Asia Pacific Science Press

Critical Humanistic Social Theory
ISSN(O):3005-9291
ISSN(P):3005-9283
Vol. 2 No.4 (2025)

Study on the Impact of Social Media Use on Subjective Well-Being Among Youth —An Analysis of Chain Mediation and Moderating Effects Based on Psychological Anxiety and Psychological Resilience

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Abstract: In a media-saturated society, mental health issues among youth are particularly prominent, and research on subjective well-being remains a prominent topic. This study analyzes the relationship between social media use and subjective well-being among young people, introducing psychological anxiety and psychological resilience as mediating variables to construct a chain mediation model. Findings reveal that social comparison significantly reduces subjective well-being by triggering psychological anxiety and weakening psychological resilience. Conversely, social media use exhibits an emotional compensation effect among youth with high anxiety and low resilience, temporarily boosting well-being. Furthermore, the impact of social media use on well-being exhibits dynamic, nonlinear characteristics, highlighting the chained effects of underlying psychological mechanisms. This study unravels the psychological mechanisms underlying the negative influence of social media use on subjective well-being, offering a new theoretical perspective for understanding the subjective well-being of young people in the new era.

Keywords: Social Media Use; Subjective Well-Being; Psychological Anxiety; Psychological Resilience; Chained Mediation

Published: Oct 26, 2025

DOI: https://doi.org/10.62177/chst.v2i4.612

1.Introduction

Within the contemporary context of a mediated society, media is reshaping social structures and individual daily practices through its pervasive influence. The dynamic interplay between media and individuals constructs the complex reality of this mediated society. As active participants, young people serve not only as pivotal nodes within intricate networks but also as mediators for building stable relational ties. Social media functions as both a conduit for young people's pursuit of pleasure and a source of their perceived anxieties. Due to multiple real-world factors, mental health issues among youth are increasingly prominent, necessitating a reexamination of their well-being. Existing research indicates that social media use correlates with youth mental health(O'Day & Heimberg, 2021). Higher frequency of social media use correlates with more severe trait anxiety symptoms and a greater likelihood of developing anxiety disorders(Vannucci et al., 2017). Furthermore, depressive symptoms showed a significant yet modest correlation with both the duration and intensity of social network

usage(Cunningham et al., 2021). Thus, social media use can both enhance subjective well-being among youth and exacerbate their negative psychological perceptions. Consequently, as a perceptual manifestation of youth psychological well-being, the process by which its overall profile is shaped—and how it intertwines with structural factors—represents the core value for deepening research in this field.

Existing research has found that social media usage impacts subjective well-being among young people. For instance, studies indicate that social media use does indeed influence subjective well-being, but the effects vary significantly depending on usage patterns(Wei L & Chen W, 2015). Other perspectives also indicate that the magnitude of the effect of social media self-presentation on subjective well-being depends on the mode of self-presentation(Mao L, 2020). This is related to the social support young people receive on social media(Webster et al., 2021). The higher the level of social support obtained through social media use, the stronger the subjective well-being. Of course, some researchers have proposed conflicting views. Subjective well-being satisfaction requires long-term, sustained explanations to be supported(Kim, 2014). Internet use primarily exerts a negative influence on subjective well-being(Liao S et al., 2024). Evidently, social media usage in different contexts leads to variations in subjective well-being satisfaction. The relationship between social media use and well-being depends on how individuals utilize it(Bailey et al., 2020). However, continuous observation remains an empirical fact that cannot be verified through research. Social media use can generate both positive and negative psychological effects. The impact of social media use on young people's subjective well-being is unstable(Zhao Z, 2021). How negative psychological effects influence positive ones, and how individuals leverage their resilience under negative psychological impacts to ultimately return to positive psychological states—this complex, multifaceted chain process lacks empirical research support. Therefore, the intricate relationship between the positive and negative effects of social media use requires explanation through mediating mechanisms.

This study aims to explore the mechanism through which social media usage influences subjective well-being among young adults. Based on the reality of information exposure scenarios, a dual-mediation model incorporating psychological anxiety and psychological resilience has been constructed. The specific research questions are as follows: First, under what circumstances does social media usage increase psychological anxiety among young adults, thereby indirectly affecting their subjective well-being? Second, does the level of psychological resilience among young people promote their subjective well-being when confronted with psychological anxiety? Third, does a chained pathway exist that influences young people's subjective well-being? This research contributes to understanding the effects of negative psychological states and individual resilience on subjective well-being, thereby expanding the theoretical framework for explaining subjective well-being among young people.

2.Literature Review and Research Hypotheses

2.1 The Interactive Effect of Social Media Use and Subjective Well-Being

Social media use is understood as purposeful social interaction on social media platforms(Tuck & Thompson, 2024). The Uses and Gratifications Theory emphasizes that social media use is grounded in specific user needs, with media exposure serving to fulfill these needs(Katz et al., 1973). Based on this, measurements of social media usage rely on the Social Media Use Scale (SMUS), developed by Alison B. Tuck and Renee J. Thompson in 2024. The scale assesses five dimensions: social interaction, entertainment motivation, information seeking, convenience, and social comparison(Tuck & Thompson, 2024). Each subscale comprises multiple items used to calculate scores for that specific dimension, with the total score averaged across all dimensions. This conceptual breakdown aids in understanding variations in subjective well-being across different usage contexts.

Subjective well-being focuses on how and why people experience life positively, encompassing both cognitive judgments and affective responses(Diener, 1984) Early research on subjective well-being primarily emphasized three dimensions: happiness, life satisfaction, and positive emotions. As research deepened, new dimensions were gradually integrated into comprehensive measures of subjective well-being. In this study, subjective well-being was assessed using the BBC Subjective Well-Being Scale, a 24-item self-report questionnaire designed to measure individuals' subjective experiences. It

encompasses physical health, psychological health, independence, social relationships, environmental quality, and spiritual quality of life(Kinderman et al., 2011). Similarly, the overall measurement of subjective well-being is primarily divided into the following dimensions: physical and mental health, personal competence and self-actualization, positive emotions and life attitude, interpersonal relationships and social connections, and material and environmental satisfaction. Existing research confirms an association between social media use and subjective well-being among youth. For instance, one study examined the relationship between social media use and subjective well-being, using personality traits as a moderator(Gerson et al., 2016). Other research indicates that social media use among young people primarily influences subjective well-being through seeking support and obtaining positive feedback(Webster et al., 2021).

Based on this, the following hypothesis is proposed:

H1: Social media use among adolescents is positively correlated with their subjective well-being, and this correlation is also evident at the level of dimensional comparison.

2.2 The Interactive Effects of Social Media Use on Psychological Anxiety and Resilience

Anxiety is a manifestation of mental health status. Social media can be described as a double-edged sword. Research has confirmed that social media use can enhance emotional and social support, but it can also trigger mental health issues(Keles et al., 2020). In fact, the relationship between social media use and mental health is influenced by multidimensional factors. Therefore, deepening research on this relationship is crucial. In this study, psychological anxiety was measured using the Hamilton Anxiety Rating Scale (HAM-A) (Hamilton, 1959). Building upon other dimensions of psychological anxiety measurement, this study subdivided psychological anxiety into five dimensions: emotional reactivity, sleep disturbance, impaired cognitive function, somatization symptoms, and behavioral expression.

Resilience is also an indicator of mental health status, broadly referring to an individual's capacity for stress resistance and persistence. Psychological resilience is measured using the Connor–Davidson Resilience Scale (CD-RISC)(Kuiper et al., 2019).Based on the scale's conceptual framework, the study decomposed the psychological resilience scale into four dimensions: Adaptability and Flexibility; Positive Coping and Sense of Humor; Growth Mindset and Stress Management; and Resilience. This dimensional breakdown facilitates deeper exploration of underlying perspectives. Based on this, the study proposes the following hypothesis:

H2: Social media usage among young adults positively correlates with psychological anxiety and psychological resilience, and this correlation also manifests at the dimensional comparison level.

2.3 The Interactive Effects of Psychological Anxiety, Psychological Resilience, and Subjective Well-Being

Social media use exerts dual impacts: positive and negative effects. Psychological resilience differs from psychological anxiety in that the former leans toward positive psychology, while the latter emphasizes negative psychology. Most studies remain unclear about the complex psychological mechanisms underlying the relationship between social media use and subjective well-being. For instance, research indicates a weak yet significant association between increased time spent on social media and heightened depressive mood, social anxiety, and physical anxiety symptoms(Thorisdottir et al., 2020). Evidently, social media use can trigger both positive and negative emotions. This depends on the form and purpose of social media use. For example, "real-time interaction" is a core activity for alleviating psychological anxiety and enhancing subjective well-being(Zhai et al., 2024). Negative emotions induced by social media use can be mitigated by the network support gained. Research indicates that internet usage among youth positively impacts their well-being, with this effect mediated by social networks(Guo X et al., 2020). Individuals receiving greater network support exhibit stronger psychological resilience, which in turn influences their subjective well-being. For instance, research indicates that psychological resilience mediates the relationship between mental health and subjective well-being(Yıldırım & Arslan, 2022). Psychological resilience mediates the relationship between resilience and life satisfaction in adolescents(Usán Supervía et al., 2022). Therefore, incorporating psychological anxiety and psychological resilience as mediating variables allows us to explore the psychological mechanisms linking social media use to subjective well-being while uncovering transformative relationships among diverse psychological states among social media users. Currently, few studies have deeply examined the psychological mechanisms and chained

pathways of psychological state changes between social media use and subjective well-being.

Based on this, the following hypotheses are proposed:

H3: Psychological anxiety and psychological resilience among young adults correlate with their subjective well-being, and this correlation is also reflected at the level of dimensional comparison.

H4: Psychological anxiety and psychological resilience mediate the relationship between social media use and subjective well-being in a chained manner.

3.Research Design

3.1 Research Sample and Data

This study selected college students from universities in Province J as research subjects. Sample selection was based on the following considerations: First, this demographic aligns with the age range of the youth population and exhibits a high level of social media literacy. Second, it was chosen for its overall convenience in questionnaire collection, response rate, and validity. The questionnaire was distributed primarily through two channels: First, it was uploaded to Wenshuaixing as an online survey, configured with group-specific visibility settings, and shared via link in WeChat Moments. Second, it was distributed through the author's own teaching classes, where class committee members were requested to share the questionnaire link in class group chats. The survey period ran from May to July 2024, yielding a total of 225 completed questionnaires. After thorough review and verification by the research team, no outliers were identified, achieving a 100% response rate. Questionnaire items employed a five-point Likert scale, where higher scores indicate greater levels of the corresponding variable.

The structural characteristics of the sample are as follows:(1) Gender distribution: 58.7% female, 41.3% male. (2) Age distribution: 92.0% of respondents were aged 18–25. (3) Educational attainment: 88.4% held a bachelor's degree. (4) Regional affiliation: 90.7% resided in central China; 40.4% held urban household registration, while 59.6% held rural household registration. (5) Regarding marital status, 94.7% of the sample were unmarried. (6) In terms of monthly spending, 40.0% of the sample spent between 1000-1500 RMB monthly, while 36.4% spent between 1500-2000 RMB monthly. Overall, this study primarily focused on a young demographic in central China consisting of females, undergraduate students, and unmarried individuals.

3.2 Variable Specification

This study primarily encompasses four variables: social media usage, psychological anxiety, psychological resilience, and subjective well-being. Among these, psychological anxiety and psychological resilience serve as mediating variables. The purpose of constructing dual mediating variables is to clarify the psychological chain of effects linking social media users' media exposure to subjective well-being. To ensure measurement validity, standardized scales were employed for all variables. All scales employ a five-point Likert scale.

Specifically, social media usage as the independent variable is measured using the SMUS scale. This scale primarily encompasses five dimensions: social interaction, entertainment motivation, information seeking, convenience, and social comparison. The scale's Cronbach's alpha coefficient is 0.862, indicating high data reliability. Psychological anxiety as the mediating variable is measured using the HAM-A scale. This scale primarily encompasses five dimensions: emotional reactivity, sleep disturbance, impaired cognitive function, somatic symptoms, and behavioral manifestations. The Cronbach's alpha coefficient for this scale is 0.826, indicating very high data reliability. The measurement of psychological resilience as the mediating variable employed the CD-RISC scale, which primarily includes four dimensions: and resilience. Its Cronbach's alpha coefficient is 0.733, exceeding 0.7, thus indicating excellent data reliability. The dependent variable of subjective well-being was measured using the BBC Well-being Scale. This scale primarily comprises five dimensions: physical and mental health; personal competence and self-actualization; positive emotions and life attitude; interpersonal relationships and social connections; and material and environmental satisfaction. The Cronbach's alpha coefficient for this scale is 0.891, indicating high data reliability. Reliability analysis results show that the reliability coefficients for the independent variable (social media usage), the mediating variable (psychological anxiety), and the dependent variable

(subjective well-being) all exceed 0.8. The reliability coefficient for the mediating variable (psychological resilience) exceeds 0.7, confirming that the overall data possesses good reliability.

3.3 Reliability and Validity Testing

This study conducted confirmatory factor analysis (CFA) on the four variables and their dimensional combinations. The results indicate: (1) For the independent variable—social media usage—validity was assessed using KMO and Bartlett's tests. The overall KMO value for the variable was 0.832, exceeding 0.8, which indirectly indicates excellent validity. The composite reliability (CR) values for all five dimensions exceeded 0.7. Except for the "social interaction" dimension, whose AVE root mean square was 0.582, the AVE root mean squares for the other dimensions all exceeded 0.6, signifying good discriminant validity. (2) Mediating Variable—Psychological Anxiety The overall KMO value for this variable was 0.820, exceeding 0.8 and indicating strong validity. The composite reliability (CR) values for all five dimensions exceeded 0.7, signifying good convergent validity in this data analysis. For the "Emotional Reaction" dimension, its AVE root mean square error (RMSE) is 0.737, which is less than the maximum absolute value of inter-factor correlations (0.738), indicating poor discriminant validity. For the "Behavioral Performance" dimension, its AVE RMSE is 0.846, which is less than the maximum absolute value of inter-factor correlations (0.865), also indicating poor discriminant validity. The root mean square error of approximation (RMSEA) values for the remaining dimensions all exceeded 0.7, indicating good discriminant validity. (3) Mediating variable—psychological resilience: The KMO value for the mediating variable psychological resilience was 0.716, falling between 0.7 and 0.8, indirectly reflecting good validity. The composite reliability (CR) values for this dimension all exceed 0.7. The square root of the average variance extracted (AVE) for each dimension exceeds 0.6, and the absolute values of inter-factor correlations exceed 0.5, indicating good discriminant validity. (4) Dependent variable—Subjective Well-Being. The overall KMO value for this variable is 0.871, exceeding 0.8, which indirectly reflects excellent validity. The composite reliability (CR) values for the three dimensions (Physical and Mental Health, Personal Competence and Self-Actualization, Interpersonal Relationships and Social Connections) all exceed 0.7. However, the CR value for the "Positive Emotions and Life Attitude" dimension is 0.635, and the CR value for the "Material and Environmental Satisfaction" dimension is 0.626, indicating poor data aggregation validity for these dimensions. Regarding discriminant validity analysis, the square root of AVE for the "Physical and Mental Health" dimension was 0.596, which is less than the maximum absolute value of inter-factor correlations (0.681), indicating poor discriminant validity. The square root of AVE for the other dimensions all exceeded 0.6, suggesting relatively good discriminant validity for these dimensions. Thus, the overall validity of the four variables is relatively good, indicating the research data is suitable for information extraction. Except for the "Social Interaction," "Cognitive Impairment," "Physical and Mental Health," and "Positive Coping and Sense of Humor" dimensions, most AVE square roots for other variable dimensions exceed 0.6, demonstrating that the questionnaire scale possesses good convergent validity.

4.Research Findings

4.1 Descriptive Statistics and Correlation Analysis

Table 1 presents the means, standard deviations, Spearman correlation coefficients, and composite reliability (CR) values for the four variables. Regarding means, social media usage exhibited the highest score, while psychological anxiety showed the lowest. Mean differences between some variables were relatively small. This indicates that within the sample population, the mean social media usage score was 3.817 (SD=0.577), reflecting a generally high and relatively consistent usage frequency. The mean psychological anxiety score was 2.024 (SD=0.720), suggesting most respondents exhibited low anxiety levels, though individual variations existed. The mean for psychological resilience was 3.482 (SD=0.638), indicating strong psychological regulation and recovery capabilities among respondents. The mean for subjective well-being was 3.669 (SD=0.554), reflecting high levels of subjective well-being with minimal group differences. These characteristics provide a solid foundation for subsequent exploration of the relationship between social media usage and subjective well-being among young adults.

Table 1: Correlation Matrix and Mean, Standard Deviation, and Composite Reliability (CR) Values for Each Variable

Variable Name	Mean	Standard Deviation	Social Media Use	Psychological Anxiety	Psychological Resilience	Subjective Well-Being
Social Media Use	3.817	0.577	0.915			
Psychological Anxiety	2.024	0.720	0.125	0.947		
Psychological Resilience	3.482	0.638	-0.032	-0.335**	0.783	
Subjective Well-being	3.669	0.554	0.165*	-0.409**	0.358**	0.940

Note: Diagonal values represent composite reliability (CR) coefficients; * p<0.05 ** p<0.01.

As shown in the table above, Spearman's correlation coefficient was used to examine the relationship between social media usage and three psychological factors: psychological anxiety, psychological resilience, and subjective well-being, with the coefficient indicating the strength of these correlations. Detailed analysis reveals: Social media usage exhibits significant correlations with all three variables, specifically subjective well-being. The correlation coefficients are 0.165, all greater than zero, indicating a positive correlation between social media usage and subjective well-being. Conversely, no significant correlations were found between social media use and psychological anxiety or psychological resilience, with correlation coefficients approaching zero. This indicates no relationship exists between social media use and these two variables. Psychological anxiety and psychological resilience showed a negative correlation, while psychological anxiety and subjective well-being exhibited a negative correlation. Psychological resilience, however, demonstrated a positive correlation with subjective well-being.

To explore the relationships among social media usage, psychological anxiety, psychological resilience, and subjective well-being, Spearman's correlation coefficients were employed to analyze the correlations between these variables. The results are presented in Table 2.

4.1.1 Interaction effect between social media use and subjective well-being

Social media use and subjective well-being showed a significant positive correlation ($r = 0.165$, $p < 0.05$), indicating that higher social media usage frequency correlates with higher levels of subjective well-being. Thus, research hypothesis H1 was confirmed, partially supported at the dimensional level. To further explore the underlying relationship between social media use and subjective well-being, the correlations among the dimensions of these variables were analyzed. The results are as follows: (1) The five dimensions of social media use were significantly correlated with each other, particularly between social interaction and social comparison, which exhibited the highest correlation coefficient ($r = 0.606$, $p < 0.01$). This indicates that users engaging in more social interaction are more inclined to engage in social comparison. (2) Three dimensions of social media use—"Convenience," "Information Seeking," and "Social Interaction"—exhibit significant positive correlations with multiple dimensions of subjective well-being: for example, 'Convenience' shows significant positive correlations with both "Material and Environmental Satisfaction" ($r = 0.212$, $p < 0.01$) and "Physical and Mental Health" ($r = 0.166$, $p < 0.05$); "Information seeking" showed significant positive correlations with "personal competence and self-actualization" ($r = 0.203$, $p < 0.01$) and "physical and psychological well-being" ($r = 0.180$, $p < 0.01$); "Social Interaction" showed positive correlations with "Positive Emotions and Life Attitude" ($r = 0.174$, $p < 0.01$) and "Personal Competence and Self-Actualization" ($r = 0.163$, $p < 0.05$). (3) Although the social comparison dimension was highly correlated with other social media usage dimensions, its correlations with subjective well-being dimensions were weaker or non-significant. For instance, its correlation coefficient with "material and environmental satisfaction" was 0.095 and did not reach statistical significance. This may indicate that social comparison does not necessarily directly promote well-being and may even exert negative effects. Overall, dimensions of social media use with practical or interactive functions (e.g., convenience, information seeking, social interaction) exhibited more significant positive relationships with subjective well-being. This suggests social media may enhance well-being by providing information, strengthening social connections, and improving efficiency. Conversely, the social comparison dimension showed no significant correlation with subjective well-being, suggesting its role may be more

complex. Further research is warranted to explore its potential mediating or moderating effects.

4.1.2 Interactive Effects of Social Media Use on Psychological Anxiety and Psychological Resilience

(1) Overall, the correlation coefficient between total social media usage scores and total psychological anxiety scores was $r = 0.125$, $p = 0.062$, failing to reach statistical significance ($p > 0.05$). This indicates no significant linear relationship between overall social media usage frequency and respondents' psychological anxiety levels. However, at the dimensional level: The social comparison dimension showed significant positive correlations with multiple anxiety dimensions, such as emotional reactivity ($r = 0.241$, $p < 0.01$), sleep disturbances ($r = 0.185$, $p < 0.01$), cognitive impairment ($r = 0.180$, $p < 0.01$), and somatization symptoms ($r = 0.269$, $p < 0.01$). In contrast, dimensions such as information seeking, convenience, and entertainment motivation showed no significant correlations with most anxiety indicators. Although overall social media use was not significantly related to anxiety, the "social comparison" dimension correlated with multiple anxiety manifestations. This suggests that frequent online social comparison behaviors may exert a certain influence on individuals' negative emotions, warranting attention. (2) Social Media Use and Psychological Resilience Overall, the correlation coefficient between total social media use and total psychological resilience was $r = -0.032$, $p = 0.637$, also failing to reach significance. This indicates no relationship between overall usage frequency and individual psychological resilience. However, at the dimensional level: most social media usage dimensions showed insignificant correlations with the four dimensions of psychological resilience. Only social comparison exhibited significant negative correlations with the resilience dimensions of "resilience" ($r = -0.162$, $p < 0.05$) and "adaptability and coping ability" ($r = -0.185$, $p < 0.01$). Dimensions such as social interaction and information seeking showed extremely low or insignificant correlations with resilience indicators. This suggests that frequent social comparison behaviors may weaken an individual's psychological adaptability and resilience when facing stress; however, other social media usage behaviors driven by positive motivations do not necessarily impact resilience. Therefore, research hypothesis H2 was not confirmed overall but partially supported at the dimensional comparison level.

4.1.3 Interactive Effects of Psychological Anxiety, Psychological Resilience, and Subjective Well-Being

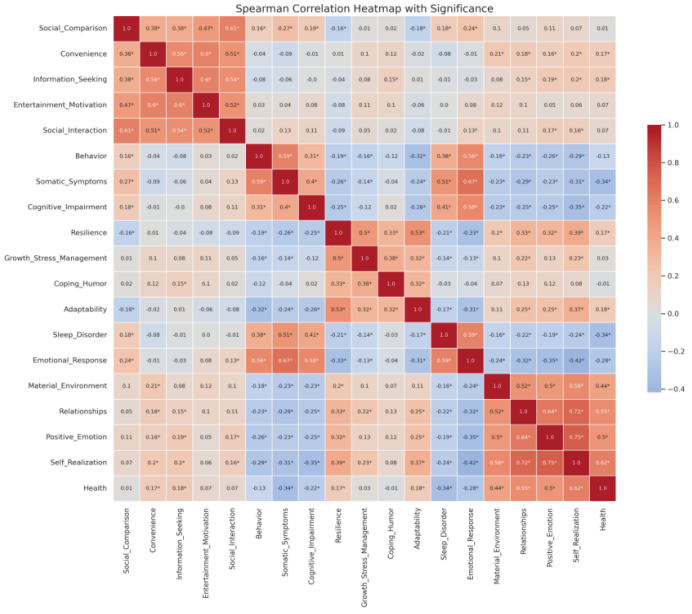
(1) Psychological Anxiety and Subjective Well-Being Overall, psychological anxiety and total subjective well-being scores showed a significant negative Spearman correlation ($r = -0.409$, $p < 0.01$), indicating that higher anxiety levels correlated with lower subjective well-being. Further analysis at the dimensional level reveals multiple significant negative correlations between all five dimensions of psychological anxiety (emotional reactivity, sleep disturbance, cognitive impairment, somatization, behavioral expression) and corresponding dimensions of subjective well-being. Among these, emotional reactivity exhibited the strongest correlations with each SWB dimension: $r = -0.418$ ($p < 0.01$) with "Personal Competence and Self-Actualization," $r = -0.346$ ($p < 0.01$) with "Positive Emotions and Life Attitude," and "Interpersonal Relationships and Social Connections" $r = -0.320$ ($p < 0.01$), indicating that emotional instability and tension significantly impact well-being. Dimensions such as somatization symptoms and cognitive impairment also showed negative correlations with multiple well-being dimensions. Higher anxiety levels, particularly marked emotional tension and physical discomfort, made individuals less likely to experience satisfaction, health, and life happiness. (2) Psychological Resilience and Subjective Well-Being: Overall, the Spearman correlation coefficient between psychological resilience and subjective well-being was $r = 0.358$, $p < 0.01$, indicating a significant positive correlation. This suggests that individuals with higher psychological resilience are more likely to experience positive well-being. At the dimensional level: All four dimensions of psychological resilience showed significant positive correlations with multiple dimensions of subjective well-being, notably: Resilience correlated with "Personal Competence and Self-Actualization" ($r = 0.389$, $p < 0.01$) and with "Interpersonal Relationships and Social Connections" ($r = 0.332$, $p < 0.01$); Adaptability and resourcefulness correlated with "Personal Competence and Self-Actualization" ($r = 0.367$, $p < 0.01$) and "Positive Emotions and Life Attitude" ($r = 0.253$, $p < 0.01$); Continuous Growth and Stress Management also showed significant correlations with dimensions like "Interpersonal Relationships and Social Connections" and "Self-Actualization." Relatively, the relationship between positive coping and sense of humor dimensions and well-being was weaker, showing only a slight positive correlation with "Interpersonal Relationships and Social Connections" ($r = 0.127$, $p > 0.05$). Individuals possessing stronger psychological resilience, adaptability, and stress

regulation abilities often exhibit more positive experiences and well-being in terms of cognitive engagement with life, interpersonal relationship building, and emotional pleasure. Thus, research hypothesis H3 is confirmed, though partially at the dimensional comparison level.

4.1.4 Interactive Effects of Psychological Anxiety and Psychological Resilience

This study examined the relationship between psychological anxiety and psychological resilience, analyzing both overall levels and their respective dimensions. Overall, psychological anxiety and psychological resilience showed a significant negative correlation at the aggregate level (Spearman's $r = -0.335$, $p < 0.01$). This indicates that within the sample, higher levels of psychological anxiety were associated with lower psychological resilience, while stronger psychological resilience was linked to more effective coping with anxiety. At the dimensional level, most dimensions of psychological resilience (resilience, sustained growth and stress management, positive coping and sense of humor, adaptability and resourcefulness) showed significant negative correlations with most dimensions of psychological anxiety (emotional reactivity, sleep disturbance, cognitive impairment, somatization symptoms, behavioral manifestations). Specifically: Resilience showed significant negative correlations with all psychological anxiety dimensions, with the strongest associations observed for emotional reactivity ($r = -0.333$, $p < 0.01$), somatization symptoms ($r = -0.256$, $p < 0.01$), and cognitive impairment ($r = -0.247$, $p < 0.01$). Adaptability and coping ability also showed significant negative correlations with nearly all anxiety dimensions, particularly behavioral expression ($r = -0.320$, $p < 0.01$) and emotional reactivity ($r = -0.310$, $p < 0.01$). Although the negative correlations between continuous growth, stress management, positive coping, and sense of humor with anxiety dimensions were slightly weaker, some still reached statistical significance. This indicates that individuals possessing greater resilience, adaptability, and positive stress coping strategies tend to exhibit lower anxiety levels when confronting anxiety. Psychological resilience dimensions exerted significant moderating and buffering effects, particularly in counteracting emotional fluctuations, cognitive distress, and physical tension.

Figure 1 Heatmap of Spearman Correlation Coefficients Among Variable Dimensions



4.2 Testing Main Effects and Interaction Effects

This study employs stratified multiple regression to examine primary direct effects. Stratified regression is used to investigate model changes as independent variables (X) increase, typically applied for model stability testing, mediation, or moderation studies. The stratified regression analysis involves four models. Model 1 includes the following control variables: 1. Gender, 2. Age, 3. Educational Attainment, 4. Marital Status. Model 2 adds social media usage to Model 1. Model 3 incorporates psychological anxiety into Model 2. Model 4 includes psychological resilience on top of Model 3. The dependent variable across all models is subjective well-being.

This study employed hierarchical regression to examine the direct impact of social media usage on subjective well-being, as well as the potential mediating effects of psychological anxiety and psychological resilience. The analysis unfolded across four model levels, yielding the following results:

Model 1: Control variables (gender, age, education level, marital status). The model exhibited extremely low explanatory power ($R^2 = 0.010$) and overall insignificance ($F = 0.581$, $p = 0.677$). None of the demographic variables significantly influenced subjective well-being, indicating these background variables exerted weak or no predictive power over subjective well-being in this sample.

Table 2 Results of Stratified Regression Analysis

	Stratum 1	**Stratum 2**	**Stratum 3**	**Stratum 4**
Constant	3.776** (11.192)	2.701** (5.982)	3.157** (7.985)	2.547** (5.810)
Gender	0.062 (0.810)	0.068 (0.910)	0.041 (0.630)	0.044 (0.702)
Age	-0.121 (-1.120)	-0.052 (-0.482)	-0.039 (-0.420)	-0.046 (-0.503)
Education	-0.021 (-0.309)	-0.034 (-0.525)	0.041 (0.725)	0.038 (0.684)
Marital Status	0.101 (0.530)	0.185 (0.987)	0.192 (1.184)	0.204 (1.278)
Social Media Use		0.229** (3.480)	0.254** (4.432)	0.252** (4.485)
Psychological Anxiety			-0.379** (-8.542)	-0.335** (-7.297)
Psychological Resilience				0.153** (2.994)
Sample Size	225	225	225	225
R^2	0.010	0.062	0.297	0.325
Adjusted R^2	-0.008	0.041	0.278	0.304
F-value	F (4,220)=0.581, p=0.677	F (5,219)=2.911, p=0.014	F (6,218)=15.383, p=0.000	F (7,217)=14.948, p=0.000
$\triangle R^2$	0.010	0.052	0.235	0.028
$\triangle$ F value	F (4,220)=0.581, p=0.677	F (1,219)=12.113, p=0.001	F (1,218)=72.963, p=0.000	F (1,217)=8.962, p=0.003
Note: Dependent variable = Subjective well-being * p<0.05 ** p<0.01 Values in parentheses are t-values				

Model 2: Adding the independent variable "social media usage." The model showed significant improvement ($\triangle R^2 = 0.052$, $p = 0.001$), indicating that social media usage significantly explains variance in subjective well-being. The regression coefficient for social media usage on subjective well-being was $B = 0.229$, $\beta = 0.239$, $p = 0.001$, confirming it as a positive predictor. Higher social media usage frequency correlates with stronger subjective well-being, supporting the findings from the prior correlation analysis ($r = 0.165$).

Model 3: Added the mediating variable "psychological anxiety." The model's explanatory power increased substantially (R^2 from 0.062 → 0.297, $\Delta R^2 = 0.235$, $p < 0.001$). Psychological anxiety exhibited a regression coefficient of $B = -0.379$, $\beta = -0.493$, $p < 0.001$ for subjective well-being, indicating it is a strong negative predictor. The coefficient for social media usage slightly increased ($B = 0.254$, $\beta = 0.264$) but remained significant. Psychological anxiety is a significant negative factor

affecting subjective well-being. After including psychological anxiety, the effect of social media did not diminish, indicating that anxiety does not constitute complete mediation but has a highly significant impact on well-being itself.

Model 4: Incorporating the second mediating variable, "psychological resilience." The model again showed significant improvement ($\triangle R^2 = 0.028$, $p = 0.003$), with the final model being overall significant ($F = 14.948$, $p < 0.001$). The regression coefficient for psychological resilience on subjective well-being was $B = 0.153$, $\beta = 0.176$, $p = 0.003$, confirming it as a significant positive predictor. Psychological anxiety remained significant ($B = -0.335$, $\beta = -0.436$), and social media usage retained significance ($B = 0.252$, $\beta = 0.263$). Psychological resilience made an independent and positive contribution to well-being after controlling for psychological anxiety. Simultaneously, social media use continued to exert a direct positive influence on well-being, indicating that the two mediating variables (anxiety and resilience) in the model partially mediated the relationship.

Overall: Social media use positively predicts subjective well-being, meaning moderate or positively motivated use enhances well-being. Psychological anxiety acts as a negative mediating variable, partially explaining the mechanism through which social media use influences well-being. That is, certain usage patterns may trigger anxiety, thereby inhibiting well-being. Psychological resilience acts as a positive mediating variable, demonstrating that individuals' psychological adaptability in social contexts can buffer negative effects and enhance well-being. Collectively, social media use influences subjective well-being through two pathways—"reducing anxiety" and "enhancing resilience"—while also exhibiting a direct effect.

4.3 Testing the Chain Mediation Effect of Psychological Anxiety and Psychological Resilience

4.3.1 Testing Parallel and Chain Mediation Effects

Mediation effects were examined using Bootstrap sampling with 5,000 iterations. Results indicate that for the mediation pathway 'Social Media Use ⇒ Psychological Anxiety ⇒ Subjective Well-being', the 95% confidence interval includes zero (95% CI: -0.115 to 0.076), suggesting this mediation effect does not exist. For the mediation path 'Social Media Use ⇒ -Psychological Resilience ⇒ Subjective Well-Being', the 95% confidence interval included zero (95% CI: -0.026 to 0.030), indicating that this mediation effect path does not exist. Analyzing the chained mediation paths, for the path 'Social Media Use ⇒ Psychological Anxiety ⇒ Psychological Resilience ⇒ Subjective Well-Being', the 95% confidence interval includes zero (95% CI: -0.015 to 0.013), indicating that this mediation path does not exist. The data indicate that while the single mediation path (i.e., parallel mediation) is not significant, the dimensional chain mediation path is significantly established. Therefore, research hypothesis H4 is not confirmed, but partially confirmed at the dimensional comparison level.

4.3.2 Testing Dimensional Mediation and Chain Mediation Effects

Social media use does not show significant correlations with psychological anxiety or psychological resilience at the overall level. Only social comparison within social media use exhibits significant correlations with psychological anxiety and psychological resilience. Frequent social comparison significantly impacts individuals' negative emotions and weakens their psychological adaptability and resilience when facing stress. Therefore, to construct a chained pathway among social media use, psychological anxiety, psychological resilience, and subjective well-being, this study treats social comparison within social media use as an independent pathway variable to explore chained mediating effects.

Table 3 Indirect Effect Analysis

Item	Effect	Boot SE	BootLLCI	BootULCI	z	p
Social Comparison ⇒ Psychological Anxiety ⇒ Subjective Well-being	-0.077	0.043	-0.209	-0.040	-1.782	0.075
Social Comparison ⇒ Psychological Resilience ⇒ -Subjective Well-being	-0.008	0.016	-0.047	0.018	-0.504	0.614
Social Comparison ⇒ Psychological Anxiety ⇒ Psychological Resilience ⇒ Subjective Well-being	-0.009	0.007	-0.031	-0.002	-1.250	0.211
Note: BootLLCI denotes the lower bound of the 95% Bootstrap confidence interval, BootULCI denotes the upper bound, and the bootstrap method used is percentile bootstrap. Shaded cells indicate chained mediation, while others represent parallel mediation.						

The study employed Bootstrap sampling for mediation effect analysis with 5,000 iterations. Results indicate that for the mediation pathway 'social comparison ⇒ psychological anxiety ⇒ subjective well-being', the 95% confidence interval does not include zero (95% CI: -0.209 to -0.040), confirming the existence of this mediating effect. For the mediation pathway 'social comparison ⇒ psychological resilience ⇒ subjective well-being', the 95% confidence interval included zero (95% CI: -0.047 to 0.018), indicating that this mediation effect pathway did not exist. Next, analyzing the chained mediating effect paths, for the path 'social comparison ⇒ psychological anxiety ⇒ psychological resilience ⇒ subjective well-being', the 95% confidence interval does not include zero (95% CI: -0.031 to -0.002), indicating that this mediating effect path exists.

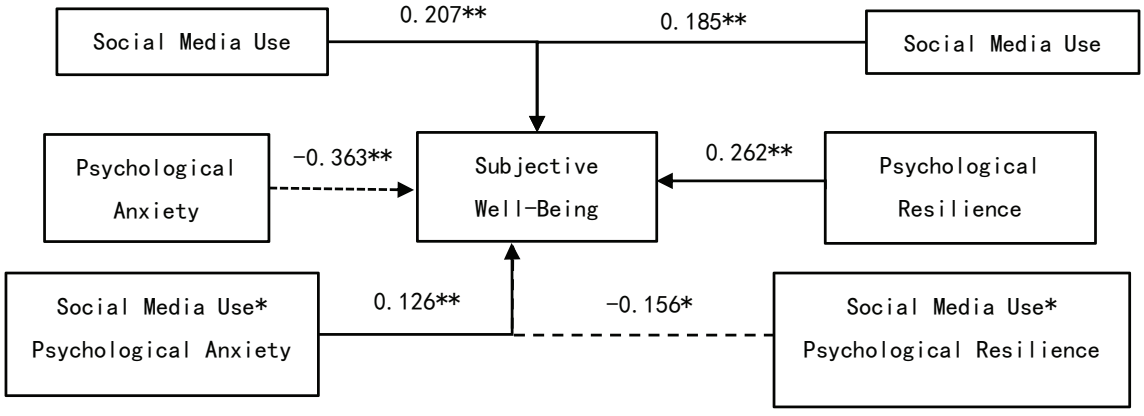
The chain mediation analysis results indicate that social comparison primarily exerts a significant negative influence on young adults' subjective well-being through two pathways: by increasing psychological anxiety and via the chain mechanism where "anxiety weakens resilience." Similar to previous studies focusing on social comparison's impact on negative emotions, this research further reveals its layered psychological transmission mechanisms. Notably, psychological resilience did not form an independent mediating pathway between social comparison and well-being, suggesting resilience may primarily serve as a "secondary moderator" in coping with anxiety rather than being directly influenced by social comparison. This finding contributes to expanding the applicability of the "cognition-emotion-psychological adjustment" chain model in new media contexts. In summary, by distinguishing parallel mediation from chain mediation, this study deepens our understanding of the psychological mechanisms underlying youth well-being in social media contexts. It also provides concrete directions for digital psychological interventions: while reducing comparative content, efforts should strengthen individuals' ability to recognize and regulate anxiety, preventing it from further eroding psychological resilience and ultimately affecting well-being levels.

4.3.3 Moderation Effect Test

To examine whether psychological anxiety moderates the relationship between social media use and subjective well-being, this study constructed a moderation effect model. Results indicate that psychological anxiety exerts a significant negative influence on subjective well-being ($\beta = -0.472$, $p < 0.001$), and the interaction term between social media use and psychological anxiety significantly predicts subjective well-being ($\beta = 0.160$, $p = 0.006$) . Further analysis revealed that higher levels of psychological anxiety strengthened the positive effect of social media use on subjective well-being, indicating a significant positive moderation effect. This suggests that social media may serve a stronger emotional compensation function for highly anxious youth.

Moderation analysis revealed that psychological resilience not only significantly predicted subjective well-being ($\beta = 0.302$, $p < 0.001$) but also negatively moderated the relationship between social media use and subjective well-being (interaction term $\beta = -0.149$, $p = 0.020$). This indicates that when individuals possess higher psychological resilience, the positive effect of social media use on their well-being diminishes, while the opposite occurs for those with lower resilience. In other words, the impact of social media use on well-being is more pronounced among individuals with lower psychological resilience.

Figure 2: Moderated Effects Model Results



5.Research Findings and Discussion

5.1 Research Findings and Contributions

This study examined the interactive effects among social media usage, psychological anxiety, psychological resilience, and subjective well-being at both the overall and dimensional levels, along with chained mediating effects and moderating effects. Findings indicate that at the overall comparison level: - Social media use positively influences subjective well-being. - Social media use does not exhibit significant linear relationships with psychological anxiety or psychological resilience, though partial linear relationships exist across certain dimensions. - Psychological anxiety and psychological resilience show significant negative correlations. - Psychological anxiety negatively impacts subjective well-being, while psychological resilience positively influences subjective well-being. At the dimensional comparison level: (1) Social media use exhibits significant positive relationships with subjective well-being in the dimensions of convenience, information seeking, and social interaction, but lacks significant correlation in the social comparison dimension. This indicates that social media promotes subjective well-being among young people by providing information, strengthening social connections, and enhancing efficiency. (2) The social comparison dimension of social media use generally showed significant positive correlations with all dimensions of psychological anxiety. Simultaneously, this dimension exhibited significant negative correlations with all dimensions of psychological resilience. This indicates that frequent social comparison behaviors can influence negative emotions among young people and weaken their adaptive capacity and resilience when facing stress. Dimensions of psychological anxiety generally showed negative correlations with subjective well-being, while dimensions of psychological resilience generally showed positive correlations. This indicates that higher anxiety levels lead to more pronounced emotional tension and physical discomfort among young people, making it harder for them to experience subjective well-being. Simultaneously, young people with stronger psychological recovery, adaptation, and stress regulation abilities are more likely to experience positive emotions and subjective well-being. (4) Dimensions of psychological anxiety generally showed negative correlations with dimensions of psychological resilience. This indicates that young people with strong resilience, adaptability, and stress coping strategies tend to exhibit lower anxiety levels.

Chain mediation effects revealed that social comparison on social media primarily negatively impacts young people's subjective well-being through increased psychological anxiety and the chain pathway of "anxiety weakening resilience." This finding reveals a crucial psychological mechanism: social media use does not directly elevate or diminish well-being but instead impacts subjective well-being through a negative chain pathway—"social comparison → increased psychological anxiety → reduced psychological resilience → decreased well-being." The existence of this chain mediation pathway suggests that the effects of social media use are highly dependent on an individual's self-regulation capacity. The moderation effect indicates that social media may exert stronger emotional compensation functions for youth with high anxiety. The impact of social media use on subjective well-being is more pronounced among young people with lower psychological resilience.

First, social comparison significantly reduces subjective well-being by triggering psychological anxiety and weakening psychological resilience.

The interaction effect indicates that the positive impact of social media use on subjective well-being is more pronounced among youth with high anxiety and low resilience. Social media use encompasses both positive and negative effects. Positive and reasonable use can enhance subjective well-being among youth, while excessive social comparison behaviors trigger negative emotions, weaken psychological resilience, and consequently diminish subjective well-being. Existing research predominantly focuses on the social support individuals gain through social media, with limited differentiation of social media usage behaviors and their distinct consequences. This study broadens the theoretical perspective of subjective well-being research, emphasizing the need to distinguish specific social media usage behaviors and avoid the a priori assumption that it is solely a positive resource acquisition tool.

Second, the impact of social media use on subjective well-being reveals an emotional compensation effect among the "high anxiety/low resilience" group.

Moderation analysis indicates that while psychological anxiety is typically viewed as diminishing subjective well-being, this study finds that young adults with low psychological resilience and high emotional distress are more likely to gain emotional regulation and psychological comfort through social media, exhibiting a stronger increase in subjective well-

being. This reveals the dual nature of social media's "positive and negative effects," which can bring negative impacts while also providing active support in specific contexts. This finding suggests that social media may possess certain emotional compensation functions among highly psychologically vulnerable individuals, but such compensation is temporary, dependent, and more likely to lead to media dependency and psychological fluctuations. Future research should focus on the moderating role of individual psychological traits.

Third, the pathway through which social media use influences subjective well-being is dynamic and nonlinear, rather than a simple direct relationship.

Chain mediation analysis indicates that social media use affects subjective well-being through a sequential pathway: social comparison → increased psychological anxiety → reduced psychological resilience → diminished well-being. This chain mediation effect reveals a psychological mechanism through which negative influences impact subjective well-being. The impact of social media use on subjective well-being is dynamic and nonlinear, primarily operating through social comparison to trigger psychological anxiety and weaken psychological resilience, thereby indirectly reducing well-being among young adults. Within the social media environment, social comparison generates anxiety and psychological pressure, which deplete psychological resources, diminish adaptive capacity and resilience, and ultimately affect well-being experiences. This mechanism aligns with social comparison theory and psychological resource depletion models, emphasizing the crucial mediating roles of psychological anxiety and resilience in social media's impact. Thus, social comparison functions not merely as a surface-level behavioral aspect of media use but as a deep psychological activator influencing well-being, suggesting future research should focus on the interplay between cognitive biases, emotional fluctuations, and psychological resources.

(II) Research Limitations and Future Directions

While this study systematically examined the complex relationships among social media use, psychological anxiety, psychological resilience, and subjective well-being, several limitations remain. First, data were collected via questionnaires without qualitative analysis; future research may consider combining quantitative and qualitative methods to more precisely uncover causal mechanisms. Second, the sample primarily consisted of young adults from a specific region, limiting its representativeness. Future research should broaden the sample scope and focus more on special populations to enhance the generalizability of findings. Third, the study focused solely on psychological anxiety and psychological resilience as mediating variables. Subsequent research could introduce additional mediating variables to construct a more comprehensive mediating-moderation model. Furthermore, given the diverse behavioral dimensions of social media use, this study did not sufficiently differentiate between different usage motivations and content. Future research could employ qualitative methods to refine the association between usage behaviors and psychological impacts. Finally, as digital media forms rapidly evolve, future research should examine the dynamic effects of emerging platforms and multimodal content on mental health and well-being to advance both theoretical understanding and practical applications.

Funding

Paradigm Shift: Theoretical Implications, Research Approaches, and Methodological Exploration of Algorithmic Agendas in the Context of Intelligent Media（XW24203）

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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