

Pakistan Islamicus

An International Journal of Islamic and Social Sciences
(Bi-Annual)

Trilingual: Urdu, Arabic, and English

pISSN: 2789-9365 eISSN: 2790-4911

<https://pakistanislamicus.com/index.php/home>

Published by:

Muslim Intellectuals Research Center

Multan-Pakistan

website: www.mircpk.net

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Bi-Annual

Vol. 03 No. 02

(July - December 2023)

pISSN: 2789-9365

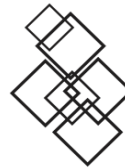
eISSN: 2790-4911



An International Journal of
ISLAMIC AND SOCIAL SCIENCES

پاکستان
ISLAMICUS

www.pakistanislamicus.com



Muslim Intellectuals Research Center
Multan - Pakistan

TOPIC

DEVELOPMENT AND VALIDATION OF SELFITIS SCALE (SS)

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How to Cite

Hussain, H., Abbas, M. M., Rizvi, M., & Ali, A. S. 2023.

"DEVELOPMENT AND VALIDATION OF SELFITIS SCALE (SS)."

PAKISTAN ISLAMICUS (An International Journal of Islamic & Social Sciences)

3 (2): 500-513.

Retrieved from:

<https://pakistanislamicus.com/index.php/home/article/view/76>.

DEVELOPMENT AND VALIDATION OF SELFITIS SCALE (SS)

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Abstract

The increase in the use of smartphones has led to the emergence of new trends in mobile phone photography. One such trend is the growing use of capturing "selfies" through mobile phones. "Selfie" is a self-portrait photograph of oneself taken through a smartphone. In the current study, a scale was developed to explore the selfie-taking and posting behaviour among university students in Pakistani culture.

The tool development and validation study were conducted in three phases. In the first phase, approximately 60 students were interviewed individually to generate the item pool of selfie-related thoughts and behaviours in them. The repeated items were excluded, and a list of 20 items was generated that was used for a pilot study on 30 university students as a self-report measure of a 4-point rating Selfitis scale. The final checklist of the Selfitis Scale and Demographic Questionnaire was administered to 300 university students, including 154 boys and 146 girls.

Results revealed that the scale had high construct and concurrent validity, internal consistency, split-half reliability, and test-retest reliability. Moreover, factor analysis generated three factors solution, namely Screening Portion, Seeking Social-Satisfaction, and Seeking Self-Satisfaction.

Indigenous selfies scale can serve as a comprehensive tool for the assessment of the selfie-taking and posting phenomenon in the young generation for future research studies.

Keywords: Selfie, Selfitis, Addiction, Photograph, Mental Health, Pakistani Culture

Introduction

With time, the human race has witnessed many changes in the world from the Stone Age to the digital era (current era) due to advancements in science and technology. The advancement in science and technology has led to the discovery and invention of many new things that have changed the living styles, thoughts, and behaviors of individuals. In the 21st century, one of the most important things is the increased use of smart phones and social media. On social media websites, people post photographs and videos to share with others. The trend of posting photos including selfies has increased significantly over the last few years (Kim et al. 2016).

The word “selfie”, having Australian origin was first publicized in November 2013 as being the “word of the year” by Oxford Dictionary. The “selfie” is a photograph of oneself that one takes through a smart phone and posts on social media websites (The Oxford Dictionaries 2013) and “selfitis” is the term used for those people who take selfies three or more three times in a day and post on social media. Selfitis is characterized as the obsessive-compulsive desire to capture photographs of one’s self and post them on social media websites, an individual who takes selfies at least three times a day is called selfitis (NewsGram 2015).

According to the official website of the American Psychiatric Association, the disorder of selfitis is not present in DSM-5 currently but there is sufficient symptomatology of real cognitive illness that needs and deserves treatment (American Psychiatric Association 2015). Taking too many selfies might be due to a lack of self-esteem (Barakat 2014) or to fill the distance and gaps in intimacy in individuals (Lasen 2015), thus leading to narcissism (Weiser 2015), obsessive-compulsive disorder (Gul & Ayub 2016), internet addiction and social, emotional and behavioral problems (Limjuco & Bautista 2016). APA has classified the selfitis into three levels; the first is “borderline selfitis”, those individuals who take selfies at least three times a day but do not post them on social media websites. The second is “acute selfitis”, for those who take selfies at least three times a day and post them on social websites. The third type is “chronic selfitis”, which is an uncontrollable desire to take selfies, and the person takes selfies round the clock and posts them on social websites more than six times a day (Adobochron 2014).

According to the previous research studies, it has been observed that the behaviors of the individuals not only impact their own mental and physical health but also affect the physical and mental health of the selfitis’ loved ones. As earlier discussed that selfitis is highly connected to individuals’ obsessiveness about themselves, which also impact their relationship with the people who are close to those individuals. The empirical findings suggest that selfitis

is one of the determining factors for interpersonal difficulties (Cain et al. 2015). On the other hand, a similar phenomenon was explored by (Alblooshi 2015) in their study on 365 undergraduate students, in which it was found that people who have a low self-image of themselves take their selfies more frequently that consequently helps in boosting their level of self-esteem but only those people who have high self-esteem share them frequently on social media.

A similar study conducted on 109 students has found a negative correlation between age and self-acceptance as those students who had high self-acceptance or narcissistic tendencies had posted selfies more frequently posted on social media. On the other hand, those students who took more selfies but posted less on social media had low self-acceptance or self-concept (Mullen-Cooper 2014). Another study conducted by (Weiser 2015) found a significant relationship between high self-concept and selfie-taking behavior that remains unchanged by gender differences. In a descriptive survey involving 250 adolescents aged between 10 and 19 years, the findings indicated that one-fifth of the adolescents experienced a low level of selfitis impact on their self-esteem. Over three-fourths of the surveyed adolescents, out of the 250, reported a moderate impact of selfitis on their self-esteem, while the remaining adolescents reported a high impact. The data revealed that 227 adolescents, or 90.8% of the total, experienced a moderate impact of selfitis on their body image, with 23 adolescents, or 9.2%, experiencing a low impact on their body image. This data underscores that selfitis behavior significantly influences the psychosocial health of adolescents, affecting both their body image and self-esteem (George, & Sharma, 2019).

A study was explored that Narcissism had significant positive correlation with features of both selfitis disorder and body dysmorphic disorder. In contrast, age demonstrated a notable negative association with narcissism, selfitis disorder, and body dysmorphic disorder features. Furthermore, males exhibited higher levels of both selfitis disorder and narcissism, whereas features of body dysmorphic disorder were more pronounced in females compared to males (Bibi, Naz, & Afsar, 2023)

The behavior of selfie-taking has increased during the last few years and this trend has notably affected the young generation as social media has been actively strengthening this behavior. This trend has become a different way of presenting oneself in the public but its functional reason was only studied recently by (Kim et al. 2016a). In their research, they drew a conceptual model which highlighted the antecedents of selfie posting behaviors. They significantly highlight the relationship between selfie posting behavior and self-image. According to their results, as selfie posting behavior increased with the increase in narcissistic

tendencies as a person is more likely to post his pictures to retain a level of the high self-image of own self. On the other hand, people with a low level of self-concept showed a high level of selfie-taking behavior for them because this behavior served the purpose of gaining high peer acceptance for them, which in turn, boosted their self-image.

Overall, previous research studies have indicated that self-image and self-concepts are highly interconnected with selfie-taking behavior in individuals of Western culture, where most people used social media for selfies to increase their self-esteem and self-image. Moreover, selfie-taking behavior further affects their mental and physical health and causes social, emotional, and behavioral problems. On the other hand, there is no research found in Pakistan which measures the selfie-related behavior and thinking in people. It is a worldwide increasing phenomenon in the 21st century, therefore, it would be helpful to study selfie-taking and posting behavior and selfitis in our young generation through a valid and reliable tool. The current study aims to fill this gap by developing a valid and reliable selfitis tool that can be used to measure these tendencies among university students to avoid social media addiction. Further, this research would also help in public awareness and scale will use in counseling services.

Method

The tool development and validation study were conducted in three phases. The details of the process and phases used for the development of the Selfitis Scale (SS) are given below:

- Phase I: Exploring the Phenomenology
- Phase II: Pilot Study
- Phase III: Main Study

Phase I: Exploring the Phenomenology

The first phase was based on exploring the phenomenology for the development of the selfitis scale. For this purpose, one-to-one interviews were conducted with 60 participants (thirty males and thirty females) with 18-35 years ($M = 21.37$, $SD = 3.16$) in the age range. The open-ended questions were asked by interviewees, then verbatim were transformed into statements. A list of 20 items was developed after removing the ambiguousness and repetition in statements based on these statements. Lastly, this league table was transformed into the final 4 points Likert scale.

Phase II: Pilot Study

The second phase was based on the piloting of the scale. The purpose of this phase was to determine the language of the tool, instructions, and comprehension level of statements for a reader-friendly version. For this purpose, 30 university students (15 male & 15 female from

BS and MS), selected through the purposive sampling technique, were given SS. It took 5 minutes for the participants to finish the scale and no difficulties were suggested in terms of comprehension of items and language of scale.

Phase III: Main Study

The purpose of the main study was to determine the psychometric properties of the Selfitis Scale. The 300 university students (154 males and 146 females) were selected as a sample from four different universities (public & private sector) through purposive sampling. The age range of participants was 18-35 years with a mean age of 21.37 and *SD* of 3.16.

Measures

In this study, a demographic form and Selfitis Scale (SS) were used and details are given below.

Demographic Form

The demographic form was used to get the basic information of the members in our research such as age and gender.

Selfitis Scale (SS)

A new scale was developed by the researcher to acquire the information on selfie-taking and posting behavior and thoughts in university students. The Selfitis Scale (SS) consisted of 20 items and was based on 2 parts, the 1st part is the "Screening Section". This part consisted of 2 items that explored the frequency of selfie-taking and posting behaviors in participants. It was based on the criteria of selfitis as given by American Psychiatric Association (APA). The 2nd part of the scale was based on "Psychosocial Reasons of Selfies". It consisted of 18 items and response options of the whole scale were created on 4 points Likert scale as 0= Never, 1= to some extent, 2= Mostly, 3= Always.

Selfitis Behavior Scale (SBS)

(Balakrishnan & Griffiths 2018) developed the SBS comprising 20 items having 5 points Likert-type response options. Moreover, six components of selfitis were identified: environmental enhancement, social competition, attention-seeking, mood modification, self-confidence, and subjective conformity. In the current study, this scale was used to establish the concurrent validity of SS.

Procedure

After official permission from the authorities, proper data collection was started and a scale was administered on randomly selected 300 participants in the age range of 18-35 ($M=21.37$, $SD=3.16$) for the main study. The ethical considerations were followed as data was taken from

students at comfortable places by keeping in view the willingness of the participants. No incentives were offered for the data being taken. The data were analyzed through Statistical Package for Social Sciences (SPSS 21) for results. The Principal Factor Analysis was used to develop the factor of scale then psychometric properties of the scale were determined.

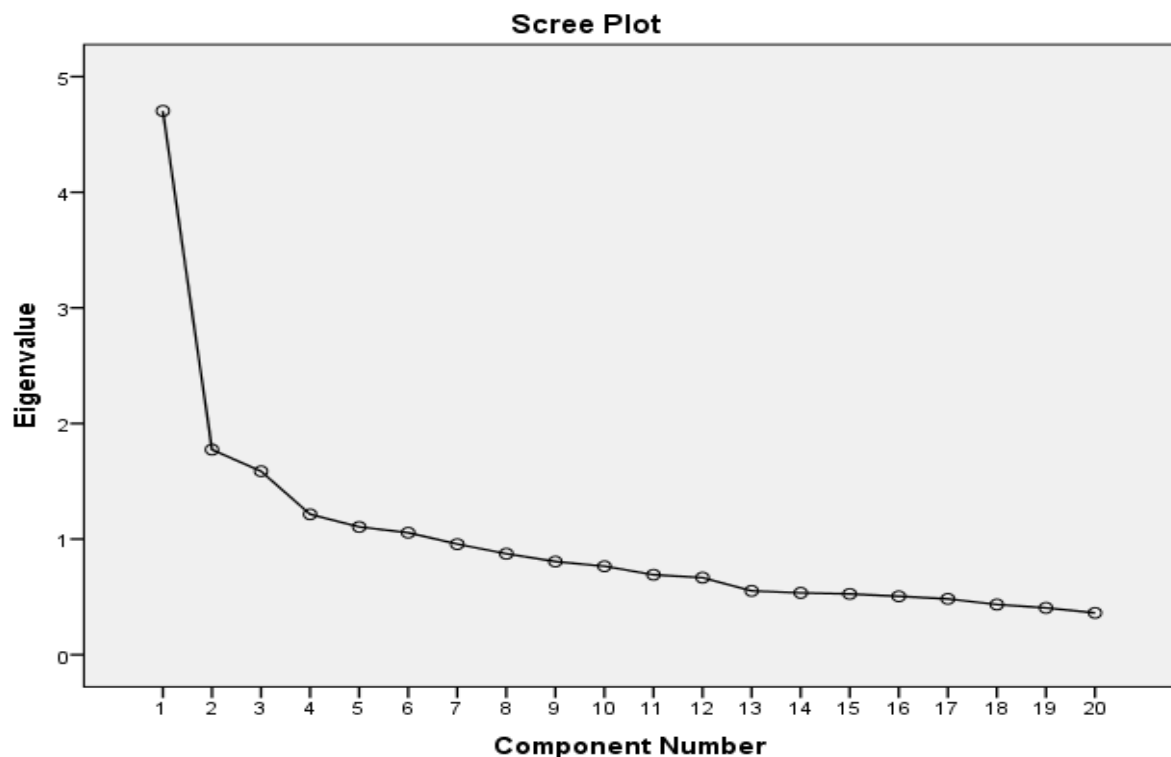
RESULTS

This section describes the factor analysis, validity, and reliability of the Selfitis Scale (SS).

Factor Analysis of SS

To determine the factors of the Selfitis Scale (SS), the principal component factor analysis was employed to group the items into shared themes. The number of factors was determined and three factors were decided through a scree Plot. The factor structures were also determined through Varimax Rotation. The variance and Eigen values were also explained by three factors of the Selfitis Scale (SS) and Inter-factor correlation was determined. The Scree Plot for factor analysis is given below.

Figure 1. Scree Plot for the Factors of Selfitis Scale (N=300)



The items of all factors were selected by the principle given by (Kline 1993). According to this criteria, the items having a loading of more than .30 were retained in the respective factor. The items below .30 loading (item numbers 11 and 18 in the original scale) were excluded. Thus, the number of items taken in each factor was 2 items in the first factor, 9 in the second, and 7 items in the third factor. The details of factor loadings are given below.

Table 1: Factor Structure of 18 Items of Selfitis Scale with Varimax Rotation (N=300)

Sr. No.	Item No.	Factors		
		F1	F2	F3
1	i	.73	.04	-.05
2	ii	.71	-.00	.04
3	16	.06	.69	.03
4	17	.19	.68	-.02
5	15	.18	.66	-.02
6	12	.14	.57	.20
7	9	-.19	.54	.40
8	14	.18	.54	.21
9	10	-.09	.48	.43
10	13	-.02	.48	.45
11	7	.13	.45	.21
12	3	-.14	.10	.72
13	1	.16	-.10	.65
14	2	.01	.08	.53
15	8	-.12	.44	.53
16	4	-.15	.29	.48
17	5	.29	-.12	.46
18	6	.03	.25	.31

Note: Factors loading more than .30 are boldface

The table shows the loading of items across three factors and those items were excluded and were below the cut-off score. The retained items are shown in boldface. The Eigen values and variance percentages for factors are given below.

Table 2: The Eigen Values and Percentage of Variance of Selfitis Scale (N=300)

Factors	Eigen value	% Variance	Cumulative %
F1 Screening Section	1.73	8.68	40.32
F2 Seeking Social Satisfaction	3.51	19.53	19.53
F3 Seeking Self satisfaction	2.84	15.78	35.32

Table 2 shows the Eigen values and variance of three factors of the Selfitis Scale (SS). The Eigen value of the first, second, and third factors were 1.73, 3.51, and 2.84 respectively.

Factor Description

The descriptive label was assigned for selected factors of scale based on the general theme of the items in each factor. Three factors of the Selfitis Scale (SS) were named as Screening Section: Seeking Social satisfaction and Seeking Self-satisfaction.

Factor 1: Screening Section

The first factor was based on screening for selfitis, and it consisted of two items. These two items explored the frequency of selfie-taking and posting behaviours in participants, i.e. How

many times do you take selfies in a day? How many times do you post selfies on social websites in a day?

Factor 2: Seeking social satisfaction

Seeking social satisfaction was the second factor on the scale, and it consisted of 9 items. These items explained the psychosocial reasons for taking selfies among individuals and how people get attention from others by capturing selfies and posting them on social websites. They want social satisfaction through this behaviour. The examples of items included in this factor are: we take and post selfies for making friends; we take selfies for publicity; we take and post selfies for attention-seeking; we take and post selfies to show our beauty; we take and post selfies for assurance to others; we take and post a selfie for comparison with other people and so on.

Factor 3: Seeking self-satisfaction

The seeking self-satisfaction was the third factor of the scale, and it consisted of 7 items. These items described the psychosocial reasons for selfie-taking and posting them on social media websites in the young generation, especially among university students. The items included in this factor explained how individuals seek self-satisfaction through their selfie-taking behaviour. Some items included in this second factor where we take and post selfies for self-likeness; we take and post selfies for seeking praise; we take and post selfies for self-satisfaction; we take and post selfies to follow the trend and so on.

Psychometric Properties of Selfitis Scale

Construct validity. Cronbach's alpha was calculated to find out the internal consistency of scale and inter-item correlation of the complete scale and three factors of this scale.

Table 3: Number of Items and Cronbach's Alpha of Selfitis Scale and their Factors (N=300)

Scales and their Factors	No. of Items	Cronbach's Alpha (α)
SS	18	.81
F1	2	.74
F2	9	.79
F3	7	.70
PSRS (F2&F3)	16	.82

Note. SS= Selfitis Scale; F1= Screening Section; S Social S F2 =Seeking Social-Satisfaction; F3= Seeking Self-Satisfaction; PSRS= Psychosocial Reasons of Selfie (F2&F3).

The table shows that the Cronbach's alpha of the whole scale was .81 which indicated that items were highly correlated with each other and Cronbach's alpha of the first factor was .74, the second was .79 and the third factor was .70 which indicated that the entire scale and their factors have satisfactory internal consistency.

Table 4: Inter-correlation, Means, and Standard Deviations of Three-Factor of Selfitis Scale (N=300)

	Screening Section	Seeking Satisfaction	SocialSeeking Satisfaction	Self
Screening Section	--	.62***	.55***	
Seeking Social-Satisfaction		--	.51***	
Seeking Self-Satisfaction			--	
<i>M</i>	41.59	12.81	11.51	
<i>SD</i>	13.67	5.37	3.67	

Note:*** $p < .001$; *M*=Mean; *SD*=Standard Deviation

The table indicated a high inter-correlation among three factors of the Selfitis Scale (SS).

Concurrent validity

The concurrent validity of the Selfitis Scale (SS) was established with the Selfitis Behavior Scale (SBS). The results showed that the newly developed indigenous Selfitis Scale (SS) has high concurrent validity ($r = .68$, $p < .001$) on total scores of both scales and also with four subscales (attention seeking, social competition, self-confidence, subjective conformity) of SBS with SS subscales.

Split-half reliability

To determine the split-half reliability of the Selfitis Scale (SS) Odd-Even method was used and the scale was divided into two halves, one half consisting of all Odd items (Form A) and the other half consisting of all Even items (Form B). The correlation between the two forms of Selfitis Scale (SS) was .74 ($p < .001$) and internal consistency of Form A was .70 and for Form B was .72.

Test-retest reliability

The test-retest reliability of the Selfitis Scale (SS) was established. For this purpose, 15% ($n = 20$) members were selected from the main study participants after a one-week interval. The results revealed the test-retest reliability of SS with $r = .81$ ($p < .001$) showed a highly significant correlation between scores of two administrations of SS.

Gender Differences in SS

Table 5: Means, Standard Deviations, and *t*-Value for Male and Female Students on Selfitis Scale (N=300)

Variable	Male Students ($n = 154$)		Female Students ($n = 146$)		95% CI		<i>T</i>	<i>Df</i>	$p <$	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>LL</i>	<i>UL</i>				
Selfitis	12.17	4.68	13.97	3.62	-.08	.37	3.56	298	.013*	0.34

Note: $df = 298$, * $p < .0$; CI=confidence interval; *LL*=lower limit; *UL*=upper limit

The table indicated that there was a significant difference found in both groups (male and female students) on Selfitis Scale. Thus, female students were found to suffer more from selfitis than male students.

Table 6: *The Means, Standard Deviations, and t-Values of Seeking Self and Social Satisfaction in Male and Female Students (N=300)*

Factors	Male Students (n= 154)		Female Students (n=146)		95% CI		<i>t</i>	<i>Df</i>	<i>p</i> <	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>LL</i>	<i>UL</i>				
S Self-S	11.06	3.69	11.97	3.60	-1.73	-.07	2.15	298	.032*	0.24
S Social-S	12.40	4.97	13.24	5.75	-2.05	.38	1.34	298	.180(<i>ns</i>)	0.15

Note: *df* =298, **p*<.05, CI=confidence interval, *LL*=lower limit, *UL*=upper limit

Table 6, showed that there was a significant difference found in both groups (male and female students) in seeking self-satisfaction. The female students were found to seek more self-satisfaction than male students by capturing selfies and posting them on social media websites.

Discussion

The objective of the current study was to develop a culturally relevant and comprehensive scale for the assessment of the selfie-taking and posting phenomenon in the young generation. The factor analysis of the Selfitis Scale (SS) showed three factors which were named according to their themes: Screening of Selfitis, Seeking Social Satisfaction, and Seeking Self Satisfaction. The first factor, namely screening of Selfitis, consisted of 2 items, the second factor, Seeking Social Satisfaction, consisted of 9 items, and the third factor, Seeking Self Satisfaction, consisted of 7 items. All the subscales also provided the dimensions addressed by the participants about themselves based on personal thoughts and behaviors, for example, the first factor organized the items that are relevant to the selfie-taking and posting behavior of individuals in a day, i.e. how many times do you take selfies in a day? How many times do you post selfies on social websites in a day? The other two factors describe the psychosocial reason for selfies as the second factor entails the theme in which items relevant to seeking social satisfaction in a person are asked. e.g., "we take selfies for publicity", "we take and post selfies for attention-seeking", "we take and post selfies to show our beauty", "we take and post selfies for assurance to others", "we take and post a selfie for comparison with other people" etc. The third factor was based on the theme in which items relevant to seeking self-satisfaction in a person were included. e.g. we take and post selfies for self-likeness", "we take and post selfies

for self-satisfaction", "we take and post selfies to follow the trend", "we take and post selfies to inspire friends and others, etc.

The psychometric properties of the selfitis scale were confirmed by measuring the construct validity, concurrent validity, split-half reliability, and test-retest reliability. The alpha coefficients of the scale showed that the scale had high internal consistency. The alpha coefficients indicated that the Selfitis Scale (SS) was reliable and could be used satisfactorily in future studies. The relationship among the subscales of the Selfitis Scale (SS) i.e. Screening Section, Seeking Social Satisfaction, and Seeking Self Satisfaction was also theoretically consistent and therefore represented the appropriate construct validity. The SS has high concurrent validity ($r = .68$, $p < .001$) and moreover the subscales of selfitis scale i.e. Seeking Social Satisfaction, and Seeking Self Satisfaction showed high positive correlation with subscales i.e. attention seeking, social competition, self-confidence and subjective conformity of selfitis behavior scale (SBS).

The results of the current study showed that there was a significant difference found in both groups (male and female students) on Selfitis Scale. So, female students had more selfitis tendencies than male students. It indicates that females have higher tendencies for selfie-taking and posting behaviors than males. This is consistent with the previous research studies that found significant gender differences and their relationship with the number of selfies captured and posted on social media platforms. They also found females take and post more selfies online than males (Manovich et al, 2014). Similar research indicated that women are supposed to take 1.3 times more selfies than men (Bennett 2014).

The findings of the current research revealed a significant difference in male and female students in seeking self-satisfaction. Female university students tend to seek more self-satisfaction than male university students. The study by (Murphy-Gill 2014) also revealed similar findings as girls are extra vulnerable to feeling less beautiful than other girls of the same age, such feelings make girls feel very low about themselves. Thus, teenage girls spend more time and money used to look beautiful and post those selfies on social websites to gain attention and boost their self-esteem levels. According to (Swann 1983), individuals seek self-verification to feel better about themselves. Another study reported that there are gender differences found in the way self-presentation is prepared through selfies. Qiu et al. (2015) found that women take more selfies than men, so this is equal to earlier literature on online self-presentation since females tend to present themselves as attractive and active participants on social media (Manago et al. 2008). Females in most parts of the world usually depend on their family or friends for approval As compared to females, men are more independent and

they are brought to be independent, which indirectly reduces their self-satisfaction-seeking behaviors. So the females seek more self-satisfaction compared to the male university students.

Limitations and Suggestions

The limitation of the research, the data was collected from one city in Pakistan because of a lack of funds. It is suggested that the Selfitis Scale (SS) can further be used for counseling services and research purposes and university students and other communities. The results can further be used to develop various strategies and design awareness programs regarding selfie addiction in people. Such awareness programs can help to control this increasing phenomenon of selfitis that creates many behavioral and emotional problems, especially in the young generation.

Conclusion

The Selfitis Scale is a significant tool in the domain of behavioral addiction with high reliability and validity to measure the selfie-taking and posting phenomenon in our young generation, especially university students. This study will also help in better understanding the complex and dynamic nature of individuals related to self, others, and the use of technology.

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