

A Study of the Negative Pathways of Social Media Connection Overload based on the Rooting Theory

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Abstract: This study looks at the social phenomenon of people being over-connected to social media and considers the links between the negative effects social media has on its users. At the same time, it explores the root causes of the negative effects of social media. The aim of this basic research is to uncover the correlation between the negative effects of social media. Although there has been much research on the negative effects of social media, most of the articles have focused on one type of impact and have not considered the interconnectedness. This study focuses on the types of impact, the degree of impact, the ways of impact and the manifestations of being affected by the negative impact of social media, thus dividing the five types of impact and designing questions corresponding to them. The relationship between the questions and the derivation of the impact is shown, and the valid sample collected through the questionnaire is then analysed based on rooting theory, resulting in a complete pathway of interaction. This study extends a new direction for related research, but because of the large scope of this study and the small amount of sample data, the conclusions may not be specific and detailed enough and may be superficial in theoretical formulation, although its findings provide a preliminary theoretical framework and reference for future related research on influence pathways.

Keywords: social media negative effects, Inter-Impact links, social media

1. Introduction

Social media has indeed changed the way people interact with each other, making the world a highly connected place. 58.4% of the world's population, or 4.62 billion people, use social media for an average of 2 hours and 27 minutes a day, according to a survey by Global WebIndex. Staying connected has become the norm for people in social life, work, school and play. In a way, mobile digital devices of all shapes and sizes have become an extension of people's selves, shaping a society that is 'constantly connected' and 'always on'. In such a mediapolis, where networked mobile media technologies are ubiquitous, the relationship between people and media technologies is no longer simply one of instrumental use and use, but rather people exist "in" the media. ". This highly mediated culture of connectivity has largely reshaped every aspect of human society.

There is no denying that the connectivity of the virtual world brings great convenience and a wealth of possibilities. According to a 2021 study by Canadian academics, social media connections and interactions were effective in helping adolescents to feel socially connected during the

quarantine of the Crown-19 epidemic so that they did not feel overly socially disconnected and were able to maintain a level of internal well-being.

However, a study in the American Journal of Preventive Medicine looked at how long and how often young people in the US use social media platforms such as Facebook, Twitter, Instagram, Snapchat and Vine. The study found that the more young people viewed others' posts, the more likely they were to develop feelings of social isolation. This finding even sounds somewhat ironic, as the platforms designed to connect people have the opposite effect. However, a large body of research supports this finding from various angles, and excessive social media use is indeed significantly associated with higher levels of loneliness, anxiety, depression, insecurity, jealousy, narcissism and a decline in offline social skills.

In an environment shaped by the constant connection of social media, the negative effects of being overly involved in social media go far beyond this. The facts like the increasing number of friends and followers, the never-ending stream of new messages, the 24-hour online social life, the endless social comparisons, and the complex self-expression, making information overload and social overload have even triggered a series of social media syndromes in people[1]. It is worth exploring that most people continue to get caught up in social media and have biased perceptions of their attitudes and performance when using it, even after they know that it can negatively impact them.

In light of these phenomena, it is essential for people to think about how to "disconnect" themselves from social media and grasp how social media influences can be used to avoid getting lost in the vortex effect. A clear understanding of a holistic approach to social media influence is the basis for discussing this issue and will provide a basic framework for their social media behaviour. Moreover, this study will be rooted in social media usage behaviour and will delineate five levels of influence: Identity Formation, Real life Satisfaction, Social media Anxiety, Fear of Missing Out, and Social media Loneliness. Then the questionnaire will be used to explore the overall route of the degree, expression and mode of social media influence on users. Next, the research will combine the definitions of social comparison (SC), social media engagement (SME) and social support (SS) to build a multifactor causal framework of social media influence, in order to reveal better and predict the psychological and behavioural change process of social media users, and then provide a basic model for more specific social media behaviour research model.

2. Literature Review

2.1. Social Media Connection Overload

Social media is a platform that allows all users to connect. People connect through social media, where they upload rich content in the form of pictures, videos and texts and receive a never-ending variety of information on social media. People follow their favourite bloggers, words, and content. Through the clicks and views of social media users, social media uses accurate data algorithms to know what content interests them and constantly delivers content of interest to that user's recommendations page. When people are inundated with information, they become uncontrollably caught up and addicted to social media and find it difficult to escape.

Social media use has become one of the most popular online activities, with over 4.62 billion users worldwide, equivalent to 58.4% of the world's population, according to the Global Digital Overview 2022 report. Internet users worldwide spend nearly 2.5 hours daily on social media, which is growing at a rate of 2 minutes a day. According to the World Health Organisation, the average global life expectancy is 73 years. Suppose an average person continues to use social media at the current global average frequency. In that case, that person could be fully engaged in social media for approximately seven and a half years, or 66612.5 hours, over their lifetime. During this

period, assuming one message is viewed in one minute on social media, that is almost 2,800 fresh messages in a day and almost four million messages to be processed in a lifetime. The constant loading of information allows people to stay on top of what is new, and social media users can gather all the information they want to see and learn about on social media. However, when tens of thousands of messages are poured into the brain, information overloading brings negative effects rather than just benefits to social media users. The Information Explosion makes people repeat information repeatedly, and it is straightforward for people to get caught up in the social network information loop tailored to them by social media.

People use social media, influencing its development and growth, as well as being influenced by it. Everyone uses social media as a primary source of information and a social outlet, but social media has more than good uses; it is also a double-edged sword. On the one hand, social media is designed to help people socialise better, expand their social circles, break down cognitive barriers, experience the different lives of people of all kinds and more. Social media connects individual users, thus making it possible for them to make weak connections in various relationships, helping them construct and maintain new identities and exchange social resources. However, on the other hand, social media also places a lot of psychological and physical burdens on people, and the "always-on" platform culture can easily cause "connection overload" for individuals. According to LaRose and others, "connection overload" means that social media users need to spend too much time and energy processing and responding to messages and maintaining social relationships. They are confronted with more information and relationship chains than they can handle.

2.2. Negative Effects of Social Media

2.2.1. Social Media Burnout

"Connection overload" has been a common occurrence for a long time. As early as 2013, the Pew Center published a set of data: 61% of Facebook users had experienced social media burnout, and data from the Global Web Index showed a significant decline in native content on Facebook from 2016 onwards, meaning that people were sharing less and less of their lives on social media. Based on Goffman's mimesis theory and Merovitz's media space-time theory, scholars such as Boyd have proposed the concept of "context collapse", which points to the collapse and dissolution of the boundaries between the public and private spheres as a result of the development of social media. "Contextcollapse" subsequently leads to "social burnout" of individuals.

2.2.2. Social Media Anxiety

Anxiety is a typical emotion among all adverse emotional reactions of users. Domestic and international psychologists have defined anxiety from different perspectives. The American Psychiatric Association defines anxiety as "an anticipation of future danger and misfortune, accompanied by nervousness and irritability and a range of physical symptoms." Researchers like Bekker state that anxiety is a phenomenon in which people feel nervous and worried in an uncertain situation while their autonomic nervous system triggers a series of coping behaviours to deal with potential threats. Labrague's study showed that time spent on social media sites was significantly and positively associated with anxiety, stress and depression[2].

The theory of topological psychology suggests that every movement of the body and every stimulus to the body has a weak effect on the psyche and that these weak effects can be manifested to cause anxiety. In other words, every message and content within social media can have a weak effect on the social media user. These weak influences can then be superimposed and accumulated to become apparent and cause anxiety.

The American psychologist Spielberg distinguishes between two types of anxiety: state anxiety and trait anxiety[3]. Mccord's research found that users with high social anxiety were more likely to experience anxiety when using Facebook than those with low social anxiety[4]. The physiological anxiety response to users' short-term stimuli when using social media is a form of state anxiety. However, it has also been suggested that some people who are already state-anxious may be influenced by their exposure to social media to shift from state to trait anxiety[5].

2.2.3.Social Media Loneliness

According to a survey by the Mental Health Foundation, nearly 60% of 18-34-year-olds feel lonely, and this age group is the main user of social networks. The rapid development of social networks has led modern young people to use social tools as an alternative to real-life conversations. However, social networks do not provide them with a sense of belonging and satisfaction[6].

On the one hand, the Internet has realised the human vision of "the sky is the limit", but on the other hand, it has banished "the limit" to the sky. The shallow socialisation and the illusion of friendship that social media provides, as well as a large amount of time taken up in socialising, have led to the isolation of social media users in groups.

2.2.4.Fear of Missing Out

Missing out anxiety is also known as the phobia of missing out or the 'outsider's dilemma'. With the emergence of social media, the scope of Fear of Missing Out (FoMO) research has expanded, and the research platform has expanded from the real social circle and PC to mobile, with the research content mainly exploring the characteristics of FoMO users and the external environment.

In the new media environment, social media information, with its interesting, diverse and instantaneous characteristics, greatly meets the needs of users for instant communication and entertainment. People are often anxious to know the current real-time information and frequently browse social media to satisfy their psychological desire to stay connected with the current world and friends around them; when this psychology cannot be satisfied, negative emotions such as fear, frustration and disappointment come into play. Although FoMO is not necessarily specific to social media, forcing oneself to check one's phone more frequently often causes more serious psychological and physical problems for users, which in turn affects their information behaviour.

2.3. Sources of Negative Social Media Impact

2.3.1.Social Comparison

Social comparison theory, first proposed by Festinger in 1954, refers to the tendency of individuals to use others as a yardstick of comparison for self-evaluation in the absence of objectivity. The upward social comparison refers to comparing oneself with people who are more social and better than oneself in some way; parallel social comparison refers to comparing oneself with people who are similar to oneself in some way, and downward social comparison refers to comparing oneself with people who are inferior to oneself in some way.

Social comparisons with other users in social media can cause psycho-emotional changes that can lead to negative usage behaviour. In the process of using social media, people constantly make social comparisons by observing other people's personal pages and uploaded content. Upward social comparisons often lead to a sense of loss of being inferior to others, which can lead to a negative feeling of self-denial.

2.3.2. Social Support

The concept of social support originated in psychiatric research in the 1960s, with early researchers referring to social support as a general or specific supportive resource that individuals receive from others or social networks. Numerous studies have shown that social support is significantly and positively related to social skills, work performance, self-concept and physical and mental health. In contrast, lack of social support is significantly and negatively related to social inertia, anxiety, worry, depression and drug use[7].

The contextual impact view of social support is based on a community psychology and ecology perspective, which emphasises the interaction between individuals and their social context. Lack of social ties can lead to isolation and loneliness, which in turn can lead to psychological abnormalities. In social media use, the lack of social support can lead to social media isolation, which negatively impacts users' psychology and behaviour.

Social media users measure the value of their content by the number of likes, comments and retweets they post, and the data of the content becomes a currency for measuring value. If someone finds that others dislike them or give negative comments, they feel anxious about it and even delete the content, as if they were down an unwanted product. Social media users are trapped by this form of social support and left to others to measure their value.

2.3.3. Persona Building

In social media, it is not uncommon for people to create a certain persona to suit the positioning of their account. A beauty blogger, for example, does not post too much food content on her account; a social media blogger who is a gentle and sensitive emotional blogger does not post impulsive and rude content, and so on.

The generalisation of online connections gives individuals the space to shape their own image, but it also makes it possible for the "image to collapse". Goffman has proposed the concept of 'audience compartmentalisation', whereby individuals perform themselves in front of different audiences in different scenarios. Nowadays, people present different personas in different ways of connection.

3. Method

Based on the literature review and analysis, it was found that there are no established categories of variables, measurement scales and theoretical hypotheses for social media burnout and negative user behaviour. Besides, existing theories do not provide a comprehensive and thorough explanation of this social phenomenon. Therefore, the use of an undifferentiated structured questionnaire to conduct a macro study of users in this study may not be effective, while a case-based qualitative study is particularly suitable for "what", "how", or "why" type questions. In view of this, this study uses Grounded Theory, an exploratory qualitative research method, to explore the negative pathways of social media connection overload.

The Grounded Theory research method, introduced by sociologists Glaser and Strauss in 1967, is dedicated to explaining and understanding social phenomena and advocates the extraction of concepts and the construction of theories from everyday life experiences and social phenomena as an inductive bottom-up research process[9]. It mainly refers to researchers starting from raw data before the research begins, without making theoretical assumptions, but simply coding and aggregating the collected data as a way of constructing concepts and classifying and generalising them in detail so as to form theoretical categories. In other words, the research starts from real life, collects data with research questions, goes through the three main coding processes of open coding (open landing), spindle coding (associative landing) and selective coding (core landing), summarise

and refine concepts and categories from the raw data, and follow the principle of continuous comparative analysis in the process of data analysis, constantly comparing, summarising and classifying data and theories, establishing connections until The construction of new theories that reflect the essence and meaning of phenomena.

3.1. Data Collection Method

This study used a semi-structured questionnaire (open-ended questionnaire) to conduct in-depth interviews with participants and collected a total of 61 valid samples. In-depth interviews were conducted to understand the usage status of social media users, to explore the process of negative emotions and effects caused by excessive use of social media, and to compile the data and apply the rooting theory to construct a social theory that reflects real life. The questionnaire platform Sojump and the data analysis software SPSS were used to analyse the data from the 61 valid samples.

3.2. Open Coding

Open Coding is a process of operationalising the data collected by 'crumbling' and 'breaking up' the data, giving it conceptual labels and then putting it back together in a new way to define concepts and discover categories. The steps are 1) to label the data, extract the corresponding concepts and define the phenomena; 2) to analyse the concepts in depth and uncover more general categories; 3) to give precise names to the categories; 4) to discover and summarise the nature of the categories and their dimensions[10].

In order to explore the negative impact of social media in this paper, a total of 30 questions were designed in the questionnaire, excluding questions on basic information such as age, education, gender and average daily length of social media use, and the rest of the questions were categorised and summarised by the type of negative impact, see Table 1.

Table 1: Open coding categorisation—Questionnaire design and coding (self-made).

category	Initial concept
Distinguish between robust and vulnerable (RV)	RV1: Does the content on social media affect your mood? RV2: When you use social media, you are..... RV3: Do you express your views on certain events on social media? RV4: Does your view of an event change as public opinion on social media changes?
identity formation (IF)	IF1: How different are your social media personas from real life? IF2: If you feel the difference between your social media identity and identity in real life, what's the reason for the difference? IF3: If you do not feel any difference between your social media identity and identity in real life, do you put any effort into maintaining consistency? IF4: Do you think the difference between social media identity and true identity has any effect on you?

Table 1: (continued).

Real-life satisfaction (RLS)	RLS1: Is there a big gap between your real life and your ideal life? RLS2: Are you satisfied with your real life? RLS3: Does the gap between living the ideal life make you feel anxious?
Social media anxiety (SMA)	SMA1: Do you care about other people's comments and messages? SMA2: If someone leaves a message saying that one of your photos is ugly and comments on your figure, will you be extremely angry or sad? SMA3: If there are few likes, retweets and comments on a certain dynamic you send, would you like to delete that dynamic? SMA4: Do you think that the content of your upload on social media is not as exciting as other people's lives? SMA5: Are you afraid that others will think that your image, in reality, is different from your image on the Internet? SMA6: Do you avoid socialising in real life because you are nervous or shy?
Fear of Missing out (FOMO)	FOMO1: How long do you stay on social media every day? FOMO2: Do you dare not miss new hot events because you are afraid of having no topic with people around you? FOMO3: Do you keep your mobile phone with you all the time? FOMO4: Have you ever had the illusion that your mobile phone vibrates? FOMO5: When there is a message prompt (small red dot) on social media, will you definitely click in to check it?
Social media loneliness (SML)	SML1: Do you feel lonely in reality because you are addicted to social media? SML2: How do you think you should solve this loneliness? SML3: Have you achieved your ideal life on social media?

The 25 questions on the negative impact of social media were split into five categories after distinguishing between the groups of people who are Robust or Vulnerable: Identity Formation (IF), Real Life Satisfaction (RLS), Social Media Anxiety(SMA), Fear of MISSING out (FOMO), and social media loneliness (SML). These five domains are manifested as interconnections and influences, showing an initial framework of circularity, see Figure 1.



Figure 1: The circular chain of negative social media influences (self-made).

After the Spss reliability test, the questionnaire designed this time passed the alpha coefficient test of SPSS, yielding a reliability coefficient value of 0.753, which is greater than 0.7, thus indicating that the reliability of the study data is of good quality and can be used for further analysis.

3.3. Main Axis Coding

The main task of the spine coding was to discover and establish various links between the separate categories, explore the potential logical relationships between the categories and develop primary and secondary categories[10]. The analysis revealed that the different categories obtained in the open coding are indeed intrinsically linked at the conceptual level. Based on the interrelationships and logical order of the five categories, this study has identified two main categories, namely social comparison and social support, and related the five sub-categories to the two main categories, the specific connotations of which are shown in Table 2.

Table 2: Main categories formed by the spindle code (self-made).

Main Category	Sub-categories	Connotations of the category
Social comparison	Identity Formation	Social comparisons make it impossible for social media users to be happy with their existing identities and portray themselves as perfect people on social media.
	Real-Life Satisfaction	Social comparisons make social media users less satisfied with their existing lives, especially when compared to upwardly mobile societies, creating negative feelings that they are inferior to others.
	Social Media Anxiety	Social comparisons in social media create anxiety for social users, who constantly stress themselves out through social media and end up in an endless internal conflict of self.

Table 2: (continued).

	Fear of Missing Out	People want to keep themselves from becoming outdated and old-fashioned, and social media users constantly refresh themselves in case they miss out on what is new.
	Social Media Loneliness	People are constantly caught up in social comparisons on social media, becoming resistant to social media, developing social media fatigue and eventually, social media loneliness.
Social support	Identity Formation	The desire to have more followers and traffic to their accounts has led social media users to portray themselves as glamorous characters on the web.
	Real-Life Satisfaction	People measure their self-worth by the number of likes, comments and retweets they receive on their content, and when this is not met, it gradually rises from dissatisfaction with their social media lives to dissatisfaction with all of their lives
	Social Media Anxiety	There are so many artificial definitions on social media that it is difficult for users to be the 'perfect' person in everyone's eyes and fall into denial of their self-worth.
	Fear of Missing Out	Social media users are constantly watching comments or private messages to see if they are "perfect" enough, and they cannot help but be the first to check when social media lights up with notifications of new news.
	Social Media Loneliness	When social media users lack social support or fall below their own expectations, people develop feelings of avoidance, the illusion of low value and social avoidance.

3.4. Selective Coding

Selective coding is the further analysis and mining of the main categories derived from the main axis coding to arrive at the core categories of the study, and the use of models to systematically link them to other categories, to analyse the linkages between them, and to develop a 'Story Line' to depict the full range of contextual conditions and behavioural phenomena[10], thus forming a Theoretical framework. The relational structure of the main categories is shown in Table 3.

Table 3: The relational structure of the main categories (self-made).

Main Category	Corresponding category	Connotation
Social comparison	Negative behaviour and impact	Social comparisons reinforce negative feelings such as anxiety and low self-esteem brought about by social media.
Social support		Social support affects social media users' sense of self-identity and social identity. People are prone to correlate it with their own values mistakenly.

4. Conclusions

By comparing and analysing the data collected from the original questionnaire, the categories developed and the two main categories of social comparison and social support, the core category of "factors influencing social media users' negative emotions and the mechanism of their negative usage behaviours", was finally refined. The process around the core category can be summarised as follows: the two main categories of social comparison and social support both have a significant impact on the negative emotions of social media users and can further trigger different levels of negative usage behaviours of users. Also, based on previous analyses of social media users' over-connectedness to social media, the length of time connected to social media also has an impact on the degree of negative impact on individuals. Using this process as a basis, this study constructs and develops a new model of the negative social media pathway, as shown in Figure 2.

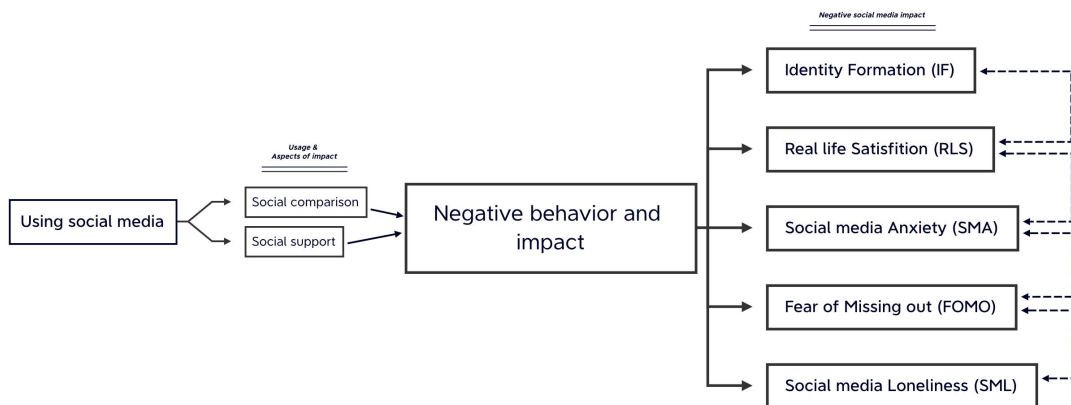


Figure 2: Models of negative impact formation factors and negative impact generation (self-made).

5. Conclusions

As social media continues to grow and spread, its influence becomes more and more powerful. It is difficult for people to escape from its reach and constantly be exposed to its negative effects. This paper look at the negative effects of social media and the negative behaviours of people as a result of social support and social comparison. In the question Distinguish between robust and vulnerable, respondents mostly identified themselves as robust rather than vulnerable, but when their behaviour on social media was examined in detail, more results indicated that they were vulnerable. The majority of social media users are unaware that they are being influenced by social media and are

more likely to underestimate the dangers of social media and believe that they are resistant to it. This is why it is so difficult to escape the negative vortex of social media and why people unconsciously sink deeper and deeper into it.

In the 21st century, people's lives are awash with the Internet, social media and a wealth of online information. We rely on modern technology without realising that we are no longer free from its grip. As people use social media for longer and longer, the extent to which they are influenced by it will increase, as will all the negative psychological and physical problems that people have as a result of it. Thinking about how to disconnect from social media on people's own and escape the social media trap is an inevitable challenge for social media users today.

This study explores the potential links between some negative social media influences and the role of some social behaviours on negative social media influences, filling a gap in previous scholarly research on the correlation between the various influences. Nevertheless, the methodology and conclusions of this study are relatively superficial, the scope of the qualitative study is small, the sample size available for reference is small, and the convergence of the results may not be obvious and accurate. Future research could use this as a basis and starting point for more in-depth and systematic research to gain a deeper understanding and insight into the negative impact of social media.

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