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## **Addiction in the Digital Age: A Comparative Study of Facebook, TikTok, and Instagram**

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### **Abstract**

According to motivation theory, the researcher used entertainment and social interaction as the two independent variables and social media addiction as the only dependent variable. Backed by the theory of attachment emotional and functional, this study discusses the psychopathological positive features of app usage and adds to the body of knowledge on social media addiction. The target population was reached through an online survey in which the researcher invited 850 participants, of whom 586 provided usable responses. This influenced the findings, which pointed to the direction indicated by all the hypotheses; there was an indication of a direct relationship between the variables. The findings indicated that functional use of SNS increases emotional use, thus making people feel amused and socially connected, which in turn makes them more addicted to social media. People need to learn about the level of their addiction slowly rising, and that is because the application meets the need for entertainment or social interaction. However, the study has limitations: It was conducted in Pakistan only, so its application to other countries could not have been made; motivation theory was only applied to entertainment and social interaction; and the results found could not be generalized on other

social networks. More research could be based on the comparison of the findings in different countries using the same indices or, for instance, the comparison of addiction levels on Snapchat and Instagram.

**Keywords:** Social media addiction, Entertainment, Social interaction, Motivation theory, Emotional attachment, Functional attachment, Snapchat vs. Instagram

## **Introduction**

### **Background to the Study**

The use of social media has evolved how people communicate, pass on information, and interact in society and even the world over. It covers all websites where users can generate and disseminate text, images, videos, and live-stream content. Applications such as Facebook, Instagram, TikTok, and Snapchat are peculiar to contemporary society as they allow people to entertain, communicate, and get information (Robinson et al, 2019; Whiting & William, 2013). These allow users to sustain existing friendships and acquaintances, as well as formal and informal networks and are a means of communication in an increasingly technology-driven society.

Many people may use social media for different reasons, such as leisure and interaction are typical reasons why it is used. Consider, for instance, that users visit these sites to be entertained and interact with friends, family, or even strangers—these motivations concord with the attachment theory's notion of functional and psychic needs. *Functional attachment* is defined as the benefits that arise from the aspects of the functionality of the app and the emotional attachment that stems from social interactions through the use of the app (Treem et al., 2016). For example, instead of using social networks like Facebook, people primarily turn to applications such as Snapchat with brief messages, selfies, and so on, more often than in group messages (Piwek & Joinson, 2016).

Everyone knows that social networks have changed everyday life, but now we can see people glued to the screen all day. Parsons and Kemp (2019) argue two key principles usually guide the following in Counselling in emergencies. There are currently 8 billion active users of social

networks who spend an average of 2.5 hours daily on these social media platforms. With social media being used this frequently, it offers chances for social relationships but simultaneously poses a question of dependency. Research has shown that overuse of social media has been ascribed to numerous negative impacts, such as time wastage, mental illness, and broken interpersonal relations (Dhir et al., 2018; Zheng & Lee, 2016). It has become common to find people unable to acknowledge that they have become victims of social media addiction.

There is nominal actualization of prior empirical research which has attempted to uncover a range of facets of social media, such as the behaviors accompanying different platforms and the psychological impact that accustoming oneself to the given platform entails. However, the research focuses on comparing social media apps such as Facebook, TikTok, and Instagram, especially by defining the role of entertainment and social interaction in terms of functional as well as emotional attachment and resulting addiction. This Study seeks to fill this gap by assessing the level of these factors in the context of social media addiction among users with a particular reference to the perceived positive uses of the application.

There is a lack of comparative research about the addictive potential of the different social media applications concerned with entertainment and social interaction. However, several researchers investigated the effects of UGC and the technical parameters of social media platforms. Research has shown that UGC significantly impacts customers' buying behavior and, in fact, has a more significant effect than MGC (Kim & Johnson, 2016). In addition, platforms such as Instagram and TikTok are accompanied by options for sharing images and videos to give insights into the geographical and social aspects (Wang et al., 2018; Kuhn et al., 2019). Nevertheless, there is limited evidence elucidating how functional and emotional aspects contribute to SM use and dependency on various sites.

The rise in the cost of social media advertising campaigns means that the efficiency of social media advertising campaigns should be explained for each advertising platform chosen. This research aims to know which social media application is more suitable for entertaining, interacting, and being active on Facebook, TikTok, or Instagram, particularly in Pakistan. The Study will identify a social media platform that aligns with the users' needs and creates high levels of engagement so that marketers can improve their social media strategy.

## Research Question and Aim

The aim of the study is to analyze the effect of social interaction and entertainment on Social media addiction through functional and emotional attachment.

*RQ1:* Does Entertainment and Social Interaction have an effect on social media addiction through emotional and functional attachment?

### The following are the definitions of the study variables:

- **Social Media Addiction:** This refers to improper and uncontrolled use of social media that interferes with the normal functioning of life (Gong et al., 2019).
- **Functional Attachment:** The extent to which they enable the usage of the various technicalities in an application to accomplish self-identified objectives (Gan & Li, 2017).
- **Emotional Attachment:** The affection the users create towards an application or its content affects their willingness to remain involved (Choi, 2013).
- **Entertainment:** The factors that people get to have fun and fun out of engaging themselves in a particular social media platform (Kim & Lee, 2017).
- **Social Interaction:** This measure how users use social media to interact with and share with others (Zhang et al., 2014).

The findings of this Study will help enhance academic knowledge of the factors explaining social media addiction and offer practical recommendations for scholars and practitioners.

## Literature Review

### Social Media Addiction

Facebook addiction, specifically, has emerged as being among the recognized specific forms of IT addiction. Turel, Giles, & Serenko (2011) defined the IT addiction operationalized concept as a "Maladaptive psychological dependence on IT resulting in behavior that interferes with day-to-day existence." IT addiction in general, and more specifically social media addiction, has attracted increasing amounts of focus in the empirical literature. According to Kaya and Can (2016), SNSA describes the improper use of social media where social media users become mentally enrolled or imprison themselves in social media sites. Gong, Luqman, and Lu (2019)

elaborate on it and explain it as an orientation of a user that gets completely absorbed in social networks, going beyond the regular usage frequency to compulsive usage.

Social media addiction cannot be measured merely by the regular use of the apps because it is a form of neurotic mental dependency (Hua, Wang, & Lee, 2015). According to these prior investigations, social media dependency is a type of dependent yearning in the user's mind, which hinders other actions throughout the day (Gong et al., 2019). This addiction manifests through five primary symptoms. These keywords are salience, extraction, encounter, relapse, and restoration (Yang et al., 2016). These symptoms have been adopted as the benchmark for the assessment of levels of Social Media Addiction among users and are well-rooted in the literature on Information System addiction (Yang et al., 2016; Chen et al., 2017; Gao et al., 2017).

The growth of internet social networking sites makes the SNA rate higher and threatens individuals' lives and organizational performance. According to Dhir et al. (2018), when the use of social media is exploited, it results in reduced performance and feelings of isolation or fear. Another area of interest in social media addiction concerns its adverse outcomes, with research suggesting, among others, such things as psychological disorders and addiction brought by overdependency on social networks (Lee et al., 2015).

Social media systems focus on the psychological needs of the users. Since those needs are rarely fully satisfied, they are constantly seeking more stimulation in the form of usage, which can be spines as addictive (Gao et al., 2017). The case is quite clear amongst college students, where social media addiction is strongly correlated with depression and anxiety disorder. Of course, almost all college students expect stress, and it partly entices them to engage more in social media, leading to undesirable effects such as reduced productivity, conflicts with family and friends, and substance abuse (Lim and Choi, 2016). The rationale of easily navigable interfaces and individualized content of the SMMs is greatly responsible for addiction (Greenfield, 2011; Turel et al., 2011).

It is necessary to state that the relationship between social media addiction and emotional state is mutual. Emotional consequences Negative outcomes include emotional problems, and the person

may develop emotional problems and get trapped in social media as a way of disregarding their emotions (Kırcaburun et al., 2019). For example, research carried out with Turkish teenagers identified that inappropriate use of Instagram resulted in higher levels of depression, general anxiety as well as social anxiety (Yurdagül et al., 2019). Cycling between the addictive behavior of social media platforms and mental health problems makes researchers seek to understand what could be fuelling the action.

### **Attachment Theory**

Attachment theory, first described by Bowlby (1969), looks at the fond and secure relationship between people and objects or others. When it comes to social media, the theory of attachment has been employed to study the type of social bonds that a user has with the media. Self-reported-based research on objects and the stimulations that object-related activities can trigger, and according to Kim and Kim (2018), attachment to objects such as social media platforms can cause or instigate a person's behavioral or emotional response.

When the principles of attachment theory are applied to social networking sites, it is identified that users extend their emotional relationship with these tools as in the case of other individuals. Research in marketing has established that brand identification affects brand purchase decisions and the extent to which consumers are loyal to brands (Kamboj et al., 2018). Also, in the context of social networks, both emotional and functional bonds are instrumental in regulating user behaviors and interactions on social media (Wan et al., 2017).

Apprehensively, attachment theory also explains why social network site use is addictive. Michel and Alessandra (2016) also noted that people with attachment concerns would develop addictions, including drugs and alcohol. Importantly, Flores (2011) also confirmed that those participants with attachment problems are at higher risk for the development of addiction. People tend to form ties with the site that they use, and time, money, and energy can be put into maintaining these ties, making them more likely to continue to use the site to the point of addiction.

Building on the users' emotional and functional bonds with social media, it will be interesting to note how the platform's technical architecture supports users' needs in terms of social connectedness. This functional attachment is a positive force compelling user to keep using the particular platform because it results in gratification, at least for some users (Lin & Lu, 2011). These attachments make users overly reliant on social media platforms as they depend on them to fulfill their social needs.

### **Motivation Theory**

Motivation theory is widely implemented in attempts to predict users' behavior while implementing Information Technology (IT) solutions. Davis et al. (1992) suggested that attitude is a function of intrinsic and extrinsic motivational factors affecting an individual's choice to use an IT system. Extrinsic means different activities recommend a specific activity for other purposes apart from the pleasure that the recommended activity brings out, such as social media use. The second type of motivation is extrinsic motivation, which involves using IT systems to attain tangible goals, such as maintaining communication with others.

Speaking of social media, entertainment is one of the primary extrinsic motivation factors that pushes people to engage in social networking sites for fun (Lu & Lin, 2011). It has been established that the use of entertainment in entailing and eliciting the use and addiction of IT is paramount (Turel et al., 2011; Wang et al., 2015). On the other hand, social interaction is an extrinsic motivator that influences social media use since people need to fulfill their social aspect (Zhou, Fang & Vogel, 2014).

The social media platforms are built in a way that takes the best of both intrinsic and extrinsic motivation. Companionship and recreation cut across each other since users visit social sites to be entertained. The shared content, friends' information, and virtual communities make the users feel they belong to the site and are emotionally attached (Mathieu et al., 2013).

The organizational systems that support the technology at the core of social media management bear much influence on users. Interactivity involves access to tools and easy-to-navigate interfaces, customization of the platform's content, and efficient systems' performance, which makes the users happy and keeps them active on the site (Hsu et al., 2010). These features add

more value to the application of social media, hence building both functional and emotional attachment, which leads to addiction.

### **User-Generated Content (UGC)**

That is why User-Generated Content (UGC) is content that consumers create themselves rather than professionals from the marketing industry. It has emerged clearly that UGC is shared on social media sites today, where users create text, images, and videos. These contents are relevant in helping define consumer behavior and also in influencing the perspective with which consumers perceive brands.

The studies show that UGC is more influential on consumers than MGC. As consumers have been identified as trusting UGC more than information provided by the trader, Kim and Johnson (2016) pointed out that UGC significantly impacts consumer buying decisions. Thus, with the help of UGC, information dissemination and online community formation are essential activities in the context of many SMs, as users share their experiences, opinions, and knowledge on social networks (Goh et al., 2013).

This has also raised new problems for companies, as negative UGC will eventually affect a company's reputation and financial share. Another study by Luo (2009) showed that NWOM could influence a company's cash flows, implying that organizations should be careful with the sort of UGC they allow. Marketers need to design their marketing communications in light of the threat that UGC poses to consumers.

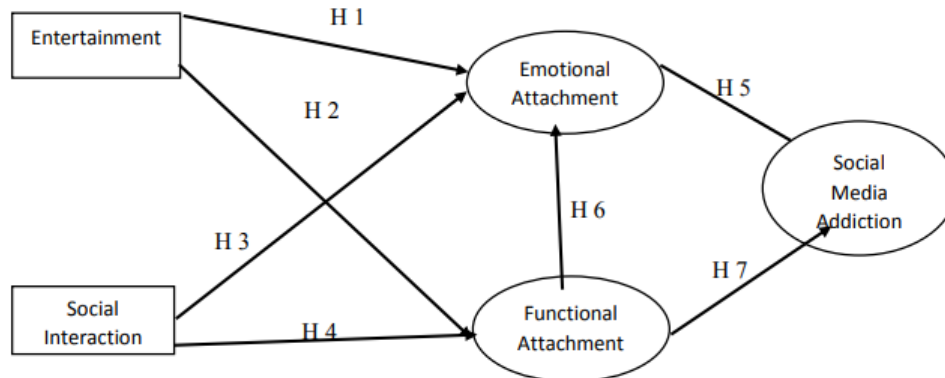
Another essential aspect of UGC for academic circles is the information about the consumer and socio-cultural trends that the data obtained holds. Due to the constant increase of UGC in social media, new research trends have appeared, especially in fields like geographic information systems and opinion mining (Maynard, Bontcheva, & Rout, 2012). However, the extent of unstructured information in UGC poses difficulties in analyzing these data researchers are forced to enhance approaches to studying and interpreting them.

The increase in the relevance of UGC calls for businesses to participate proactively in social media accounts. When companies use UGC, they are likely to capture information on consumer trends and patterns, thus enabling the company to make better and more strategic marketing



decisions. In addition, UGC creates many opportunities, including improving the business image and developing closer links between businesses and customers.

### Conceptual Framework



This study's conceptual framework employs theories of social media addiction, attachment, motivations, and user-generated content. It investigates topics such as entertainment, social interaction, emotional attachment, functional attachment, and social media addiction. The framework suggests that entertainment and social interaction lead to more emotional and functional attachment, which in turn enhances social media addiction. This research is also helpful for the owners of social media platforms as it reveals the novel aspects of their consumers and the determinants of their continued use of the platforms. Since social media consumption in Pakistan can be quite varied compared to other parts of the world, this research study will help find out which sites can help reach users and make them addicted. The research could be valuable to other academics doing similar research and also helpful to business people in the utilization of social media platforms in their daily activities without falling prey to their adverse side effects, such as addiction.

### Hypotheses Construction

- **Entertainment**

Fun and enjoyment are aspects of intrinsic motivation, and entertainment is broadly used in information systems research (Lin and Lu, 2011). It reveals the pleasure and happiness a user gets from a given social platform, strengthening his or her bond with the site in question (Gwebu

et al., 2014). Lin, Fan, and Chau (2014) pointed out that the utility derived from such platforms creates pleasure and a feeling of connectedness and breeds ISR with friends. Han, Min, and Lee (2015) stated that entertainment-seeking also relates positively to the level of emotional attachment, which means that those users who enjoy a platform are not ready to switch off quickly. Furthermore, Turel and Serenko (2012) showed that when a user has an entertainment orientation toward a site, that is, they use the particular Social Media site's features for entertainment, their overall experience would be enriched.

**H1.** Entrainment is positively impacting users' emotional attachment.

**H2.** Entertainment is positively impacting users' functional attachment

### **Social Interaction**

Interactivity means the level at which SNS is employed in interacting and sharing information and resources (Zhang et al., 2014). In these social sites, users get to portray virtual lives and create friends through whom they get social and technical support. It increases the sense of expectations, empathy, and friendliness that, in turn, fortify the emotions that people bond with the platform (Zhang et al., 2014). Berger (2014) concluded that what people feel about something is closely associated with the communication fostered by social networks. Moreover, if the users of a platform feel that it is socially relevant, they can rely on its technology and steadily access the site (Gan & Li, 2017).

**H3.** Social interaction is positively impacting users' emotional attachment.

**H4.** Social interaction is positively impacting users' functional attachment

### **Emotional Attachment**

Affection is a bond that people have with a given person or an object, and they will do everything possible to preserve this bond. Consistent with another theory known as the 'self-expansion theory' (Park et al., 2010), this attachment results in specific behavioral outcomes. Choi (2013) determined that engagement time results from having an emotional attachment to the platform, and people devote their time and energy to developing such connections. In the context of social media, for instance, emotional attachment will make the users spend more time on the social network, thus enhancing relations with the social network (Wan et al., 2017). Liu

and Chang (2016) also mentioned that affective states, including satisfaction, are instrumental in IT use.

**H5.** Emotional attachment is positively impacting users' social media addiction.

### **Functional Attachment**

Functional attachment can be defined as a measure that shows how effectively the service provided by a platform ensures the accomplishment of individual objectives (Sangwan, 2005). It also positively affects a user's emotional feelings and behavior, as mentioned in Wu (2015). Chen, Hu, and Hwang (2014) observed that functional attachment is highly influential in explicating the dependency of the group members and the social media users. Since functional attachment leads to longer time spent using the platform, giving solid technical support and reasonable means of communication will ensure more time is spent exchanging information within the platform. From the usage and satisfaction constructs point of view, these are more likely to remain relevant to users as they help to fulfill the needs of the users (Wang et al., 2015).

**H6.** Functional attachment is positively impacting users' emotional attachment.

**H7.** Functional attachment is positively impacting users' social media addiction.

## **Research Methodology**

### **Research Design**

This research aims to compare the users of the UGC sites and apps in Pakistan, including Facebook, TikTok, and Instagram. The following is an indication of the research methodology to be adopted.

### **Population of the Study**

This study will target Pakistani users of social media platforms such as Facebook, TikTok, and Instagram.

### **Sample Size**

The sample size of 600 respondents was chosen as Hair et al. (2011) suggested the 110 items ratio for the survey. The participants were recruited from all provinces of Pakistan. After the

selection of samples and the design of the questionnaire, participants were chosen to undertake the survey. The survey was completed online using Google Forms; the link to the Form was shared on social networks and in groups. This avoided multiple responses from a single participant; the survey link was open only to one completed response. Facebook was used to invite 500 friends, while 250 friends were invited through Instagram and the remaining 150 friends through WhatsApp, and the total number of invitations sent out was 850. From this total, 650 responses were pooled, and 586 of them were deemed usable for analysis.

### **Demographic Variables**

The survey allowed male and female respondents, and the minimum age was 16. The participant must have a basic understanding of the SM apps and be an active user of at least one of the three migrating apps. In the demographic part of the survey, participants were also asked questions about their duration of use of the app and the frequency of use per day.

### **Measures and Validity with Appropriate Scales**

The study utilized validated scales to measure the variables, as follows:

<b>Variable</b>	<b>Author</b>	<b>No. of Items</b>	<b>Likert Scale</b>
Social Media Addiction	Charlton & Danforth (2007)	5	5-Point
Entertainment	Davis (1989)	3	5-Point
Social Interaction	Gan & Li (2017)	3	5-Point
Functional Attachment	Wan et al. (2017)	3	5-Point
Emotional Attachment	Wan et al. (2017); Ren et al. (2012)	4	5-Point

The dependent variable, Social media addiction, was assessed using Charlton & Danforth's (2007) 5-item Social Media Addiction Scale (SMA-S). The first of the independent variables under study was entertainment, which was measured using three self-developed items adapted from the works of (Davis, 1989). The second independent variable, social interaction, was assessed using three items from Gan & Li (2017). Functional attachment and emotional attachment, which are the two dimensions of attachment theory, were assessed using three

questions on functional attachment from (Wan et al., 2017) and four questions on emotional attachment from (Wan et al., 2017; Ren et al., 2012). All the variables in the study were assessed on a five-point Likert scale.

### **Data Collection Method**

During the study, an online questionnaire and survey research technique was used. To conduct the survey, a unique link to the completed Google Forms questionnaire was sent to the respondents to the researcher's Facebook and Instagram accounts and via WhatsApp groups. To increase the reliability of the data collected and eliminate the chances of getting non-serious responses, the survey invitation link turned off the option of multiple responses from the same participant. The questionnaire was divided into three parts. As for the questionnaire structure, the first part was confined to the official invitation to participate in the research; the second part contained questions related to the demographic data of the respondents; the third part comprised the research items. The questionnaire adopted a five-point agreement scale that included Strongly Disagree to Strongly Agree. Convenience sampling was employed in securing participants.

### **Data Analysis Techniques**

The data was also analyzed using the latest version of the statistical program SPSS. The analysis consisted of the diagnostics of the variables' orientations on normality and reliability and the corresponding convergent and discriminant validity. The current study used AMOS to test the hypotheses using Structural Equation Modeling (SEM) and conduct Confirmatory Factor Analysis (CFA). Further, multigroup analysis was done to examine the variation of the results in three types of user groups: Facebook, TikTok, and Instagram. This evaluation looked into whether the instruments employed in the study were uniform across the various groups.

## Results

The questionnaire survey findings form the discussion subject in this chapter. The researcher conducted data analysis, and the Statistical Package for Social Sciences (SPSS) version 25 was used to enter and analyze the first data set, which the researcher had to evaluate for normality, reliability, skewness, and kurtosis where applicable.

### Descriptive Statistics

The present section provides the demographic characteristics of the survey participants as measured by descriptive statistics. The survey was a cross-sectional online survey. Participants were recruited from Facebook, Instagram, and WhatsApp groups, where 850 invitations were sent out. To minimize the forging of results, the Google Forms survey was set up so that each participant could complete it only once. Of the 850 invitations sent, 650 responded; however, after data cleaning, 586 responses were considered valid for further analysis.

#### Table of Demographic Variables

Demographic Variables	Frequency	Percentage	Mean	Standard Deviation (S.D.)
<b>Gender</b>				
Male	341	58.2%		
Female	245	41.8%	1.4178	0.49362
<b>Age</b>				
16 to 20	84	14.3%		
21 to 25	163	27.8%		
26 to 30	200	34.2%		
30 and above	139	23.7%	2.6729	0.99271
<b>App Users</b>				
Facebook	201	34.3%		
TikTok	200	34.1%		
Instagram	185	31.6%	1.9692	0.81099

<b>Time Since Using</b>				
Up to six months	70	11.9%		
1 Year	200	34.1%		
Five years	168	28.7%		
More than five years	148	25.3%	2.6729	0.98403
<b>Times in a Day</b>				
Once a day	78	13.3%		
Twice a day	201	34.3%		
More than twice	307	52.4%	2.3904	0.71132

The demographic section of the survey includes the following six variables:

- **Gender:** They were also required to label their gender on the survey, and the responses obtained are shown below. Of the total respondents, 341 were males (58.2%), and 245 females were (41.8%).
- **Age:** Most respondents were within the 26 and 30 age brackets (34.2%); next was the 21-25 years age bracket with 27%. Of the respondents, 23% were 30 years old or older. There was a less representative group among the sample; 7% of the sample was 16 years of age and below, while 14 percent was between the ages of 16 and 20 years—3%.
- **App Users:** Respondents were asked what app they most often used. Among all applications, Facebook topped the list with 34.3% of responses, then TikTok with 34.1% responses, and Instagram got 31—6% responses.
- **Time Since Using:** This variable aims to identify the number of months that the respondents have been using the selected app. The largest percentage (34.1%) said they had been using the app for one year, followed by those who said they had been using the app for five years, which was 28.7%, more than five years, 25.3%, and up to six months, 11.9%.
- **Times In a Day:** A slightly above-average 52.3% of patients reported using it twice a day, and 13.3% reported using it weekly, 3% said they used it daily, while 32% said they rarely used it in the last three months.

### Normality and Reliability

This section and the normality and reliability of the collected data will determine the validity and accuracy of the research results. Normality tests contain chi-squared, Kolmogorov—Smirnov, and Shapiro—Wilk tests, which independently check the data for a normal population distribution. Reliability tests include Cronbach’s Alpha to check the internal consistency of the variables. Checking for normality and the extent of outliers was done using skewness and kurtosis coefficients where an ideal range of skewness is from -3 and +3 or -1 and + 1, respectively, according to Hair et al. (2011). Cronbach’s Alpha was employed in estimating the internal consistency reliability of the items with the minimum and acceptable value of 0. 7 As seen in (Fornell & Larcker, 1981).

- **Functional Attachment**

Items	Skewness	Kurtosis	Mean	Cronbach Alpha
FA 1	-0.810	0.261	3.7243	0.746
FA 2	-0.752	0.248	3.6353	
FA 3	-0.450	-0.061	3.6321	

Functional attachment was measured using three items, and the normality and reliability tests showed that skewness and kurtosis values were within the acceptable range, indicating normal distribution. The Cronbach's Alpha value of 0.746 suggests good internal consistency.

- **Emotional Attachment**

Items	Skewness	Kurtosis	Mean	Cronbach Alpha
EA 1	-0.655	0.492	3.8579	0.785
EA 2	-0.521	0.370	3.8236	
EA 3	-0.893	1.156	3.9298	
EA 4	-0.269	0.091	3.7688	



Emotional attachment, measured by four items, also displayed normal skewness and kurtosis values. The Cronbach's Alpha value of 0.785 indicates a reliable measurement.

- **Social Interaction**

Items	Skewness	Kurtosis	Mean	Cronbach Alpha
SI 1	-0.734	0.391	3.7517	0.763
SI 2	-0.684	-0.016	3.7757	
SI 3	-0.500	-0.063	3.6524	

Social interaction was measured using three items, with all skewness and kurtosis values falling within the acceptable range. The Cronbach's Alpha value of 0.763 confirms the reliability of the measurement.

- **Entertainment**

Items	Skewness	Kurtosis	Mean	Cronbach Alpha
ENT 1	-0.687	0.576	3.9863	0.713
ENT 2	-0.473	-0.105	3.9264	
ENT 3	-0.347	-0.172	3.8236	

The entertainment variable, measured with three items, also showed acceptable skewness and kurtosis values. The Cronbach's Alpha value of 0.713 indicates that the items are reliably measuring the construct.

- **Social Media Addiction**

Items	Skewness	Kurtosis	Mean	Cronbach Alpha
SMA 1	-0.272	-0.735	3.2654	0.881
SMA 2	-0.361	-0.734	3.238	
SMA 3	-0.216	-0.655	3.2551	

SMA 4	-0.380	-0.497	3.3442	
SMA 5	Deleted			

The first SMA scale consisted of five items; however, one item, SMA 5, was excluded because of its poor validity index. The other four items also had reasonable measures of skewness and kurtosis, so their reliability was checked using Cronbach’s Alpha, which was 0. The internal consistency is high and is in the range of 881.

### Convergent Validity

Convergent validity measures how strongly two or more instruments designed to measure the same construct are related. The external construct was assessed using the following validity coefficients: FL, CR, and AVE. FL and AVE should be above 0; thus, higher acceptable thresholds for both ratios are plausible. 5, while for CR, it has to be greater than 0. 7 (Chen & Tussi, 2007; Hulland, 1999).

Variable Names	Item Description	Factor Loading (FL)	AVE	CR
<b>Functional Attachment</b>	FA 1:	0.837	0.544	0.780
	FA 2:	0.659		
	FA 3:	0.705		
<b>Emotional Attachment</b>	EA 1:	0.707	0.512	0.808
	EA 2:	0.717		
	EA 3:	0.758		
	EA 4:	0.679		
<b>Social Media Addiction</b>	SMA 1:	0.778	0.604	0.859
	SMA 2:	0.805		
	SMA 3:	0.773		
	SMA 4:	0.753		
<b>Entertainment</b>	ENT 1:	0.980	0.560	0.756
	ENT 2:	0.817		

	ENT 3:	0.653		
<b>Social Interaction</b>	SI 1:	0.701	0.522	0.766
	SI 2:	0.745		
	SI 3:	0.721		

It can be observed from the analysis of the results that all the values of the Factor Loading are more significant than 0.5, All Composite Reliability values are above 0. bigger than 0: 9, 7, 5, 4, while AVE values are also greater than 0:0.5, signifying good convergent validity, five is also favored.

### Discriminant Validity

Discriminant validity determines whether each variable is conceptually unique. In this study, AVE and the square root of AVE were used to test each variable. According to Fornell and Larcker (1981), discriminant validity can only be achieved if the square root of the AVE for a given variable is higher than the correlation coefficient between that variable and any other variable.

Variable	AVE	E.A	ENT	S.I	S.M.A	F.A
<b>E.A</b>	0.512	<b>0.716</b>				
<b>ENT</b>	0.560	0.154	<b>0.748</b>			
<b>S.I</b>	0.522	0.491	0.217	<b>0.722</b>		
<b>S.M.A</b>	0.604	-0.091	-0.074	-0.064	<b>0.777</b>	
<b>F.A</b>	0.544	0.277	0.151	0.340	-0.082	<b>0.738</b>

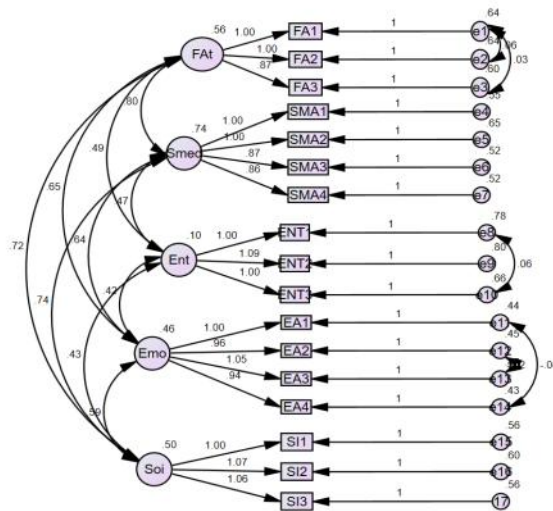
From the above table, it can be seen that the AVE is higher than the correlation between variables by squaring the value of AVE; this proves discriminant validity.

### Confirmatory Factor Analysis (CFA)

The confirmatory factor analysis was done to test the fit of the model and the measurement model. Model fit indices in CFA include checking whether the data fits a hypothesized model. The cut-off values for a favorable model fit are CMIN/DF < 3, and GFI > 0.9, AGFI > 0.9, CFI > 0.9, NFI > 0.9, RMSEA < 0.06 and IFI > 0.9.

Model Fit Index	Model Fit Values	Threshold Values
CMIN/DF	1.081	< 3
GFI	0.979	> 0.9
AGFI	0.968	> 0.9
CFI	0.997	> 0.9
NFI	0.962	> 0.9
RMSEA	0.012	< 0.06
IFI	0.997	> 0.9

The indices that measure the fit of the measurement model are as follows, all of them fall within the acceptable range, therefore affirming the measurement model. The CFA diagram, illustrating the relationships between the variables, is presented below:

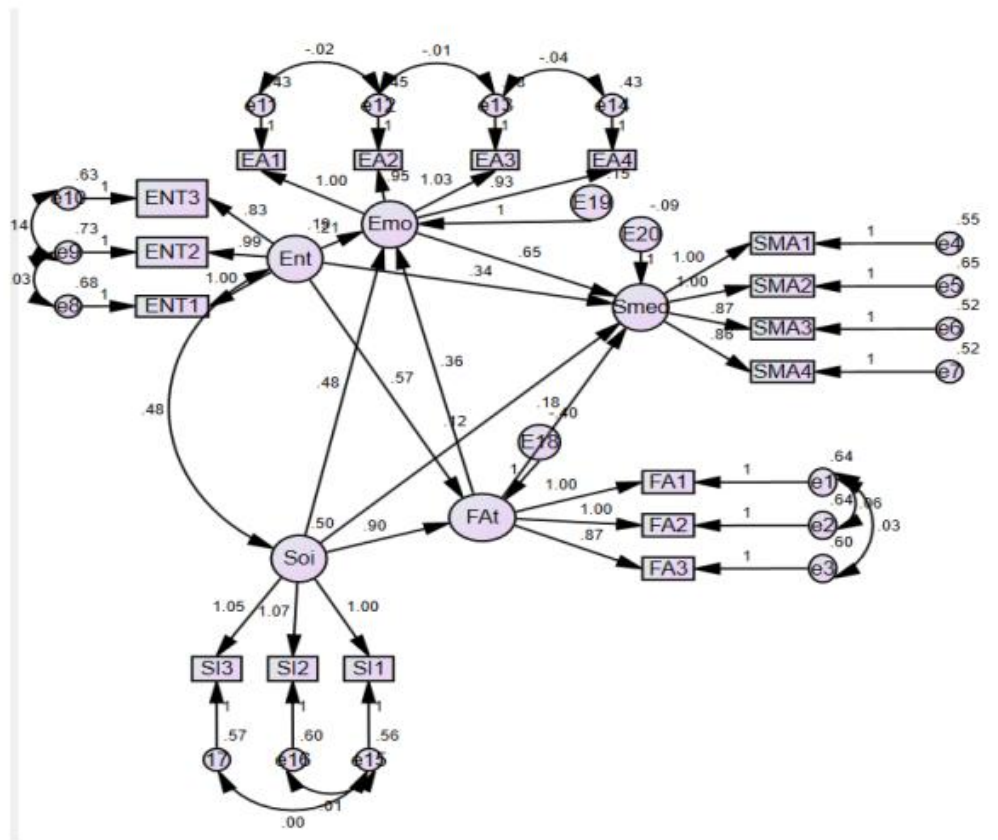


### Structural Equation Model (SEM)

In hypothesis testing, they adopted Structural Equation Modeling (SEM). SEM enables us to check the hypothesis regarding the connections between the variables, considering measurement errors. As in the case of CFA, the fit indices used in SEM included the following;

Model Fit Index	Model Fit Values	Threshold Values
CMIN/DF	1.513	< 3
GFI	0.971	> 0.9
AGFI	0.954	> 0.9
CFI	0.994	> 0.9
NFI	0.982	> 0.9
RMSEA	0.013	< 0.06
IFI	0.994	> 0.9

Regarding SEM analysis, all model fit indices will meet the criteria, proving the model is well-fitted. The SEM diagram, showing the hypothesized relationships, is provided below:



### **Combined Method Bias / Variance Testing**

To check the standard method variance, Harman’s single facto test was used. This approach measures the severity of standard method bias by obtaining a single factor explaining the more significant part of the total variance. The results for the first factor stated that this factor explained 29 percent of the variations. These were as follows: Common method variance = 0.88% of the variance and is below 50.00 % threshold; therefore, standard method bias is not a concern in this research.

### **Hypothesis Testing**

Amos-SEM was used in the hypothesis testing of the study. The results of hypothesis testing are presented in the following table:

<b>Hypotheses Description</b>	<b>Standard Error (S.E.)</b>	<b>Results</b>
H1: ENT -> E.A	0.037	Accepted
H2: ENT -> F.A	0.084	Accepted
H3: S.I -> E.A	0.046	Accepted
H4: S.I -> F.A	0.076	Accepted
H5: E.A -> SMA	0.051	Accepted
H6: F.A -> E.A	0.036	Accepted
H7: F.A -> SMA	0.027	Accepted

All the research hypotheses that were formulated for the study were supported, and by so doing, the research proved that entertainment and social interaction, which are two facets of the mobile application are critical in determining both the emotional and the functional levels of attachment, which predict social media addiction.

### **Multi-Group Analysis**

To consider whether the research model fits the data in the same way across different groups of people (Facebook, Tik Tok, Instagram), a Multi-Group Analysis was conducted. This analysis

enables the running of the mechanisms used in the research framework in a similar manner for all the three groups.

<b>Hypotheses Group</b>	<b>Standardized Estimates</b>	<b>Results</b>
<b>H1: ENT -&gt; E.A (Overall)</b>	<b>0.0317</b>	<b>Supported</b>
H1a: Facebook	0.037	Supported
H1b: TikTok	0.071	Supported
H1c: Instagram	0.07	Supported
<b>H2: ENT -&gt; F.A (Overall)</b>	<b>0.084</b>	<b>Supported</b>
H2a: Facebook	0.152	Supported
H2b: TikTok	0.166	Supported
H2c: Instagram	0.138	Supported
<b>H3: S.I -&gt; E.A (Overall)</b>	<b>0.046</b>	<b>Supported</b>
H3a: Facebook	0.075	Supported
H3b: TikTok	0.071	Supported
H3c: Instagram	0.07	Supported
<b>H4: S.I -&gt; F.A (Overall)</b>	<b>0.076</b>	<b>Supported</b>
H4a: Facebook	0.125	Supported
H4b: TikTok	0.143	Supported
H4c: Instagram	0.121	Supported
<b>H5: E.A -&gt; SMA (Overall)</b>	<b>0.051</b>	<b>Supported</b>
H5a: Facebook	0.097	Supported
H5b: TikTok	0.071	Supported
H5c: Instagram	0.085	Supported
<b>H6: F.A -&gt; E.A (Overall)</b>	<b>0.036</b>	<b>Supported</b>
H6a: Facebook	0.043	Supported
H6b: TikTok	0.063	Supported
H6c: Instagram	0.063	Supported

<b>H7: F.A -&gt; SMA (Overall)</b>	<b>0.027</b>	<b>Supported</b>
H7a: Facebook	0.04	Supported
H 7b: Tik-Tok	0.051	Supported
H7c: Instagram	0.054	Supported

**Notes:  $p < 0.001$ ;  $p < 0.01$**

The Multi-Group Analysis also verifies the measurement invariance of the research model across the three groups, and all hypotheses are found valid in each group. This implies that entertainment and social interaction have similar effects on emotional and functional attachment and similar effects on social media addiction, irrespective of the social media platform.

Lastly, the chapter details the findings and discusses the data analysis about the research model's validity and reliability and the hypothesized relationships. The research shows that apart from utilitarian and hedonic values, entertainment and social interaction are the main predictors of emotional and functional involvement that lead to SMD addiction across platforms.

## **DISCUSSION AND CONCLUSION**

### **Discussion**

In this chapter, there is a detailed consideration of the hypotheses stated and analyzed in the framework of this research. The first was to assess the proposed model, and the latter was to test seven hypothesized relationships. The first hypothesis (H1) was that entertainment affects the degree of emotional connection. Also, this hypothesis was supported with a p-value of 0, and compared to the Lanius group, the Student's t-test of the data revealed a t-value of 001, suggesting a positive effect of the stimulant. Another hypothesis, hypothesis (H2), argued that entertainment also influences functional attachment, and the impact was supported with a  $p < .001$ .

The (H3) was related to the role interaction played to attachment on behalf of the two emotions. With an estimated  $p < 0.05$ , we were able to confirm this hypothesis. 001. The (H4) relates to the



effect of social interaction on functional attachment, which the study found significant, with a p-value of 0.001. The fifth hypothesis (H5) is concerned with investigating the link between connectedness and social networking site dependency, leading to positive findings and a value of  $p < 0.001$ . The (H6) of the study stated that functional attachment predicts the level of emotional attachment, which was supported with  $p < 0.001$ .

The last hypothesis of the study (H7) proposed that functional attachment has a relationship with social media addiction. The above hypothesis was also corroborated with a p-value of 0.001. In order to compare all the hypotheses, Structural Equation Modeling (SEM) in the SPSS extension, Amos, was used. The present study's findings provided evidence that all constructs played a significant role in social media addiction and were also interrelated and significant in that all shared a positive correlation.

The research assessed the impact of social intercourse and amusement on social networking dependency by viewing functional and emotional bonding. This objective was achieved by addressing the following research question: To what extent are entertainment and social interaction the determinants of social media addiction? The findings imply that when users are amused and interacting with others ceaselessly on a particular app or platform, they tend to form emotional connections; hence, they tend to use the application frequently, which may lead to social media dependency. However, it does not look at the explicit question of whether this apparent addiction has beneficial or detrimental effects.

## **Conclusion**

In this chapter, the author restates the research findings and discusses what the research findings mean. From motivation theory, the study established entertainment and social interaction as independent variables, while social media addiction was the dependent variable. Emotional and functional attachment were therefore incorporated as mediators. The study aimed to establish whether entertainment and social relations cause social media dependency. The percentages demonstrate that TikTok, in particular, receives a significant share of users' attention, which, in turn, can be viewed as evidence of its highly effective marketing channel. The result depicted

that all hypothesized variables are positively related in the study. Thus, all hypothesis was supported. The research question was answered, showing that functional uses cause higher levels of emotional use, and the more users are emotionally attached, the more they are engaged, and social media is possibly addictive. In the study, the authors state that although functional attachment is responsible for emotional attachment, it is the emotion that keeps clients engaged for extended periods and results in addiction. This research makes helpful theoretical and practical contributions to understanding social media usage, its benefits, and the dark side of 'addiction' to it.

### **Theoretical Implications**

This section describes the theoretical implications of the study conducted, given the theoretical framework formulated in this research. The study relates well with the earlier findings regarding social media utilization and aspects related to addiction. This study extends to prior works where the researchers have focused mainly on the negative consequences of SMI and how the same affects the working efficiency of the employees (Lee & Zheng, 2016; Cao & Yao, 2017) and looks at the organization's emotional and functional attachment as an antecedent to SMI.

### **Managerial Implications**

This section considers how the research may be helpful to managers. The results can assist the managers of social media to develop better advertisements for the general public to view since they contain fascination and interaction. When targeted at platforms that collect large amounts of interaction, it is possible to make advertisements more engaging and increase the effectiveness of consumers' interaction with brand ambassadors. Sharing of interest growth of the pages and developing community pages that evoke discussion and even brand awareness would improve the impact of social media marketing. Also, it has become more accessible for companies to market their products and services through influencers or celebrities on TikTok.

### **Research Limitations**

This section addresses the limitations of the research study. First, it was done in Pakistan only, so it may not be possible to apply the results to other countries. Second, only two aspects of

motivation theory were tested: entertainment and social interaction; other aspects were not considered. Third, the study was conducted using only Facebook, TikTok, and Instagram; hence, the results cannot be generalized to all social media platforms.

### **Future Research Recommendations**

This section provides conclusions for the study and recommendations for future research. First, future research can compare the levels of social media use in different countries using the same measures and theoretical models used in this research. Second, comparing one type of social media, for example, Snapchat and Instagram, could offer some understanding of the users' behavior on different types of SNS. Third, it may interest future researchers to learn of user' crossover' between those who use the two platforms for entertainment and those who use them for professional networking. Fourth, the comparisons or differences between TikTok and Likee, or between Facebook and Twitter, would extend our knowledge of social media addiction. Finally, future research may estimate new variables such as word-of-mouth info, customizations, or trendy-oriented research and could apply the research frame to another set of apps.

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## Appendix

Variable	Measurement Scale	Reference
<b>Functional Attachment</b>	- Does this social media app provide opportunities to achieve your expertise or other objectives?	Wan et al. (2017)
	- Does this social media app offer help to achieve your experience or other aims?	
	- Does this social media app have results to achieve your experience or other goals?	
<b>Social Media Addiction</b>	- Is it because of using this social media app that your social life has often suffered?	Charlton & Danforth (2007)
	- Have you ever made unsuccessful attempts to reduce the time using this social media app?	
	- Have you found it hard to monitor the use of this social media app?	
	- Due to your interest in this social media app, do you often forget important things?	
	- Has your social life suffered sometimes because	



	of your contact with this software on social media?	
<b>Entertainment</b>	- Is the content posted on this app by social media users enjoyable?	Davis (1989)
	- Do you seem to be interested in the content of this social media app?	
	- Do you believe it is pleasurable to use this social media app?	
<b>Emotional Attachment</b>	- Are you interested in becoming friends with another user of this social media app?	Wan et al. (2017), Ren et al. (2012)
	- In the future, will you like to communicate with another user of this social media app?	
	- Is this app for social media useful for you?	
	- Are you interested in this social media app to learn more?	
<b>Social Interaction</b>	- Have you built strong social relationships with this social media app's other users?	Gan & Li (2017)
	- When you use this social media tool, can you interact with friends in your real life?	
	- Through using this social media tool, have you established close friendships with other users?	