those individuals who spent more time on social media than the average ($M$ = 2.18), indicated in Table 3, are particularly unhappy. Those individuals are one Standard Deviation above the Mean and are defined as "Heavy Users". Consequently, "Normal Users" represent all the other participants. After calculating the Mean of the two groups, I conducted a *t*-test to examine if the difference between the two groups was significant. The results were significant and revealed that individuals who spent excessive time on social media are significantly less happy (t = -3.18, p = .0001). Figure 2 illustrates the difference detected between the two groups.

***Figure 2:*** *Detected Happiness for the Groups Heavy Users and Normal Users*




This finding supports the previously tested significant correlation between time spent on social media and happiness.

Moreover, this dissertation examined the relationship between social media exhaustion and information overload. The Pearson correlation analysis was used to identify whether a linear regression exists between the two indices. The p-value was highly significant ($p$ = 9.927e-15), indicating the significant relationship between social media exhaustion and information overload. Moreover, the correlation coefficient was relatively high ($r$ = .564). This implies that more confrontation with information overload comes along with greater social media exhaustion. Lastly, I conducted the Pearson correlation analysis to find out what connection exists between individuals who are exhausted from using social media and their happiness. The analysis revealed that the correlation is negative ($r$ = -.021) but not strong enough and not

significant ($p$ = .795). These results imply that exhaustion of social media usage and happiness are not correlated.

The previous analyses showed that time spent on social media is negatively correlated with happiness, indicating that more time spent on social media is negatively linked to happiness. As time spent on social media may have a reverse relationship to happiness, I checked whether the independent variable (time spent on social media) is endogenous. To test this assumption, I performed an Instrumental Variable Regression analysis.

First, the data set was analyzed for suitable instrumental variables (IV). Age, education, occupation, and other variables correlated too weakly with the independent variable; therefore, those variables were not suitable as IV. After testing several variables, I identified *socialmedia_severalperday* as a potential suitable IV. *Socialmedia_severalperday* contains participants' survey responses to the question: "I use social media several times a day, but only at certain times to read or post specific messages."

The purpose of this test was to check for endogeneity. As the results indicate, it is important to emphasize that the IV chosen is not perfect. The first step revealed that *socialmedia_severalperday* is significantly correlated with the independent variable *time_spent_daily* ($p$ = 1.91e-06, $r$ = .367, $R^2$ = 0.1349, $F$ = 24.49). This demonstrates that the IV is strong enough. Secondly, the analysis showed that the IV is not directly correlated to the dependent variable (happiness) when controlling for time spent on social media ($p$ = .667, $r$ = -.034). Therefore, the condition for exogeneity is fulfilled. Additionally, the Sargan-Test confirmed no strong correlation of the IV with the error term ($p$ = 1.00). This is also a sign of a valid IV.

I also compared the 2SLS with *socialmedia_severalperday* as IV with the OLS results. The Wu-Hausman test showed no significant difference ($p$ = 1.0) between OLS and IV, indicating no strong endogeneity. Even though the 2SLS estimate remained insignificant ($p$ = .664), indicating that the direct effect of *time_spent_daily* (independent variable) on happiness (dependent variable) is not robust, the Wu-Hausman test identified no significant $p$-value ($p$ = .528), which indicates that the OLS model can already provide reliable estimates and using the 2SLS does not change or improve the results substantially. The IV model thereby confirms that the OLS is not biased.

As mentioned above, *socialmedia_severalperday* is not perfect as an IV but fulfills the basic requirements, even if not to the highest degree. The IV (*socialmedia_severalperday)* can be determined by how accessible social media is for an individual. External factors influence this accessibility, which is beyond a person's control. Consequently, the instrumental variable

is indeed exogenous. All in all, the analyses revealed that *socialmedia_severalperday* is not a highly relevant instrument as the OLS Model is not distorted. Moreover, the IV is not necessary because the independent variable (time spent on social media) is exogen.

## 5. Discussion

### 5.1. Interpretation of Key Results

The purpose of this dissertation was to analyze and emphasize what influence information overload on social media has on individuals' happiness. This research is relevant because it is a present topic, and its importance will rise even more in the following years through the ever-growing use of social media and its accompanying effects. The noticeably increasing attention in this research field demonstrates this topic's relevance. As mentioned before, access to information and digital technologies has costs (Blair, 2011). In addition to that, today, speed drives our society, which implies the nonstop absorption of information, which at the same time, individuals cannot process in these amounts anymore (Ledzińska & Postek, 2017). As this balance between information processing capacities and information load is uneven, individuals experience information overload (O'Reilly, 1980).

Moreover, it is known that the usage of SNSs' has undergone a significant change over the years with constantly rising user numbers (Kemp, 2025; Maier et al., 2015). This increased social media usage drew researchers' attention to the potential effects this has on individuals. The evaluation of those effects goes in different directions. Positively standing out is social media's function of increased connectivity and information exchange (Ellison et al., 2007; Ravindran et al., 2014). However, the negative aspects seem to outweigh when considering the findings of Andreassen et al. (2017) on social media addiction or social media exhaustion (Maier et al., 2015) as well as the fear of missing out (Tandon et al., 2021a), or the generated overstimulation (Ledzińska & Postek, 2017). Therefore, it is important to consider this dissertation's findings regarding the mentioned problem.

In summary, the dissertation presents clear findings. The participants surveyed experience some level of information overload. However, this level of overload has no connection to their time spent on social media but to their social media exhaustion. The survey analysis identifies that the participants perceived greater social media exhaustion when confronted with more information overload. This implies that, indeed, individuals are confronted with much information that they are not capable of processing in these amounts, as Eppler and Mengis (2004) mentioned. This finding aligns with previous studies conducted by Zhang et al. (2016) and Fu et al. (2020). The survey also showed that most participants use

social media within 30 minutes of waking up. These results are underlined by similar findings cited by Krishen et al. (2016) that using SMPs has become part of individuals' daily routines. Likewise, Yin et al. (2014) stated that individuals are constantly available and ready to be contacted no matter when.

When looking closely at the three variables: information overload, time spent on social media, and happiness, the analysis cannot confirm a relationship between information overload and happiness. Zhang et al. (2016) made similar findings, revealing that information overload has no significant effect on dissatisfaction. Furthermore, the data analysis shows that information overload does not mediate the effect between time spent on social media and happiness. Given these points, information overload is not key in evaluating social media usage and individuals' happiness.

This, however, does not minimize the importance of the findings. Despite finding no support for all three hypotheses, the dissertation found other interesting relationships. First and foremost, the findings reveal a significant negative relation between time spent on social media and happiness. The data analysis indicates that using more social media is negatively connected to happiness. This is an important finding and leans on the work by Kapoor et al. (2018) who stated that emotional tones on social media belong to the 100 most relevant topics on social media, which includes online happiness. Moreover, the dissertation found out that individuals who spent excessive time on social media are significantly less happy. These identified relationships highlight what social media usage entails and its effects on individuals.

Age, on the other hand, has no influence on the time individuals spend on social media nor on their happiness. The dissertation cannot identify any significant relationships between age and time spent per day, age and happiness, or social media exhaustion. Therefore, age is no significant variable in this context. This aligns with Myers and Diener (1995) who argued that someone's age or other demographics does not define happiness. The above-named points show how and to what extent this dissertation's findings fit into the existing research literature.

The conducted analysis enables answering the research question of this dissertation by finding out that information overload has no influence on individuals' social media usage and also not on their happiness. However, other interesting relationships appeared through the analysis.

### 5.2. Theoretical Implications

By collecting relevant data, investigating the existing literature, and combining the insights gathered, this dissertation aimed to support the understanding of what influence

information overload on social media has on individuals' happiness. The findings presented in this dissertation add valuable insights to the already conducted research on information overload, social media usage, and happiness. Over the years, more and more researchers have been investigating social media usage and its related topics and issues, highlighting the relevance of this field of study (Jabeen et al., 2023; Kapoor et al., 2018). This dissertation presents a new and interesting approach to information overload and social media research. It looks at information overload from an emerging angle, especially by combining information overload through social media to happiness. It contributes to previous research by finding no support for some relationships, but equally important, indicating a significant relationship of interest.

Even though this dissertation could not find support that information overload mediates the relationship between time spent on social media and individuals' happiness, this nonexistent relationship is, by the same token, a valuable finding for research. Building on the research of Jabeen et al. (2023), who studied the dark side of social media in emerging countries, the above-described insights enable the interpretation of the negative relationship between social media and happiness in a broader context. As identified, more time spent per day on social media is negatively connected to happiness. Therefore, everyone should question the consumption of diverse information on social media channels. If information overload is not the driver, respectively, the mediator of this relationship, maybe social comparison, as named by Jabeen et al. (2023) and Fu et al. (2020), is one of the most important factors in this context. Nevertheless, the identified significant negative relationship between time spent on social media and happiness is important to consider as nowadays, social media is used at an ever earlier age among young teenagers and children.

### 5.3. Managerial and Practical Implications

In addition to adding valuable conclusions to the theoretical part of the research, this dissertation provides useful insights for society at large and especially addresses those individuals using social media. First and foremost, the dissertation reveals that information overload is a dilemma individuals face. In order to reduce this overload, the first step is the perception of this problem. Moreover, the considerable amount of time individuals spend on social media channels per day should be a first point for one's own evaluation. More than 70% of the survey participants stated that they likely check their social media within 30 minutes of waking up. This digital start to their day may affect the further course of the day. Therefore, this finding should provide an opportunity for improvement. A recommendation would be not

to check the phone directly in the morning but to stay off SMPs for the first one or two hours of the day. This can affect happiness positively, as the survey revealed that time spent on social media negatively connects to happiness. Secondly, a coping strategy that is easy to implement is to set a daily time limit for social media. Several apps already allow the installation of time limits, showing a reminder message when the time spent is up. This can be useful when evaluating one's own online time behavior, increasing awareness and enabling improvement. This dissertation also found a significant relationship between excessive time spent on social media and happiness. This extensive use can result in an addiction, and in that case, reduced happiness may have psychological consequences, social consequences and induce depressive symptoms (Hunt et al., 2018; Waters, 2021). Consequently, caution is advised if one realizes that too much time is spent on social media on a permanent basis. Increasing individuals' awareness of the effect of excessive social media usage on happiness may induce a change and advocate a more moderate usage instead of spending a lot of time on social media. Limiting social media use and not using it constantly throughout the day can improve well-being and reduce depression (Hunt et al., 2018).

This dissertation also outlines implications for consumers. The indicated negative effect of time spent on social media on happiness can also impact and interrelate with individuals' consumption behavior. As the retail therapy explains, unhappy individuals tend to increase their purchase behavior to feel better, which may not align with their actual needs and result in the purchase of unnecessary things (Rick et al., 2014). Therefore, this dissertation aims to increase individuals' awareness of the effect of time spent on social media and decreased happiness. This finding could encourage individuals to reevaluate their consumption behavior in the case of impulsive behavior due to increased unhappiness induced by social media. If they are aware of this effect, they may not fall for the impulsive reaction of purchasing because of decreased happiness. This effect is also important for companies to be aware of, as they can draw conclusions on individuals purchasing behaviors based on this knowledge.

In addition, this dissertation wants to provide further insights for companies. It should be in their interest to care about their employees' well-being at work and outside of working hours. With the knowledge and insights presented in this dissertation, employers can assist their employees in managing and changing their social media consumption and behavior. Being aware of the potential overuse of social media offers companies the possibility to handle it by, e.g., providing workshops to their employees on how to cope with the theme. A first step could be to set a goal in advance and recommend employees to set themselves a daily limit on the consumption of social media channels. Moreover, employers can provide essential

psychological support to help employees cope with daily stress and the stress emerging through social media use (Jabeen et al., 2023). One way or the other, it is important not to neglect and recognize the effects of social media usage.

This dissertation aimed to show the mechanism behind information overload through the time spent on social media and its influence on individuals' happiness. As Dr. Anna Lembke said in an interview with the Guardian (Waters, 2021), it is essential to make space in the brain to not be constantly stimulated. This is discomforting but will help as a coping strategy to escape the addiction to dopamine and its connection to social media (Waters, 2021). Everyone affected by this can aim for improvement, and with the help of further research, more clarity on these appearing consequences of social media and overload will assist individuals in realizing and changing their social media usage behavior.

### 5.4. Limitations and Future Research

As with every study, this dissertation has its limitations, which are outlined in the following section. Those limitations, however, offer the opportunity for further investigations and offer a valuable angle of analysis on information overload and social media research. Firstly, a longitudinal data collection would allow more profound and precious illustrations of the complex relationships between the three variables: information overload, time spent on social media, and happiness. Secondly, more than half of the survey participants are Germans, implying less diverse responses in the dataset. In addition, Germany is a wealthier country than other countries; therefore, access to technology can be easier for Germans than other nations. As a result, Germans may be able to use social media more than countries with less access to information and technology. These disparities in access may influence the interpretation of the data collected concerning the insights on individual's quantity of social media usage. Consequently, it would be interesting to look at information overload on social media in Kenya specifically, as Kemp (2025) indicated that in 2024, Kenya had the highest average duration of use of social networks.

The procedure chosen for this dissertation could also represent a limitation. A survey offers the gathering of a variety of responses in an affordable and easy way for the data collector and the participants (Evans & Mathur, 2005). Nevertheless, surveys can be prone to several problems, such as the questionable and limited reliability of responses (Lefever et al., 2007).

Another limitation, important to mention relates to the finding between time spent on social media and happiness. This dissertation identified a strong negative correlation between time spent on social media and happiness. However, a nonlinear relationship between those

variables could not be verified. Consequently, this dissertation could not find support for a U-shaped or reversed U-shaped relationship. Therefore, future research is necessary to completely understand the relationship between the two variables, time spent on social media and happiness.

This dissertation moved the focus away from the neurological connections involved with information overload and what initiates the negative effects of social media usage. One reason for this is that the means to carry out neurological tests were not feasible within the scope of this dissertation. However, it would be very interesting to see what happens solely in the human brain during the process of information overload, and when it occurs in the context of social media usage. In addition, the changes in social media use during and after COVID-19 were not the subject of this dissertation; therefore, I did not discuss these figures, but it would be interesting to examine them.

As briefly mentioned above, the spreading of misleading information, called misinformation, is an emerging problem on social media (Acemoglu et al., 2024). This dissertation, however, focused on information overload, not on how credible the information spread on social media is and what effects might arise. In addition to the recent study by Acemoglu et al. (2024), future research could assess the problem of misinformation combined with information overload on social media to assess the effects on individuals and their happiness.

Moreover, further research could focus on only one social media channel. The dissertation's results reveal that Instagram is the social media channel mostly used by the 18- to 24-year-olds. Therefore, it would be interesting to dive deeper into the relationship between information overload, the time spent online, and the outcome of happiness on that specific social media channel. In addition, research could compare generations to detect at which points they align and where younger generations, such as Generation Z, are affected by information overload and technology overload even more. Krishen et al. (2016) investigated social media networking usage among different generations but did not consider Generation Z in this context. Interesting as well would be to look at the Generation after Generation Z, those individuals who grew up with technology even earlier and, e.g., had an iPhone at the age of 10.

The lack of findings supporting the hypotheses may be due to a current shift in individuals' awareness. As mentioned above, social media is not a new tool, but its usage has been booming over the last years, with rising user numbers. Consequently, it is crucial to monitor this growth and to evaluate again in the future when awareness has increased if this effect turns out to be significant. This dissertation should encourage academics to increasingly

observe how extensive social media usage affects our society regarding their emotions and moods. In light of that, continued research is necessary, especially considering the ever earlier use of social media among young teenagers and children. The growing addiction individuals are facing when using social media, highlighted by Dr. Anna Lembke in an interview with Waters (2021), is also an interesting direction for further research. Furthermore, in addition to happiness as a factor influenced by the time spent on social media, further research could concentrate on another closely relatable topic, such as depression. Depression is becoming an even broader problem nowadays due to comparisons on social media or addictions arising through social media usage (Hunt et al., 2018; Waters, 2021). Consequently, I see the need for further research in this area, as existing research does not yet unmask and reveal all the consequences and effects of extensive use of social media.

## 6. Conclusion

This dissertation examines whether time spent on social media relates to the perception of information overload. In addition, it analyses the mediating effect of information overload on social media usage and individuals' happiness. Thirdly, it questions whether individuals' happiness negatively correlates with time spent on social media and information overload. Different than assumed through the hypotheses, the results reveal that none of these relationships, nor the mediating effect, is significant. Even though the initial assumptions could not be confirmed, the dissertation revealed another insightful relationship between time spent on social media and happiness, excluding the influence of information overload, implying that more time spent on social media negatively correlates with happiness. Moreover, the data analysis reveals that individuals who spent excessive time on social media are less happy compared to the rest. Furthermore, the dissertation reveals that especially younger generations spent a significant amount of time on social media, on several social media channels, especially Instagram. However, they are not yet fully aware of the existing flip side. A primary goal of this dissertation is to increase attention to the topic of social media usage and its effects associated with information overload and how it influences individuals' happiness. I believe it is worth asking two essential questions in this context: How much time daily does one want to spend on social media? Does social media usage influence how happy someone is? In conclusion, it is important to be aware of one's usage behavior and recognize if adjusting screen time and being online improves happiness. By increasing awareness of this topic for individuals and employers, strategies can be implemented to control usage behavior and positively influence individuals' happiness.

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**Appendix**

Max. 30 pages

**Appendix 1: Survey**

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**Block: Introduction**

This research is being conducted as part of a master's thesis project. The purpose of this study is to explore the impact of information overload from social media on individuals' happiness and life satisfaction. The survey will take approximately 3-4 minutes to complete. All responses are completely anonymous, and the data collected will be used solely for academic research purposes. Your participation is greatly appreciated. Thank you for contributing to this research!

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**Block: Time Online & Happiness**

Q1 On average, how much time do you spend on social media per day?

- ○ Less than 30 minutes
- ○ 30-60 minutes
- ○ 1-2 hours
- ○ 2-3 hours
- ○ 3-4 hours
- ○ More than 4 hours

Q2 On average, how much time do you spend on the following social media platforms per day?

| | in minutes<br>0 10 20 30 40 50 60 70 80 90 100 110 120 Not used |
|---|---|
| Minutes spent on Instagram per day |  |
| Minutes spent on Facebook per day |  |
| Minutes spent on TikTok per day |  |
| Minutes spent on Snapchat per day |  |
| Minutes spent on Twitter/X per day |  |
| Minutes spent on Pinterest per day |  |
| Minutes spent on YouTube per day |  |

Q3 After waking up in the morning I look at social media within the first 30 minutes.

- ○ Definitely not
- ○ Probably not
- ○ Might or might not
- ○ Probably yes
- ○ Definitely yes

Q4 Please rate how much you agree or disagree with the following statements about your social media use. 1- Strongly disagree 7- Strongly agree

| | 1 2 3 4 5 6 7 |
|---|---|
| I use social media once a day to briefly scroll through my feed and check the news. |  |
| I use social media all day to respond to notifications, messages and posts in real time. |  |
| I use social media several times a day, but only at certain times to read or post specific messages. |  |

Q5 Life is good.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

Q6 I am very happy.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q7 I feel that I am not especially in control of my life.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q8 I am well satisfied about everything in my life.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q9 I feel I have a great deal of energy.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

**Block: Influence of Time Spent online**

Q10 I am often distracted by the excessive amount of information available to me on social media.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q11 I find that I am overwhelmed by the amount of information I have to process on a daily basis on social media.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q12 There is too much information about people I follow on social media, so I find it a burden to handle.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q13 I find that only a small part of the information on social media is relevant to my needs.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q14 This question is to ensure that you complete the survey carefully. Please select the answer 'Yes'.

- ○ No
- ○ Yes
- ○ Maybe

---

Q15 I find it difficult to relax after continually using social media.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q16 After a session of social media use, I feel exhausted.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q17 Due to social media use, I feel exhausted.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q18 After using social media, it takes an effort to concentrate in my spare time.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q19 During social media use, I often feel too exhausted to perform other tasks well.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q20 Reducing my exposure to social media updates and notifications would likely improve my overall happiness.

- ○ Strongly disagree
- ○ Disagree
- ○ Somewhat disagree
- ○ Neither agree nor disagree
- ○ Somewhat agree
- ○ Agree
- ○ Strongly agree

---

Q21 How old are you?

- ○ under 18
- ○ 18-24
- ○ 25-34
- ○ 35-44
- ○ 45-54
- ○ 55-64
- ○ 65 and older

---

Q22 What is your gender?

- ○ Male
- ○ Female
- ○ Divers
- ○ Prefer not to say

---

Q23 What is your Nationality?

_____

---

Q24 What is your highest level of education?

- ○ No formal education
- ○ Primary education
- ○ High school diploma
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctorate
- ○ Prefer not to say

---

Q25 What is your occupation?

- ○ Student
- ○ Employed (full-time)
- ○ Employed (part-time)
- ○ Self-employed
- ○ Unemployed
- ○ Retired

---

Q26 What is your current marital status?

- ○ Single
- ○ In a relationship
- ○ Married
- ○ Divorced
- ○ Widowed

---

## Appendix 2: Data Analysis Statistics

Demographic Statistics of the Survey Participants

### Demographics Table

| Measure | Item | N | % |
|---|---|---|---|
| Age | <18 | 0 | 0.0 % |
| | 18-24 | 85 | 54.5 % |
| | 25-34 | 62 | 39.7 % |
| | 35-44 | 8 | 5.1 % |
| | 45-54 | 1 | 0.6 % |
| | 55-64 | 0 | 0.0 % |
| | 65 and older | 0 | 0.0 % |
| Gender | Male | 64 | 40.3 % |
| | Female | 91 | 57.2 % |
| | Other | 4 | 2.5 % |
| Education | No formal education | 0 | 0.0 % |
| | Primary education | 1 | 0.6 % |
| | High school diploma | 35 | 22.0 % |
| | Bachelor's degree | 75 | 47.2 % |
| | Master's degree | 44 | 27.7 % |
| | Doctorate | 2 | 1.3 % |
| | Prefer not to say | 2 | 1.3 % |
| Occupation | Student | 108 | 67.9 % |
| | Employed (full-time) | 29 | 18.2 % |
| | Employed (part-time) | 12 | 7.5 % |
| | Self-employed | 9 | 5.7 % |
| | Unemployed | 1 | 0.6 % |
| | Retired | 0 | 0.0 % |
| Marital status | Single | 73 | 45.9 % |
| | In a relationship | 75 | 47.2 % |
| | Married | 11 | 6.9 % |
| | Divorced | 0 | 0.0 % |
| | Widowed | 0 | 0.0 % |

**Nationality Table of the Participants**

| **Nationality** | **N** | **%** |
|---|---|---|
| American | 10 | 6.3 % |
| Austrian | 2 | 1.3 % |
| British | 8 | 5.0 % |
| Canadian | 4 | 2.5 % |
| Dutch | 2 | 1.3 % |
| Filipino | 4 | 2.5 % |
| French | 2 | 1.3 % |
| German | 81 | 50.9 % |
| Indian | 13 | 8.2 % |
| Italian | 2 | 1.3 % |
| Lithuanian | 2 | 1.3 % |
| Malaysian | 4 | 2.5 % |
| Mexican | 2 | 1.3 % |
| Other | 16 | 10.1 % |
| Portuguese | 2 | 1.3% |
| Romanian | 2 | 1.3 % |
| South African | 3 | 1.9% |

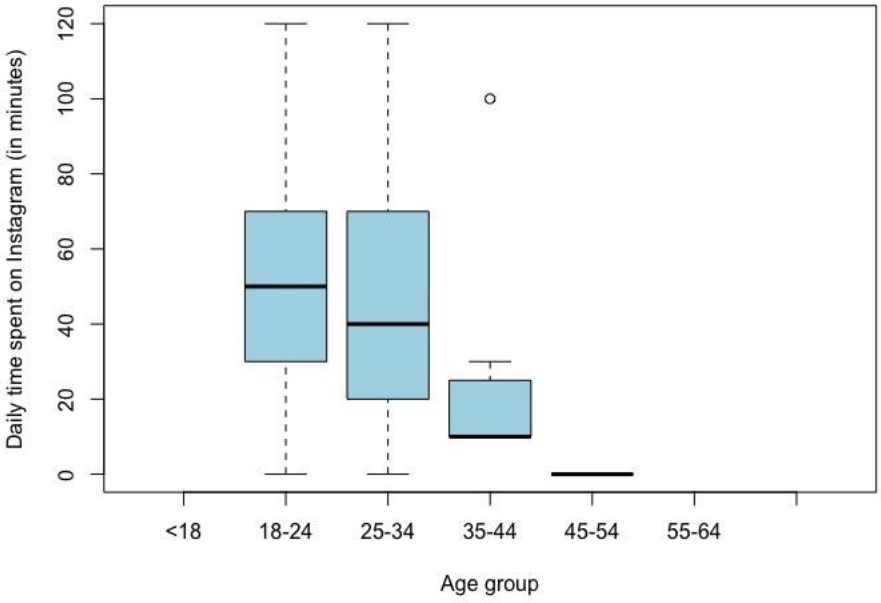
Descriptive Statistics Tables

**Using social media within 30 minutes of waking up**

| **Category** (Social media within 30 minutes of waking up...) | **N** | **%** |
|---|---|---|
| Definitely not | 11 | 6.92 % |
| Probably not | 11 | 6.92 % |
| Might or might not | 19 | 11.95 % |
| Probably yes | 52 | 32.70 % |
| Definitely yes | 66 | 41.51% |

**Time spent on Instagram by age group**

| Daily time spent in minutes on Instagram by age group | M | SD |
|---|---|---|
| 18-24 | 49.88 | 29.22 |
| 25-34 | 48.71 | 34.24 |
| 35-44 | 25 | 31.17 |
| 45-54 | 0 | 0 |




**Squared Model with the Variable Time**

| | *Dependent variable:* |
|---|---|
| | info_happiness |
| time_spent_daily | -0.010 |
| | (0.340) |
| time_spent_daily_sq | -0.025 |
| | (0.044) |
| Constant | 5.265*** |
| | (0.605) |
| Observations | 159 |
| $R^2$ | 0.057 |
| Adjusted $R^2$ | 0.045 |
| Residual Std. Error | 1.119 (df = 156) |
| F Statistic | 4.689** (df = 2; 156) |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

Further relevant analyses part

**R Output Correlation between age and time spent**

```
        Spearman's rank correlation rho

data:  valid_data$age_numeric and valid_data$time_spent_daily
S = 712641, p-value = 0.1161
alternative hypothesis: true rho is not equal to 0
sample estimates:
       rho
-0.1263309
```

| Statistic | N | Mean | St. Dev. | Min | Max |
|---|---|---|---|---|---|
| Correlation | 1 | -0.126 | | -0.126 | -0.126 |
| p_value | 1 | 0.116 | | 0.116 | 0.116 |

**Correlation between age and happiness**

```
        Spearman's rank correlation rho

data:  valid_data$age_numeric and valid_data$info_happiness
S = 569525, p-value = 0.2148
alternative hypothesis: true rho is not equal to 0
sample estimates:
       rho
0.09986388
```

| Statistic | N | Mean | St. Dev. | Min | Max |
|---|---|---|---|---|---|
| Correlation | 1 | 0.100 | | 0.100 | 0.100 |
| p_value | 1 | 0.215 | | 0.215 | 0.215 |

**Correlation between age and exhaustion**

```
        Spearman's rank correlation rho

data:  valid_data$age_numeric and valid_data$info_exhaustion
S = 649143, p-value = 0.7476
alternative hypothesis: true rho is not equal to 0
sample estimates:
       rho
-0.0259717
```

| Statistic | N | Mean | St. Dev. | Min | Max |
|---|---|---|---|---|---|
| Correlation | 1 | -0.026 | | -0.026 | -0.026 |
| p_value | 1 | 0.748 | | 0.748 | 0.748 |

**Test for individuals who spent more time on social media than the average**

```
        Welch Two Sample t-test

data:  heavy_users$info_happiness and rest_users$info_happiness
t = -3.1802, df = 149.54, p-value = 0.0008948
alternative hypothesis: true difference in means is less than 0
95 percent confidence interval:
       -Inf -0.2709404
sample estimates:
mean of x mean of y
 4.557746  5.122727
```

**Correlation between social media exhaustion and information overload**

```
        Pearson's product-moment correlation

data:  valid_data$info_overload and valid_data$info_exhaustion
t = 8.5567, df = 157, p-value = 9.927e-15
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.447584 0.661525
sample estimates:
     cor
0.563944
```

| Statistic | N | Mean | St. Dev. | Min | Max |
|---|---|---|---|---|---|
| Correlation | 1 | 0.564 | | 0.564 | 0.564 |
| p_value | 1 | 0.000 | | 0 | 0 |
| Confidence_Lower | 1 | 0.448 | | 0.448 | 0.448 |
| Confidence_Upper | 1 | 0.662 | | 0.662 | 0.662 |

**Correlation between social media exhaustion and happiness**

```
        Pearson's product-moment correlation

data:  valid_data$info_happiness and valid_data$info_exhaustion
t = -0.25976, df = 157, p-value = 0.7954
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.1758068  0.1353571
sample estimates:
        cor
-0.02072675
```

| Statistic | N | Mean | St. Dev. | Min | Max |
|---|---|---|---|---|---|
| Correlation | 1 | -0.021 | | -0.021 | -0.021 |
| p_value | 1 | 0.795 | | 0.795 | 0.795 |
| Confidence_Lower | 1 | -0.176 | | -0.176 | -0.176 |
| Confidence_Upper | 1 | 0.135 | | 0.135 | 0.135 |

## Appendix 3: Hypotheses Testing in R

```
### Hypotheses testing ------------------------------------------------
########################################################################

###### H1:Time spent on social media has a positive effect on information overload.
# Linear regression

valid_data$time_spent_daily <- as.numeric(valid_data$time_spent_daily)

model_H1_time <- lm(info_overload ~ time_spent_daily, data = valid_data)

summary(model_H1_time)

stargazer(model_H1_time, type = "html", out = "h1_linear_regression_results.html")
```

```
####### H2: Information overload mediates the relationship between time spent on social media and individuals' happiness.
# Mediation analysis

library(mediation)

model_mediator <- lm(info_overload ~ time_spent_daily, data = valid_data)

model_outcome <- lm(info_happiness ~ time_spent_daily + info_overload, data = valid_data)

set.seed(123)
mediation_test <- mediate(model_mediator,
                          model_outcome,
                          treat = "time_spent_daily",
                          mediator = "info_overload",
                          boot = TRUE, sims = 1000)

summary(mediation_test)

# Formatting
mediation_results <- data.frame(
  Effect = c("ACME (Indirect effect)", "ADE (Direct effect)", "Total Effect", "Proportion Mediated"),
  Estimate = round(c(mediation_test$d0, mediation_test$z0, mediation_test$tau.coef, mediation_test$n0), 3),
  Lower_95_CI = round(c(mediation_test$d0.ci[1], mediation_test$z0.ci[1], mediation_test$tau.ci[1], mediation_test$n0.ci[1]), 3),
  Upper_95_CI = round(c(mediation_test$d0.ci[2], mediation_test$z0.ci[2], mediation_test$tau.ci[2], mediation_test$n0.ci[2]), 3),
  p_value = round(c(mediation_test$d0.p, mediation_test$z0.p, mediation_test$tau.p, mediation_test$n0.p), 3)
)

library(knitr)
stargazer(as.matrix(mediation_results), type = "html", out = "H2.html",
          summary = FALSE, digits = 3, title = "Bootstrapping mediation analysis")
```

```r
####### H3: Individuals' happiness correlates negatively with the time spent on social media and information overload.
# Pearson Correlation analysis

# 1.
# Testing the correlation between Time spent on social media and Happiness
cor.test(valid_data$time_spent_daily, valid_data$info_happiness, use = "complete.obs")
cor_test_1 <- cor.test(valid_data$time_spent_daily, valid_data$info_happiness)


correlation_table_1 <- data.frame(
  Variable_1 = "Time spent on social media",
  Variable_2 = "Happiness",
  Correlation = round(cor_test_1$estimate, 3),
  t_value = round(cor_test_1$statistic, 3),
  df = cor_test_1$parameter,
  p_value = round(cor_test_1$p.value, 3),
  CI_Lower = round(cor_test_1$conf.int[1], 3),
  CI_Upper = round(cor_test_1$conf.int[2], 3)
)

print(correlation_table_1)

write.csv(correlation_table_1, "correlation_table_1.csv", row.names = FALSE)

stargazer(as.matrix(correlation_table_1), type = "html", out = "Correlation_H3_1.html",
          summary = FALSE, digits = 3, title = "Correlation Analysis_1")



# 2.
# Testing the correlation between Information Overload and Happiness
cor.test(valid_data$info_overload, valid_data$info_happiness, use = "complete.obs")
cor_test_2 <- cor.test(valid_data$info_overload, valid_data$info_happiness)


correlation_table_2 <- data.frame(
  Variable_1 = "Information Overload",
  Variable_2 = "Happiness",
  Correlation = round(cor_test_2$estimate, 3),
  t_value = round(cor_test_2$statistic, 3),
  df = cor_test_2$parameter,
  p_value = round(cor_test_2$p.value, 3),
  CI_Lower = round(cor_test_2$conf.int[1], 3),
  CI_Upper = round(cor_test_2$conf.int[2], 3)
)

print(correlation_table_2)

write.csv(correlation_table_2, "correlation_table_2.csv", row.names = FALSE)

stargazer(as.matrix(correlation_table_2), type = "html", out = "Correlation_H3_2.html",
          summary = FALSE, digits = 3, title = "Correlation Analysis_2")
```