



RESEARCH ARTICLE

Section: *Sociology and Community Development*

Effect of social comparison on envy: A predictive study considering psychological and demographic variables among social media users

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Background: Social comparison affects envy in both types and forms of envy, depending on several psychological and social variables, and social media highlight this in general. This study aimed to analyse the influential relationship between social comparison and two types of envy (benign and malignant) among social media users, while testing the interactive role of both age and income in modifying this relationship.

Methods: A total of 282 participants of various ages and income groups participated in the study. The Benign and Malicious Envy Scale and Social Comparison Scale were used to assess individuals' tendencies toward different forms of envy and their patterns of social comparison in order to explore their interrelationship and psychological implications.

Results: The results showed that social comparison is one of the most prominent predictive variables for the types of envy among users of social networking sites. Regarding the dimensions of social comparison, opinions were most influential in contributing to envy, while the dimension of performance had a statistically significant negative effect. Interactive analyses showed that the effect of social comparison was affected by age and income variables, wherein 20–24-year-olds were more affected by both types of envy, while the highest levels of malicious envy were within those who made 5,000–7,000 riyals. These results suggest that social comparison not only directly affects feelings of envy but is also enhanced by its interaction with demographic characteristics.

Conclusion: The study recommends designing psychocognitive intervention programs for young people, focusing on developing awareness of health comparison methods and regulating emotions, as well as encouraging the positive and controlled use of social networking sites, especially among the most sensitive groups, to psychological vulnerability.

KEYWORDS: age, comparison, envy, income, social media

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1. Introduction

Social comparison on social media shapes how students perceive their academic abilities and achievements. Although benign envy may drive positive motivation and self-improvement, malicious envy may undermine collaboration and foster disengagement. Understanding these effects is critical in designing supportive learning environments (Appel et al., 2016). Envy is a social emotion that arises from comparison, and other individuals greatly affect our prosperity in competitive environments (Sabah et al., 2025). Malicious jealousy is aggressive and can cause harm, whereas benign envy promotes self-improvement. Malignant envy exacerbates the association between unpleasant childhood events, such as abuse, depression, and anxiety, whereas benign envy reduces it. Social comparison on social media can lead to positive and negative results through the mechanism of envy. Studies have found that social comparison on social media sites is linked to envy and depression (Carraturo et al., 2023), and envy can be classified as benign or malignant, with different behavioural consequences. Benign envy can stimulate self-improvement, while malicious envy can lead to negative gossip (Latif et al., 2021); the intensity of social comparisons is positively associated with inspiration, mediated by entirely benign envy, which in turn has been associated with increased positive impact (Meier & Schäfer, 2018).

Social comparison on social media can also lead to negative emotions and psychological responses such as burnout (Lim & Yang, 2015). Neuroticism, self-esteem, and online social identity affect these encounters; understanding these complex interactions is necessary to understand social media's psychological effects. Social comparison is a basic psychological activity that affects mood and relationships. Research reveals that bottom-up comparisons, especially on social media, increase display envy, and nearly 50% of users mention digital envy (Van Zandvoort, Vredenburg & Bentvelzen, 2025). Predictive models reveal envy-social comparison correlations above 0.50 (Carraturo et al., 2023). Individual differences also play a crucial role in how social comparison affects envy.

Factors such as self-esteem, neuroticism, and a tendency toward social comparison can mitigate the relationship between social comparison and envy. For example, individuals with high self-esteem may be less likely to feel envy after positive comparisons, while people with low self-esteem may experience increased envy and its associated negative effects (Carraturo et al., 2023). The rise of social media has led to increased jealousy among users owing to increased opportunities for social comparison. These platforms may worsen emotional experiences, as research has indicated that social comparison on these networks increases envy and depression. unfavourable because these sites' content may encourage bottom-up comparisons, causing ineptitude and envy (Sabatini & Sarracino, 2015). Research suggests that upward social comparisons—comparing oneself to someone perceived as better off—can provoke feelings of envy, which in turn may affect mental health. A meta-analysis revealed that social comparison on platforms, such as Facebook, is associated with a negligible to moderate negative impact on mental health, with envy as a mediating factor (Meier & Johnson, 2022). Social comparison, an essential aspect of human psychology, plays an important role in shaping emotions and behaviours within society. Social comparison theory assumes that individuals evaluate their abilities and opinions by comparing themselves with others, particularly in the absence of objective criteria. This process can lead to different emotional outcomes, wherein envy is a prominent reaction when individuals perceive others as superior in certain areas (Festinger, 1954). According to Festinger's theory (Festinger, 1954) When objective criteria are lacking, people are compelled to evaluate themselves using social information; thus envy and social comparison sometimes occur. Feelings of envy can also include inferiority, bitterness, and wrath. This paradoxical reaction to painful social comparison arises when aims are beneficial or superior and comparators cannot catch up. This comparison makes people feel inferior in terms of quality, performance, and/or possessions (McClendon, 2018). Although several studies have examined the link between social comparison and envy in social media environments, most have concentrated on Western societies, neglecting the Arab cultural context and the differentiation between benign and malicious envy. This study seeks to fill this gap and provide insights that could inform interventions that promote healthy social comparison and mitigate its negative effects (Meier & Johnson, 2022).

Comparisons on social media are a key factor influencing individuals' mental health, often triggering feelings of envy—both benign and malicious—with significant implications for social behaviour and emotional adjustment. Although several studies have investigated this relationship, they have predominantly focused on Western contexts and have overlooked the cultural and demographic factors that may shape these dynamics

in Arab societies. This gap underscores the need for a study that explores these relationships within the Arab context and provides practical insights for addressing the psychological impact of social comparison. Therefore, this study examined the relationship between social comparison and both types of envy (benign and malicious) among social media users while analysing the moderating roles of age and income. The findings are intended to support the development of educational and psychological programs that promote healthy comparisons and mitigate the negative effects.

2. Literature Review

Recent studies explore the complex dynamics of envy and social comparison. Upward social comparison can lead to withdrawal behavior through envy, particularly in individuals with low self-esteem (Zhang et al., 2025). The relationship between comparison extremity and emotions is nonlinear, with benign envy and happy-for-ness peaking in moderate upward comparisons, while malicious envy and schadenfreude increase with extreme comparisons (Diel et al., 2025). These emotions influence daily motivation, with benign envy and happy-for-ness promoting effort, while malicious envy and schadenfreude are linked to disengagement. Exposure to envy-like environments can increase anxiety-like behavior in mice, suggesting a neurobiological basis for envy's effects (Ueno et al., 2025). In workplace settings, employee green innovative behavior can trigger co-worker envy, negatively impact environmental commitment and promote non-green behavior (Fouad et al., 2025). These findings highlight the multifaceted nature of envy and its far-reaching consequences in various contexts. Theories that explain envy and social comparison:

1. Social comparison theory: Leon Festinger (Festinger, 1954) assumes that individuals compare themselves to others to assess their abilities and opinions in the absence of objective criteria. Upward comparisons (with who is “better”) can lead to envy, especially when the gap is large and a sense of helplessness exists.
2. The theory of two-dimensional envy: distinguishes between benign envy (stimulates self-improvement) and malignant envy (associated with a desire to harm or belittle the other) and relates this to the type of social comparison: constructive versus aggressive ascendant (Zeigler-Hill et al., 2025)
3. Social identity theory: Individuals view social comparison as occurring between “insiders” and “outsiders” from social groups, which can lead to collective envy when others are seen as superior or successful (Crusius et al., 2017).
4. Social justice theory (equity theory): states that envy can arise from an individual's sense of unfairness in social comparison, especially when recognising the disparity in rewards for effort between the self and others (Adams, 1965).
5. Self-assessment theory: This theory assumes that people seek to maintain a positive self-image, and if others excel in areas important to them, feelings of envy may manifest as a defensive reaction that threatens their self-esteem (Tesser et al., 1988).

In a study of 90 women, Arnocky et al. (2016) showed that exposure to images of attractive women in magazines stimulated envy resulting from social comparison, prompting participants to take steps improve their external appearance. In a comprehensive review of the scientific literature on the subject of social comparison and envy, Meier & Johnson (2022) determined a constant correlation between the frequency of comparison and the emergence of envy in individuals, especially those lacking self-confidence. Sun et al. (2025) researched how goal-oriented avoidance and negative rumination mediate the association between social comparison and malevolent envy in secondary school students. Among 643 students, social comparison was positively associated with malevolent envy through an indirect influence through avoidant orientation and negative rumination, without a direct effect; this study reveals that intermediary psychological elements explain malevolent envy. In the context of the social networking services environment, Lim and Yang (2015) examined how envy and shame affected social comparison outcomes within college students. Media personality comparisons elicited varied emotional responses, including envy, which was more substantially connected to the behavioural change structure than shame. Intermediate analyses have also demonstrated that envy and shame explain social comparison as well as psychological and behavioural effects. Caputo (2014) analysed 450 psychological summaries using social representation theory and revealed five common representations of envy in the literature: initial destruction, self-

injustice, narcissistic defence, competitive tendency, and malignant joy. These representations were distributed across four dimensions: source of envy, its function, self-awareness, and legitimacy. The results confirm the contradictory cultural and social dimensions of envy and their function in the social system. Yaşar et al. (2022) explored how tourism scholars' perception of organizational social comparison and rivalry affects jealousy; the variables had a weak but statistically significant positive connection. Social comparison and jealousy were the biggest predictors of indirect hostile behaviour on Facebook in a study of 200 university students in Pakistan (Shahid et al., 2020). Liu et al. (2024) analysed buying behaviour based on social media content and showed that fancy images and experiential content evoke benign envy and increase purchase intent. The study was conducted on 544 students in China, and the effect was evident among individuals with a high orientation towards social comparison. Abdellatif (2022) confirmed that envy resulting from social comparison on social networking sites is associated with low life satisfaction and self-esteem. Sabah et al. (2025) studied the impact of the two types of envy on the prosperity of university students in Algeria. A regression analysis of 401 students indicated that benign envy favourably increased prosperity, whereas malignant envy negatively affected it. The model also demonstrated that only the school year affected prosperity, while gender, age, and economic status did not explain prosperity or envy.

Tradition states that excessive social comparison can lead to malignant envy, especially when a person feels unequal to the compared person, causing feelings of negativity (Salovey, 2024). According to recent research, benign envy may come from upward comparisons if a person believes that they can improve, work hard, and develop themselves (Meier et al., 2020). Recent structural analysis of social media suggests that the context of comparison (such as the influencer's personality, or the degree of social proximity) plays a role in determining the type of envy produced; comparison with strangers may provoke benign envy, while comparison with peers often leads to malicious envy (Noon & Meier, 2019). Longitudinal research shows that envy causes frequent comparisons, which reduces self-esteem. According to previous studies, envy and comparisons vary by culture. Collective justice allows for and justifies malignant envy, whereas individual cultures promote benign envy as a success model. Benign jealousy comes from the notion of "what I can do" whereas malignant envy comes from that of "why I have nothing to have" (Cheng et al., 2021). Social media has increased social comparisons, which may affect schooling. Students often compare their academic performance with their friends' online successes, which can cause envy and affect their motivation and learning. Understanding the psychological underpinnings behind student engagement and performance requires studying these interactions (Verduyn et al., 2020). Beyond theory, educational study should inform youth psychoeducational program development. These courses could encourage healthy social comparison, build emotional and social skills, and provide more supportive learning environments that comprehend social media's psychological effects, though past studies (Carraturo et al., 2023; Meier & Schäfer, 2018). They researched social comparison and jealousy in Western societies and disregarded Arab culture. Few studies have identified benign from malicious jealousy on social media and how age and income moderate it. This gap underlines the necessity for complete Arab cultural research of these interactions to provide culturally sensitive psychosocial interventions and increase understanding in other cultures. Thus, a complete study is needed that combines Arab societies' psychosocial dynamics and provides practical guidance to improve social media users' mental health.

3. Methodology

Research design

To better understand the interrelationships between the psychological variables studied here, the researchers used a quantitative approach based on a cross-sectional descriptive-correlational design. For this study, we used Internet channels to disseminate self-administered electronic questionnaires, which allowed us to reach a demographically and geographically diversified population. Without experimental manipulation or variable control, this method effectively captures the current conditions of the target variables and analyses their interrelationships. This strategy offers a solid foundation for conducting statistical analyses and drawing trustworthy conclusions, and follows the norms of ethics and methodology often used in forensic psychology research. The accurate quantitative data necessary for interpreting the relationships and patterns among the psychological constructs studied can be reliably generated using this methodology.

Participants

The study sample included 282 social media users selected using a simple random sampling method from the study population available electronically. The sample was distributed across diverse age, economic, educational, and geographical groups. Participants were predominantly aged between 18 and 20 years, with incomes below SAR 5,000. Most participants had a bachelor's degree. Residents also ranged from northern, central, and southern regions to rural areas, reflecting a relatively balanced representation of relevant demographic characteristics. Participants were required to be 18 years of age or older, able to read and write, and voluntarily consent to participate in the survey after reviewing the study objectives. All ethical considerations for scientific research were adhered to, including maintaining data confidentiality, ensuring that data were used only for research purposes, and ensuring that participation was voluntary and without any pressure or repercussions. Data were collected from March to June (second semester of the 2025 academic year) using a predesigned electronic survey created via Google Forms. The survey link was disseminated through various social media platforms (Twitter, Instagram, WhatsApp), accompanied by a brief introductory message outlining the study's purpose, participation criteria, and ethical considerations. Before participation, all respondents were required to review an electronic informed consent form, which detailed the study objectives, assured confidentiality, and highlighted participants' rights, including voluntary participation and the option to withdraw at any point without repercussions. No personally identifying information was collected; all responses were strictly used for academic research purposes and were regularly monitored to exclude incomplete or duplicate entries, ensuring the integrity and quality of the dataset. All procedures adhered to the ethical standards of the Declaration of Helsinki and the Institutional Guidelines for Scientific Research Ethics. See Table 1 for participants' demographics.

Table 1. Distribution of study participants by demographic variables (frequencies and percentages)

Variable	Category	Count	Percentage (%)
Age	18–20	60	11.19%
	20–24	45	8.40%
	More than 24	30	5.60%
Economic Level	Fewer than 5,000 riyals	50	9.33%
	From 5,000 to 7,000 riyals	35	6.53%
	More than 7,000 riyals	40	7.46%
Educational Level	Secondary	25	4.67%
	Bachelor's	70	13.06%
	Graduate studies	35	6.53%
Place of Residence	Village	30	5.60%
	South	28	5.23%
	North	50	9.33%
	Central	38	7.09%

Statistical and Analytical Procedures

The study employed descriptive statistics (means, standard deviations, frequencies, and percentages) to analyse the demographic data, along with multiple regression analysis to examine the predictive relationships between social comparison and both types of envy (benign and malicious). Interactive analysis was used to assess the moderating effects of age and income. Model fit indices such as R^2 , RMSE, AIC, and BIC were also reported to ensure analytical robustness.

Instruments

Social Comparison Scale

The Social Comparison Scale (SCI) developed by Gibbons & Buunk (1999) was used. The final version of the scale consists of 11 items formulated to cover two functional dimensions verified through factor analysis: The first addresses comparisons in performance and abilities, and the second addresses comparisons in opinions and

attitudes. Items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), and the scale included reversed items to control for response bias.

The original Social Comparison Scale (INCOM) demonstrated good construct validity, with factor analyses revealing two distinct dimensions– (comparison in performance and comparison in opinions), –with strong factor loadings ranging from 0.51 to 0.78. It also demonstrated high reliability, with Cronbach’s alpha coefficients ranging from 0.78 to 0.83 across multiple samples. The results of the psychometric analysis in the current study showed that the SCI has high levels of validity and reliability in the Arab context. In terms of content validity, the rate of agreement among the expert judges was 92%, indicating cultural and linguistic suitability of the items. Construct validity was verified using confirmatory factor analysis (CFA), with good fit indices (CFI = 0.94, TLI = 0.92, RMSEA = 0.056, and SRMR = 0.041) and factor loadings ranged between 0.61 and 0.78. The correlation coefficients between the scale’s dimensions and psychological variables (envy and self-esteem) showed logical trends, supporting discriminant validity. In terms of reliability, Cronbach’s alpha for the overall scale was 0.84, and 0.81 and 0.79 for its sub-dimensions of performance and opinions, respectively. McDonald’s omega coefficients also supported these results ($\omega = 0.83$ for performance, $\omega = 0.81$ for opinions). Regarding test-retest reliability, the results showed a correlation coefficient ($r = 0.82$) after two weeks, significant at ($p < 0.001$), and split-half reliability ($r = 0.79$) using the Spearman–Brown coefficient. These values reflect the strength and reliability of the scale in measuring social comparisons in the current sample.

The Envy Scale

The Envy Scale (Lange & Crusius, 2015) consists of clauses that evaluate benign and malicious envy in its original form; it was adopted to suit the context of the study. The scale consists of ten items asking participants to rate their feelings of envy on a five-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The average indicates the highest feelings of envy. This metric was originally from Lange and Crusius (2015) In four studies (N1 = 365, N2 = 194, N3 = 192, N4 = 474), which provides some support for its psychometric properties. We also followed the procedure of translating the scale from Arabic to English language and vice versa to ensure linguistic and conceptual equivalence.

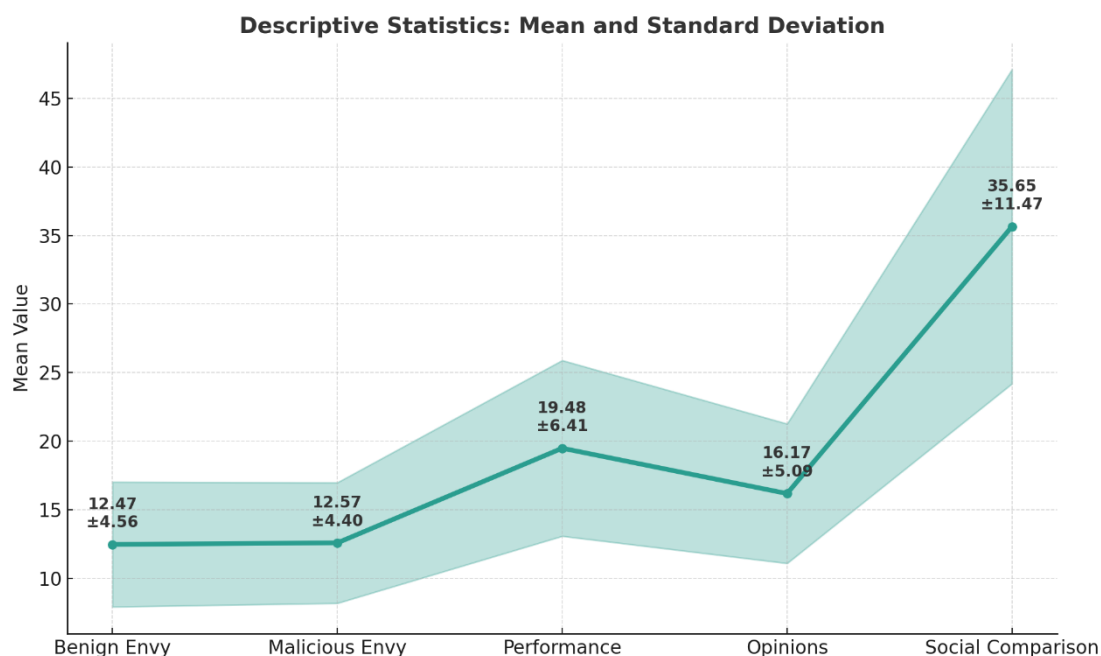


Figure 1. The mean and standard deviations of five psychological variables

Figure 1 shows that the highest mean was for the social comparison variable ($M = 35.65$, $SD = 11.47$), indicating the prevalence of this behaviour among the participants. Performance ($M = 19.48$) and the expression of opinions ($M = 16.17$) were followed by medium levels. Benign and malignant envy had the lowest averages ($M = 12.47$ and 12.57 , respectively), with low variance, indicating low and homogeneous emotions among individuals. The shaded area around the line shows the extent of the standard deviation, where a large breadth of the social comparison variable reflects greater variation in responses versus relative homogeneity in the envy variables.

Predicting social comparison through benign envy among social media users

Table 2. Indicators of the suitability of the overall model for multiple regression analysis

Overall Model Test										
Model	R	R ²	Adjusted R ²	AIC	BIC	RMSI	F	df1	df2	p
1	0.914	0.836	0.835	1148	1163	1.84	710	2	278	<.001

Note. Models estimated using sample size of N=281.

The results of the multiple regression analysis (Table 2) revealed an appropriate fit to the statistical model used, where the coefficient of determination (R^2) was approximately 0.836, indicating that the independent variables explained 83.6% of the variance in the dependent variables. The overall F value (710) also showed strong statistical significance ($p < .001$), with a low estimated mean error (RMSE = 1.84), reflecting the prediction quality and model stability, which is also confirmed by the AIC values and accepted BIC (Table 1). Regarding the results of the Omnibus ANOVA test (see Table 3), the opinions variable was the only one that contributed statistically significantly to the interpretation of the variance in the dependent variable ($F = 25.357$, $p < .001$), while the performance variable showed no significant significance ($F = 0.362$, $p = 0.548$), indicating that its interpretive effect is weak (Table 2).

Table 3. ANOVA test results for the effect of independent variables on the dependent variable

	Sum of Squares	Push	Mean Square	F	p
Performance	1.24	1	1.24	0.362	0.548
Opinions	86.89	1	86.89	25.357	<.001
Residuals	952.57	278	3.43		

Note. Type 3 sum of squares.

This trend was reinforced by the analysis of regression coefficients, as the results of the model showed that the «opinions» variable was the strongest predictor, with a non-standard regression coefficient value of ($B = 0.7311$) and was statistically significant ($p < .001$), with a high standard effect (0.8178). The «performance» variable had non-functional coefficients ($p = 0.548$), indicating that it did not contribute statistically to predicting the dependent variable (Table 4).

Table 4. Linear regression coefficients for estimating the effect of performance and opinions variables on the dependent variable

Model Coefficients - Benign Envy							
			95% Confidence Interval				
Predictor	Estimate	Std. Error	Lower	Upper	t	p	Stand. Estimate
Intercept	-0.7180	0.377	-1.461	0.0245	-1.903	0.058	
Performance	0.0692	0.115	-0.157	0.2958	0.602	0.548	0.0977
Opinions	0.7311	0.145	0.445	1.0169	5.036	<.001	0.8178

Predicting social comparison through malicious envy among social media users

Table 5. Model fit measure suitability quality indicators

Model Fit Measures										
							Overall Model Test			
Model	R	R ²	Adjusted R ²	AIC	BIC	RMSI	F	df1	df2	p
1	0.773	0.597	0.594	1387	1401	2.79	207	2	279	<.001

Note. Models estimated using sample size of N=282

The results of the regression analysis showed that the model explained 59.7% of the variance in the dependent variable ($R^2 = 0.597$), with strong statistical significance for the model as a whole ($F = 207$, $p < .001$), and a moderate prediction mean error ($RMSE = 2.79$), reflecting an acceptable fit for the model (Table 5). The results of the ANOVA test showed that both the performance and opinions variables contribute statistically significantly to the interpretation of the differences in the dependent variable, where the value of F for the opinions and performance variables were 53.4 ($p < .001$) and 19.2 ($p < .001$), respectively (Table 6).

Table 6. Results of the Omnibus ANOVA test for the effect of independent variables

	Sum of Squares	Push	Mean Square	F	p
Performance	151	1	150.62	19.2	<.001
Opinions	420	1	419.79	53.4	<.001
Residuals	2194	279	7.86		

It is evident from Table 7 that opinions show a strong and statistically significant positive effect on malicious envy ($\beta = 0.85$, $p < .001$), whereas performance shows a significant negative effect ($\beta = -0.71$, $p < .001$) reflecting a reverse trend in influence.

Table 7. Linear regression coefficients for estimating the impact of performance and opinions variables on the dependent variable (regression coefficients)

Predictor	Estimate	Std. Error	t	p	Std. Estimate
Intercept	1.468	0.571	2.57	0.011	
Performance	-0.760	0.174	-4.38	<.001	-0.71
Opinions	1.600	0.219	7.31	<.001	0.85

The effect of social comparison on envy (benign envy, malicious envy) is adjusted according to the variable of age and economic level of social media users

The effect of social comparison on positive envy (benign envy)

It is evident from the multiple linear regression analysis (Table 8) that age and income modify the relationship between social comparison and benign envy. The results showed that the overall model was highly statistically significant ($F(9, 271) = 187$, $p < .001$), and the explained variance ratio was $R^2 = 0.861$, indicating a strong interpretation of the dependent variable. The social comparison showed a positive and statistically significant effect ($\beta = 0.336$, $p < .001$), which means that the higher the social comparison, the higher the levels of benign envy. Regarding the effect of the interaction, it was found that the 20–24 age group significantly modifies the relationship between benign envy social comparison ($\beta = 0.080$, $p < .001$), indicating that the relationship was stronger in individuals aged 20–24 years compared to the reference group (aged 18–20). A statistically significant interaction was present between the social comparison and the income group (5,000–7,000 riyals) ($\beta = 0.082$, $p = .015$), suggesting that this level of income increases the impact of social comparison on benign envy. Other interactions (with the 24+ age group or higher income) were not statistically significant (Table 9).

Table 8. Model fit indicators for the regression model predicting benign envy

Model Fit Measures						
			Overall Model Test			
Model	R	R ²	F	df1	df2	p
1	0.928	0.861	187	9	271	<.001

Note. Models estimated using sample size of $N=281$

Table 9. Regression coefficients and interaction effects predicting benign envy

Model Coefficients - Benign Envy				
Predictor	Estimate	Std. Error	t	p

Intercept <i>a</i>	0.4194	0.6756	0.6208	0.535
Social Comparison	0.3359	0.0165	20.3674	<.001
Age:				
20–24 to 18–20	-2.1427	0.7865	-2.7244	0.007
Over 24 to 18–20	-0.2047	1.1190	-0.1829	0.855
Economic:				
From 5,000 to 7,000 SAR – Fewer than 5,000 SAR	-1.9049	1.2425	-1.5331	0.126
More than 7,000 SAR – Fewer than 5,000 SAR	0.7126	0.7321	0.9733	0.331
Social Comparison * Age:				
Social Comparison * (20-24 – 18-20)	0.0803	0.0209	3.8469	<.001
Social Comparison * (Over 24 – 18–20)	-7.65e-4	0.0310	-0.0246	0.980
Social Comparison * Economic:				
Social Comparison * (From 5,000 to 7,000 SAR – Fewer than 5,000 riyals)	0.0820	0.0336	2.4392	0.015
Social Comparison * (More than 7,000 riyals – Fewer than 5,000 SAR)	-0.0307	0.0197	-1.5623	0.119

Note: *a* represents reference level.

The effect of social comparison on malicious envy (malicious envy)

The dependent variable, malicious envy, was evaluated similarly (Table 10). The model was statistically significant ($F(9, 272) = 63.7, p <.001, R^2 = 0.678$). Social comparison had a significant positive impact on malicious envy ($\beta = 0.243, p <.001$). Results show that the 20–24 age group had lower malicious envy levels than the reference group ($\beta = -3.83, p = .001$), but not the 24+ age group. A significant interaction between social comparison and age (20-24) ($\beta = 0.133, p <.001$) suggests more malevolent envy in this age group. The income-social comparison association was not significant in our model. Age (especially those aged 20–24 years) strengthens the relationship between social comparison and envy, although some models suggest a slight wealth (5000–7000 riyals) (Table 11).

Table 10. Model fit statistics for the regression model predicting malicious envy

Model Fit Measures						
			Overall Model Test			
Model	R	R ²	F	df1	df2	p
1	0.824	0.678	63.7	9	272	<.001

Note. Models estimated using sample size of N=282

Table 11. Regression coefficients and interaction effects for social comparison and demographics in predicting malicious envy

Model Coefficients - Malicious Envy				
Predictor	Estimate	Std. Error	t	p
Intercept <i>a</i>	4.2581	0.9928	4.29	<.001
Social Comparison	0.2435	0.0242	10.05	<.001
Age:				
20–24 to 18–20	-3.8328	1.1557	-3.32	0.001
Over 24 to 18–20	2.6197	1.6429	1.59	0.112
Economic:				
From 5,000 to 7,000 SAR – Fewer than 5,000 SAR	-8.2692	1.8258	-4.53	<.001

More than 7,000 SAR – Fewer than 5,000 ri- yals	1.8268	1.0756	1.70	0.091
Social Comparison * Age:				
Social Comparison* (20–24 to 18–20)	0.1331	0.0307	4.34	<.001
Social Comparison * (Over 24 to 18–20)	-0.1326	0.0455	-2.92	0.004
Social Comparison * Economic:				
Social Comparison * (From 5,000 to 7,000 SAR – Fewer than 5,000 SAR)	0.2446	0.0494	4.95	<.001
Social Comparison * (More than 7,000 SAR – Fewer than 5,000 SAR)	-0.0665	0.0289	-2.30	0.022

Note: *a* represents reference level

The interactive model shows that there is a positive relationship between social comparison and envy of both types and that this relationship is not fixed for all individuals but is affected by:

1. Age: The effect of a statistically significant interaction between social comparison and the 20–24 age group on envy was present, and the relationship between social comparison and envy (especially harmful envy) appeared to be stronger in this group than in the reference group (18–20 years).
2. Economic level: Individuals earning between 5,000 and 7,000 riyals also showed a higher impact on the relationship between social comparison and envy; that is, this average income enhanced the impact of social comparison on the levels of envy compared to the group with income of fewer than 5,000 riyals.
3. Malicious envy: malicious envy is more affected and represents a negative response to social comparison (benign envy) but with a clearer interaction with age, without a clear effect on income.

Figure 2 indicates that demographic parameters (age and wealth) affect the effect of social comparison on envy, stressing the necessity of understanding the individual's personal and social background when analysing his comparative behaviour. Multiple regression interaction analysis indicated that social comparison and envy are nonlinear. The 20–24 age group had a stronger link between social comparison and destructive envy. The middle-income group (5,000–7,000 riyals) was also the most sensitive to social comparison, showing they engage in envy-causing comparison. Demographic factors alter psychological and social linkages between variables; hence, the model emphasizes interaction when evaluating outcomes.

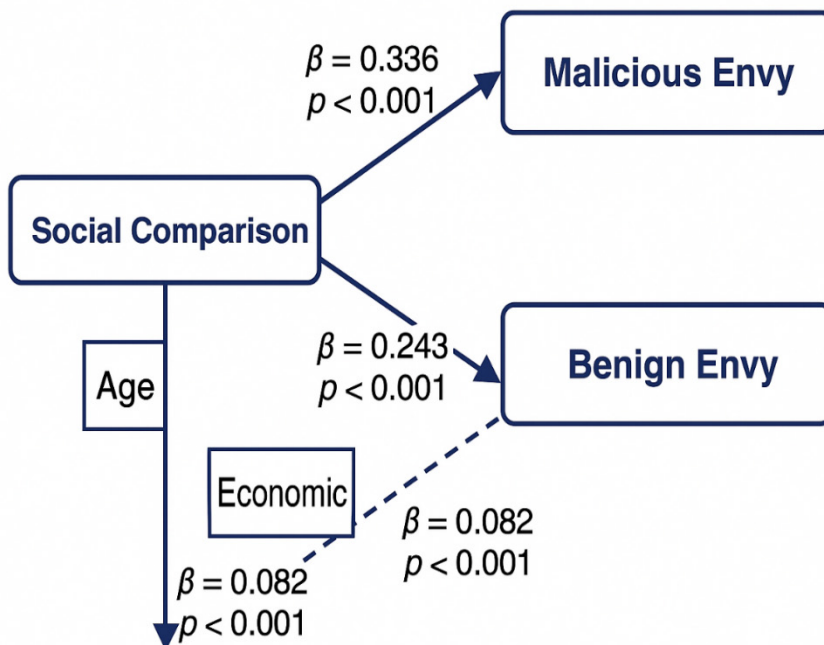


Figure 2. The impact of demographic variables on envy

5. Discussion

The results of this study confirm the pivotal role of social comparison in shaping the two types of envy (benign and malignant) among social media users, with the emergence of interactive effects of a number of demographic variables, such as age and income. These findings are of theoretical and practical significance as they contribute to a dynamic understanding of the relationship between social comparison and emotional responses in digital environments. The following provides a detailed discussion of the most prominent findings.

The effect of social comparison on benign envy

The results of the study showed that social comparison explains a large percentage of the variation in feelings of benign envy ($R^2 = 0.861$), and the dimension of opinions was the most influential in predicting these feelings. This finding is consistent with findings that the benign envy of rising comparisons on Instagram can spur inspiration and self-development, supporting the findings on the impact of achievable comparisons on the reinforcement of positive behaviours (Meier & Johnson, 2022; Meier & Schäfer, 2018). However, this result differs from Sun et al.'s (2025) results, which linked the tendency toward social comparison only with malicious envy. This discrepancy explains that comparisons centred on “opinions” do not directly threaten self-efficacy, allowing positive self-evaluation mechanisms to be activated and self-ambition motivated rather than hostile.

Social comparison and malicious envy

The study showed that social comparison explains a significant proportion of variation in malicious envy ($R^2 = 0.597$), and that the dimension of opinions contributes to reinforcing this type of envy, while the impact of performance was negative. This finding is consistent with Latif et al. (2021), which linked malicious envy to social comparison and negative identity on the Internet, and with other previously mentioned studies (Meier & Johnson, 2022; Meier & Schäfer, 2018; Meier et al., 2020). One of the roles of digital platforms in reinforcing negative emotions among those with a high tendency to compare. This result differs from Liu et al. (2024), who observed that performance-based comparisons promoted benign envy without causing malicious envy. This is because comparing opinions touches on the value structure of an individual, making it more closely related to defensive emotions, unlike objective comparisons based on achievement.

The 20–24 years age group and its strong influence on social comparison and envy

The results revealed that individuals in the 20–24 age group show higher levels of benign and malignant envy when activating social comparison, a finding consistent with Meier et al. (2020) in that young people are the most sensitive to the content of the comparison on social media, as well as with Lim and Yang (2015), who confirmed that younger age groups are more affected by the stage of identity formation. However, this finding is not consistent with Sabah et al. (2024), who did not find significant differences in envy depending on age. This is explained by the fact that advanced youths are at a crucial stage in shaping self-ambition, where the need for social appreciation is at its height, making comparison a pivotal emotional factor.

The middle-income group (5,000–7,000 riyals) was affected by the relationship of comparison with envy

The results showed that individuals belonging to the middle economic category showed a higher impact on the relationship of social comparison with envy, a finding that supports the findings of Liu et al. (2024) and Liu et al. (2021), which showed that this category tends to respond to benign envy when exposed to luxury content on digital platforms. This group seems to live in a state of “near arrival,” which makes them more engaged in realistic comparisons that generate feelings of motivation or frustration, according to the cognitive explanation of the nature of the perceived gap in social status.

The interactive effect of age and income on the relationship between comparison and envy

Interactive models showed that the relationship between social comparison and the two types of envy was not linear but was interactively affected by age and income, wherein the most obvious effect was in malicious envy in the 20–24 age group and middle-income groups. These findings support Cheng et al.'s (2021) findings regarding the difference in vulnerability compared to cultural and demographic backgrounds, as well as Noon and Meier's (2019) findings that malicious envy is exacerbated in comparison with peers rather than influencers.

This indicates that emotional responses are shaped by contextual and social interactions and are not just based on an individual's internal structure.

The decrease in the general average of envy despite the high social comparison

Despite the high social comparison between the participants, the average scores of both types of envy were below average, which is an indicator of the presence of psychological protection factors, such as self-awareness or high self-esteem. Carraturo et al. (2023) confirmed that individuals with high self-confidence could engage in comparison without generating negative emotional responses. This supports the call to strengthen the components of psychological resilience in digital users, as part of Digital Mental Health strategy.

Based on the results of this study and experience in the fields of social and behavioural psychology, social comparison is a central cognitive process that is clearly activated in the social media environment, especially among young people and groups with rising social ambition. The results revealed that the moral dimension of comparison—namely, the comparison of opinions and attitudes—was the most prominent driver of the emergence of benign envy, suggesting that individuals respond not only to content on a physical or skill basis, but on a symbolic identifiable basis related to identity and belonging. This is in line with Festinger's subtraction in the theory of social comparison (Festinger, 1954). Festinger argued that individuals resort to comparison in the absence of objective criteria for self-evaluation. When these comparisons seem to revolve around achievable areas (such as shared views or attitudes), they stimulate positive responses such as self-improvement and the pursuit of development, which is also supported by Meier and Schäfer's (2018) results regarding benign envy as a catalyst for behavioural inspiration in digital environments.

From a deeper analytical perspective, interactive models suggest that the impact of comparison cannot be isolated from an individual's social and psychological characteristics, particularly age and income, reflecting the contextual and relational nature of envy as a social emotion that does not arise in a vacuum. The results revealed that the 20–24 age group was most sensitive to the impact of social comparison, supporting the developmental hypothesis that late youth is a psychologically fragile period due to pressures from self-expectations and societal demands. This finding is supported by Lim and Yang (2015), who demonstrated the role of digital identity and age in multiplying the impact of comparison, as reinforced by Cheng et al. (2021), who showed that the psychological impact of social comparison varies according to cultural, social, and demographic factors. In light of these data, it can be said that envy, whether benign or malignant, expresses not only a transient emotional attitude but also a complex interaction between the digital environment and the internal and external dynamics of the individual, which highlights the need for flexible psychological and educational interventions that take into account these individual and contextual differences.

Although some of the results of the current study are consistent with the previous literature, a striking gap emerges when comparing high statistical interpretations. A sociological comparison of benign envy (86.1%) with that of previous studies did not support this prediction. For example, while several studies (Meier & Johnson, 2022; Meier & Schäfer, 2018; Meier et al., 2020; Monticone et al., 2021) have confirmed the role of benign envy in inspiration and motivation, they did not show that the dimension of opinions in social comparison is the most prominent factor as our study showed. Additionally, Liu et al. (2021) and Liu et al. (2024) showed that benign envy comes from material well-being or consumption comparisons and from opinions and attitudes rather than from performance or money. This shows that the Saudi cultural and social milieu may specialise in comparison perception, which most Western studies have not addressed. In contrast to some literature, our study found that malevolent envy is positively affected by opinions and adversely by performance. Sun et al. (2025) found that malignant envy mediates the relationship between the tendency to social comparison and avoidant goal orientations, regardless of the type of comparison (opinion or performance). Our results are also different from those of Sabah et al. (2024) and Sabah et al. (2025), which showed no significant differences in envy for factors such as age or income; in our study, they had a clear interactive effect. Also, Yaşar et al.'s (2022) findings did not show while our study revealed little correlation between social comparison and organizational jealousy. This gap exists due to the analysed groups' diverse cultural and social frameworks, digital platforms, and lack of interaction variable consideration. This paper provides a more complicated and accurate explanatory model that accounts for psychological and demographic factors in comprehending both types of envy, bridging the theoretical and applied gaps. The findings indicate how social media-enhanced

social comparison influences students' emotions and learning. Healthy comparisons and emotional control may improve learning, particularly in vulnerable groups.

6. Conclusion

The suggestion of cognitive interventions provides a valuable foundation for designing targeted programs that address the psychological effects of social comparison. These interventions can be operationalised by developing specific educational programs aimed at fostering critical thinking about social media content and enhancing students' metacognitive awareness of their emotional responses to online comparisons. Additionally, guidance and counselling practices could integrate psychoeducational workshops focusing on healthy coping strategies, emotional regulation, and the cultivation of positive social interactions.

Moreover, embedding social-emotional learning (SEL) frameworks into school curricula can help students build resilience, empathy, and self-awareness, and equip them constructively navigate the challenges of social media. Such comprehensive approaches not only mitigate the negative effects of malicious envy but also harness benign envy as a motivational tool for personal and academic growth.

Difficulties, Challenges, and Limitations

The study's correlational descriptive approach cannot prove causal correlations; subjective tools may be affected by cognitive biases, and samples limited to a unique cultural setting limit generalization. However, our results are relevant. Sectional design neglects gradual changes in digital behaviour. Psychometric measures that show Arab honesty and consistency and the sample's age, economic status, and academic variety complicated the results. This study offers cognitive therapy for 20–24-year-olds to improve health comparisons and reduce social media emotions.

7. Suggestion

We suggest 1) restructuring digital discourse to promote real-life success and reduce false idealism, 2) using longitudinal and experimental designs with intermediate psychological variables, and 3) and working with content creators to create more balanced and realistic messages that reduce social comparison's negative effects.

Declarations

Author Contributions: Yahya Khatatbeh was responsible for the conceptualization of the study, conducting the literature review, preparing the original manuscript, and overall supervision. He also obtained the research grant and financial support for the study, applied the research instruments to the target population, and coordinated the distribution of tasks among the co-authors. Omar Saleh Bani Yassin contributed to the development of the methodology, data collection, and statistical analysis. Ayman Mohammad Freihat was involved in reviewing and editing the manuscript, as well as interpreting and discussing the findings. All authors have read and approved the final version of the article.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: This study was conducted in accordance with the Declaration of Helsinki and adheres to the general framework for research ethics at Imam Mohammad Ibn Saud Islamic University. The target participants provided informed consent to participate in the study, which was carried out strictly for scientific and academic purposes while fully respecting their privacy and confidentiality.

Data Availability Statement: The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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