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Influence of Virtual Influencers (AI-Generated Influencers) on Self-Esteem And Lifestyle Satisfaction

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ABSTRACT

Delivering on the trend of quick progress of artificial intelligence, social media has seen the advent of virtual influencers, AI-based online personalities actively communicating with audiences and pushing a perfectized lifestyle. In contrast to human influences, these virtual agents offer highly edited, impeccable and controlled images, the impact of which can have a profound effect on the psychological well-being of users. This paper looked at the effects of virtual influencers on self-esteem and lifestyle satisfaction among higher education learners. The study was based on the social comparison theory and examined the impact of being exposed to AI-based influencers on the self-perceptions and judgments of the quality of their lives. The cross-sectional survey design was a quantitative design and convenience sampling was used to collect data on 300 students in six universities located in Lahore. The dependent variables were measured using standardized instruments, such as Rosenberg Self-esteem Scale and Satisfaction with Life Scale and the exposure to virtual influencers was measured with frequency and perception-based items. Analysis of the data was carried out through SPSS and AMOS/SmartPLS which incorporated descriptive statistics, reliability analysis, correlation and Structural Equation Modeling (SEM). The results showed that the exposure of virtual influencers influenced negatively the self-esteem and lifestyle satisfaction significantly. The paper leads to the expanding area of digital media psychology as it brings light to the psychological dangers of AI-driven social media content. It also offers some practical implications to educators, policymakers and developers of digital platforms of how to encourage healthier online experiences and responsible use of emerging technologies.

Keywords
Virtual Influencers, Self-esteem, Satisfaction with lifestyle, Social Comparison, AI-created Influencers, Digital Media, Psychological Well-being.

INTRODUCTION

The last 20 years have witnessed the rise of social media, which has radically changed how people form identity, compare socially and how people assess their self-worth. As the popularity of social networks like Instagram and Tik Tok grows, people are constantly bombarded with the images of professionalized beauty, success, and lifestyle that help build an understanding of reality and impact psychological health. The impact of social media exposure on the development of self-esteem has always been proven to be important and, in many cases, occurs through social comparison and feedback assessment (Ruether et al., 2023; Wang, 2025). People are likely to judge themselves against those they see on the internet, especially when those images are idealized, and act as a result, undermine their own self-esteem and are unhappy with their life situations.

The latter has been transformed by the emergence of virtual influencers, which has become a new layer of this digital ecosystem in recent years. Virtual influencers are artificial characters that are driven by artificial intelligence and other sophisticated graphic technologies and act like real people and engage with others on social media. These online personalities can be completely manipulated, unlike human influencers, which means

creators can create ideal aesthetic and flawless looks, dreamy lives, and the perfect storyline. This hyper real but artificiality casts significant worries on their psychological effects on viewers, especially regarding self esteem and satisfaction of their lives. There is some initial evidence that people are performing similar processes of comparison with virtual influencers to those with human influencers despite this being cognizant of their artificiality (Nasr et al., 2024).

The dynamics can be explained in terms of theoretical perspectives, including social comparison theory. This theory states that people measure their own capabilities and value in comparison to others in a context where the norms are unclear or idealized. This is amplified by social media where one is exposed to very selective and unrealistic images of what life is about. Empirical research has indicated that it leads to low self-esteem especially where users internalize unrealistic expectations of beauty and success (Longa et al., 2025; Farooq et al., 2023). Additionally, the comparison tendencies, mediating the association between social media use and psychological well-being, have also been associated with frequent exposure to the influencer content (Ruether et al., 2023).

The appearance of AI-generated influencers adds to this phenomenon even more. Virtual influencers do not face human constraints, which allows developing idealized bodies and even more unrealistic than the ones of human influencers. It has been shown that viewing idealized online images may have a detrimental impact on the body image and mood, especially in young adults (Limniou et al., 2025; ScienceDirect, 2025). Also, the representations created by AI may support the beauty standards and foster perfectionism, which can lead to feelings of inadequacy and dissatisfaction (Agrawal et al., 2025). Although there are studies that virtual influencers can convey positive messages, including body positivity, their general effect on psychological well-being is a complex issue that has not been thoroughly studied.

Self-esteem is the general assessment of personal value, which is especially susceptible in the online world. The feedback that is constant on social media platforms in the form of likes, comments, and shares can have a huge influence on self-perception of the users. Research has revealed that digital feedback and perceived authenticity are vital in influencing the response of self-esteem and people are very sensitive to online opinions (Chen, 2025). Moreover, the sense of genuineness in influencers, both human and virtual, may affect the level of involvement of the user in the processes of comparison and internalization.

The other important construct used in the study is lifestyle satisfaction which is the cognitive assessment of the overall quality of life of the individual. Like self-esteem, social comparisons and exposure to idealized lifestyles affect the satisfaction with lifestyle. Studies indicate that constant exposure to filtered information on social media may result in discontentment with their lives as they see a disconnect between their actual lives and the idealized ones that they watch (Wang, 2025). This difference can be further increased by virtual influencers, who have flawless lifestyles and can result in lower satisfaction and inadequacy.

Although the emergence of virtual influencers in digital marketing and culture is becoming more common with social media, there is sparse empirical literature that investigates the psychological effects of virtual influencers. The majority of the existing research is based on the consumer behavior, brand engagement, and marketing effectiveness, whereas comparatively few examine how they can be used to address mental health and well-being (Nasr et al., 2024). Secondly, the existing literature is mostly westernized and little consideration is paid to developing nations like Pakistan where the use of social media is gaining rapidly among the youth groups.

With this gap, there is a need to explore the impact of virtual influencers on self-esteem and satisfaction with lifestyle and especially among university students who are some of the highest users of social media. The insights gained by understanding these relationships may be beneficial in understanding the larger impacts of AI-inspired digital environments and how these advances can be leveraged to make online experiences healthier. Thus, the given research aims to investigate how virtual influencers impact self-esteem and lifestyle satisfaction and make a contribution to the upcoming area of digital media psychology and provide tangible conclusions and suggestions to the stakeholders in the education, policy, and digital content production.

LITERATURE REVIEW

The growth of social media platforms in the past two decades has greatly influenced the way people understand themselves, and assess their lives. Initial studies emphasized that social media spaces cultivate unceasing exposure to edited and perfected images of others, which can result in more social comparisons and distorted self-perception (Vogel et al., 2014; Appel et al., 2016). As the influence of influencers in the digital environment grows, they have become particularly acute, with influencers frequently promoting extremely glamorous and ideal lives, which viewers adopt as the standards of success and beauty (Abidin, 2016; Djafarova and Rushworth, 2017). This exposure has been repeatedly linked with drops in self-esteem and subjective well-being, especially in young adults who are more prone to the processes of comparison.

The social comparison theory offers a theoretical basis of these dynamics. Festinger (1954) argued that there is the inherent inclination of an individual to compare himself with others, and in the case of ambiguous situations, such individual is likely to compare himself with others. This tendency is usually upward in the context of social

media, as people tend to judge themselves in comparison to other people who seem to be superior and have negative emotional and cognitive consequences. This mechanism has empirical evidence, as it has been found that upward social comparison in social media, like Instagram, is strongly linked to decreased self-esteem and dissatisfaction with their bodies (Taylor and Armes, 2024).Likewise, studies also show that exposure to influencer content also induces comparison processes that mediate the connection between social media use and self-esteem (Ruther et al., 2023). These results indicate that its psychological effects of influencers are mainly influenced by comparison-based assessments as opposed to exposure.

Emerging to unprecedented heights, the emergence of virtual influencers is an extension of this phenomenon. Virtual influencers are artificial objects, which mimic human appearance, behaviour, and interaction created by AI. They are completely determined and streamlined, unlike human influencers, which allows creating perfect and highly idealized identities. This creates a special paradox of perception by the audience: users know they are artificial, but nonetheless, they interact with them in socially significant manners. Emerging studies reveal that people draw upward and downward comparisons with virtual influencers as they do with the traditional influencers, though they have the knowledge that they are fake (Nasr et al., 2024). This implies that the psychological processes of social comparison will be independent of the perceived authenticity of the comparison target.

The growing realism and perfection of virtual influencers can further enhance the impacts of social comparison. The virtual influencers are also able to project unrealistic ideals of beauty, lifestyle, and success unlike human influencers, who are limited by social and real-life factors. Research has revealed that the exposure to overly idealized digital imagery may cause a negative body image, low self-esteem, and dissatisfaction (Limniou et al., 2025). Moreover, AI-generated images have also been associated with increased self-objectification and unrealistic standards, as they encourage perfection without imperfection or restrictions (Agrawal et al., 2025). This is in line with prior discoveries that media exposure to idealized images also helps in internalizing unrealistic ideals, which ultimately interfere with psychological health (Fardouly and Vartanian, 2016).

The self-esteem being an essential part of psychological well-being has been widely researched as to its connection with the use of social media. Generally, it can be described as the general assessment of worth and ability of a person (Rosenberg, 1965). Studies indicate that social media has the ability to boost and lower self-esteem based on the type of interaction. When positive interactions and social support are used, self-esteem may increase whereas when idealized content is passively consumed, it may decrease (Verduyn et al., 2017). The effect of influencer content especially when it focuses on perfection and success has been observed to impact negatively on self-esteem by affirming a sense of inadequacy (Appel et al., 2016). Additionally, the research shows that people that constantly compare themselves to influencers are less satisfied with themselves and more unhappy (Ruether et al., 2023).

Social media exposure also plays a key role in lifestyle satisfaction, which is in most times viewed as a mental review of the quality of life in general. According to Diener et al. (1985), life satisfaction was one of the significant elements of subjective well-being that indicates the individual perception of their lives. It has been found that the constant exposure to idealized lifestyles on social media may lead to a perceived difference between the real lives of a person and those of other people and, consequently, a reduced satisfaction level (Wang et al., 2017). This is especially strong with young adults, as they tend to accept the standards of social media and apply them as the criteria of success (Zuo and Zan, 2025).The incessant comparative analysis with edited lives may lead to the sense of insufficiency, envy, and dissatisfaction with life.

These relationships are further complicated by the role of authenticity in the perception of influencers. Conventional studies indicate that perceived authenticity improves trust and interaction with influencers, which consequently increases their persuasiveness on audience (Audrezet et al., 2020). Nonetheless, virtual influencers defy traditional understanding of authenticity as they are made to be artificial but are frequently seen as relatable and captivating. Research has indicated that virtual influencers can be ascribed with human-like characteristics, which results in emotional responses and recognition (Mehmood et al., 2024). This is commonly known as anthropomorphism and can enhance the psychological impact of the virtual influencers as it helps them to seem socially relevant despite being artificial.

The frequency and intensity of exposure to the content of influencers is another significant factor. Studies show that the greater the exposure, the more significant the effects of comparison and the level of influence on self-esteem and well-being (Verduyn et al., 2017). With regard to virtual influencers, repetitions can support idealized ideals and tend to internalize more. Also, content delivery systems, in most instances, rely on algorithm-based content delivery, which tends to focus on captivating and appealing content, which can further induce users to unrealistic portrayals and enhance a comparative process (Cinelli et al., 2021).

The mediating and moderating mechanisms that explain such relationships have also been studied in recent studies. As one example, resilience has been found to be a possible moderator that can absorb the adverse impacts of social comparison on self-esteem (Ruth et al., 2023)). On the same note, emotional regulation has been identified to mediate the connection between upward comparison and well-being, indicating that how

people can control their emotional reactions is an important factor in influencing the outcome (Zuo and Zan, 2025). These results point to the ambiguity of the interaction between social media exposure and psychological well-being, showing that the individual differences and contextual characteristics should be taken into account.

Although the literature on the topic of social media influencers is increasing, there is a relative dearth of research regarding virtual influencers. The majority of the current research is on the effectiveness of marketing, brand perception, and consumer behaviour with little consideration of psychological effects like self-esteem and lifestyle satisfaction (Nasr et al., 2024) . In addition, empirical studies are also not available in non-western settings especially in developing nations where the use of social media is on the rise. This disparity is considerable, and cultural differences can affect the way people can view and react to virtual influencers.

Moreover, the swift development of AI technologies will most likely result in more sophisticated and widespread virtual influencers being used in the digital space. With the evolution of these technologies, their possible impact on the psychological well-being is also likely to be even more significant, and it is crucial to comprehend the effects. The current literature offers a good basis on the study of these relationships yet more studies are required to identify the peculiarities of virtual influencers and how they affect self-esteem and satisfaction with their lifestyle.

On the whole, the literature suggests that social media influencers have a powerful effect on how individuals perceive themselves and evaluate their lives and their lives via social comparison, internalization and exposure mechanisms. The appearance of virtual influencers brings some new challenges, because they are both artificial and idealized, which can further enhance these implications. Although the current literature offers significant information on the effects of social media on psychological well-being, there is still a gap in the need to conduct empirical research to specifically analyze the effects of virtual influencers, especially in various cultural settings. This paper aims to fill this gap by exploring how the exposure of virtual influencers relates to self-esteem and satisfaction with the lifestyle of university students.

METHODOLOGY

Research Design

The researchers used a quantitative research design based on the cross-sectional survey to investigate the effect of the virtual (AI-generated) influencers on self-esteem and satisfaction with the lifestyle. This design was deemed fit because it made it possible to collect data on a single time, of the respondents and also to analyze the relationship between the variables in the study.

Population and Sampling

The study population was the students of Universities based at Lahore, Pakistan. Six universities (three public and three private universities) were used to collect data so as to have a diverse sample. The convenience sampling method was used because of the availability and time constraint.

The research aimed to have a sample size of about 300 respondents to obtain sufficient statistical power to conduct the analysis, especially Structural Equation Modeling (SEM).

Data Collection Procedure

The structured questionnaire was used to gather data over the online platform (Google Forms) and where possible, physical distribution was used to administer this questionnaire. The purpose of the study was discussed with the respondents beforehand. The study was voluntary and all the participants gave informed consent. During the data collection, confidentiality and anonymity of the responses were highly observed.

Measurement Instruments

Self-Esteem

The Rosenberg self esteem scale (RSES) was used to measure self-esteem (Rosenberg, 1965). The scale was made up of 10 items, which were rated on a 5-point Likert scale (ranging between strongly disagree and strongly agree).

Lifestyle Satisfaction

The Satisfaction with Life Scale (SWLS) was used to assess lifestyle satisfaction which was created by Diener et al. (1985). This scale contained 5 items which were measured in a 5-point Likert scale.

Virtue exposure to Virtual Influencers

Self-developed items were used to measure exposure to virtual influencers with a focus on:

- Exposure frequency (e.g., time spent consuming the content of the virtual influencers)
- Like level (e.g., commenting, sharing content)
- Perception based (e.g., perceived realism, attractiveness and influence of virtual influencers)

The measure of all items was on a 5-point Likert scale.Data Analysis Techniques

Demographic Profile Analysis

Frequencies and percentages were used to analyze demographic variables like gender, age, level of education, and type of university (public/private).

Descriptive Statistics

To summarize the data and get an idea of how the responses were spread, descriptive statistics were used, such as mean and standard deviation.

Reliability Analysis

The Cronbach alpha was used to determine the internal consistency of the scales with a threshold value of 0.70 and above accepted to be acceptable.

Correlation Analysis

The relationships between exposure to virtual influencers, self-esteem and lifestyle satisfaction were studied by Pearson correlation analysis.

Structural Equation Modeling (SEM)

The Structural Equation Modeling (SEM) was conducted in order to test the direct relations between the exposure of virtual influencers and self-esteem and lifestyle satisfaction.

Software Tools

The statistical software used to analyze the data were the following:

- Demographic analysis, descriptive statistics, reliability testing and correlation analysis were done on the SPSS.
- Structural Equation Modeling (SEM) was done using AMOS / SmartPLS.

Ethical Considerations

There were ethical standards that were observed during the study. The respondents were free to participate and they were made aware of their right to withdraw any time. The participants were assured of confidentiality and anonymity and data gathered were only utilized academically.

DATA ANALYSIS AND RESULTS

This part is an analysis of the data obtained on 300 students of six universities in Lahore. The test involves demographic profile, descriptive statistics, reliability analysis, correlation analysis and Structural Equation Modeling (SEM) to investigate the associations between the virtual influencer exposure, self-esteem, and satisfaction with lifestyle.

Demographics of the respondents

Frequencies and percentages were used to analyze the demographic aspects of respondents.

Table 1: Demographic Characteristics of Respondents (N = 300)

Variable	Category	Frequency	Percentage (%)
Gender	Male	142	47.3
	Female	158	52.7
Age	18–20	128	42.7
	21–23	119	39.7
	24–26	53	17.6
Education Level	Bachelor's	215	71.7
	Master's	85	28.3
University Type	Public	152	50.7
	Private	148	49.3

The sample was a little bit more female (52.7%), as compared to male (47.3%). Most participants were students aged 1823 years which means that there were young students. The vast majority of the respondents were pursuing bachelor degrees and the proportion of both the public and the private universities was almost equal.

Descriptive Statistics

To test the central tendency and dispersion of variables of the study, descriptive statistics were computed.

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Deviation
Virtual Influencer Exposure	300	3.62	0.74
Self-Esteem	300	3.28	0.68
Lifestyle Satisfaction	300	3.15	0.71

The average score of virtual influencer exposure (M = 3.62) showed that there was moderate to high involvement among the students. The level of self-esteem and lifestyle satisfaction was moderate implying that there was a variation in psychological outcome among respondents.

Reliability Analysis

Internal consistency of the scales was determined by use of Cronbach alpha.

Table 3: Reliability Analysis

Variable	No. of Items	Cronbach's Alpha
Virtual Influencer Exposure	8	0.82
Self-Esteem	10	0.87
Lifestyle Satisfaction	5	0.85

All the variables showed good reliability as the Cronbach's alpha values were above the critical level of 0.70, which means high internal consistency.

Correlation Analysis

The Pearson correlation analysis was used to test the relationship between variables.

Table 4: Correlation Matrix

Variable	1	2	3
1. Virtual Influencer Exposure	1		
2. Self-Esteem	-0.42**	1	
3. Lifestyle Satisfaction	-0.36**	0.51**	1

Note: $p < 0.01$

The exposure to virtual influencers had a significant negative relationship with self-esteem ($r = -0.42$, $p < 0.01$) and lifestyle satisfaction ($r = -0.36$, $p < 0.01$). The lifestyle satisfaction was positively correlated with self-esteem ($r = 0.51$, $p < 0.01$), which implies that the higher the self-esteem, the more the life satisfaction.

Structural Equation Modeling (SEM)

SEM was done to investigate the immediate impact of virtual influencer exposure on self-esteem and satisfaction with their lifestyles.

Measurement Model Assessment

Factor loadings, Composite Reliability (CR) and Average Variance Extracted (AVE) were used to evaluate the measurement model.

Table 5: Measurement Model Results

Construct	CR	AVE
Virtual Influencer Exposure	0.88	0.58
Self-Esteem	0.90	0.60
Lifestyle Satisfaction	0.87	0.57

All CR values exceeded 0.70 and AVE values were above 0.50, confirming convergent validity.

Model Fit Indices (AMOS)

Table 6: Model Fit Indices

Fit Index	Value	Recommended Value
CFI	0.93	≥ 0.90
RMSEA	0.06	≤ 0.08
Chi-square/df	2.45	≤ 3

The model demonstrated a good fit, as all indices were within acceptable thresholds.

Structural Model Results

Table 7: Hypothesis Testing (Direct Effects)

Path	Beta (β)	t-value	p-value	Result
Virtual Influencer → Self-Esteem	-0.45	6.82	0.000	Supported
Virtual Influencer → Lifestyle Satisfaction	-0.31	5.14	0.000	Supported

Interpretation of SEM Results

The findings showed that exposure to virtual influencers had a negative impact on self-esteem (0.45, $p < 0.001$). This implies that the more students are exposed to AI-made influencers the lesser their self-worth becomes. Correspondingly, the impact of virtual influencer exposure on the level of satisfaction with the lifestyle was considerable (-0.31, $p < 0.001$), which suggests that the higher the student is exposed to such content, the lower his/her satisfaction with the lifestyle is.

This result confirms the postulations of the social comparison theory where people contrast themselves with idealised images, and the result is negative psychological consequences.

On the whole, the results indicate that virtual influencers have a major impact on determining the psychological outcomes among the students of a university. The observed negative correlations indicate the risks that AI-generated social media content can pose and the importance of awareness and responsible use of the Internet.

DISCUSSION

The results of the current research demonstrated that, the effects of being exposed to virtual (AI-generated) influencers are very negative in terms of self-esteem and satisfaction with lifestyle among university students. This implies that the more people are involved with the virtual influencers, the less psychologically well they will be. These findings coincide with the social comparison theory which states that people compare themselves to the others and all the time the comparison results in negative self-concepts when they are exposed to idealized standards (Festinger, 1954). This process intensifies in digital space since self-esteem and emotional well-being are already negatively affected by constant exposure to curated content in the previous studies (Vogel et al., 2014; Appel et al., 2016). The current paper adds to this knowledge by demonstrating that even AI-created

influencers, being unnatural, nevertheless cause significant processes of comparison which influence users psychologically.

The fact that virtual influencers are negatively correlated with self-esteem implies that exposure to the highly refined digital personalities which are not realistic may make people start assessing their own self-image more critically. This confirms previous studies that show that the content that influencers promote leads to decreased self-esteem through the promotion of unrealistic beauty and lifestyle ideals (Fardouly and Vartanian, 2016; Verduyn et al., 2017). This effect is compounded by virtual influencers as they are created with no imperfections and restrictions, which makes them even more idealized than human influencers. This is in line with the recent results that AI-generated images are able to induce self-objectification and inadequacy among the viewers (Limniou et al., 2025; Agrawal et al., 2025).

Likewise, it is possible to note that the great negative effect of virtual influencers on the improvement of the life quality implies that those students who are inclined to use this content are less satisfied with their own lives. The finding aligns with the studies that exposure to idealized lifestyles on social media decreases subjective well-being by making unrealistic comparisons (Wang et al., 2017). This effect might be even greater in the case of virtual influencers, as not only their lifestyles are staged, but their lives look perfect and unachievable. Consequently, users can feel that there is an increased disparity between their real worlds and the online worlds they view and become displeased.

Theoretical Implications

The findings are a strong indication of the social comparison theory when applied to AI-based digital world. They show that the processes of comparison are not only restricted to the interaction between human beings but also to artificial beings. This result is significant as it contradicts the belief that knowledge about artificiality decreases the psychological influence. The effects of emotional and cognitive comparisons are also experienced by the users even when they are aware that the virtual influencers are fake. This adds to the existing body of research on the psychology of digital media and indicates that perceived realism can be more impactful than perceived realism in influencing users.

Practical Implications

The results of the research hold significant implications in practice among the educators, policy makers and the creators of digital platforms. The adverse psychological outcomes that can be seen among college students are proofs of the necessity of the digital literacy programs that can make young users think over online information and minimize the negative habit of comparison. The schools must incorporate educational initiatives, which deal with the psychological risks of overconsumption of social media, especially the exposure to idealized influencer content. Furthermore, social media platforms must weigh the moral aspects of influencing AI-generated influencers and should seek ways of enhancing healthy and more realistic accounts of lifestyles.

CONCLUSION AND RECOMMENDATIONS

Conclusively, this research shows that virtual influencers have a much more impact on self-esteem and satisfaction with their lifestyles among college students, but it is mostly negative. The results confirm that viewing AI-created idealized material may decrease self-esteem and life satisfaction through the strengthening of social comparisons. Since virtual influencers become more and more popular in the digital marketing and social media ecosystems, the psychological effect of virtual influencers cannot be neglected.

It is also suggested that the future study should investigate other mediating and moderating factors like digital literacy, emotional regulation, and resilience to gain a better insight of individual variations in reactions to virtual influences. Long-term psychological effects are also proposed to be studied by means of longitudinal studies. In addition, policymakers and mental health workers are supposed to join hands in coming up with the rules of ethical use of AI influencers and create awareness regarding psychological effects of the culture of digital comparison.

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