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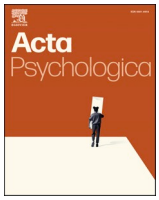

Exploring the sequential mediation model of coping humor, self-esteem, resilience, and subjective well-being among Taiwanese university students

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ABSTRACT

Amidst growing scholarly interest in the integrative effects of psychological traits on well-being, the roles of coping humor, self-esteem, and resilience as pathways to subjective happiness remain underexplored. This study examined a sequential mediation model among these variables in Taiwanese university students. The sample comprised 524 undergraduates (228 males, 296 females; M = 21.06) from 64 universities across Taiwan. Data were collected via an online survey in September 2023 using validated scales, including the Coping Humor Scale, Rosenberg's Self-Esteem Scale, the Brief Resilience Scale, and the Subjective Happiness Scale. Analyses were conducted using IBM SPSS 27.0 and SmartPLS 4.0, applying descriptive statistics, Pearson correlation, *t*-tests, ANOVA, and Partial Least Squares Structural Equation Modeling (PLS-SEM). Results confirmed that self-esteem and resilience significantly mediate the relationship between coping humor and subjective happiness, validating the proposed model. Additionally, adaptive humor styles, such as affiliative and self-enhancing humor, significantly predict self-esteem and well-being, mediating the link between self-esteem and happiness. Psychological well-being, subjective happiness, and positive humor styles were positively correlated, reinforcing humor's role in fostering happiness. These findings highlight the potential of enhancing coping humor, resilience, and self-esteem to promote well-being in educational settings. The study also provides theoretical and practical implications, as well as research limitations and future directions.

1. Introduction

As essential human resources for national development, university students face significant challenges, including intense job market competition and evolving societal expectations, which impact their mental health and self-esteem. The COVID-19 pandemic exacerbated these issues, diminishing their psychological resilience and subjective happiness (Abdul Manaf et al., 2020). Well-being mirrors the personal psychological state of university students and is a vital indicator for assessing society's overall health and progress. Humor serves as a fundamental tool in communication, trust-building, and cooperation, indicating its potential role in fostering psychological well-being and subjective happiness. (Cooper & Schweitzer, 2024). It is pivotal in enhancing Humor, an essential element in fostering a positive work environment, particularly in educational settings. Adaptive humor styles, such as social and self-enhancing humor, have been shown to positively predict self-esteem and subjective well-being, mediating the relationship between the two (Yue et al., 2014). Additionally, humor can improve friendliness and reduce negative outcomes such as depression, thereby enhancing subjective well-being (Okur et al., 2024). Therefore, when college students employ humor in their studies and daily lives, they create a better learning atmosphere and play a crucial role in enhancing their psychological health and well-being. Students can better cope with academic pressures and interpersonal challenges through humor, fostering a supportive campus environment. Facing rapid social changes and job market pressures, subjective happiness becomes a protective factor for students' mental health and overall welfare.

Resilience, the capacity to endure and adapt to recurrent adversity,

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has garnered significant scholarly attention recently (Suslovic & Lett, 2024). Humor is widely recognized as a fundamental psychological regulatory mechanism that plays a crucial role in helping individuals navigate stress and life challenges. Beyond eliciting positive emotions and fostering an optimistic outlook, humor substantially contributes to mental health, resilience, and overall well-being (Paleari et al., 2021). Its significance became even more pronounced during the global COVID-19 pandemic, where humor served as an effective coping strategy, alleviating stress, mitigating feelings of loneliness, and fostering social connectedness amid widespread social isolation (Sibley et al., 2020). Moreover, research has demonstrated a positive correlation between humor, mental health, and subjective well-being, especially in benevolent humor styles (Kokkinos & Koutsospyros, 2023a, 2023b). Adaptive humor styles, such as affiliative and self-enhancing humor, have significantly predicted self-esteem and subjective well-being, further mediating these variables (Yue et al., 2014). Additionally, humor facilitates high social competence, fostering successful social interactions and interpersonal relationships (Fitts et al., 2009; Yip & Martin, 2006).

The interrelations among humor, self-esteem, resilience, and well-being are critical for understanding psychological functioning and societal welfare. Humor fosters social connections, alleviates conflicts, and enhances self-esteem and well-being (Martin et al., 2003). Affiliative and self-enhancing humor styles positively correlate with cognitive reappraisal and subjective well-being, promoting mental health. In contrast, aggressive and self-defeating humor styles are linked to expressive suppression and lower well-being (Amjad & Dasti, 2022). Self-esteem, a crucial psychological resource, predicts resilience and life satisfaction, with higher self-esteem fostering greater emotional stability and cooperative behavior in adversity (Ionescu, 2012; Martin & Anderson, 1998). Additionally, self-esteem mediates the effects of humor on well-being, as individuals engaging in adaptive humor styles benefit from increased self-worth and psychological well-being (Marrero et al., 2020). Resilience is a protective factor that enhances happiness, with more resilient individuals reporting higher well-being, reinforcing its role in psychological adjustment (Kennison, 2022). Since humor styles influence well-being through optimism and self-esteem, resilience may be a primary predictor of happiness (Marrero et al., 2020). Emotion regulation further mediates the humor–well-being link, with positive humor styles enhancing emotional functioning and life satisfaction (Amjad & Dasti, 2022). Behavioral shifts in humor style usage also contribute to improved well-being (Kennison, 2022). Coping humor strengthens social bonds, mitigates depression, and enhances happiness (Okur et al., 2024), while adaptive humor styles mediate between self-esteem and happiness (Yue et al., 2014). Future research should examine cultural variations and additional emotion regulation mechanisms mediating humor's impact on well-being (Amjad & Dasti, 2022), offering deeper insights into resilience and happiness interventions.

Although humor, self-esteem, resilience, and subjective happiness have been widely studied, prior research has primarily examined their effects in isolation, neglecting their complex interconnections. Most studies focus on direct effects, overlooking sequential mediation mechanisms linking humor to well-being through resilience and self-esteem (Amjad & Dasti, 2022; Kennison, 2022; Marrero et al., 2020). While affiliative and self-enhancing humor styles are associated with well-being, limited research has explored their influence via these mediators. As illustrated in Fig. 1, this study fills the gap by proposing a sequential mediation model that explains how coping humor enhances subjective happiness through self-esteem and resilience. By incorporating emotion regulation and resilience as key factors, this research advances theoretical understanding and provides novel insights into humor-based coping strategies, offering valuable implications for mental health interventions.

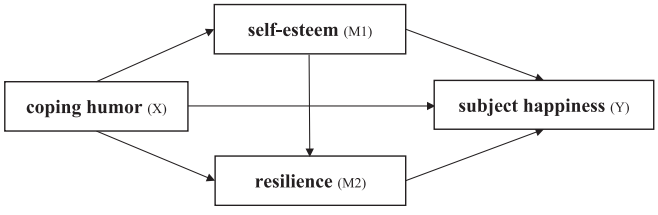

Fig. 1. Research framework model for the current study.

2. Theoretical background and research hypotheses

2.1. Underpinning theory

As Martin (2001) proposed, individuals can alleviate life stress and challenges through humor. Humor is an effective psychological relief mechanism and helps individuals face adversities more easily, enhancing mental health and well-being. Recent research has demonstrated a positive correlation between mental health, subjective well-being, and benign humor styles (Kokkinos & Koutsospyros, 2023a, 2023b). Moreover, coping humor has enhanced agreeableness and reduced negative situations such as depression, ultimately increasing subjective well-being (Okur S. et al., 2024). Rosenberg's (1965) self-esteem theory views self-esteem as an overall evaluation of an individual's self-worth. Rosenberg emphasized that self-esteem is central to self-perception and is crucial for mental health. Individuals with high self-esteem are better equipped to cope with life's challenges, demonstrating greater resilience and coping abilities. The resilience theory, co-proposed by Seligman and Csikszentmihalyi (2000), asserts that resilience is the ability to maintain mental health and recover quickly in the face of stress and adversity. This theory links resilience with psychological adjustment capabilities and is closely related to concepts in positive psychology, such as optimism and psychological capital. Subjective well-being theory, defined by Diener (1984), conceptualizes subjective well-being as a comprehensive evaluation of an individual's life satisfaction, the presence of positive emotional experiences, and the absence of negative emotions. Building on the aforementioned theoretical foundation, this study aims to provide a more comprehensive understanding of how individuals utilize psychological resources to enhance subjective happiness. Additionally, it establishes a solid theoretical base for future empirical research and interventions in psychological health.

2.2. The relationship between coping humor and subject happiness

Humor enhances both physical and mental health and is closely linked to self-esteem, resilience, and well-being (Celso et al., 2003; Kuiper & Martin, 1993). Research indicates that self-enhancing humor serves as a psychological regulation mechanism in the face of stress and adversity, promoting psychological flexibility and improving the ability to tackle challenges (Martin et al., 2003; Zeigler-Hill & Besser, 2011). As a significant psychological resource, humor enhances coping skills and quality of life (Celso et al., 2003; Kuiper & Martin, 1993). Furthermore, studies have shown a positive correlation between mental health, subjective well-being, and adaptive humor styles (Kokkinos & Koutsospyros, 2023a, 2023b). Additionally, coping humor that enhances friendliness can reduce negative conditions such as depression, thereby improving subjective happiness (Okur et al., 2024). Martin et al. (2003) emphasized that humor positively influences subjective happiness and life satisfaction, underscoring the importance of adopting and cultivating a humorous style to enhance individual well-being. Positive humor styles like affiliative humor have improved life satisfaction and self-esteem through improved interpersonal relationships and social support, affecting subjective happiness (Herzog & Strevey, 2008; Karouei et al., 2009). Based on these findings, this study hypothesizes: Hypothesis 1. A positive relationship exists between coping humor and subjective happiness.

2.3. The mediating effect of self-esteem between coping humor and subject happiness

Self-esteem reflects an individual's recognition and evaluation of self-worth and serves as a foundation for using humor to cope with daily challenges (Martin & Rubin, 1995). Research indicates a significant positive correlation between self-esteem and adaptive humor styles, such as affiliative humor and self-enhancing humor (Herzog & Strevey, 2008; Karou-ei et al., 2009). These humor styles help reduce psychological stress, increase resilience and recovery, and enhance self-esteem through improved interpersonal relationships and increased social support (Joshanloo et al., 2021; Landmann & Rohmann, 2022). Moreover, humor as an adaptive social tool can enhance well-being and self-esteem by reducing conflict and strengthening interpersonal relationships, underscoring the importance of selecting and cultivating adaptive humor styles to promote well-being and psychological resilience (Martin, 2001). Research demonstrates that adaptive humor styles significantly predict self-esteem and subjective well-being and serve as a mediating factor between the two (Yue et al., 2014). Furthermore, humor is considered a vital component of effective leadership, as it fosters a positive environment that can enhance morale and self-worth (Alazmi & Alhajeri, 2022). Self-esteem is a positive evaluation of personal worth and a key intrinsic factor influencing well-being (Martin & Anderson, 1998). High levels of self-esteem can enhance life satisfaction (Kong & You, 2013; Zhang & Leung, 2002). Additionally, a significant positive correlation exists between self-esteem and positive emotions, which help individuals enhance their well-being by appreciating the positives in life (Deveney & Deldin, 2006). The significant positive correlation between self-esteem and positive interpersonal relationships highlights the crucial role of self-esteem in promoting social interactions and underscores its contribution to well-being (Abel, 2002). These studies reveal that self-esteem, a core element of intrinsic value and self-identity, directly impacts well-being. Furthermore, research indicates that humor styles, especially adaptive humor styles like affiliative and self-enhancing humor, indirectly enhance well-being by boosting self-esteem (Herzog & Strevey, 2008; Karou-ei et al., 2009). High levels of self-esteem help strengthen the overall sense of self-worth, which is closely related to life satisfaction (Kong & You, 2013; Zhang & Leung, 2002). This suggests that self-esteem is a critical mediating variable in the relationship between humor and well-being. When individuals positively evaluate themselves through humor and strengthen their self-esteem, their well-being is enhanced. Based on the literature mentioned above, this study proposes the hypothesis:

Hypothesis 2. Self-esteem mediates the relationship between coping humor and subjective happiness.

2.4. The mediating effect of resilience between coping humor and subject happiness

Humor provides a positive coping strategy, enabling individuals to approach life's challenges and stressors with greater relaxation (Kato, 2012; Martin & Lefcourt, 1983). Through humor, individuals can adopt a more positive and optimistic attitude when facing difficulties and challenges, increasing their resilience (Martin, 2001). Paleari et al. (2021) noted that humor can serve as a coping mechanism, aiding individuals in maintaining psychological balance under stress and promoting the development of resilience, thereby facilitating quicker recovery during adversity. Moreover, humor interventions have been shown to enhance learners' positive emotions significantly (Liao et al., 2023), suggesting that the benefits of humor extend beyond individual coping to include academic and social contexts. Resilience is associated with positive mental health outcomes, including self-concept, self-esteem, and academic achievement (Everall et al., 2006). Additionally, well-being, a core element of mental health, encompasses positive emotions and life satisfaction. Resilience, as a stable personality trait, is closely related to self-esteem, suggesting a positive connection between recovery and well-being (Everall et al., 2006). When facing life's stressors and challenges, resilience is the ability to recover and a key factor in maintaining positive emotions and life satisfaction (Parsons et al., 2016; Vaziri et al., 2020). This implies that resilient individuals are likely to have higher subjective happiness. Psychological resilience helps individuals maintain a positive attitude when facing adversity and is crucial for enhancing personal well-being (Kuiper et al., 1992; Martin et al., 2003). Furthermore, resilience, as a form of psychological capital, plays a significant role in enabling individuals to quickly return to a normal psychological state after encountering stress and challenges, having a notable positive impact on their well-being (Friborg et al., 2005; Vaziri et al., 2020). Additionally, enhancing amiability through coping humor can reduce negative conditions such as depression, thereby increasing subjective well-being (Okur et al., 2024). Based on the literature mentioned above, this study proposes the hypothesis:

Hypothesis 3. Resilience mediates the relationship between coping humor and subjective happiness.

2.5. The sequential mediating roles of self-esteem and resilience in the relationship between coping humor and subjective happiness

Ionescu (2012) noted that individuals with high self-esteem can recognize their value through positive self-perception. This positive self-concept helps individuals maintain a positive attitude when facing challenges, exhibiting greater resilience. A strong positive correlation exists between self-esteem and psychological health indicators, such as well-being and life satisfaction (Diener & Seligman, 2002). For instance, individuals with high self-esteem better recognize their strengths and have a stronger sense of self-efficacy when confronting life's difficulties. This enables them to adopt more effective coping strategies, thereby maintaining or enhancing their psychological resilience (Martin & Anderson, 1998). Previous studies have confirmed that humor enhances an individual's psychological health and boosts self-esteem and resilience, which are positively correlated with well-being (Celso et al., 2003; Kuiper & Martin, 1993). Specifically, self-esteem, a core element of intrinsic value and self-identity, directly influences an individual's psychological state and well-being (Joshanloo et al., 2021; Martin & Rubin, 1995). Furthermore, coping humor can enhance agreeableness, thereby reducing negative states such as depression and subsequently boosting subjective well-being (Okur S. et al., 2024). Also, humor interventions have significantly elevated learners' positive emotions (Liao et al., 2023). Resilience, as a psychological adjustment ability in the face of stress and adversity, not only shows a positive relationship with humor but also is a key factor in promoting individual well-being. Based on research Hypotheses 1, 2, and 3, along with the literature reviewed, this study proposes Hypothesis 4. Self-esteem and resilience sequentially mediate the relationship between coping humor and subjective happiness.

3. Method

3.1. Participants and procedures

During the planning phase of the research, sample size estimation was employed to minimize the risk of Type I and Type II errors, guided by the methods proposed by Beck (2020) and building on the foundational work of Comrey and Lee (2013) and Gorsuch (1983). Utilizing G*Power 3.1.9.7 and considering four latent variables, 22 observed variables, a significance level of 0.05, a power of 0.8, and an effect size of 0.1 (Cohen, 2013), it was determined that a minimum of 82 participants was required for the study. Humor interventions can significantly enhance learners' positive emotions (Liao et al., 2023). Convenience sampling was used for data collection in September 2023, ensuring efficient access to Taiwanese university students despite its reliance on

participant availability (Creswell & Poth, 2016). This method is effective under time and resource constraints and is widely applied in educational and behavioral sciences to capture trends in specific populations (Etikan et al., 2016; Stratton, 2021). Although it may limit generalizability, its validity is strengthened with rigorous statistical analyses to identify meaningful patterns (Jager et al., 2017). The web-based survey distribution channels included social media platforms such as Instagram, Facebook, LINE, and digital education platforms managed by university faculty. Prior to participation, all individuals were required to sign an informed consent form, ensuring the protection of their rights and privacy. All survey questions were compulsory to maintain data integrity and included automatic validation checks. After thoroughly examining the data, 32 responses were excluded due to duplications or identical entries, resulting in 524 valid responses from 64 universities. This sample comprised 228 males (43.51 %) and 296 females (56.49 %), with age distributions from 18 to 26 years and an average age of 21.06. Additionally, adaptive humor styles, including social and self-enhancing humor, have been found to significantly predict self-esteem and subjective well-being, mediating these two constructs (Yue et al., 2014). Participants included 95 freshmen (18.13 %), 110 sophomores (20.99 %), 138 juniors (26.34 %), and 181 seniors (34.54 %).

3.2. Measures

The English version of the research questionnaire was translated into Traditional Chinese using the back-translation method (Brislin, 1980) to ensure linguistic and conceptual equivalence. A bilingual professor proficient in English and Traditional Chinese conducted the initial translation, followed by a back-translation by another independent expert to verify consistency. To further enhance cultural appropriateness, five faculty members specializing in psychology and education reviewed and refined the translated scales to align with Taiwanese cultural norms and the experiences of university students. Their revisions focused on ensuring semantic clarity, cultural relevance, and contextual appropriateness while maintaining the original constructs of each scale. This rigorous adaptation process ensured that the Coping Humor Scale, Rosenberg's Self-Esteem Scale, the Brief Resilience Scale, and the Subjective Happiness Scale were valid and suitable for assessing Taiwanese university students.

3.2.1. Coping Humor Scale (CHS)

The Coping Humor Scale (CHS), developed by Martin and Lefcourt (1983), assessed coping humor. This scale consists of four items measuring a single common factor, rated on a 4-point Likert scale ranging from 1 (“strongly disagree”) to 4 (“strongly agree”). Higher scores indicate a greater tendency to use humor as a coping mechanism. Previous studies have reported Cronbach's alpha values of 0.70 (Martin & Lefcourt, 1983) and 0.71 (Sun et al., 2017).

3.2.2. Subjective Happiness Scale (SHS)

The Subjective Happiness Scale (SHS), developed by Lyubomirsky and Lepper (1999), assessed subjective happiness. This scale consists of four items measuring a single common factor; three positively worded items were selected for this study. Responses are recorded on a 7-point Likert scale ranging from 1 (“not at all”) to 7 (“a great deal”), with higher scores indicating greater levels of subjective happiness. Previous studies have reported Cronbach's alpha values of 0.86 (Akın & Satıcı, 2011) and 0.74 (Satici et al., 2023).

3.2.3. Rosenberg's Self-Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (RSES), developed by Rosenberg (1965), is a widely used measure of self-esteem, underscoring its significance in psychological research (Hubley et al., 2024). This scale consists of ten items measuring a single common factor, with responses recorded on a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). Higher scores indicate greater levels of self-esteem. Previous studies have reported Cronbach's alpha values of 0.84 (Kim & Koh, 2018) and 0.85 (Busalim et al., 2019).

3.2.4. The Brief Resilience Scale (BRES)

The Brief Resilience Scale (BRS), developed by Smith et al. (2008), assessed resilience. This scale comprises six items, with responses recorded on a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). Higher scores indicate greater resilience. Previous studies have reported Cronbach's alpha values ranging from 0.80 to 0.91 (Smith et al., 2008) and 0.89 (Gloria & Steinhardt, 2016).

3.3. Statistical analyses

This study utilized IBM SPSS 27.0 and SmartPLS 4.0 for data analysis. Descriptive statistics detailed demographics, while Pearson correlations assessed variable relationships. Categorical variables, like gender and academic year, were analyzed using *t*-tests and one-way ANOVA. Common method bias was assessed using Harman's single-factor test based on self-reported data (Podsakoff et al., 2003). Adhering to PLS-SEM literature (Hair et al., 2010; Henseler et al., 2009), the analysis was conducted in two steps: the measurement model was first assessed for item reliability, convergent validity, internal consistency reliability, and checking for multicollinearity through variable inflation factors (VIF). Subsequently, the structural model was examined to test hypotheses and measure predictive power (Henseler et al., 2009).

4. Result

4.1. Assessment of the extent of common method variance

Harman's single-factor test was applied during the unrotated exploratory factor analysis, extracting five factors with eigenvalues >1. The first factor explained only 37.70 % of the total variance, which did not reach the 40 % threshold recommended by Podsakoff et al. (2003), indicating that common method bias in this study is insignificant (Podsakoff et al., 2012).

4.2. Descriptive statistics and intercorrelations

Table 1 reveals significant positive correlations among coping humor, self-esteem, resilience, and subjective happiness, as demonstrated by the correlation coefficients ($r = 0.377$, $r = 0.350$, $r = 0.345$, all $p < 0.001$ respectively, respectively, or with subjective happiness, self-esteem, and resilience). Furthermore, the robust relationships between subjective happiness and both self-esteem ($r = 0.600$, $p < 0.001$) and resilience ($r = 0.479$, $p < 0.001$), alongside the significant correlation between self-esteem and resilience ($r = 0.482$, $p < 0.001$), underscore the potential pathways through which coping humor could enhance subjective well-being. These findings lay a solid foundation for further exploration of mediation effects within this model.

4.3. Measurement model

4.3.1. Measurement model analysis and multicollinearity diagnostics

The results of the measurement model analysis conducted using SmartPLS 4.0 are presented in Table 2. Reliability among items was confirmed by maintaining a threshold of 0.70 to evaluate the factor loadings (Hair et al., 2016). Convergent validity was verified by calculating the average variance extracted (AVE) and maintaining a threshold of 0.50 as the standard (Fornell & Larcker, 1981; Gefen et al., 2000). Additionally, internal consistency reliability was assessed by ensuring that the composite reliability (CR) exceeded the 0.70 threshold (Fornell & Larcker, 1981; Hair et al., 2016). Based on these criteria, four items were selected from the Coping Humor Scale (CHS), three items from the Subjective Happiness Scale (SHS), nine items from the Rosenberg Self-Esteem Scale (RSES), and six items from the Brief Resilience Scale

Table 1
Means, standard deviations, and correlations among variables. ($N = 524$).

variables	M	SD	correlations among variables			
			coping humor	subjective happiness	self-esteem	resilience
coping humor	3.305	0.811	1			
subjective happiness	4.659	1.277	0.377***	1		
self-esteem	3.414	0.841	0.350***	0.600***	1	
resilience	3.347	0.909	0.345***	0.479***	0.482***	1

*** Note: $p < 0.001$.

Table 2
Measure models for measures. ($N = 524$).

Scale/Reference	New item no and item content	FL	VIF	AVE	CR	Alpha	rho-A
Coping Humor Scale(CHS)	CH1 I usually look for something comical to say when I am in tense situations.	0.759	1.494	0.587	0.850	0.764	0.768
Martin, R. A., & Lefcourt, H. M. (1983)	CH2 I have often felt that if I am in a situation where I have to either cry or laugh, it is better to laugh.	0.708	1.316				
	CH3 I can usually find something to laugh or joke about, even in trying situations.	0.837	1.784				
	CH4 It has been my experience that humor is often a very effective way of coping with problems.	0.755	1.488				
Subjective Happiness Scale (SHS)	HP1 In general, I consider myself (1) Not a very happy person/ (7) a very happy person	0.921	3.149	0.818	0.931	0.888	0.889
Lyubomirsky and Lepper (1999)	HP2 Compared to most of my peers, I consider myself (1) Less happy/ (7) more happy						
	HP3 Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you? (1) Not at all/(7) a great deal	0.916	3.031				
		0.875	2.116				
Rosenberg's Self-Esteem Scale (RSES)	RS1 On the whole, I am satisfied with myself.	0.826	2.942	0.695	0.953	0.945	0.948
	RS2 At times I think I am no good at all.						
Rosenberg (1965)	RS3 I feel that I have a number of good qualities.	0.844	3.119				
	RS4 I am able to do things as well as most other people.						
	RS5 I feel I do not have much to be proud of.	0.813	2.621				
	RS6 I certainly feel useless at times.						
	RS7 I feel that I'm a person of worth, at least on an equal plane with others.	0.854	2.186				
	RS8 All in all, I am inclined to feel that I am a failure.						
	RS9 I take a positive attitude toward myself.	0.861	3.060				
		0.886	5.428				
		0.868	5.055				
		0.795	2.494				
		0.851	2.998				
The Brief Resilience Scale (BRES)	RE1 I tend to bounce back quickly after hard times.	0.837	2.180	0.659	0.920	0.897	0.912
	RE2 I have a hard time making it through stressful events (R)						
Smith et al. (2008).	RE3 It does not take me long to recover from a stressful event	0.716	1.712				
	RE4 It is hard for me to snap back when something bad happens (R)						
	RE5 I usually come through difficult times with little trouble	0.813	2.244				
	RE6 I tend to take a long time to get over set-backs in my life (R)						
		0.831	2.462				
		0.861	3.302				
		0.804	2.504				

Note: FL: Factor Loadings, AVE: average variance extracted, CR: composite reliability, Alpha: Cornbach's α; (R) was reverse scoring.

(BRES). All variance inflation factors (VIF) were below 6, confirming no multicollinearity issues (Hair et al., 2010).

4.3.2. Discriminant validity

This study employed the Heterotrait-MonotraIt uses the Ratio (HTMT) method to verify discriminant validity, a measure proposed by Henseler et al. (2015). According to Kline's (2023) criteria, an HTMT value exceeding 0.85 might indicate a problem with discriminant validity. As shown in Table 3, all HTMT values in this study did not surpass the 0.85 thresholds Kline (2023) recommended, thus confirming the discriminant validity among the variables.

4.4. Structure model

4.4.1. Hypothesis testing

This study conducted hypothesis testing using PLS-SEM guidelines to evaluate the significance of path coefficients, referencing Anderson and Gerbing (1988) and Henseler et al. (2009). Data analysis was conducted using Smart PLS 4.0, employing the bootstrap procedure with 5000 subsamples, as detailed by Ringle et al. (2020).

Fig. 2 illustrates the direct and indirect effects of the structural model for this research, with hypothesis testing results summarized in Table 4. Hypothesis 1, suggesting a positive relationship between coping humor

Table 3
Discriminant validity Heterotrait-monotrait ratio of correlations (HTMT). (N = 524).

	self-esteem (M1)	resilience (M2)	coping humor (X)	subjective happiness (Y)
self-esteem (M1)				
resilience (M2)	0.418			
coping humor (X)	0.412	0.527		
subjective happiness(Y)	0.457	0.538	0.654	

and subjective happiness, was fully supported (β = 0.234, t = 8.033, p = 0.000). Hypothesis 2 assessed the mediating role of self-esteem between coping humor and subjective happiness. Using the method outlined by Preacher and Hayes (2004), the bootstrap test for this mediation indicated significant results (β = 0.156, t = 6.021, p = 0.000), thus supporting the hypothesis. Hypothesis 3 explored the mediating role of resilience between coping humor and subjective happiness, with the test showing statistically significant support (β = 0.044, t = 3.448, p = 0.000). Finally, Hypothesis 4 proposed a sequential mediation involving self-esteem and resilience, which was also supported by significant results (β = 0.034, t = 3.857, p = 0.000).

4.4.2. Explanatory power of the model

The model's explanatory power was assessed by examining the coefficient of determination, or R^2. Using the PLS algorithm in Smart PLS 4.0, R^2 values were calculated, exceeding The recommended threshold of 0.10 (Falk & Miller, 1992). Specifically, the R^2 value for self-esteem was 0.125, resilience was 0.285, and subjective happiness was 0.430.

4.4.3. Predictive power of the model

According to the PLS-Predict method proposed by Shmueli et al.

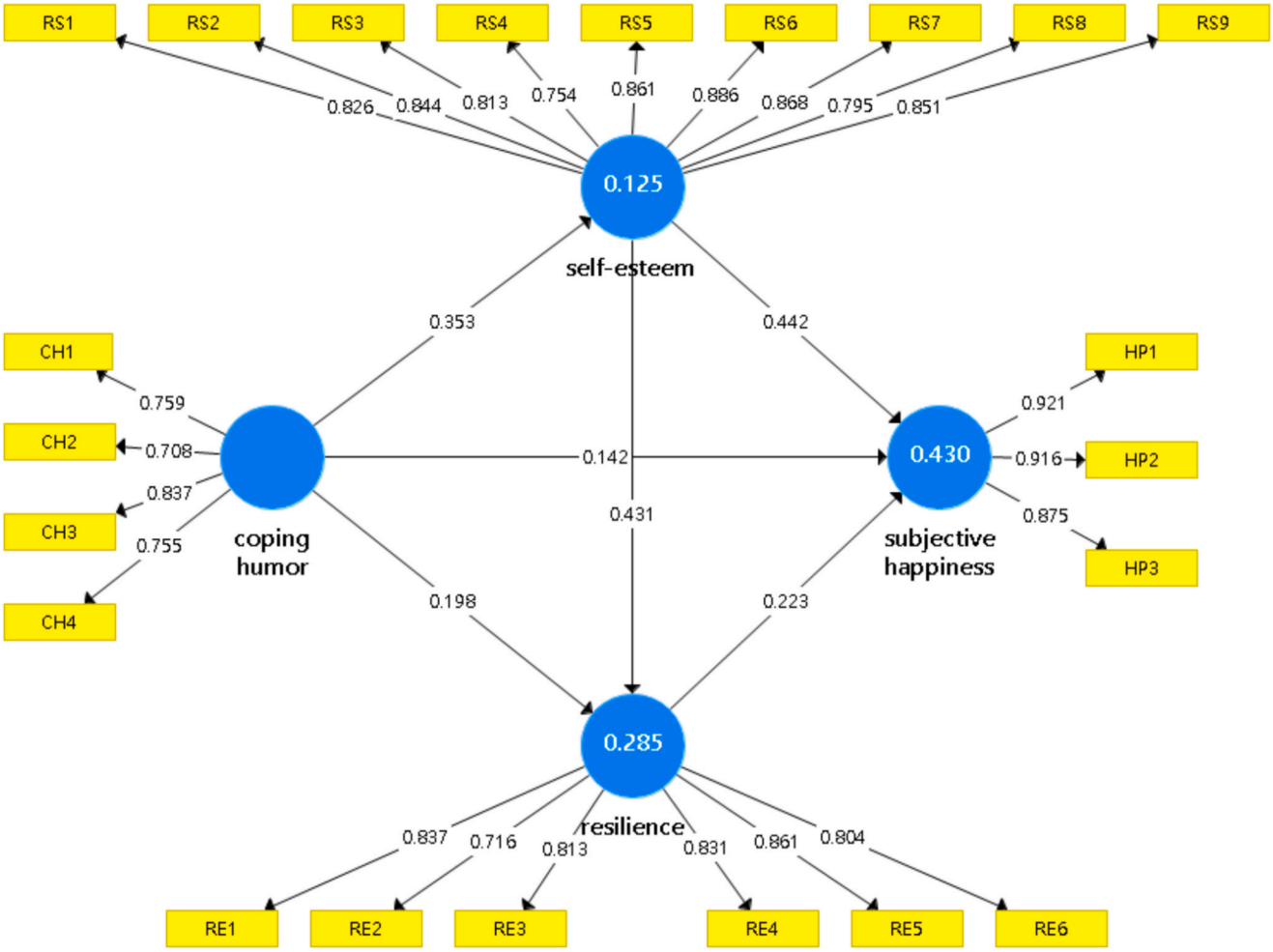

Fig. 2. Structural model. (N = 524).

Table 4
Path coefficients and significances for the hypothesis. (N = 524).

Hypothesis	Beta	SE	t	p	CIs		Decision
					2.50 %	97.50 %	
Hypotheses 1. coping humor → subjective happiness	0.234	0.029	8.033	0.000	0.181	0.294	Supported
Hypotheses 2. coping humor → self-esteem → subjective happiness	0.156	0.026	6.021	0.000	0.109	0.211	Supported
Hypotheses 3. coping humor → resilience → subjective happiness	0.044	0.013	3.448	0.001	0.022	0.072	Supported
Hypotheses 4. coping humor → self-esteem → resilience → subjective happiness	0.034	0.009	3.857	0.000	0.019	0.054	Supported

(2019), the Q^2 value of the latent variables was examined. A Q^2 value greater than zero indicates the need for further analysis of the differences in predictive power between the PLS model and the linear model (LM), using either RMSE or MAE for comparison. Generally, RMSE is more commonly used to evaluate model predictive performance. However, in highly skewed prediction errors (Danks & Ray, 2018), MAE becomes a more suitable choice (Shmueli et al., 2019). When the difference between the PLS and LM models (PLS-LM) is entirely negative, the model's predictive power is considered strong; when most differences are negative, the predictive power is moderate; and if only a few differences are negative, the predictive power is weak. According to Table 5, the Q^2 value for the latent variable subjective happiness was 0.135, indicating good predictive relevance for this construct. Based on the results, all Q^2 values were greater than zero, and the PLS model outperformed the LM model in all RMSE items, aligning with Shmueli et al. (2019), confirming the high predictive power of the study's model.

4.5. Differences in gender and grade on the measures

Table 6 presents the comparative results on coping humor, resilience, and self-esteem across ggenders and grades In examining the impact of gender on coping humor and resilience, males scored significantly higher on the Coping Humor Scale ($M = 3.407$, $SD = 0.812$) and the Brief Resilience Scale ($M = 3.533$, $SD = 0.856$) compared to females (CHS: $M = 3.227$, $SD = 0.803$; BRES: $M = 3.203$, $SD = 0.923$), with t-values of 2.539, $p < 0.05$, and 4.188, $p < 0.001$, respectively. This suggests that gender may play a significant role in these psychological adaptation mechanisms.

In the analysis of differences in psychological measures across grades, only the Rosenberg Self-Esteem Scale indicated that senior students had significantly higher self-esteem scores ($M = 3.533$, $SD = 0.869$) than students in other years, $F(3,520) = 5.677$, $p < 0.001$. This may imply that as students progress through their academic years, their perception of self-competence improves, enhancing their self-esteem.

5. Discussion

5.1. The positive correlation between coping humor and subject happiness

This study confirms a significant positive correlation between coping humor and subjective happiness, aligning with the cognitive appraisal theory proposed by Lazarus (1991), which suggests that an individual's perception of external events impacts their emotions and mental health. This finding resonates with recent research highlighting humor as an effective psychological resource for regulating emotions and enhancing psychological resilience (Kuiper, 2014; Martin et al., 2003). Specifically, humor has been proven to enhance life satisfaction and improve coping with life's challenges (Herzog & Strevey, 2008). Furthermore, related studies have shown that social support and psychological resources, such as a sense of humor, play a vital role in fostering individuals' resilience, recovery capability, and well-being (Bojanowska et al., 2021; Pellerin & Raufaste, 2020). In social interactions and stress management, humor is a tool for regulating emotions and a crucial bridge for enhancing social connections and psychological support (Rollero & De Piccoli, 2010). The results of this study further emphasize the unique value of coping humor in enhancing well-being, echoing research that elucidates its key role in fostering healthier psychological states and social interactions. Additionally, Kokkinos and Koutsospyros (2023a, 2023b) found a positive correlation between mental health, subjective well-being, and benign humor styles, emphasizing the role of humor in enhancing subjective well-being. Furthermore, Okur et al. (2024) highlighted that coping humor can enhance friendliness, which reduces negative states such as depression and boosts subjective well-being.

Table 5
PLS-predict result. (N = 524).

Item	PLS		LM		PLS-LM		
	RMSE	MAE	RMSE	MAE	RMSE	MAE	Q^2 precdict
HP1	1.306	0.978	1.309	0.98	−0.003	−0.002	0.087
HP2	1.359	1.057	1.369	1.063	−0.010	−0.006	0.114
HP3	1.339	1.075	1.341	1.070	−0.002	0.005	0.130

5.2. The mediating role of self-esteem between coping humor and subject happiness

This study highlights the significant role of self-esteem in the relationship between humor and well-being. As a psychological resource, self-esteem enhances an individual's capacity to withstand stress and adversity (Parsons et al., 2016; Vaziri et al., 2020), facilitating improved emotional regulation and increased life satisfaction, thereby supporting well-being (Joshanloo et al., 2021). The findings resonate with the research by Martin et al. (2003), which suggested that self-esteem could enhance life satisfaction and serve as a crucial psychological resource for coping with daily stresses. Additionally, these findings align with those of Kong and You (2013), who noted that self-esteem is a key psychological trait closely related to life satisfaction. Particularly, affiliative and self-enhancing humor styles have been found to correlate positively with higher self-esteem and greater well-being (Herzog & Strevey, 2008; Martin et al., 2003). As Alazmi and Alhajeri (2022) suggest, humor should be regarded as an essential component of effective leadership, further supporting the notion that humor can enhance leadership effectiveness while fostering a positive environment. Moreover, coping humor has been shown to increase friendliness, reducing negative states such as depression and thus enhance subjective well-being (Okur et al., 2024). These results indicate that self-esteem is bolstered by coping humor and acts as a bridge linking coping humor and subjective happiness. The outcomes further emphasize the importance of cultivating positive coping humor and enhancing sel.

5.3. The mediating role of resilience between coping humor and subjective happiness

This study demonstrates that resilience plays a significant mediating role between coping humor and subjective happiness. These findings echo the research by Kaya and Yağan (2022), which suggests that resilience can maintain a positive emotional state in the face of adversity, thereby sustaining an individual's well-being. Notably, there is a positive correlation between mental health, subjective happiness, and benign humor styles (Kokkinos & Koutsospyros, 2023a, 2023b). Resilience enables individuals to retain a positive emotional state under stress and challenges, thus preserving their well-being (Paleari et al., 2021). This aligns with the study by Herzog and Strevey (2008), who found that a self-enhancing humor style is positively correlated with higher life satisfaction, a style closely related to resilience. Furthermore, the research by Martin et al. (2003) supports this, indicating that resilience can enhance individuals' self-esteem and life satisfaction through a positive humor style, thereby enhancing well-being. Additionally, coping humor can enhance friendliness, reducing negative states such as depression and thereby increasing subjective happiness (Okur, S., et al., 2024). The mediating role of resilience is not just a psychological mechanism but is also intimately connected with the impact of social support and psychological resources on an individual's resilience (Bojanowska et al., 2021). This is consistent with the view of humor as a social skill, which can increase the availability of social support through enhanced social competence and quality of interpersonal relationships (Fitts et al., 2009), thereby affecting well-being. Moreover, research by Karou-ei et al. (2009) shows that individuals with an adaptive humor style can enhance self-esteem, resilience, recovery capacity, and well-being through positive social experiences and life events. The findings of this study resonate with previous research and further underscore the mediating role of resilience in the relationship between coping humor

Table 6
Differences in measure scores among the research sample based on demographic variables (N = 524).

Demographic variables	N	Coping Humor Scale (CHS)			Subjective Happiness Scale (SHS)			Rosenberg's Self-Esteem Scale (RSES)			The Brief Resilience Scale (BRES)		
		M	SD	F/*t*	M	SD	F/*t*	M	SD	F/*t*	M	SD	F/*t*
Gender				2.539*			−0.510			1.081			4.188***
1. Male	228	3.407	0.812		4.627	1.319		3.460	0.873		3.533	0.856	
2. Female	296	3.227	0.803		4.684	1.245		3.379	0.816		3.203	0.923	
Grade										5.677***			0.694
1. Freshman	95	3.263	0.956	0.653	4.424	1.443	1.408	3.120	0.933	4 > 3 > 2 > 1	3.286	0.893	
2. Sophomore	110	3.379	0.704		4.657	1.199		3.376	0.784		3.312	0.890	
3. Junior	138	3.331	0.774		4.719	1.174		3.491	0.734		3.439	0.865	
4. Senior	181	3.263	0.820		4.738	1.301		3.533	0.869		3.329	0.962	

*** Note: $p < 0.001$.
* $p < 0.05$.

and subjective happiness.

5.4. The sequential mediation of self-esteem and resilience between coping humor and subject happiness

This study validates the sequential mediating roles of self-esteem and resilience in the relationship between coping humor and subjective happiness. Self-esteem plays a crucial mediating role, bridging coping humor and subjective happiness. Previous research has shown that individuals with high self-esteem are more effective in using humor to cope with life's stresses and challenges, thereby enhancing life satisfaction and well-being (Martin et al., 2003; Stieger et al., 2011). Self-esteem is a vital psychological resource that enhances coping abilities, positively regulates emotions, and increases life satisfaction (Joshanloo et al., 2021), enabling better use of humor in daily stress management (Landmann & Rohmann, 2022). Furthermore, as a psychological resource, self-esteem plays a significant role in enhancing individuals' recognition of their self-worth (Vaziri et al., 2020). It serves as an essential link between humor and well-being, achieved through the positive moderating effects of humor. High self-esteem has also been proven to correlate strongly with well-being (Karou-ei et al., 2009), indicating that self-esteem is a key enhancer in the relationship between humor and well-being, emphasizing its central position in moderating the impact of humor on well-being. Additionally, research has demonstrated that self-esteem can be enhanced through targeted interventions. Participants who aimed to decrease their negative emotionality or increase their extraversion experienced notable increases in self-esteem, further reinforcing its role as a modifiable psychological resource that contributes to well-being (Allemand et al., 2024). Notably, humor interventions have been shown to significantly enhance learners' positive emotions (Liao et al., 2023), further supporting the argument that humor contributes positively to subjective happiness. As another key mediating variable, resilience is critical in moderating the relationship between humor and subjective happiness. Studies have shown that resilience helps individuals maintain a positive emotional state in adversity and effectively promotes psychological health and social cohesion (Kaya & Yağan, 2022).

Moreover, as a stress-relief mechanism, humor can enhance well-being by boosting individual resilience (Paleari et al., 2021). Resilience is a crucial trait for maintaining positive emotions when facing stress (Rehman et al., 2021), and the interaction between resilience and humor significantly impacts well-being enhancement (Kaya & Yağan, 2022). Research also suggests that adaptive humor styles, including social humor and self-enhancing humor, significantly predict self-esteem and subjective happiness, mediating the relationship between the two (Yue et al., 2014). These findings support the mediating role of resilience between humor and well-being. The positive link between self-esteem and resilience significantly strengthens their combined impact on the humor-subjective happiness relationship. Self-esteem promotes self-affirmation and psychological balance in adversity, fostering greater resilience. As a mediator, resilience enhances the effects of self-esteem on well-being. Research indicates that resilience not only boosts the ability to manage adversity (Rehman et al., 2021) but also improves psychological stability and well-being under stress (Paleari et al., 2021). This relationship underscores resilience's role as a key psychological asset that amplifies the positive influence of humor on well-being. Additionally, resilience bolsters humor's protective function by enhancing adaptability and recovery in challenging situations (Paleari et al., 2021). The positive interaction between self-esteem and resilience improves individuals' stress resistance and provides a psychological basis for developing resilience (Herzog & Strevey, 2008). This interaction ensures that humor can effectively promote well-being through these two variables. Self-esteem not only boosts individual resilience, but this psychological mechanism also supports the role of humor in enhancing overall well-being. The mutual influence between self-esteem and resilience strengthens their role in the humor and well-being transmission chain. This study confirms the direct positive impact of humor on well-being and reveals how this impact is realized through the sequential mediating path of self-esteem and resilience.

5.5. Differences in gender and academic year

This study delves into how gender and grade differences impact the relationship between students' resilience, sense of humor, and subjective happiness. The findings reveal significant variations in displaying these psychological traits among students across different genders and grade levels. This sense of belonging varies among students in different grades, particularly more pronounced in students of higher grades, possibly due to their richer community connections (Rollero & De Piccoli, 2010). Gender also plays a key role in the relationship between resilience and well-being, with female students exhibiting higher subjective happiness. Moreover, humor interventions can significantly enhance learners' positive emotions (Liao et al., 2023), which may contribute to the subjective happiness observed among students. Additionally, adaptive humor styles have been shown to significantly predict self-esteem and subjective happiness, acting as a mediator between the two (Yue et al., 2014). These differences reflect the varying cultural and social structural expectations on gender roles, which gradually shape individuals' psychological development and thereby influence the manifestation of their psychological traits.

6. Implications

6.1. Theoretical implications

This study advanced theoretical perspectives by demonstrating how coping humor, self-esteem, and resilience interact to enhance subjective happiness. Aligning with Martin's (2001) view of humor as a psychological relief mechanism, the findings confirm its role in stress alleviation and well-being promotion (Celso et al., 2003; Kokkinos & Koutsospyros, 2023a, 2023b). Coping humor also fosters agreeableness, reduces depression, and enhances subjective well-being (Okur et al.,

2024).

Extending Rosenberg's (1965) self-esteem theory, this study highlights self-esteem as a key mediator between humor and well-being. Individuals with high self-esteem demonstrate greater resilience and coping efficacy, supporting Diener's (1984) subjective well-being theory, which links life satisfaction and emotional balance. The sequential mediation model underscores self-esteem's role in translating humor's psychological benefits into increased happiness.

This study also contributes to resilience theory (Seligman & Csikszentmihalyi, 2000), which defines resilience as the ability to maintain mental health under adversity. Findings suggest that resilience, when reinforced by coping humor, enhances well-being, life satisfaction, and self-esteem (Kaya & Yağan, 2022). By integrating these constructs, the study offers a deeper understanding of their collective influence on happiness.

The sequential mediation model broadens theoretical discourse, illustrating that self-esteem and resilience amplify humor's positive effects on well-being (Herzog & Strevey, 2008). This model provides a novel framework for understanding how psychological resources optimize well-being. Future research should explore the cultural dimensions of humor styles and refine interventions to strengthen mental health and resilience.

6.2. Practical implications

The findings highlight humor's psychological benefits in education, offering insights for educators and mental health professionals. Humor strengthens social connections, self-esteem, and resilience (Martin et al., 2003). Additionally, research identifies both benefits and risks in leadership and organizations, underscoring its complex effects on well-being (Cooper & Schweitzer, 2024). Schools should implement humor-based mental health programs, such as structured workshops, to help students develop affiliative and self-enhancing humor for cognitive reappraisal and emotional regulation (Amjad & Dasti, 2022). These workshops can teach students to reframe stress positively, enhancing self-esteem and resilience while reducing maladaptive coping (Amjad & Dasti, 2022; Kennison, 2022).

Educational policymakers should integrate humor into psychological education and life skills training to support stress management. Since self-esteem predicts resilience and life satisfaction (Ionescu, 2012; Martin & Anderson, 1998; Sun et al., 2024), incorporating humor in emotional intelligence programs can foster adaptive coping strategies. Schools should also implement evidence-based resilience training to help students approach challenges with a positive mindset (Kennison, 2022). Teacher training should equip educators with methods to cultivate students' self-esteem and resilience through humor. Research shows that adaptive humor styles mediate the link between self-esteem and happiness (Marrero et al., 2020; Yue et al., 2014). Teachers can integrate humor into lessons to encourage social connections and reinforce students' self-worth. Cross-cultural education should also be strengthened to enhance humor comprehension in diverse settings, promoting social adaptability (Jiang et al., 2020).

Mental health professionals in schools should incorporate humor-based strategies into counseling and therapy. Coping humor alleviates depressive symptoms and enhances happiness (Okur et al., 2024), making it a valuable tool for cognitive restructuring and stress management. Emotion regulation techniques mediating the humor–well-being link should be emphasized in interventions (Amjad & Dasti, 2022), while resilience-focused therapy can include humor exercises to promote optimism and psychological adjustment (Marrero et al., 2020).

By adopting these strategies, educators and mental health professionals can create supportive learning environments that foster emotional regulation, resilience, and well-being. These interventions not only improve students' mental health but also lay the foundation for long-term psychological resilience and happiness, enhancing educational quality and student welfare.

7. Limitations and scope for future research

This study has several limitations. First, the use of convenience sampling may limit generalizability, as it relies on readily accessible participants rather than a representative population. To enhance external validity, future research should adopt probability sampling methods (Bethlehem, 2009). Second, the reliance on self-reported measures introduces potential social desirability bias, affecting response accuracy. To address this, future research should integrate qualitative interviews or behavioral observations to enrich data interpretation (Morgan, 2014). Although the measurement scales demonstrated strong reliability and validity, further validation is needed to assess their cross-cultural applicability. Conducting empirical cross-cultural studies would improve their adaptability and generalizability. Additionally, this study's cross-sectional design limits causal inferences, as data collected at a single time point cannot capture temporal dynamics or bidirectional relationships. Future studies should adopt longitudinal designs to track changes over time, establish causal pathways, and reduce confounding biases (Rindfleisch et al., 2008). Applying advanced statistical techniques, such as cross-lagged panel models and growth curve analyses, would further strengthen causal inferences (Schouten & Tager, 1996). To enhance methodological rigor, future research should employ a mixed-methods approach integrating quantitative surveys with qualitative interviews, behavioral observations, or physiological measures. This would improve data objectivity and reliability while offering a comprehensive understanding of psychological and behavioral processes (Fiedler, 2000). Furthermore, longitudinal and cross-cultural comparative research could provide deeper insights into variations in psychological health and behavioral patterns across different contexts, refining theoretical models and broadening practical applications.

8. Conclusion

This study examined the effects of humor, self-esteem, and resilience on subjective happiness through a sequential mediation model analysis. The findings reveal that humor indirectly enhances subjective happiness by increasing self-esteem and resilience. This enriches the academic discourse on humor theory and subjective happiness, providing strategies to improve college students' mental health and well-being. However, the use of convenience sampling and self-report measures in this study may limit the generalizability of the results. Future research should employ random sampling and objective measurement tools to enhance the generalizability and reliability of the findings. Policymakers and educational practitioners should consider integrating humor training into student development programs to strengthen students' psychological resources for coping with stress and promote their overall well-being. Finally, future research is recommended to comprehensively explore the interactions between humor and other psychological resources, such as hope and gratitude, and their effects across different cultural contexts to evaluate humor's potential contributions to mental health.

CRediT authorship contribution statement

Chin-Wen Liao: Supervision, Methodology, Conceptualization. **Chih-Yu Ting:** Writing – review & editing, Writing – original draft. **Yao-Chung Cheng:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Funding acquisition, Data curation, Conceptualization. **Kai-Jie Chen:** Writing – review & editing, Writing – original draft, Validation, Data curation. **An-Sheng Liu:** Writing – review & editing, Writing – original draft. **Tzu-Ju Hsueh:** Writing – review & editing, Writing – original draft.

Consent for publication

All participants provided explicit and informed consent before taking part in this study.

Ethics approval and consent to participate

This study adhered to the ethical guidelines established by the relevant institutional and national research committees and complied with the principles set forth in the 1964 Declaration of Helsinki, including its subsequent amendments or equivalent ethical standards.

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Declaration of competing interest

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Data availability

The data supporting this study's findings can be made available upon reasonable request.

References

Abdul Manaf, H., Harvey, W. S., Armstrong, S. J., & Lawton, A. (2020). Differences in personality and the sharing of managerial tacit knowledge: An empirical analysis of public sector managers in Malaysia. *Journal of Knowledge Management, 24*(5), 1177–1199. https://doi.org/10.1108/JKM-01-2020-0014

Abel, M. H. (2002). Humor, stress, and coping strategies. *HUMOR, 15*(4), 365–381. https://doi.org/10.1515/humr.15.4.365

Akın, A., & Satıcı, S. A. (2011). Öznel mutluluk ölçeği: Geçerlik ve güvenirlik çalişmasi. *Sakarya Üniversitesi Eğitim Fakiültesi Dergisi, 21*(21), 65–78.

Alazmi, M. S., & Alhajeri, S. S. (2022). Leading with humour and its effect on resilience in the workplace: The perspectives of principals in Kuwaiti secondary schools. *Management in Education.* , Article 08920206211072235. https://doi.org/10.1177/08920206211072235

Allemand, M., Olaru, G., Stieger, M., & Flückiger, C. (2024). Intervention-related correlated change between personality traits and self-esteem. *Consulting Psychology Journal, 76*(4), 367–386. https://doi.org/10.1037/cpb0000266

Amjad, A., & Dasti, R. (2022). Humor styles, emotion regulation and subjective well-being in young adults. *Current Psychology, 41*(9), 6326–6335. https://doi.org/10.1007/s12144-020-01127-y

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Beck, J. S. (2020). *Cognitive behavior therapy: Basics and beyond* (3rd ed.). The Guilford Press.

Bethlehem, J. (2009). *Applied survey methods: A statistical perspective.* John Wiley & Sons.

Bojanowska, A., Kaczmarek, Ł. D., Koscielniak, M., & Urbańska, B. (2021). Changes in values and well-being amidst the COVID-19 pandemic in Poland. *PLoS One, 16*(9), Article e0255491. https://doi.org/10.1371/journal.pone.0255491

Brislin, R. W. (1980). Translation and content analysis of oral and written material. In H. C. Triandis, & J. W. Berry (Eds.), *Vol. 2. Methodology. Handbook of cross-cultural psychology* (pp. 389–444). Allyn & Bacon.

Busalim, A. H., Masrom, M., & Zakaria, W. N. B. W. (2019). The impact of Facebook addiction and self-esteem on students' academic performance: A multi-group analysis. *Computers & Education, 142*, Article 103651. https://doi.org/10.1016/j.compedu.2019.103651

Celso, B. G., Ebener, D. J., & Burkhead, E. J. (2003). Humor coping, health status, and life satisfaction among older adults residing in assisted living facilities. *Aging & Mental Health, 7*(6), 438–445. https://doi.org/10.1080/1360786031000159469 1

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587

Comrey, A. L., & Lee, H. B. (2013). A first course in factor analysis. *Psychology Press.*. https://doi.org/10.4324/9781315827506

Cooper, C. D., & Schweitzer, M. E. (2024). Organizational humor: A Foundation for Future Scholarship, a review, and a call to action. *Annual Review of Organizational Psychology and Organizational Behavior, 12*. https://doi.org/10.1146/annurev-orgpsych-110622-041448

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). SAGE publications.

Danks, N. P., & Ray, S. (2018). Predictions from partial least squares models. In F. Ali, S. M. Rasoolimanesh, & C. Cobanoglu (Eds.), *Applying partial least squares in tourism and hospitality research* (pp. 35–52). Emerald Publishing Limited. https://doi.org/10.1108/978-1-78756-699-620181003.

Deveney, C. M., & Deldin, P. J. (2006). A preliminary investigation of cognitive flexibility for emotional information in major depressive disorder and non-psychiatric controls. *Emotion, 6*(3), 429–437. https://doi.org/10.1037/1528-3542.6.3.429

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., & Seligman, M. E. P. (2002). Very happy people. *Psychological Science, 13*(1), 81–84. https://doi.org/10.1111/1467-9280.00415

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4. https://doi.org/10.11648/j.ajtas.20160501.11

Everall, R. D., Altrows, J., & Paulson, B. L. (2006). Creating a future: A study of resilience in suicidal female adolescents. *Journal of Counseling & Development, 84*(4), 461–470. https://doi.org/10.1002/j.1556-6678.2006.tb00430.x

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling.* University of Akron Press.

Fiedler, K. (2000). Beware of samples! A cognitive-ecological sampling approach to judgment biases. *Psychological Review, 107*(4), 659–676. https://doi.org/10.1037/0033-295X.107.4.659

Fitts, S. D., Sebby, R. A., & Zlokovich, M. S. (2009). Humor styles as mediators of the shyness-loneliness relationship. *North American Journal of Psychology, 11*(2), 257–272. https://psycnet.apa.org/record/2009-08708-005.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2005). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research, 12*(2), 65–76. https://doi.org/10.1002/mpr.143

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems, 4*(1), 7. https://doi.org/10.17705/1CAIS.00407

Gloria, C. T., & Steinhardt, M. A. (2016). Relationships among positive emotions, coping, resilience and mental health. *Stress and Health, 32*(2), 145–156. https://doi.org/10.1002/smi.2589

Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203781098

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Prentice Hall.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2016). A primer on partial least squares structural equation modeling (PLS-SEM). *Sage Publications.*. https://doi.org/10.15358/9783800653614

Henseler, J., Ringle, C. M., & Sarstedt, M. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing, 20*, 277–319. https://doi.org/10.1108/S1474-7979(2009)0000020014

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Herzog, T. R., & Strevey, S. J. (2008). Contact with nature, sense of humor, and psychological well-being. *Environment and Behavior, 40*(6), 747–776. https://doi.org/10.1177/0013916507308524

Hubley, A. M., Ruddell, R. J., & Ma Zhu, S. (2024). Cracks, gaps, and holes in validation practice as evidenced from a validation synthesis of the English version of the Rosenberg self-esteem scale. *European Journal of Psychological Assessment, 40*(6), 529–547. https://doi.org/10.1027/1015-5759/a000877

Ionescu, T. (2012). Exploring the nature of cognitive flexibility. *New Ideas in Psychology, 30*(3), 190–200. https://doi.org/10.1016/j.newideapsych.2011.11.001

Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). More than just convenient: The scientific merits of homogeneous convenience samples. *Monographs of the Society for Research in Child Development, 82*(2), 13–30. https://doi.org/10.1111/mono.12296

Jiang, F., Lu, S., Jiang, T., & Jia, H. (2020). Does the relation between humor styles and subjective well-being vary across culture and age? *A Meta-Analysis. Frontiers in Psychology, 11*, 2213. https://doi.org/10.3389/fpsyg.2020.02213

Joshanloo, M., Van de Vliert, E., & Jose, P. E. (2021). Four fundamental distinctions in conceptions of wellbeing across cultures. In M. L. Kern, & M. L. Wehmeyer (Eds.), *The Palgrave handbook of positive education* (pp. 675–703). Springer International Publishing. https://doi.org/10.1007/978-3-030-64537-3_26.

Karou-ei, R. A., Doosti, Y. A., Dehshiri, G. R., & Heidari, M. H. (2009). Humor styles, subjective well-being, and emotional intelligence in college students. *Journal of*

Iranian Psychologists, 5(18), 159–169. https://jer.iub.edu.pk/journals/JER-Vol-22.No-1/10.pdf.
Kato, T. (2012). Development of the coping flexibility scale: Evidence for the coping flexibility hypothesis. *Journal of Cunseling Pychology, 59*(2), 262–273. https://doi.org/10.1037/a0027770
Kaya, Z., & Yağan, F. (2022). The mediating role of psychological resilience in the relationship between coping humour and psychological well-being. *Journal of Theoretical Educational Science, 15*(1), 146–168. https://doi.org/10.30831/akukeg.949736
Kennison, S. M. (2022). Humor and resilience: Relationships with happiness in young adults. *HUMOR, 35*(4), 665–681. https://doi.org/10.1515/humor-2021-0079
Kim, E., & Koh, E. (2018). Avoidant attachment and smartphone addiction in college students: The mediating effects of anxiety and self-esteem. *Computers in Human Behavior, 84*, 264–271. https://doi.org/10.1016/j.chb.2018.02.037
Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). The Guilford Press.
Kokkinos, C. M., & Koutsospyros, A. (2023a). The moderating role of university Students' humor styles on the association between general mental health and subjective well-being. *Journal of Psychology, 158*(1), 1–15. https://doi.org/10.1080/00223980.2023.2244128
Kokkinos, C. M., & Koutsospyros, A. (2023b). The moderating role of university students' humor styles on the association between general mental health and subjective well-being. *The Journal of Psychology, 157*(8), 473–495. https://doi.org/10.1080/00223980.2023.2244128
Kong, F., & You, X. (2013). Loneliness and self-esteem as mediators between social support and life satisfaction in late adolescence. *Social Indicators Research, 110*(1), 271–279. https://doi.org/10.1007/s11205-011-9930-6
Kuiper, N. A. (2014). Investigating the role of humor in psychological health and well-being: Opening comments. *Europe's Journal of Psychology, 10*(3), 408–411. https://doi.org/10.5964/ejop.v10i3.809
Kuiper, N. A., & Martin, R. A. (1993). *Humor and self-concept. HUMOR, 6*(3), 251–270. https://doi.org/10.1515/humr.1993.6.3.251
Kuiper, N. A., Martin, R. A., & Dance, K. A. (1992). Sense of humor and enhanced quality of life. *Personality and Individual Differences, 13*(12), 1273–1283. https://doi.org/10.1016/0191-8869(92)90169-P
Landmann, H., & Rohmann, A. (2022). When loneliness dimensions drift apart: Emotional, social and physical loneliness during the COVID-19 lockdown and its associations with age, personality, stress and well-being. *International Journal of Psychology, 57*(1), 63–72. https://doi.org/10.1002/ijop.12772
Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press.
Liao, Y. H., Lee, M. F., Sung, Y. T., & Chen, H. C. (2023). The effects of humor intervention on teenagers' sense of humor, positive emotions, and learning ability: A positive psychological perspective. *Journal of Happiness Studies, 24*(4), 1463–1481. https://doi.org/10.1007/s10902-023-00654-2
Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research, 46*(2), 137–155. https://doi.org/10.1023/A:1006824100041
Marrero, R. J., Carballeira, M., & Hernández-Cabrera, J. A. (2020). Does humor mediate the relationship between positive personality and well-being? The moderating role of gender and health. *Journal of Happiness Studies, 21*(3), 1117–1144. https://doi.org/10.1007/s10902-019-00121-x
Martin, M. M., & Anderson, C. M. (1998). The cognitive flexibility scale: Three validity studies. *Communication Reports, 11*(1), 1–9. https://doi.org/10.1080/08934219809367680
Martin, R. A. (2001). Humor, laughter, and physical health: Methodological issues and research findings. *Psychological Bulletin, 127*(6), 504–519. https://doi.org/10.1037/0033-2909.127.4.504
Martin, R. A., & Lefcourt, H. M. (1983). Sense of humor as a moderator of the relation between stressors and moods. *Journal of Personality and Social Psychology, 45*(6), 1313–1324. https://doi.org/10.1037/0022-3514.45.6.1313
Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the humor styles questionnaire. *Journal of Research in Personality, 37*(1), 48–75. https://doi.org/10.1016/S0092-6566(02)00534-2
Martin, R. A., & Rubin, R. B. (1995). A new measure of cognitive flexibility. *Psychological Reports, 76*(2), 623–626. https://doi.org/10.2466/pr0.1995.76.2.623
Morgan, D. L. (2014). Integrating qualitative and quantitative methods: A pragmatic approach. *SAGE publications.*. https://doi.org/10.4135/9781544304533
Okur, S., Akyıl, Y., Deniz, M. E., & Satıcı, S. A. (2024). How does more niceness bring more happiness? The association between niceness, depression, and subjective happiness. Psychological Reports, 0(0). doi:https://doi.org/10.1177/00332941241278335.
Paleari, F. G., Pivetti, M., Galati, D., & Fincham, F. D. (2021). Hedonic and eudaimonic well-being during the COVID-19 lockdown in Italy: The role of stigma and appraisals. *British Journal of Health Psychology, 26*(2), 657–678. https://doi.org/10.1111/bjhp.12508
Parsons, S., Kruijt, A. W., & Fox, E. (2016). A cognitive model of psychological resilience. *Journal of Experimental Psychopathology, 7*(3), 296–310. https://doi.org/10.5127/jep.053415
Pellerin, N., & Raufaste, E. (2020). Psychological resources protect well-being during the COVID-19 pandemic: A longitudinal study during the French lockdown. *Frontiers in Psychology, 11*, Article 590276. https://doi.org/10.3389/fpsyg.2020.590276
Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879
Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539–569. https://doi.org/10.1146/annurev-psych-120710-100452
Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717–731. https://doi.org/10.3758/BF03206553
Rehman, U., Shahnawaz, M. G., Khan, N. H., et al. (2021). Depression, anxiety, and stress among Indians in times of Covid-19 lockdown. *Community Mental Health Journal, 57*(1), 42–48. https://doi.org/10.1007/s10597-020-00664-x
Rindfleisch, A., Malter, A. J., Ganesan, S., & Moorman, C. (2008). Cross-sectional versus longitudinal survey research: Concepts, findings, and guidelines. *Journal of Marketing Research, 45*(3), 261–279. https://doi.org/10.1509/jmkr.45.3.261
Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management, 31*(12), 1617–1643. https://doi.org/10.1080/09585192.2017.1416655
Rollero, C., & De Piccoli, N. (2010). Does place attachment affect social well-being? *European Journal of Psychology Applied to Legal Context, 60*(2), 233–238. https://doi.org/10.1016/j.erap.2010.05.001
Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.
Satici, S. A., Kayis, A. R., Satici, B., Griffiths, M. D., & Can, G. (2023). Resilience, hope, and subjective happiness among the Turkish population: Fear of COVID-19 as a mediator. *International Journal of Mental Health and Addiction, 21*, 803–818. https://doi.org/10.1007/s11469-020-00443-5
Schouten, J. P., & Tager, I. B. (1996). Interpretation of longitudinal studies. *American Journal of Respiratory and Critical Care Medicine, 154*, S278–S284. https://doi.org/10.1164/ajrccm/154.6_Pt_2.S278
Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5–14. https://doi.org/10.1037/0003-066X.55.1.5
Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing, 53*(11), 2322–2347. https://doi.org/10.1108/EJM-02-2019-0189
Sibley, C. G., Greaves, L. M., Satherley, N., Wilson, M. S., Overall, N. C., Lee, C. H. J., … Barlow, F. K. (2020). Effects of the COVID-19 pandemic and nationwide lockdown on trust, attitudes toward government, and well-being. *American Psychologist, 75*(5), 618–630. https://doi.org/10.1037/amp0000662
Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine, 15*(3), 194–200. https://doi.org/10.1080/10705500802222972
Stieger, S., Formann, A. K., & Burger, C. (2011). Humor styles and their relationship to explicit and implicit self-esteem. *Personality and Individual Differences, 50*(5), 747–750. https://doi.org/10.1016/j.paid.2010.11.025
Stratton, S. J. (2021). Population research: Convenience sampling strategies. *Prehospital and Disaster Medicine, 36*(4), 373–374. https://doi.org/10.1017/S1049023X21000649
Sun, P., Chen, J. J., & Jiang, H. (2017). Coping humor as a mediator between emotional intelligence and job satisfaction: A study on Chinese primary school teachers. *Journal of Personnel Psychology, 16*(3), 155. https://doi.org/10.1027/1866-5888/a000185
Suslovic, B., & Lett, E. (2024). Resilience is an adverse event: A critical discussion of resilience theory in health services research and public health. *Community Health Equity Research & Policy, 44*(3), 339–343. https://doi.org/10.1177/2752535X231159721
Vaziri, H., Casper, W. J., Wayne, J. H., & Matthews, R. A. (2020). Changes to the work-family interface during the COVID-19 pandemic: Examining predictors and implications using latent transition analysis. *Journal of Applied Psychology, 105*(10), 1073–1087. https://doi.org/10.1037/apl0000819
Yip, J. A., & Martin, R. A. (2006). Sense of humor, emotional intelligence, and social competence. *Journal of Research in Personality, 40*(5), 1202–1208. https://doi.org/10.1016/j.jrp.2005.08.005
Yue, X. D., Liu, K. W. Y., Jiang, F., & Hiranandani, N. A. (2014). Humor styles, self-esteem, and subjective happiness. *Psychological Reports, 115*(2), 517–525. https://doi.org/10.2466/07.02.PR0.115c18z6
Zeigler-Hill, V., & Besser, A. (2011). Humor style mediates the association between pathological narcissism and self-esteem. *Personality and Individual Differences, 50*(8), 1196–1201. https://doi.org/10.1016/j.paid.2011.02.006
Zhang, L., & Leung, J. P. (2002). Moderating effects of gender and age on the relationship between self-esteem and life satisfaction in mainland Chinese. *International Journal of Psychology, 37*(2), 83–91. https://doi.org/10.1080/00207560143000252