

Narcissism, Social Media Addiction, Self-Esteem, and Haxeco Traits: Exploring Influences on Life Satisfaction Among Generation Z

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Purpose: This study aimed to analyze the influence of narcissism on self-esteem and social media addiction. In addition, it highlights the consequences of social media addiction through internal factors such as self-esteem and external factors such as life satisfaction. It also examined the regulatory role of personality traits in this context.

Participants and Methods: Conducted in Ho Chi Minh City, it surveyed 426 Generation Z individuals aged 13–26 spending over two hours daily on social media, using convenience sampling. Data analysis and reliability assessment were done with SPSS 29, and SmartPLS 4 evaluated the linear structural model.

Results: The study has demonstrated that narcissism among Generation Z significantly influences life satisfaction. The results indicate that narcissism plays a crucial role in determining the self-esteem of Generation Z. Furthermore, individuals exhibit varying levels of narcissism, which are positively related to various online social activities. Therefore, high levels of narcissism are likely to lead to social media addiction. Those who exhibit symptoms of social media addiction tend to have lower self-esteem because they perceive social media as a safe space where they can express themselves. However, each individual possesses unique personality traits, and this study has proven that specific personality traits such as Agreeableness and Openness impact the life satisfaction of Generation Z.

Conclusion: The study investigated how narcissism, self-esteem, and social media addiction affect life satisfaction among Generation Z, exploring their complex interplay and mental health implications. It emphasized Gen Z's widespread social media engagement and addiction risks, impacting mental health and emotional satisfaction. Additionally, it highlighted the influence of personality traits on life satisfaction. The examination scrutinized the intricate relationship between self-esteem and narcissism, stressing its nuances, especially among Generation Z.

Keywords: narcissism, social media addiction, self-esteem, life satisfaction, HEXACO traits, Gen Z

Introduction

In the current context, social media has become a globally pervasive network, with the number of users increasing by 227 million in the past year, reaching 4.7 billion users by early July 2022. The global social media user base has grown by over 5% in the past 12 months, with the current total number of users equivalent to 59% of the world's population (WeAreSocial, 2022).¹ The significant growth of social media has led to increased social media addiction, causing individuals to become dependent and reducing their interpersonal interactions, making it difficult for individuals to engage in direct conversations because of the interruptions caused by social media.² This has raised concerns among experts about the factors impacting social media addiction behavior and its consequences in people's lives, particularly among the Gen Z population.



In the past 10 years, the issue of social media addiction has been of particular interest and attention among researchers. Through the use of VOSviewer 1.6.19 software, social media addiction has been divided into two research directions: (1) factors causing social media addiction behavior, and (2) the impact of social media on life and the role of regulating personality traits. A positive correlation between the factors of maximization and fear of missing out (FoMO) and social media addiction, while self-esteem has a negative correlation.³ Research has shown that individuals with low self-esteem have distorted perceptions and difficulties in emotion regulation.⁴ Additionally, individuals addicted to social media use it to nurture their self-concept (self-loving personality traits) and make efforts to prevent negative evaluations of themselves (self-esteem).⁵ Individuals with high self-esteem tend to excessively use social media as these online platforms can fulfill their need for connection and idealized self-affirmation.⁶ Furthermore, they often have low life satisfaction^{7,8} and poorer social relations.^{9,10} Therefore, with the strong development of social media and its impacts on life, social media addiction has garnered special attention from researchers. Moreover, the Gen Z population, who are living in the digital age and have a high capacity for adapting to technological advancements, are the group most influenced and affected by social media.

Life satisfaction is an important factor in life, especially for Gen Z individuals.¹¹ Recent studies have shown that life satisfaction is largely influenced by factors such as self-esteem, depression, and social media addiction. Life satisfaction is defined as the extent to which an individual subjectively evaluates their satisfaction and quality of life based on their needs and ambitions.¹² The research has confirmed a negative correlation between social media use and life satisfaction.¹³ Individuals who use social media extensively may explain this trend by perceiving others as more satisfied with their lives, which in turn makes them dissatisfied with their own lives. The negative “cycle” relationship, indicating that these individuals even spend more time using social media to distract themselves from their dissatisfaction and then seek satisfaction again.¹⁴ Based on these findings, social media addiction is one of the factors impacting the life satisfaction of today’s Gen Z population.

Social media users are driven by two different types of satisfaction: sought satisfaction and attained satisfaction.¹⁵ They hypothesized that this is the central focus of the Uses and Gratifications Theory developed by Katz et al (1973):¹⁶ (1) users actively choose how to satisfy their needs, (2) the psychological and sociological makeup of individuals influences those choices, and (3) media compete with other sources of need satisfaction, which can have more significant impacts than media when considering potential effects or consequences. Media use is a result of individual needs and desires aimed at fulfilling those specific requirements.¹⁵ Two psychological factors, narcissism and self-esteem, have a strong relationship with social media addiction.¹⁷ Based on U>, social media use is influenced by individual socio-psychological factors, which in turn impact life satisfaction. Building on previous research and the U> theory, this study focused on investigating how the internal factors of narcissism and self-esteem influence social media addiction and how the consequences of social media addiction in daily life affect the life satisfaction of Gen Z.

Narcissism as a personality trait with multiple facets.¹⁸ Due to individual differences in narcissism, individuals engage with online social networking sites differently.¹⁹ Subsequent studies have shown that individuals high in narcissism are more likely to be influenced by social media addiction.^{20,21} Those with narcissistic tendencies seem to use social media platforms to compare themselves to others.²² Additionally, Gen Z individuals are known to enjoy self-presentation on social media.²³ They believe that through social media, they can live and exist independently²⁴ and communicate with others remotely.²³ Therefore, Gen Z individuals feel confident in expressing themselves on social media because they can easily control the information and images, thus concealing their true selves. Based on these findings, social media serves as a means for individuals with low narcissism to showcase themselves. Hence, narcissism is one of the psychological characteristics that receives attention when considering social media addiction among Gen Z.

Another psychological characteristic specifically highlighted in this study is self-esteem. It is defined as “an individual’s positive or negative evaluation of themselves”.²⁵ Self-esteem is an integral part of personality²⁶ and is related to mental well-being, success, meaningful life, and overall life satisfaction.²⁷ Individuals with low self-esteem perceive social media as a safer platform for self-expression compared to those with high self-esteem.²⁸ Therefore, social media has a significant impact on individuals with low self-esteem.²⁹ Furthermore, individuals with low self-esteem also experience lower life satisfaction because they struggle to manage and regulate their emotions, leading to a more negative outlook on life and overall happiness. Hence, self-esteem influences Gen Z members’ perception of their lives.

However, individuals with different personality traits perceive life differently.³⁰ Extraverted, agreeable, and conscientious individuals, for example, tend to create a positive atmosphere that increases life satisfaction by enhancing positive emotions. Similarly, negative cognitive and affective reactions of individuals with neuroticism can have a negative impact on their lives.³¹ With the strong development of social media, which is widely used worldwide, understanding and monitoring user behavior-related indicators is crucial to gain a deeper insight into how each individual uses social platforms. One important variable that helps understand behavioral patterns in social media is personality, which can be measured through the six major personality traits (HEXACO), including honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness (Buettner, 2017).³² Furthermore, investigating the relationship between life satisfaction and social media usage can provide insights that can help individuals improve their overall life satisfaction based on the findings of this study. Therefore, this study focuses on exploring the relationship between users' social media behaviors, the six major personality traits, and the level of life satisfaction among Gen Z individuals.

Therefore, based on the Uses and Gratifications Theory (U>), this study analyzes the influence of narcissism on self-esteem and social media addiction, along with the consequences of social media addiction on life satisfaction. Additionally, there was a moderating effect of personality traits on social media addiction behavior and life satisfaction, as well as the interaction of self-esteem with different personality traits, to examine any differences in life satisfaction among student participants, particularly those belonging to Gen Z. Accordingly, this study aims to investigate the influence of the personality trait of narcissism on the development of social media addiction and self-esteem. Additionally, the study examines how the internal aspect of self-esteem and the external aspect of social media addiction impact life satisfaction among males and females.

Literature Review

Uses and Gratifications Theory

The Uses and Gratifications Theory (U>) was developed to assess the motives and satisfaction of users towards a specific medium.³³ It is based on five underlying assumptions: (1) the use of media is goal-directed, (2) the audience plays an active role in the media they use, (3) media competes with other sources to fulfill needs, (4) audiences are aware of their motives for media use, and (5) only audiences can evaluate the value of media content and the satisfaction derived from media use.^{16,34} Media use is driven by individual needs and desires to fulfill specific requirements.¹⁵ The potential of U> to elucidate the consequences of media use, stating that “concepts like needs, motives, uses, and satisfaction are regarded as behavior antecedents; effects, consequences, satisfaction, and outcomes appear as behavior consequences”.³⁵ When examining the potential addictive consequences of use, prior research has indicated that the behavior antecedents identified by U> can have an impact. Social media use has both intrusive and emotional consequences for users. Studies have revealed that social media use is associated with physical, psychological, and relational harms, including sleep disturbances, lack of exercise, poor academic outcomes, depression, anxiety, and increased conflicts with friends and family.⁵ Therefore, using U> to analyze the effects of social media addiction on the satisfaction of Gen Z through internal motivations such as self-esteem and self-worth, as well as individual personality traits.

Life Satisfaction

Life satisfaction is defined as a general index of quality of life that reflects an individual's overall evaluation of their environment, which can be positive or negative.³⁶ Life satisfaction is a cognitive evaluation of the gap between what individuals want to achieve and the pleasure they actually have.³⁷ Research has shown that life satisfaction has positive relationships with patience,³⁸ perfectionism and humor,³⁹ gender roles and self-esteem,⁴⁰ as well as pessimism.

According to U>, the use of social media is driven by the need for life satisfaction. A negative relationship exists between social media addiction and life satisfaction.^{33,41} For Gen Z individuals, social media serves as a means to escape negative moods and dissatisfaction with their lives. In other words, excessive use of social media for emotion management can be seen as a coping strategy.⁴² It has been found that as social media addiction increases, individuals' levels of life satisfaction decrease.⁴³ Therefore, social media is a strong environmental factor impacting the life satisfaction of Gen

Z. Life satisfaction is also defined as an expression of human well-being.⁴⁴ Thus, and external and internal factors influence the life satisfaction of Gen Z. The impact of self-esteem on life satisfaction.⁴⁵ Self-esteem affects an individual's mindset about life and influences perseverance, abilities, and the encouragement of positive aspects within a person. Thus, self-esteem has an impact on life satisfaction.

HEXACO Traits

Personality traits are known to be more resistant to change than other constructs studied in positive psychology literature. This has led to an increasing recognition of the need to further explore the impact of positive psychological perspectives on student development.⁴⁶ Personality traits have been expanded by researchers to explore the relationships between environmental attitudes and pro-environmental behaviors with a broader range of individual characteristics.⁴⁷ These traits are often assessed through the Five-Factor Model,⁴⁸ also referred to as the Big Five,⁴⁹ which includes emotional stability (neuroticism), extraversion, openness, agreeableness, and conscientiousness. Additionally, the HEXACO model of personality traits,⁵⁰ which adds the domains of honesty-humility and humility to the Big Five, has gained attention. These domains are related to agreeableness and conscientiousness in the Big Five.⁵¹ The HEXACO version of extraversion, conscientiousness, and openness closely resemble their counterparts in the Big Five,⁵¹ while agreeableness and emotional stability exhibit some differences from their counterparts in the Big Five.⁵¹ It can be seen that HEXACO provides a more comprehensive coverage of personality traits than the Big Five, allowing for more specific measurement of personality characteristics in Gen Z.

Numerous studies have analyzed the relationship between personal characteristics and life satisfaction. Existing research has primarily focused on personality traits, particularly aspects of anxiety and extraversion, as important indicators of life satisfaction in adolescents.⁵² For example, in studies related to middle and high school students, life satisfaction has shown a significant positive correlation with extraversion and a negative correlation with anxiety.⁵³ Similarly to studies on emotional states, previous research on life satisfaction in adolescents provides limited information on the relationship between life satisfaction and other personality traits. Furthermore, the strength of the relationship between overall personal characteristics and life satisfaction tends to be small to moderate, indicating that individual differences in life satisfaction are not fully explained by personality traits alone,⁵⁴ and the influences of other traits on the quality of life of Gen Z individuals need to be considered. Therefore, this study uses the six personality traits of HEXACO to analyze which personality characteristics will impact life satisfaction in Gen Z. Hence, the following hypothesis is proposed:

H1a: HEXACO traits impact life satisfaction in Gen Z.

Social Media Addiction

Terms such as social media addiction, problematic social media use, and compulsive social media use, are used interchangeably to describe the phenomenon of inappropriate social media use that is characterized by addiction-like symptoms and/or reduced self-regulation.^{55,56} Social media addiction is thought to fall under the category of network addiction in Young's Internet addiction classification.⁵⁷ Some researchers have measured problematic use by purpose of use (eg, social comparison and impression management) or context, such as while driving and taking classes.⁵⁸ Others have adopted definitions and measurements from Caplan's generalized problematic Internet use (GPIU) model,^{21,59} while others have applied measurements based on patterns and symptoms of behavioral addiction.^{60,61} For Gen Z, social media use refers to being overly interested in social media, being strongly motivated, and having spent a great deal of time and energy using social media to the extent that an individual's social activities, interpersonal relationships, study/work, and/or health and well-being are impaired.⁶²

In U>, when people with low life satisfaction and high perceived utility are more likely to have a preference for using the Internet, factors such as feelings of being respected by friends and family, and finding relevant information related to the level of satisfaction with the Internet are associated with higher levels of satisfaction.⁶³ There are four steps in the usage and perception process: first, the audience develops a positive disposition; therefore, they use mass media for a specific purpose.¹⁶ Next, the audience chooses the means they believe will bring them satisfaction. This process

involves competing with other sources, which can bring about different levels of satisfaction. Ultimately, satisfaction comes from using media that provides entertainment.

H1: Social media addiction negatively influences Gen Z individuals' life satisfaction.

Furthermore, personality traits have been shown to have a negative correlation with problematic Internet use^{64,65} as well as with Social Media Addiction (SMA).^{7,66} In a study involving 218 university students at the University of Bergen, the trait of sensation seeking was not found to be correlated with Internet Addiction (IA), but it was correlated with Facebook addiction.⁶⁷ Personality is considered a key differentiating variable that has been shown to play an important role in initiating, developing, and maintaining addictive behaviors.⁶⁷ Currently, there are 3.8 billion people worldwide using social media in their daily lives⁶⁸ and social media has become an indispensable part of life. Understanding the factors related to user behavior will help us to better understand how individuals use social media on an individual basis. One important variable for understanding behavioral patterns on social media is personality, assessed through its six core traits (honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness),³² also known as HEXACO traits. Additionally, determining whether life satisfaction affects social media use can help individuals improve their life satisfaction, based on the findings of this research. Therefore, this study focuses on examining the relationship between users' social media usage behavior and the six major personality traits, along with their level of life satisfaction. Thus, the following hypothesis is proposed:

H1b: HEXACO traits moderate the relationship between social media addiction and life satisfaction.

Self-Esteem

Self-esteem can be understood in three distinct ways.⁶⁹ Each of which sheds light on the potential associations between the use of social networking sites (SNS) and self-esteem. First, self-esteem is an outcome,^{70,71} which can be positively or negatively influenced by various social cognitive processes. Second, self-esteem can act as a protective buffer against SNS activities that may have adverse effects on a person's overall well-being.^{72,73} Finally, self-esteem can be seen as a self-motivator, meaning a person's self-esteem may drive them to use social media in specific ways.⁷⁴

Examining self-esteem from a cognitive-behavioral perspective encompassing various aspects such as memories, emotions, perceptions, and self-concept. Individuals with high self-esteem tend to process negative feedback better than those with low self-esteem.⁷⁵ While individuals with low self-esteem may interpret negative feedback as a confirmation of their negative self-evaluation, those with high self-esteem protect and maintain a better self-value awareness.⁷⁶ High self-esteem also provides advantages in managing negative emotions, as it helps in suppressing negative emotions.⁷⁷ In fact, self-esteem and life satisfaction have become crucial aspects related to happiness and positive development.⁷⁸ Research indicates that young people with higher happiness and life satisfaction tend to exhibit improved mental and physical health, increased self-esteem, enhanced problem-solving abilities, and increased stress-coping skills.⁷⁹ For adolescents, higher life satisfaction has been linked to happiness.⁸⁰ Similarly, self-esteem has a positive relationship with life satisfaction,⁸¹ and human happiness, especially among Gen Z,⁸⁰ as well as with subjective happiness in young individuals.⁷⁸ Therefore, self-esteem seems to be an important factor in the psychological development of individuals, especially Gen Z, and requires close monitoring. Self-esteem is viewed as an individual's self-value awareness.⁸² Hence, the following hypotheses are proposed:

H2: Self-esteem has a positive impact on life satisfaction.

Personality traits are closely linked to self-esteem. Previous research has demonstrated a negative association between emotional stability and disappointment in students.⁸³ Personality traits interact with other individual differences, influencing self-esteem, which highlights a more intricate relationship. The HEXACO personality model comprises six traits that shape how individuals perceive themselves. It is believed that a person's self-conception is selectively represented in ways congruent with their personality traits, fostering a sense of coherence. Individuals with high self-esteem are more likely to question a group's perspective in a group setting. Although self-esteem may not have a direct

impact on leadership abilities, it may have indirect effects. People with high self-esteem tend to exhibit more in-group favoritism than those with low self-esteem, contributing to the formation of prejudice and discriminatory behaviors.⁸⁴

H2a: Personality has a moderating role in the relationship between self-esteem and life satisfaction.

Self-esteem also seems to play a role in promoting social media overuse.⁵ These perceptions may include core beliefs, attributions, mental frameworks, and automatic thoughts that have the potential to influence general behavior,⁸⁵ including the degree to which an activity is engaged in social networks. Thus, if an individual holds beliefs such as “I am unpopular” or “I lack adequate social skills”, while also believing that accumulating a large number of friends or followers can change self-perceived feelings, this may trigger excessive social networking behavior patterns. Supporting this view, previous research has shown that people with low narcissism are more likely to see social media as a safe place for self-expression than those with higher narcissism.²⁸ Furthermore, previous studies have observed a negative relationship between narcissism and addiction-style social media use.^{29,86,87}

H3: Social media addiction negatively affects self-esteem.

Narcissism

The narcissistic trait, a multidimensional personality trait consisting of an inflated self-concept and behavior, intends to maintain this self-concept despite facing reality.⁸⁸ Narcissism has basic characteristics such as a sense of entitlement and grandiose fantasies, and needs to be admired.⁸⁹ According to the I-PACE model, the perception of intrinsic triggers (such as negative mood and narcissism) or extrinsic triggers can facilitate favorable conditions for experiencing desired and signal responses to these signals.⁹⁰ Specifically, in the context of an unpleasant emotional state, the desire to be thresholded will be stimulated in the later stages of addictive behavior.^{90,91} Several studies investigating differences in narcissistic levels have found a positive correlation between narcissism and various activities on online social networking platforms.⁸⁶ This connection seems important because social media allows individuals to express their aspirations and achievements to a wide range of potential subjects. They also allow users to receive prominent rewards and recognition through Facebook “likes” and beneficial comments from other social network users. Many contemporary studies describe narcissism as a relatively broad behavioral trait that includes traits such as narcissism, arrogance, manipulation, and related traits.⁹² Therefore, this study proposes the following hypothesis:

H4: Narcissism has a positive impact on social media addiction.

Furthermore, little consideration has been given to comprehending the influence of narcissism on self-esteem. In a recent study, narcissism’s impact on the self-esteem of individuals with a penchant for travel was examined.⁹³ The findings indicate that among tourists who displayed narcissistic tendencies, there was a notable inclination to capture their destination experiences extensively through photography. By contrast, non-narcissistic tourists displayed reticence in capturing self-focused images and videos. Subsequently, narcissistic individuals have exhibited a propensity to share photographic content on social media platforms enthusiastically. This behavior differed from those with self-esteem, as the latter were less inclined to do so. Consequently, narcissism appears to heighten self-esteem and overall life confidence in Generation Z individuals.

H5: Narcissism has a positive effect on self-esteem.

Materials and Methods

Participants

Based on the [Figure 1](#), this study was conducted in Ho Chi Minh City because it is the largest economic center in Vietnam and home to a significant number of higher education institutions. According to statistics from the Ministry of Education and Training, Ho Chi Minh City is the headquarters of 47 universities, colleges, and academies in Vietnam. If branch campuses, second campuses, and foreign universities are included, the number increases to 65. The target population surveyed consists of individuals who spend more than two hours per day on social media platforms. Previous studies have demonstrated

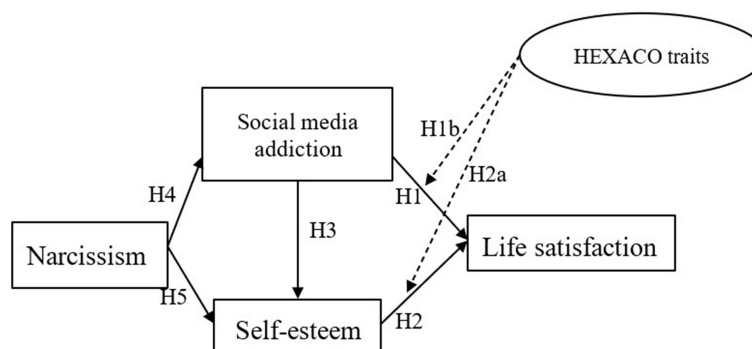


Figure 1 Proposed model.

that individuals who spend more than two hours per day on social media tend to have poorer mental health, such as increased symptoms of anxiety and depression.⁹⁴ To ensure the survey instrument's suitability for Vietnamese Gen Z, a pilot interview was conducted with 10 lecturers from universities in Ho Chi Minh City. The scale was then adjusted to align with the research participants. The sample size of this study is considered adequate for representativeness. The survey was conducted from June to July 2023. To achieve efficiency, cost-effectiveness, and accuracy in analyzing response content, Google Forms was utilized, and the questionnaire was distributed to respondents through various social media channels. This approach was chosen as the research target population encompasses university students or Gen Z in general, who have a high level of internet exposure. Therefore, this method was deemed appropriate for effective data collection. Through the method of convenience sampling, the study obtained 452 survey responses. Subsequently, the study filtered out surveys with social media usage exceeding two hours per day and obtained 426 valid samples with social media usage exceeding two hours per day. The study sample comprised 426 respondents (including 189 males and 273 females) from Generation Z. The study sample comprised 426 respondents (including 189 males and 273 females) from Generation Z, ranging in age from 13 to 26. Among them, 52 participants were in the age range of 13–16 (12.2%), 290 were in the range of 17–21 (68.1%), and 84 responses were from individuals aged 21–26 (19.7%). Subsequently, the study employed SPSS software version 29 and SmartPLS 4 to conduct the reliability assessment and measurement model evaluation.

Measures

Life Satisfaction

The “Life satisfaction” scale was adapted and modified from the scale developed by Diener et al (1985),⁹⁵ consisting of 5 items used to assess satisfaction with life. Sample items include statements such as “I am satisfied with my life” and “So far, I have gotten the important things I want in life”. The participants were asked to rate their level of agreement or disagreement with each item. A 5-point Likert scale was used in the study, ranging from 1 (strongly disagree) to 5 (strongly agree). The average scores of these items were used to indicate the level of life satisfaction among Generation Z. This scale has been validated previously. Cronbach's α coefficient for this scale in this study was 0.926 (See in Table 1).

Self-Esteem

Derived from Rosenberg (1965)⁷¹ and Eagly (1967),⁹⁶ the “Self-esteem” scale consists of 10 observable variables. The scale was used to assess Gen Z individuals' self-perception. The items in the scale include statements such as “I feel that I am a person of worth, at least on an equal plane with others” and “In general, I tend to feel that I am a failure”. Based on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), the average score indicates the extent to which Gen Z individuals trust and feel confident in themselves.

Narcissism

The “Narcissism” scale was developed based on the “Children Confidence Scale” by Morf and Rhodewalt (2001).⁸⁸ It consists of 9 observable variables with statements such as “I am an excellent role model for others to follow” and “I enjoy thinking about how awesome I am”. Using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), the average score indicates the extent of excessive self-confidence among Gen Z individuals.

Social Media Addiction

The “Social Media Addiction” scale was designed based on the Functional Internet Questionnaire (FIQ). The FIQ was developed by incorporating the 10 addictive behavior components by Brown (1997)⁹⁷ and questions related to mobile phone usage by Walsh et al (2010).⁹⁸

HEXACO Traits

The “HEXACO Traits” scale was constructed based on the questionnaire from the Brief HEXACO Inventory (BHI), which includes a total of 24 items with 4 items for each personality domain.⁹⁹ These established scales were appropriately adapted to the research context in Vietnam.

Analysis Strategy

After adjusting the measurement scale and collecting 426 observational samples, the study proceeded to analyze the obtained data. Firstly, the reliability of the measurement scale was assessed using Cronbach’s Alpha test through SPSS 29 software. The Cronbach’s Alpha test aims to evaluate the reliability and correlation among the observed variables within the scale to eliminate inconsistent variables.¹⁰⁰

Subsequently, the study utilized SPSS 29 software to conduct Exploratory Factor Analysis (EFA) of the HEXACO moderating variables. This analysis aimed to condense a set of interdependent observed variables into a smaller, more meaningful set while retaining most of the original content information. EFA relies on the relationships among the measured variables, utilizing correlation coefficients to determine the degree of association among variables.

Next, a linear structural model assessment was conducted using SmartPLS 4 software to evaluate the validity of the structure. To mitigate potential bias due to sample distribution, we applied a bootstrapping method with 5000 adjusted bias-corrected iterations to establish a 95% confidence interval for assessing the significance of effects.

Result

Table 1 shows that all scales had CR values greater than the allowable threshold of 0.7,¹⁰¹ in which the lowest Hexaco scale (CR_A) was 0.813. Thus, the scales used in this study satisfied the requirements of a reasonable measure. The following analysis evaluates data validity through convergent and discriminant validity based on the study by Hair et al¹⁰² Table 2 also shows that the average extracted variance (AVE) values are all greater than 0.5, with the smallest value being 0.582 for narcissism. In addition, all external loads were above 0.7, indicating a guaranteed convergent validity. However, the remaining 4 personality observations of Hexaco are Honesty-Humility, Emotionality, Extraversion, Conscientiousness, because the outer loadings index is less than 0.7, so they were excluded from the research model.¹⁰²

According to Table 1, the model can explain the relationships between concepts because the R²s are all greater than 0.1.¹⁰³ Moreover, the model has predictive power because the Q² values are positive.¹⁰⁴ The results also show that the hypotheses are accepted at 95% significance because the P-values are all less than 0.05 (See Table 3).

This study used a heterotrait-monotrait correlation ratio matrix (HTMT) to evaluate discriminant validity. Discriminant validity of the scales was also guaranteed because the values were all less than 0.85,¹⁰⁴ (See Table 2).

Table 1 Reliability, Convergent Validity, Multicollinearity, Explanatory and Predictive Power (Source: Research Result)

Concept	CR	AVE	Outer Loadings	VIF	R ²	Q ²
Life satisfaction (LS)	0.926	0.715	0.810–0.868	2.108–2.722	0.261	0.032–0.078
Narcissism (NA)	0.926	0.582	0.708–0.829	1.760–2.840		
Self Esteem (SE)	0.880	0.596	0.729–0.804	1.723–2.003	0.365	0.159–0.236
Social media addiction (SMA)	0.927	0.678	0.791–0.849	2.140–2.579	0.116	0.041–0.113
HEXACO_Agreeable (CR_A)	0.813	0.686	0.788–0.866	1.164		
HEXACO_Openness (CR_O)	0.817	0.693	0.747–0.910	1.196		

Table 2 HTML (Source: Research Result)

	CR_O	CR_A	LS	NA	SE	SMA	CR_A x SMA	CR_O x SE	CR_O x SMA	CR_A x SE
CR_O										
CR_A	0.332									
LS	0.228	0.277								
NA	0.132	0.136	0.134							
SE	0.180	0.138	0.445	0.675						
SMA	0.110	0.343	0.285	0.364	0.133					
CR_A x SMA	0.052	0.135	0.070	0.113	0.133	0.071				
CR_O x SE	0.107	0.244	0.130	0.173	0.273	0.081	0.194			
CR_O x SMA	0.295	0.042	0.093	0.080	0.101	0.079	0.178	0.029		
CR_A x SE	0.252	0.019	0.028	0.154	0.110	0.098	0.005	0.152	0.229	

Table 3 Total Effects (Source: Research Result)

Relationships	Original Sample	Standard Deviation	T-statistics	P-values	
CR_O -> LS	0.139	0.044	3.153	0.002	Accept
CR_A -> LS	-0.144	0.042	3.412	0.001	Accept
NA -> SE	0.638	0.041	15.439	0.000	Accept
NA -> SMA	0.341	0.053	6.439	0.000	Accept
SE -> LS	0.381	0.043	8.874	0.000	Accept
SMA ->LS	-0.245	0.046	5.345	0.000	Accept
SMA -> SE	-0.143	0.045	3.160	0.002	Accept
CR_A x SMA -> LS	0.024	0.042	0.572	0.568	Reject
CR_O x SE ->LS	0.019	0.038	0.499	0.618	Reject
CR_O x SMA->LS	0.002	0.047	0.040	0.968	Reject
CR_A x SE->LS	-0.016	0.035	0.464	0.643	Reject

Subsequently, the multicollinearity was assessed. If the VIF values are equal to or greater than five, collinearity will affect the measurement constructs.¹⁰⁴ The results in Table 1 show that the VIF values are all satisfied when the maximum value of 2.840 is lower than the cutoff value.

Discussion

The first finding in this table was the interaction between narcissism and self-esteem. Narcissism had the strongest positive impact on self-esteem ($\beta = 0.638$). Previous studies have also demonstrated the impact of narcissism on self-esteem, specifically, the study by Suhud et al⁹³ on social media addiction and travel, which showed that non-narcissistic travelers refrained from taking photos and videos of themselves. They then gently share photos and videos on social media platforms; however, if they have self-esteem, they cannot. Therefore, it can be seen that narcissism plays an important role in determining the self-esteem of Gen.¹⁰⁵ The higher the narcissism, the higher the self-esteem and vice

versa. Self-esteem positively and powerfully affects life satisfaction ($\beta = 0.373$). This result is compatible with previous research results of Yildiz and Karadas,¹⁰⁶ which confirmed the theory that self-esteem and life satisfaction are interrelated. Following the impact of self-esteem on life satisfaction, narcissism also had an impact on social media addiction ($\beta = 0.341$). Gen Z always needs to prove and express themselves,¹⁰⁷ especially through social networking sites, such as Facebook, Instagram, and Tik Tok. They see it as a tool to prove themselves and feel recognized from “likes” and “comments” on social networks. For them, the more “likes” the more it shows that they are well known and that they have shown themselves for many people to see and recognize. Ryan, Xenos,¹⁰⁸ and Wang et al¹⁰⁹ demonstrated that individual differences in narcissism are positively associated with different online social networking activities. Thus, these data show that high narcissism is more likely to lead to social media addiction.

Moreover, the data from Table 3 show that social media addiction has an impact on self-esteem but has a significant negative impact ($\beta = -0.143$). A negative relationship with social media addiction.^{29,87} Combined with research by Forest, Wood,²⁸ social media addiction is more likely and stronger for people with low self-esteem because they feel that social media is a safe place for them to express themselves. This analysis is relevant for Gen Z today because it is easy to see that young people who are not confident in themselves,¹¹⁰ such as they cannot communicate, and do not have good looks or qualities will often express themselves on social media and feel changed positively and they feel recognized through their turns”. like’ on these platforms. Therefore, research by Andreassen⁵ has shown that the judgment of each individual influences people in the reality of social media addiction. This was followed by a strong negative impact between social media addiction and life satisfaction ($\beta = -0.245$). This relationship was a question that different researchers worldwide had to address. All studies were conducted in different countries, such as Poland, Turkey, and the United States, and all reports showed a negative relationship between social media addiction and life satisfaction. The statement that life satisfaction is negatively affected by Facebook use as a result of Satici, Uysal,¹¹¹ was drawn from 311 Turkish university students. A follow-up study by Blachnio et al⁷ conducted on 381 Facebook users in Poland, found that Facebook addiction was associated with lower self-esteem and life satisfaction than non-addiction.

What is also unusual is that personality traits play no regulatory role in the relationship between social media addiction, self-esteem, and life satisfaction. The hypotheses were rejected, suggesting that personality had no effect on the impact of social media addiction and self-esteem on life satisfaction. This is consistent with previous studies, as no study has yet demonstrated the regulatory role of personality traits in these two relationships. Studies need to expand and further develop the regulatory role of personality traits. However, specific personality traits, such as agreeability and openness to experience, have an impact on Gen Z’s life satisfaction. This is different from previous research by, where previous research has shown that Agreeable has positive directions towards life satisfaction. That said, there were differences between agreeable people in Vietnam and Turkey. In Vietnam, agreeable people feel less satisfied with life; they are pleasant, but have high demands and ambitions for life. Desire to achieve many things, and so do not feel satisfied with life.

By contrast, people with openness are highly satisfied with their lives. Interestingly, while previous studies by Odaci,¹¹² Specht et al,¹¹³ and Parker et al¹¹⁴ did not demonstrate the impact of openness on life satisfaction, other than Stephan,¹¹⁵ who found a significant association between openness and life satisfaction. In this context, Gen Zers with high openness will focus on participating in new experiences and showing proactive personality in the new life context, which will make them feel happy, leading to life satisfaction. Therefore, Gen-Zers, with high openness, may be strongly associated with life satisfaction.

Furthermore in Table 4, the extent of the cumulative indirect effects in the model, with self-esteem as the mediator between narcissism and life satisfaction (total indirect impact = 0.219), surpassed that associated with social media

Table 4 Indirect Effects (Source: Research Result)

Relationships	Total Indirect Effects	P-values	
SMA -> SE -> LS	-0.055	0.002	Accept
NA -> SE -> LS	0.243	0.000	Accept
NA -> SMA -> LS	-0.084	0.000	Accept
NA -> SMA -> SE -> LS	-0.019	0.003	Accept
NA -> SMA -> SE	-0.049	0.004	Accept

addiction. This observation is consistent with other conjectures, indicating that social media platforms do not directly affect life satisfaction.¹¹⁶ This implies that social media addiction does not correlate with the life satisfaction of Generation Z individuals, as the next generation covers a wide range of aspects of life, such as family relationships, friendships, interactions with teachers and classmates, and career endeavors, thus encapsulating the overall quality of life.

Moreover, the perception of one's life as contented and fulfilling can reinforce young people's belief that their existence has meaning and value. Statistically, increased self-esteem sheds light on the tendency of people with high levels of self-admiration to report life harmony and satisfaction. Previous studies have explored the role of self-esteem in mediating the relationship between narcissism and life satisfaction. Besides life satisfaction, the concept of harmony in life is also considered when assessing the level of happiness. Previous studies have established self-esteem as a mediator between narcissism and happiness.¹¹⁷ Thus, based on the aforementioned results, this study confirms that narcissism, supported by the mediating function of self-esteem, can amplify life satisfaction and happiness by empowering individuals to not only set goals, but also perceive their achievement of these goals as success.¹¹⁸

Limitations

Although this study yielded promising results, it has some limitations. Life satisfaction is a broad concept encompassing many aspects of life. However, this study explored only a small portion of the dimensions of life. There are still many factors such as family, friends, work, and environment that influence the life satisfaction of Gen Z. Therefore, future research should expand this investigation to other aspects of life. Additionally, the strong development of social media not only affects Generation Z, but also other generations. Therefore, further research should focus on Generation Y and Generation Alpha, as well as compare the differences among the three generations regarding social media usage.

Conclusion

This study investigated the complex and multifaceted associations that exist between narcissism, self-esteem, social media addiction, and life satisfaction in the context of individuals in the world. Z system, with a special emphasis on adjusting individual characteristics. The conceptual constructs of subjective well-being and life satisfaction are of utmost importance in understanding the cognitive and emotional states of individuals. Based on U>, it can be seen that psychological factors have a great impact on the behavior of using social networks as well as the feelings about life of generation Z. People who show a higher level of satisfaction with life tend to achieve positive psychological outcomes and are less influenced by social media. The investigation highlights Generation Z's increasingly widespread engagement with social media platforms, along with its potential for addiction, which in turn has serious consequences for mental health, including self-esteem and emotional satisfaction. In addition, research has shown the impact of personal characteristics at work on life satisfaction. Furthermore, the investigation closely examines the complex interrelationship between self-esteem and narcissism, emphasizing that narcissism goes beyond mere self-esteem and has many nuances, especially when scrutinized in the Generation Z group.

Given the paucity of research addressing the convergence of quality of life and narcissism, and the lack of formal data related to this topic, researchers have embarked on a thorough investigation of this topic, system, and the moderating effects of narcissism on the life satisfaction of Generation Z. This exploration is grounded in elucidating the intervening roles played by self-esteem and social media addiction, thereby revealing the diverse factors that influence life satisfaction in this demographic. Distinguishing these underlying mechanisms is poised to offer valuable insights into potential strategies for improving the well-being of Generation Z individuals, thereby simultaneously enhancing their efficiency and productivity.

In summary, this scholarly investigation promises to significantly enrich the current understanding of complex interactions involving narcissism, self-esteem, social media engagement, and satisfaction. Generation Z's life satisfaction. By shedding light on the complex interaction between personality motivation and life satisfaction, this study has the potential to serve as a bridge for further research, followed and developed targeted interventions to promote happiness and subjective well-being among this generational group. The implications of these findings extend to broader concerns related to mitigating mental health challenges stemming from excessive social media use and narcissistic tendencies among young people, thereby creating a healthier, more resilient, and satisfying trajectory for Generation Z.

Direction for Further Research

In future research in this field, it is crucial to address these inherent limitations. Methodological improvements should be employed to ensure the acquisition of robust and unbiased samples that accurately reflect the diversity of a broader population. Moreover, there is a need to overcome the current geographical limitations and expand the scope of this study to include a more diverse range of locations. Such an expansion would lead to a more comprehensive and nuanced understanding of the subject, providing a foundation for drawing more generalized conclusions.

Future research could potentially reveal that unexplored individual attributes also influence life satisfaction, in addition to their potential correlations with social media addiction and self-esteem.

Ethical Approval

Our university does not have an ethical committee and several approvals, but the study protocol was approved by the Ho Chi Minh City Open University Committee on human research, ensuring that it conformed to the ethical guidelines of the 1975 Declaration of Helsinki.

Informed Consent

The researchers confirmed the consent of the participants to participate in the study. Of the 426 sampled participants, 426 accepted and voluntarily participated in the survey after the researcher assured them of anonymity and that their responses were solely for academic purposes. All respondents in our survey are over 18 years old.

Disclosure

The authors declare no competing interests in this work.

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