

# ONLINE SELF-DISCLOSURE THROUGH SOCIAL NETWORKING SITES ADDICTION: A CASE STUDY OF PAKISTANI UNIVERSITY STUDENTS

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DOI: 10.7906/indecs.17.1.18  
Regular article

*Received:* 23 January 2018.  
*Accepted:* 2 January 2019.

## ABSTRACT

Social networking sites provide a virtual platform for socialization, interaction, and entertainment. The overuse of social networking sites has become a global phenomenon, especially among young generations. The purpose of this study is to investigate the addiction elements of social networking sites and the impact of such an addiction on online self-disclosure. Additionally, the moderation effect of openness and extraversion was also analysed. Data from university students in Pakistan was gathered online using the Google survey application. In total 290 samples were gathered and examined. SPSS and AMOS software programmes were used to analyse data. Findings confirmed that young generations tend to have greater online self-disclosure due to social networking sites addiction. Both moderation results also showed a significant relationship between social networking sites addiction and online self-disclosure. The results of the current study are also used as a guideline for making policies related to social networking sites addiction.

## KEYWORDS

entertainment, socialization, student, Pakistan, social networking

## CLASSIFICATION

JEL: O35

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## INTRODUCTION

Social networking sites (SNS) is a virtual platform, where visitors communicate, update status, post, and interact with several friends. SNS (e.g. Skype, Viber, Twitter, and Facebook) have attracted millions of users around the world including Pakistan. People easily connected using the applications of SNS with friends, relatives, and business persons all over the world. Due to the popularity of SNS in a globe, developing countries are at the forefront. In the perspective of Pakistan SNS is receiving distinction every day. Pakistani young generation and university students spend most of the time on SNS. Specifically, Facebook is currently the most utilized SNS in Pakistan with 9 million users in the nation. In April 2013, Pakistani Facebook users reported about 30% female and 70% male, in which most of them were young generations [1]. The past survey reported that about 24% of the young generation constantly online [2]. Surveys of several countries also indicated that SNS usage based on regional and cultural trends. Similarly, evidence from prior research studies confirmed that Pakistani youth spend most of the time on Facebook to communicate with friends, relatives, and posts different updates [3, 4]. Recently, only a few scholars highlighted the factors of excessive use of SNS in Pakistan [1, 3, 5]. Specifically, Ali [1] examined the effect of SNS use on youth and change in family relations. Kanwal, Chong [3] (2018) highlighted the SNS addiction elements. Khan [5], investigated the impact of SNS use on student academic performance. Therefore, it is necessary to understand and identify the influencing factors of SNS use, which develops addictive behavior in adults towards social networking sites.

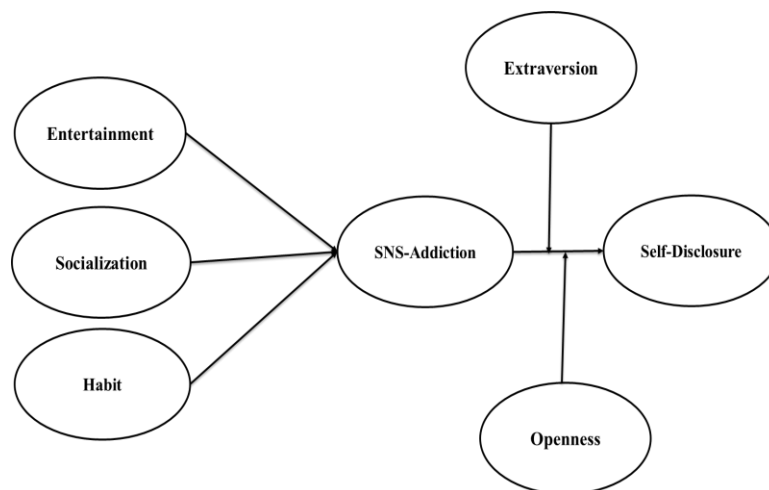
The excessive use of SNS has led the researcher to investigate the factors, which makes user addictive. Indeed, several users use social networking into their daily routines. For example, socialization, enjoyment, chatting, video calling, posting, updating status and comments on another status [2], and these features led users addictive of SNS. SNS addiction is outlined as overusing of SNS or consume most of the time on social networking [6]. In recent years, a plethora of literature on SNS addiction has been published because of its excessive usage. Recently, 1.28 billion users of Facebook has been reported in March 2017 [7]. Similarly, another research indicated that time spends on Facebook by young generation has increased from 40 min to 50 min from 2014 to 2016 [8]. Prior studies related to SNS addiction have highlighted a number of factors such as social, and psychological predictors of SNS addiction [9, 10], the relationship between excessive use of SNS, and psychological problem [11, 12]. Specifically, studies based on predictors of SNS. In addition past studies also reported that adult is addictive of SNS [13]. Several factors have been reported in relation to SNS addiction. For example, young generation chatting with friends and family members, academic purpose, posting updates, reading news. Given the attractiveness of SNS and their importance in young generations' lives, it is necessary to evaluate and identify the primary factors and significance that promoting SNS usage, especially at greater levels such as socialization, habit, and entertainment with using SNS.

Despite the several well-documented advantages of social media [14], scholars suggest that people use SNS for socialization, entertainment, and another work purpose [15-18]. Specifically, the user describes their personal information such as cultural information, demographic information, education and hobbies [17], they also post photos and making online-self-disclosure. According to past study, self-disclosure is the way of presenting self-information to others [19], which can enhance the familiarity among individuals [20]. Online self-disclosure refers to present self-information on SNS such as posting message, pictures and posting real-life stories [21]. Compare to face to face interaction, SNS interaction is extremely anonymous, and less visual which cause everyone to disclose important information on SNS [22]. As SNS functions as an outlet for online self-disclosure [23]. In

addition, SNS users not only expressing personal information but also posts or disclose the information of their friend, and family members [24]. Therefore, to examine the effect of SNS addiction on online self-disclosure is necessary and interesting.

Several scholars have investigated the SNS usage and personality traits of young adults [17]. Personality traits are defined as internal characteristics that shows the individual behavior or attitude [25]. For instance, Klein, Lim [26] argued that openness influences the scores in social networks. Similarly, Ishiguro [27] investigated the influence of openness and extraversion on social network friends. Back, Stopfer [28], also verified that SNS profile of user reflects the user personality traits because SNS consists user's personal information regarding personalities such as self-disclosure, appearance, friends and other factors around the environment. Extraversion feature describes users who are sociable, and cheerful. Openness describes users who are curious, and unconventional. SNS features enable users to create a profile and communicate with real-life friends in the virtual environment [29]. Moreover, SNS has been considered digital platform to pour personal information or experience on SNS. Therefore, its necessary to investigate the user personality attributes as a moderaror and provide evidence related to the SNS addiction and online-self-disclosure.

The purpose of the current study is to extend our understanding of SNS addiction and its related factors on online self-disclosure. In addition, this study also examines the moderating role of openness and extraversion, two characteristics of a big-5 personality trait. Additionally, current research study also further examines whether socialization, habit, and entertainment related to SNS addiction and predict the online self-disclosure with the relationship of SNS addiction. There are several theoretical contributions of this study. First, the author highlighted the factors, which led the user toward SNS addiction. Second, the current study contributes to the emerging body of literature about SNS addiction by providing the advance knowledge and support for the impact of SNS addiction on online self-disclosure. Third, this study considers the moderating role of personality traits. As users are interested in expressing personal information on SNS such as photos, status, location, and hobbies. Figure 1 shows our conceptual diagram, which will be developed in the following sections.



**Figure 1.** Research model.

This research study is organized as follows. Section 2 explains the relevant literature and hypothesis development. Section 3 describes the research methodology including data collection procedures, measurement items. Section 4 shows the results of data analysis together with moderation and mediation tests. Section 5 is a discussion section. Section 6 consists of a theoretical contribution. Finally, Section 7 explains the limitation of the study.

## **THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT**

### **ONLINE SELF-DISCLOSURE**

According to literature self-disclosure is an act of expressing personal information to others such as location, hobbies, and photos [22, 30]. Online self-disclosure is defined as the way of expressing self-related information to others on SNS [22]. Any personal information that can be regularly checked, update status/posts using SNS can be treated as self-disclosure [21]. SNS promotes the online self-disclosure [30], an anonymous visitor also analysis the pictures, posts, status and develop an opinion on your behavior in different ways. According to social penetration, theory self-disclosure is a fundamental concept in developing and maintaining relationships with others. Individual disclose their thoughts, experience, relationship status and fears in SNS. Adolescents disclose self-information with their friends on SNS.

Scholars have also explored self-disclosure on SNSs [22, 31-33]. Specifically, Chen and Hu [22] investigated the use of Sina Weibo, Chinese social media application. on self-disclosure and found that individual with high anxiety discloses less information as compared to others. Liu and Min [32] conducted study microblogging users of China and investigated the relationship between social benefits and online self-disclosure. Wang and Yan [33] examined the antecedents of online self-disclosure and online self-disclosure honesty. Zlatolas and Welzer [31] discussed the privacy issues related to self-disclosure and proposed a research model which consists of privacy awareness, policy, and control. Theoretical work suggests that SNS attracted the individual with personalized information, as its human nature peoples are very interested in getting information about others, though, this type of behavior also leds them towards SNS and they express their personal-information on SNS [34]. Therefore, the aim of this study is to explore the SNS addiction impact on self-disclosure in Pakistani youth context.

### **SNS-ADDICTION**

According to scholars, social media is a group of digital technologies, which facilities individual, groups to communicate, share, and discuss information generated by other users [35, 36]. Due to the flexible environment, open platform, and easy use of social media technologies individual become habitual users of social networking and want to remain online every time. This type of user behavior of using social media called SNS addiction or social media addiction. Like many other countries of the world, SNS become popular activity in Pakistan, especially in young generations. Specifically, SNS addiction means to utilize most of the time on social networking. It is defined as unnecessary association with SNS activities or overuse of SNS with different activities [37].

Social Networking Sites consists of virtual communities where an individual can create public profiles, communicate with real-life friends, and interact with other users based on mutual interest [38]. As a growing concern over the excessive use of SNS, scholars are interested in its causes and consequences of this behavior [16]. Despite rising interest in SNS addiction, few scholars knew about its consequence on self-disclosure [23, 32, 39]. Though these studies have increased our understanding of SNS addiction from numerous perspectives, research related to SNS addiction is in developing stage because it requires testable theories that clarify how SNS addiction influences the online self-disclosure. Therefore, investigating the influence of SNS addiction on online self-disclosure in the current study is an attempt to address this research gap in the SNS addiction literature.

### **ENTERTAINMENT, SOCIALIZATION, HABIT AND SNS ADDICTION**

SNS activities help the individual to fulfill the individual needs like to develop and maintain social relations with other people, interact and socialize with online friends. Research on SNS

suggests that SNS satisfies socialization needs of individuals [40], make it more likely that they are participating in real life. People use SNS application for a wide range of socialization purposes such as broadcasting messages to all contacts, information-sharing and commenting on others post or status. Individual easily interact, communicate, exchange ideas, and information with other using several online communication platforms including social communication channel (e.g. Facebook and Twitter), multimedia channel (Instagram, Dailymotion and YouTube) [41, 42]. Additionally, compared to their parents, young generations have extra capability of using SNS such as Facebook, and Twitter which arises their possibility of SNS addiction and encourages the interest of scholars to adolescent SNS addiction [43].

Recently some emerging features of SNS including entertainment, online gaming, online quiz competition motivate the young teenagers towards SNS. Specifically, entertainment [44] features is a key intrinsic motivator of SNS. Any activity on SNS that attracts the audience attraction and maintain their consternation and interest is known as entertainment [45]. According to scholars, individual use SNS for entertainment, as they hope that entertainment on SNS relieves their stress [46]. Similarly, a past study has shown that entertainment significantly influences the user's attitude, and increases their intention to use digital technologies [47]. Kim, Kim [48] also argued that hedonic motivation (entertainment, fun) is positively related to smartphone addiction.

Numerous prior literature has validated the arguments that several activities on SNS such as entertainment, socialization make the user habitual or addictive [38, 49-51]. Psychology literature conceptualized habit as "learned sequences of acts that have become automatic responses to specific cues". The habit of SNS, therefore, play a key role in continuing of using SNS. In prior research habit variable widely used by social media scholars [52-54]. Venkatesh, Thong [55] argued that habit was significantly associated with the user's intention to use mobile internet. Specifically, this habitual behavior of users towards technology convert in addiction. In the perspective of SNS, initially user uses SNS for entertainment, usefulness, and socialization purpose and become habitual or addictive. Theoretical work suggests that socialization, and entertainment through SNS motivates users towards SNS addiction. Based on theoretical argument, this study proposes the following hypotheses:

**H1:** Entertainment on SNS is positively associated with SNS addiction.

**H2:** Socialization on SNS is positively associated with SNS addiction.

**H3:** Habit of SNS is positively associated with SNS addiction.

## **THE MEDIATING ROLE OF SNS ADDICTION**

SNS usage refers to a virtual environment, where individual interact, exchange, communicate and maintain a social relationship with other for entertainment and socialization purpose. Specifically, young adults are addictive users of SNS and habitual sharing their life experience, ideas, and touch with old friends and family members [56]. For instance, a past study indicated that young generation engaged with online self-disclosure with their friends using digital technologies [57]. Consistently, scholars argued that Facebook can enhance the chances of self-broadcasting and increases the socialization with other friends [58]. Based on the past investigation, a recent research has contended that SNS (instant messenger) can increase German users self-disclosure [59]. In the world of technology, individual use SNS simultaneously and broadcast themselves in the globalized world, the opportunities for users to present themselves, their pictures, ideas have established dramatically. Self-disclosure on SNS provides several benefits such as interaction, relationship building, and self-presentation [60, 61].

Kizgin and Jamal [51] claimed that expressing self-information on SNSs is essential for building social communication with others. Substantial evidence has also documented the

significant link between SNS addiction and online self-disclosure [62, 63]. Studies related to self-disclosure on SNS proposed that people often disclosed a large amount of information on SNS [3, 32, 60]. Considering the past literature, it is likely to argue that SNS (Facebook) communication or interaction can enhance the Pakistani university student's online self-disclosure. Agreeing with past literature, this study outline the following hypotheses:

**H4:** SNS addiction is positively associated with the online self-disclosure.

**H5:** SNS addiction mediates the relationship between Entertainment, Socialization, and Habit with online Self-Disclosure.

## **THE MODERATING ROLES OF EXTRAVERSION AND OPENNESS**

Due to the success of SNS, researchers investigating the link between SNS and personalities of the user [17, 25, 27]. Personality traits are natural individual characteristics [64], which representing how a person may approach and answer to wide-ranging circumstances during their lives. Theories related to personality traits demonstrated the wide range of human activities on SNS such as SNS addiction, and student behaviors [65, 66]. Majority of scholars propose Big Five personality traits which included conscientiousness, neuroticism, agreeableness, extraversion, and openness [67]. This study includes openness and extraversion of the big five into the research design.

Openness to experience personality trait individual is knowledgeable, and always generate new ideas [68]. Skues and Williams [69] proposed that individual with high openness communicate through SNS to discuss interests. The openness element is an essential feature of personality traits that are related to human preferences modes [70, 71]. For example, past related literature has suggested that openness individual preferences online interaction, communication for numerous purpose such as online self-disclosure, relationship building and have more positive attitude towards innovative contents. Several literature, suggests that, heavier users of SNS associated with higher degree of openness to experience [72, 73]. Literature also suggests that, heavier users of SNS associated with higher degree of openness to experience. High openness individual is reflected novelty-seeking such as SNS are emerging application of the internet. Therefore, it is assumed that individuals who is more openness to experiences would more user of SNS and have an experiment of expressing self-information on SNS such as self-disclosure.

Extraversion trait associated with the interaction, fun activities, and talkative which enable individual to update status, broadcast self-information and addictive user of SNS [74]. Literature suggests that extravert's person will involve mostly in online social activities such as commenting on other posts, status updates, and online self-disclosure. Ross, Orr [72] investigated the association between SNS (Facebook) usage and personality traits and reported that extraverts persons are an addictive user of Facebook for interaction and social relationship. Similarly, Ishiguro [27] examined the link between extraversion and number of friends on SNS and found that extraverts persons have more friends on SNS. Extroverts individual are motivated to keep the friendship, social interaction with offline and online friends [24]. For instance, an extrovert person on SNS (Facebook) expressing more self-information, online self-disclosure and less share information about their friends. Relating to past literature support, this study suggests the following hypotheses:

**H6:** Openness positively moderates the relationship between SNS addiction and Self-Disclosure.

**H7:** Extraversion positively moderates the relationship between SNS addiction and Self-Disclosure.

## RESEARCH METHODOLOGY

### SAMPLES AND DATA COLLECTIONS

In order to achieve the objective of study a survey method was used. The respondents of this study from Pakistan and student of different universities. An online survey website was used to collect data from university students from Pakistan. The study focused on 5 different universities of Pakistan (Mehran University, Sindh University, Shah Abdul Latif University, NED and Karachi university). We collected data from university students and Pakistan for several reasons. First, Social networking is popular technology among students, as students used social networking for various purpose such as academic, entertainment and leisureliness. Second, this study was conducted in the Pakistani context, as Pakistan is a developing country in terms of technology and economy. There is no any policy implemented by government's officials to control the excessive use of social networking as compared to other developed countries. To make a clear understanding of survey questionnaire authors did several jobs. First, survey questionnaire was reviewed by 3 different management Professors. Second, a focus group study was arranged with 10 Ph.D. student who expert in survey design. Third a pilot study was conducted with 40 respondents and findings was found satisfactory. We eliminated these 40 respondents from final dataset.

To increase the response rate author also requests the professors of concerned university to share the link among students. In addition author also used social media application such as Facebook, Whatsapp, and Twitter to share the survey link among students. Within a period of four weeks, we received 290 samples. Due to the online nature of questionnaire, we did not found any incomplete or missing data in the dataset. Information about the samples is shown in Table 1.

**Table 1.** Information about samples.

		<i>N</i>	Percentage
<b>Gender</b>	Male	186	64,1
	Female	104	35,9
<b>Age</b>	≤ 30 years	191	65,9
	30-40 years	90	31,0
	40-60 years	9	3,1
<b>Education</b>	Bachelors	74	25,5
	Masters	170	58,6
	Ph.D.	44	15,2
	Currently not enrolled in further education	2	0,7
<b>Total</b>		290	100

### INSTRUMENTS AND SCALES

The research model of this study consists of 7 different constructs. All the variables were adopted by prior studies. Questionnaire was scored by using 7-point Likert scale, and was arranged by "strongly disagree" (1) and "strongly agree" (7). The constructs for research model were entertainment, socialization, habit, SNS addiction, personality (Openness, extraversion), and self-disclosure. The measurement items of entertainment were adopted by [75, 76]. The scale consists of 5 items and was measured in terms of use social networking for entertainment purpose such as gaming, watching movies, and sharing funny post or videos on walls. The scale of socialization consists 3 items and scale was adopted by [75, 77]. The instrument of socialization was assessed in terms of the use of social networking for socialization purpose

such as making friendship, chatting, developing new online friends and keep in touch with existing friends. The scale of habit consists 3 items. The measurement items and scales of habit are adapted from [78]. The measurement instrument of SNS addiction was measured from [79]. The SNS addiction items contain 5 items and were measured in terms of excessive use of social networking. The scale of personality was adapted from [80]. In this study, we adopted 2 factors of personality from Big 5 personality model such as openness and extraversion. The scale consists of 3 items of each factor and measured in terms of human personality and its effect on the use of social networking and online self-disclosure. The measurement scale of online self-disclosure was assessed from [81, 82]. The scale contains 10 items in total and measures in terms self-disclosure with use of social networking. In this study, we measured three control variables, i.e. sex, age, and education level. At the individual level, we controlled for gender, age, and educational level, that may influence student behavior [83].

## **DATA ANALYSIS AND RESULTS**

### **ANALYSIS OF BIAS**

The data in the existing study were perceptual and collected from a single source at one point in time, which is an obvious way to control common method bias [84]. Using Harman's single factor strategy, the outcomes specifies that 21 constructs have eigenvalues greater than 1, accounting for 92,87 % of the difference. The first construct explains 34.85% of the total variance, which is less than 50 %. Another evidence of common method bias existence, if ( $r > 0,90$ ) is in the intercorrelation matrix. Results of Table 3 indicate that intercorrelations of all the constructs are within range. Therefore analysis results did not reveal the evidence for any possible issue of bias in this dataset.

### **VALIDITY AND RELIABILITY**

In this study, we used SPSS 21.0 software to measure the validity and reliability of data. First, exploratory factor analysis (EFA) was computed using SPSS software. The findings confirmed that loadings of each item were greater than the minimum value 0.60, which support the proposed research model. In the reliability test, Cronbach's alpha (CA) was ranged from 0,80 to 0,92, were higher than the values of 0,70 as shown in Table 2, which is proposed by [85], indicating the good reliability of the scale. Table 3 indicates that all the values of composite reliability (CR) from 0.83 to 0.93 and also above the minimum value of 0,70 which is proposed by [86], showing that all the items in research model are reliable. All the average variance extracted (AVE) values from 0,55 to 0,81 which were above the minimum value of 0,50 which is proposed by [87], indicating the good convergent validity of the research model. Therefore all the analysis results validated that the research model had good convergent validity.

Further, we computed the decrement validity of research model in several ways. First, we analyzed the discriminant validity of the constructs by comparing shared variances among constructs. Table 2 indicates that all the values of  $MSV > ASV$ . Secondly, we compared the square roots of the AVEs for all constructs with inter-correlation matrix and found that square root of AVE of all the constructs was greater than the correlations between variables [88], as shown in Table 3. Therefore, in summary, we concluded that the research model possessed good validity, and reliability.

Along with the reliability, validity tests, variance inflation factor (VIF) is also computed. Findings indicate that VIF values for all the variables are below the threshold of 10 which suggested that there is no multicollinearity issue in the dataset [89]. The results indicated that



**Table 2.** Results of confirmatory factor analysis. AVE – average variance extracted, CA – Cranach’s alpha, CR – composite reliability, MSV – Maximum Shared Variance, ASV – Average Shared Variance, Discriminant validity: AVE > MSV.

Items	Items	Loading	CA	CR	AVE	MSV	ASV
Entertainment	5	0.778-0.899	0.84	0.87	0.70	0.22	0.16
Socialization	3	0.646-0.871	0.88	0.90	0.64	0.43	0.16
Habit	3	0.755-0.807	0.80	0.83	0.62	0.39	0.19
SNS-Addiction	5	0.637-0.875	0.86	0.86	0.56	0.43	0.18
Openness	3	0.890-0.914	0.92	0.93	0.81	0.17	0.11
Extraversion	3	0.859-0.933	0.90	0.93	0.82	0.13	0.09
Self-Disclosure	10	0.694-0.876	0.91	0.92	0.55	0.39	0.20

**Table 3.** Mean, standard deviation and correlations. NA – not applicable. Mean is assessed based on average factor scores, standard deviation (SD) and correlations are from the second-order CFA output. The diagonal elements are the square root of the AVE.

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1) Self-Disclosure	4.11	0.81	<b>0.74</b>									
2) SNS-Addiction	5.15	1.35	0.41	<b>0.74</b>								
3) Socialization	5.19	1.43	0.37	0.65	<b>0.80</b>							
4) Habit	5.73	1.19	0.62	0.36	0.36	<b>0.78</b>						
5) Entertainment	5.20	1.53	0.46	0.45	0.41	0.46	<b>0.83</b>					
6) Openness	5.30	1.36	0.38	0.24	0.22	0.38	0.31	<b>0.94</b>				
7) Extraversion	5.23	1.32	0.35	0.26	0.22	0.35	0.26	0.27	<b>0.90</b>			
8) Education Level	NA	NA	0.17	0.01	0.03	0.13	-0.04	0.08	0.11	NA		
9) Age	NA	NA	0.20	0.06	0.02	0.16	0.03	0.08	0.11	0.41	NA	
10) Gender	NA	NA	-0.35	-0.32	-0.29	-0.34	-0.27	-0.13	-0.11	-0.15	0.36	NA

\*statistically significant at 5 %  
 \*\*statistically significant at 1 %  
 \*\*\*statistically significant at 0,1 %

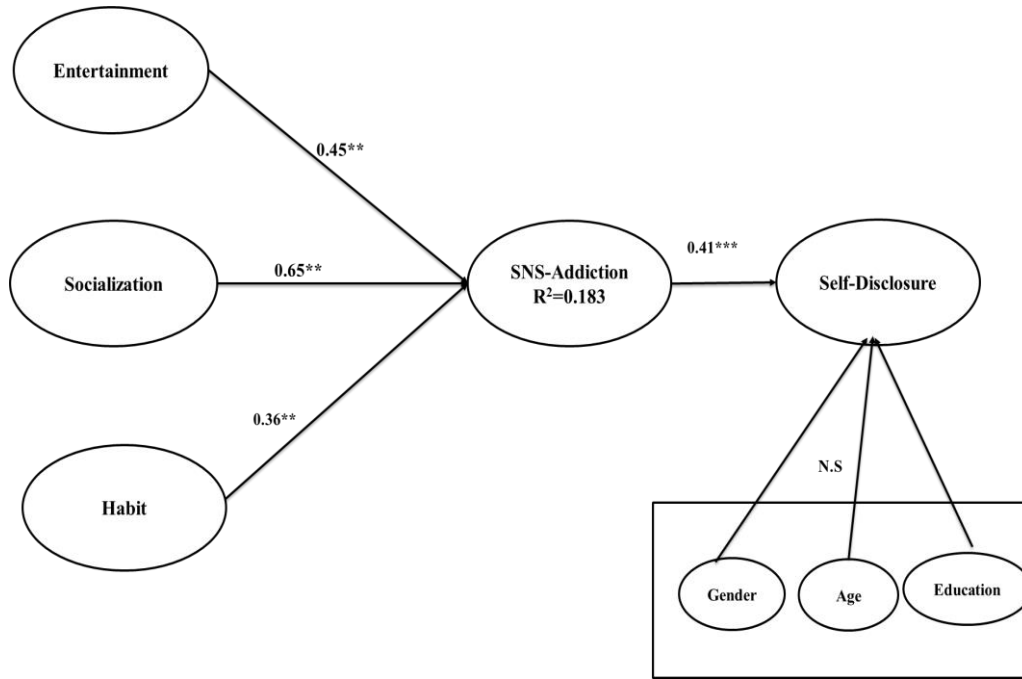
the maximum VIF value was 1.92 and the lowest tolerance value was 1.23, Therefore multicollinearity is not a significant issue in this study [90, 91].

**MEASUREMENT MODEL**

Next, AMOS software was employed to compute the goodness of fit measurement model and also to assess the significance degree of the proposed hypothesis. According to scholars, some model fit criteria must be measured to evaluate the model fit in SEM [92]. These factors are the Comparative Fit Index (CFI), Tucker-Lewis Fit Index (TLI), and Root Mean Square Error of Approximation (RMSEA) and Chi-square ( $\chi^2/df$ ). The results of this study indicates that in structural model, the approximate values are  $\chi^2/df = 2.23$ , CFI = 0.91, TLI = 0.90, IFI = 0.94, SRMR = 0.05, RMSEA = 0.06 which are within threshold values and are acceptable in this sample size.

**HYPOTHESES TESTING**

After suggesting the validity of research model, hypotheses were analyzed. Results in figure 2, shows that proposed hypotheses were validated. The findings indicates that entertainment ( $\beta = 0.45, p < 0.001$ ), socialization ( $\beta = 0.65, p < 0.001$ ), and Habit ( $\beta = 0.36, p < 0.001$ ) have a positive and significant effect on SNS addiction, thus H1,H2, and H3 is supported. In addition,



**Figure 2.** Results for structure model. Here \*\* denotes statistical significance at 5 % and \*\*\* statistical significance at 0,1 %.

the findings of SNS addiction ( $\beta = 0.41, p < 0.001$ ), shows that it has a positive significant effect on self-disclosure, which authenticated the hypothesis H4. In summary, findings confirmed that H1, H2, H3, and H4 is confirmed in this stage.

**Mediating Effect Test**

In the current study, H5 has suggested the mediating effect of SNS-addiction with the relationship between entertainment, socialization, habit and the online self-disclosure. For that purpose, we employed the bootstrap sampling techniques (bootstrap sample size = 5000) as suggested by MacKinnon, Lockwood [93]. We test the mediation relationship of SNS-addiction with independent variables and dependent variables, Table 4. SNS-addiction mediates the relationship between entertainment and online self-disclosure because CL (0.040, 0.166) exclude zero. SNS-addiction mediated the relationship between socialization and online self-disclosure because CL (0.071, 0.257) did not contain zero. Same way SNS-addiction mediated the relationship between habit and online self-disclosure because the CI (0.030, 0.120) did not include zero. Hence, proposed H5 is validated.

**Table 4.** Results of the bootstrapping method for mediation. IV= Ent = Entertainment, Soc = socialization,, DV = SD – Self- Disclosure, MV = SNSA – SNS addiction.

IV	M	DV	Effect of IV on M (a)	Effect of M on DV (b)	Direct effect (c')	Indirect effect (a·b)	Total effects (c)	95 % CI	Result
Ent	SNSA	SD	0.421**	0.235*	0.304**	0.099**	0.403**	(0.040, 0.166)	Supported
Soc	SNSA	SD	0.636**	0.271**	0.168**	0.051	0.172**	(0.071, 0.257)	Supported
Habit	SNSA	SD	0.344**	0.201**	0.300**	0.069**	0.550**	(0.030, 0.120)	Supported

\*statistically significant at 5 %  
 \*\*statistically significant at 1 %  
 \*\*\*statistically significant at 0,1 %

### Moderating Effect of Openness and Extraversion

H6 and H7 suggested the moderating role of extraversion and openness. Scholars suggested hierarchical regression one of the most important tool for examining the interaction effect because it enables to enter the constructs order by their key significance [94]. Thus, hierarchical regression analysis was used to test the moderating effect of extraversion, and openness in this study, as shown in Tables 5 and 6. First, we analyzed hierarchical regressions for the dependent variable online self-disclosure with the relationship of independent variable SNS-addiction and moderator openness. Step,1 included only the control variables. The findings suggested that the control variables were not significant. In step 2 independent variable SNS-addiction effect was tested with dependent variable online self-disclosure. The results suggested that SNSA has a positive effect on self-disclosure with ( $\beta = 0.31, p < 0.001$ ).In step 4 moderator openness was tested. Finding verified that openness has a significant effect on the ( $\beta = 0.28, p < 0.001$ ).Finally, step 4 interaction terms (SNS-addiction·openness) was analyzed. The interaction results also significant with ( $\beta = 0.10, p < 0.05$ ) In sum, Openness variable positively moderates the relationship between SNSA and self-disclosure. Thus, H6 was validated.

**Table 5.** Results for hierarchical regression analysis (Moderator is Openness).

Variable	Model 1	Model 2	Model 3	Model 4
Gender	-0.36**	-0.25**	-0.24**	-0.23**
Age	0.17*	0.15*	0.13*	0.14*
Education level	0.09	0.10	0.88	-0.08
<b>Main Effects</b>				
Social Networking Sites Addiction (SNSA)		0.31**	0.25**	0.26**
<b>Moderator</b>				
Openness			0.27**	0.28**
<b>Interactions</b>				
SNSA* Openness				0.10*
R <sup>2</sup>	0.18**	0.27**	0.34**	0.35*
Adjusted R <sup>2</sup>	0.17**	0.26**	0.32**	0.33*
F Change	21.33**	35.30**	29.24**	4.68*

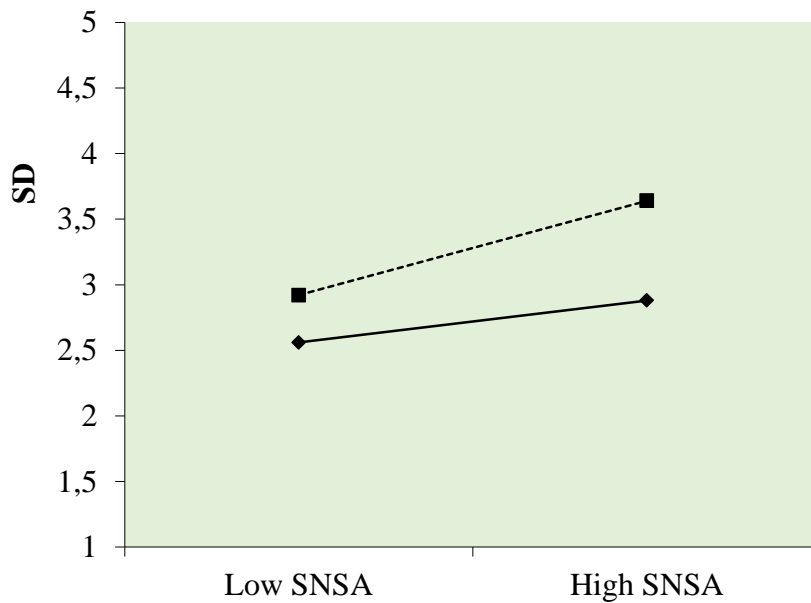
\*statistically significant at 5 %

\*\*statistically significant at 1 %

\*\*\*statistically significant at 0,1 %

In addition, we used the graphical procedure, to understand the moderation effect of openness as suggested by [95]. Figure 3 illustrated that openness positively moderate the relationship between SNSA and self-disclosure.

Next, we examined the hierarchical regressions for the dependent variable online self disclosure with the relationship of independent variable SNS-addiction and moderator extraversion. Step,1 entered all the control variables and found that control variables are insignificant. In step 2, SNS-addiction effect was analyzed with dependent variable online self-disclosure. The results suggested that SNSA has a positive effect on self-disclosure with ( $\beta = 0.31, p < 0.001$ ).In step 4 moderator extraversion was tested. Findings verified that extraversion has a significant effect on the ( $\beta = 0.23, p < 0.001$ ). Finally, step 4 interaction terms (SNS-addiction·extraversion) was analyzed. The interaction results also significant with ( $\beta = 0.15, p < 0.05$ ). In sum, extraversion variable positively moderates the relationship between SNSA and self-disclosure. Thus, H7 was validated.



**Figure 3.** Moderating effect of openness on the relationship between SNS-addiction and self-disclosure. Full (dashed) line denotes low (high) Openness.

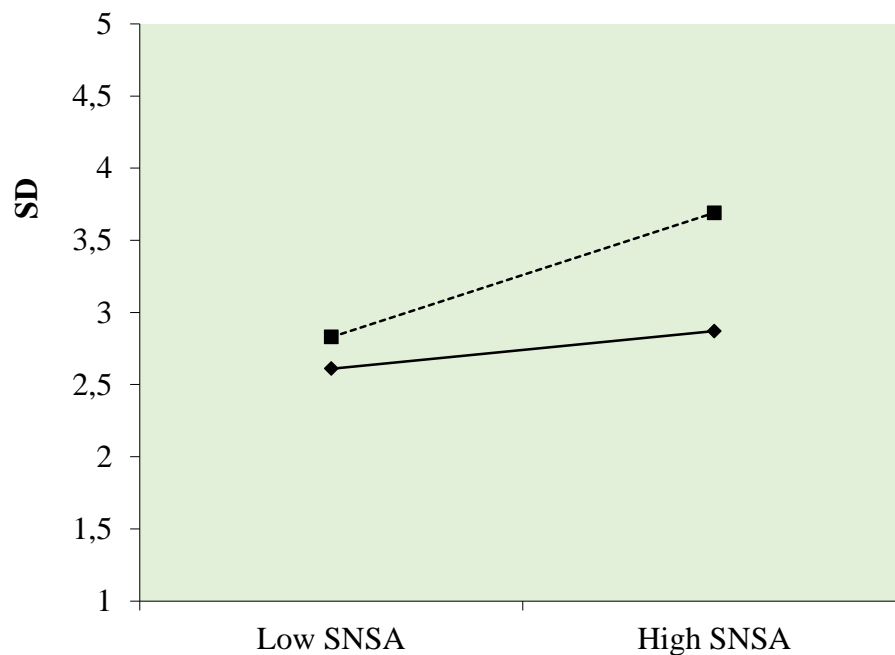
**Table 6.** Results for hierarchical regression analysis (moderator is extraversion).

Variable	Model 1	Model 2	Model 3	Model 4
Gender	-0.36**	-0.25**	-0.25**	-0.24**
Age	0.17*	0.10*	0.13*	0.15*
Education level	0.09	0.116*	-0.08	-0.07
<b>Main Effects</b>				
Social Networking Sites Addiction (SNSA)		0.31**	0.26**	0.28**
<b>Moderator</b>				
Extraversion			0.23**	0.26**
<b>Interactions</b>				
SNSA* Extraversion				0.15*
R <sup>2</sup>	0.18**	0.27**	0.32**	0.34*
Adjusted R <sup>2</sup>	0.17**	0.26**	0.31**	0.33*
F Change	21.33**	35.30**	21.09**	9.177*

In addition, we used the graphical procedure, to understand the moderation effect of extraversion as suggested in [95]. Figure 4 illustrates that extraversion positively moderate the relationship between SNSA and self-disclosure.

## DISCUSSION

The purpose of the current study is to explore the factors which lead the user towards SNS addiction. Findings suggested that socialization, habit, and entertainment on SNS are main causes of SNS addiction, which are according to our assumption. As this study proposed in H1, H2, and H3 that socialization, habit, and entertainment is positively related to SNS addiction, this analysis also consistent with several past studies. For example, scholars, also reported that SNS is an open public platform and provides several functions including chatting, socialization, and posting [2, 38], these features attract the users towards social networking, individual become habitual of SNS. Andreassen [96] also found that 24 % to 35 %



**Figure 4.** Moderating effect of extraversion on the relationship between SNS-addiction and self-disclosure. Full (dashed) line denotes low (high) Extraversion.

of Asian students were addictive of SNS. Similarly, Junco [97] found that young generation spends about 100 min/day on SNS with different activities. As this study also conducted in Pakistan and majority of the respondents of this study are students of Pakistan, who studied in different universities with different age groups. The majority were a young generation from 21 to 30 years old. Results validated that young adults especially students are more inclined toward SNS due to its leisure activities, such as socialization, entertainment, usefulness, and its flexible platform. Several universities provide fast, free internet on campus, classrooms, and dorm, students easily can access Wi-Fi with smart mobile phone devices everywhere, this type of facilities led to students, young generation to SNS addiction. As Pakistan is a developing country in terms of technology, government authorities did not implemented any policy related to excessive use of social networking as compared to developed countries. For example, Chinese government authorities has implemented some rules in the country on SNS [32], and most of the public social networks are blocked in China. However, Liu, Min [32] also reported usage of microblogging and self-disclosure.

This study also proposed mediating effect of SNS addiction with the relationship of socialization, environment, habit and online self-disclosure in H4 and H5. Results confirmed that SNS addiction mediates the positive relationship with SNS addiction elements and self-disclosure. These results document that SNS addiction could led young generations towards the online self-disclosure and these results also reported by prior research studies [63, 98]. This link may be attributable to the truth that on SNS, individuals who express their thoughts, posts, hopes, and hobbies would obtain essentially more attention of friends and family members. Therefore, SNS addiction leads the individual towards self-disclosure.

In addition, the study also considers the moderating role of extraversion and openness traits with the relationship of SNS addiction and self-disclosure in H6 and H7. Results showed that both factors are a potential moderator, as SNS are used for interaction, and communication. these findings are consistent with the past studies. For example, scholars also conducted several studies related to personality traits and addictive behaviors of users to various online activities, and found a significant positive relationship [99-101].

## **THEORETICAL AND PRACTICAL CONTRIBUTIONS**

The current research theoretical contributes to SNS addiction literature in several ways. First, this study considers important but an unexplored topic SNS addiction in Pakistan and this study addresses this research gap to attempt highlighted the SNS addiction elements in a student context. In addition, this research study provides the status of SNS usage in Pakistan. As the majority respondents of this study are university students, thus findings are much importance for scholars, parents as well for teachers, as these are major stakeholders of students, also the student are considered a key asset of the nation. Therefore, some monitoring systems should be implemented and student should be trained for the positive outcome of SNS.

Second, although Facebook has become one of the most common SNS platforms among university students in Pakistan, comparatively limited studies have analytically discovered the distinctive features of the SNS platform and its implications in the digital age. Hence, the existing research presents one of the attempts to carefully expose SNS addiction elements and online self-disclosure. Consisting of past literature [59, 102] findings demonstrate that SNS addiction can cause online self-disclosure.

Third, the findings of this study also proposed that SNS designers pay some attention to SNS addiction elements. SNSs addiction elements such as socialization, environment keep the individuals away from other useful internet websites sites [103] and makes addictive towards SNS. For example, LaRose, Lin [104] proposed that habits created in SNS can also promote the negative outcomes. Therefore, SNS providers should also consider the negative consequences from the addictive use of SNSs.

Finally, scholars and academician should arrange seminars, lectures and training to inform students or young generations about the benefits of SNS such as SNS can also be used for group discussions, and other academic purposes.

In summary, SNS like Facebook provides a new platform for adults to present themselves and to communicate with other friends. Young generation updates information to walls and uploading photos for online self-disclosure on SNS. SNS enables the individual to make profiles and engage in activities that reflect the self-disclosure.

## **FUTURE WORK**

This study investigated the recent research on SNS addiction, data collected from Pakistani university students, and raised many questions unanswered and more research on this emerging area is required to understand the full scope of SNS addiction and its solutions. First, the sample size of this study is small as compared to 1 million active users of the internet. In the future, scholars can extend the scope of this study by increasing the sample size and comparing the findings with study results. The results also have limited generalizability to other populations, such as adolescents or older adults who may be using Facebook and Twitter in different ways.

Secondly, this study focused in a specific group, especially students attending different universities in Pakistan, they may differ from other SNS users in many ways, such as their fast and easy access to the internet. They can easily upload several photos, posts, and information as compare to other internet users which take more time with a slow internet connection. In, future scholars can also test this model and include other respondents.

Third, this study only highlighted the very few SNS addiction elements such as socialization and entrainment related to SNS. Scholars are advised to investigate the other addiction elements, which are related to SNS addiction and online self-disclosure. This study considers extraversion, and openness traits as a moderator and found the significant moderating effect

of both. Scholars are advised to explore the direct relationship of personality traits with SNS addiction and online self-disclosure. Furthermore, scholars can also investigate the SNS usage and academic performance of students [105], and generate additional interesting results.

## ACKNOWLEDGMENT

Shamsa Kanwal is grateful to Chinese Scholarship Council authorities for the scholarship award and financial support during Master's research studies at the University of Science and Technology Hefei China.

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