Emotional intelligence moderating the relationship between resilience and internet addiction: A study among Saudi Arabian and Ghanaian samples

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Abstract

This cross-sectional study examined the moderating role of emotional intelligence in the relationship between resilience and internet addiction among 738 university students in Ghana and Saudi Arabia, aged 20-30 years. The study found a positive correlation between emotional intelligence and resilience and a negative correlation between resilience and internet addiction. Importantly, emotional intelligence was found to significantly moderate the relationship between resilience and internet addiction, accounting for 2.2% of the variance in internet addiction. Specifically, higher levels of emotional intelligence weakened the positive association between resilience and internet addiction. The findings highlight the complex interplay between these factors and suggest that incorporating emotional intelligence training into university curricula could help mitigate internet addiction among students.

Keywords: Emotional intelligence, Ghana internet addiction, Resilience, Saudi Arabia.

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1. Introduction

In the field of positive psychology, emotional intelligence is considered an important protective element in the midst of life adversities [1]. According to Morales Rodríguez, et al. [1], emotional intelligence (EI) helps students regarding their psychological well-being and, at the same time, ensures their skills in understanding the environment in which they find themselves. Emotional intelligence (EI) is an important acumen for students because it aids them in adapting to diverse

situations they encounter and helps them achieve better learning outcomes [2, 3]. All these positive remarks about emotional intelligence occur because EI gives each individual the urge to recognize their emotions and the emotions of those they interact with, and have the ability to use these emotions to guide how they think and behave, as well as to develop social skills for harmonious living [4-7].

Aside from using EI in managing their well-being and academic lives, it is also alleged that EI can help prevent problem behaviors among students [8]. As stressful and demanding as a university environment can be, students might engage in some reinforcing problem behaviors as a way to liberate themselves from these stressors and academic demands [9, 10]. Topical among the reinforcing problem behaviors of university students that could result from stress and academic demands is internet addiction (IA). For instance, Zenebe, et al. [11] found that stress was among the factors that led university students to develop internet addictive behaviors. Similarly, Shek, et al. [12] found that stress was a significant positive predictor of internet addiction among students. As evidently shown in the preceding empirical literature, stress could lead to internet behaviors among students [13], and emotional intelligence (EI) appears to be one of the best ways to control IA among students. For example, in a cross-sectional study among university students, Fernández-Martínez, et al. [14] found that EI levels were appreciable for males (lower than females) and females (higher than males) and, as well, a predictor of IA among students. In their implication, they indicated that program development in EI could be essential to facilitate the emotional management of IA among students. Likewise, a study conducted among Vietnamese students revealed that EI was negatively related to IA after it was established that IA was prevalent among the students [15]. Several studies reported that emotional intelligence and internet addiction are negatively related, with specific findings that people with high levels are not likely to exhibit internet addictive behaviors [16-19].

Based on the foregoing, it is clear that EI has a direct relationship with IA. Even with this, extant literature suggests that EI is just one of the controlling factors in IA, but resilient abilities in students can equally thwart the emergence of IA among students. According to Mahama, et al. [20], resilience is an individual's ability to succeed in any eminent task regardless of adversities or challenges. By implication, IA is a challenge, and people stand the chance to ameliorate it when they possess resilience abilities. Synonymous with a study conducted by Zhou, et al. [21], they found resilience to be a determinant of internet addiction. In this study, it is assumed that if resilience abilities such as toughness, emotional control, and problem-solving are nurtured in people, they could reduce the emergence of IA among those involved.

Summarily, from the reviewed literature, both EI and resilience have a direct relationship with IA. In some instances, the connection between EI and resilience with IA was negative, while in other situations, their relationship with IA was positive. Aside from the direct relationships, it is possible that EI can provide a link between resilience and IA. In this process, the relationship between resilience and IA is indirect, although the literature on this path direction is inconclusive. Therefore, we hypothesized that an appropriate level of EI could influence the positive or negative relationship between resilience and IA. Taken together, the study's purpose is to establish the degree to which resilience relates to IA and EI moderating the resilience and IA linkage, as IA is expressed in lack of control, social withdrawal, emotional conflict, concealing problematic behavior, and time management issues.

2. Materials and Methods

2.1. Participants

The study employed a cross-sectional design to survey higher education students in Ghana and Saudi Arabia. The participants were recruited using online mediums (Google Forms). Before participation, all the students were briefed about the research and were offered an informed consent form to accept or decline participation in the study. Combining the Ghanaian and Saudi Arabian samples, the total sample for the study was 738 students. The participants were aged between 20 and 30 years. Words of appreciation were expressed to the students as a way of rewarding them for sacrificing their time and resources to take part in the study.

2.2. Measures

The questionnaires used in collecting data for this study were adapted. In total, three scales were used: the resilience scale, the emotional intelligence scale, and the internet addiction scale. The resilience scale comprised 25 items on a 7-point Likert-type scale with a reliability coefficient of .871 [22]. The emotional intelligence of the participants was assessed using the Brief Emotional Intelligence Scale [BEIS-10; α=.791] by Davies, et al. [23]. The internet addictive behaviors of the participants were measured using the Internet Addiction Test (IAT; Samaha et al., 2018). The IAT is a four-point Likert-type scale consisting of 20 items grouped into four dimensions: lack of control (5 items, α=.789), social withdrawal and emotional conflict (7 items, α=.819), time management issues (5 items, α=.901), and responsibility (3 items, α=.868), demonstrating a composite internal consistency of .918.

2.3. Data Analysis

The Pearson correlation was performed to determine the strength and direction of the linear relationship between resilience and internet addiction among the students. In testing the moderating effect, Hayes Process Macro was used to examine whether emotional intelligence serves as a buffer or an antagonist to the relationship between resilience and internet addiction.

Table 1.
Descriptive statistical assumptions.

Variables	Mean Statistic	Std. Dev. Statistic	Skewness Statistic	S. E	Kurtosis Statistic	S. E
Internet Addiction	49.86	11.61	0.32	0.11	-0.25	0.22
Emotional Intelligence	32.71	5.29	2.74	0.11	22.14	0.22
Resilience	15.84	2.41	1.07	0.11	7.03	0.22

3. Results

Table 1 presents the descriptive statistics for internet addiction, emotional intelligence, and resilience. The internet addiction recorded M=49.86 and SD=11.61, indicating a moderate level of variability in the scores. The skewness value of IA was 0.32 with a standard error of 0.11, suggesting a slight positive skewness, while a kurtosis value of -0.25 with a standard error of 0.22 indicates that the distribution is slightly flatter than a normal distribution (platykurtic).

For emotional intelligence, the M=32.71 and SD=5.29 show relatively low variability in the scores. The skewness value of emotional intelligence was 2.74 with a standard error of 0.11, indicating a significant positive skewness, while a kurtosis value of 22.14 with a standard error of 0.22 points to a highly peaked distribution (leptokurtic).

Regarding resilience, it recorded M=15.84 and an SD=2.41, indicating low variability in the scores. The skewness value of resilience was 1.07 with a standard error of 0.11, revealing a moderate positive skewness, while a kurtosis value of 7.03 with a standard error of 0.22 indicates a moderately peaked distribution (leptokurtic).

Table 2.
Correlations among emotional intelligence, resilience, and internet addiction.

Variables		1	2	3
Emotional Intelligence (1)	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	738		
Resilience (2)	Pearson Correlation	0.152**	1	
	Sig. (2-tailed)	0.001		
	N	738	738	
Internet Addiction (3)	Pearson Correlation	0.028	-0.096*	1
	Sig. (2-tailed)	0.540	0.036	
	N	738	738	738

Table 2 presents the results on the relationships among emotional intelligence, resilience, and internet addiction based on a sample of 738 participants. The correlation between emotional intelligence and resilience was significant, weak, and positive, $r(738) = .152$, $p = .001$. This indicates that higher levels of emotional intelligence are associated with higher levels of resilience among the participants. The positive correlation suggests that as emotional intelligence increases, resilience tends to increase as well. However, the relationship between emotional intelligence and internet addiction was not significant, $r(738) = .028$, $p = .540$. This suggests that there is no statistically significant linear relationship between emotional intelligence and internet addiction in this sample. Therefore, changes in emotional intelligence do not appear to be associated with changes in internet addiction levels. Again, the correlation between resilience and internet addiction was significant, weak, and negative, $r(738) = -.096$, $p = .036$. This indicates that higher levels of resilience are associated with lower levels of internet addiction. The negative correlation suggests that as resilience increases, internet addiction tends to decrease.

Table 3.
EI moderating resilience and IA relationship.

Model	R	R²	R² Ch	MSE	F	df1	df2	P
	0.149	0.022		132.64	3.58	3.00	476.0	0.013
Variable	**Coefficient**	**S. E**	**t**	**p**	**Boot LLCI**	**Boot ULCI**		
Constant	14.30	17.94	0.7973	0.425	-20.95	49.55		
Resilience	1.91	1.06	1.L7996	0.073	-0.175	3.98		
Emotional Intelligence	1.33	0.54	2.4518	0.015	.0263	2.39		
Int_1	-0.073	0.032	-2.3154	0.021	-0.135	-0.011		

The moderation results, as presented in Table 3, explore the role of emotional intelligence in moderating the relationship between resilience and internet addiction. The overall model indicates that the inclusion of emotional intelligence as a moderator accounts for 2.2% of the variance in internet addiction ($R^2 = .022$). This model is statistically significant, $F(3, 736) = 3.58$, $p = .013$, indicating that the predictors together significantly explain the variance in internet addiction. The constant term in the model is 14.30 (SE = 17.94), which is not statistically significant (t = 0.7973, p = .425). This suggests that when both resilience and emotional intelligence are at zero, the predicted internet addiction score is not significantly different from zero. The coefficient for resilience (b = 1.91, SE = 1.06; t = 1.7996, p = .073) indicates that resilience is a positive predictor

of internet addiction, although this effect is not statistically significant at the .05 level. Emotional intelligence shows a coefficient (b = 1.33, SE = 0.54; t = 2.4518, p = .015). This result indicates a significant positive relationship between emotional intelligence and internet addiction, suggesting that higher levels of emotional intelligence are associated with higher levels of internet addiction.

The interaction term, which represents the moderation effect [(b=-0.073, SE = 0.032; t=-2.3154, p=.021; CI (-.135, -.011)]. This negative interaction term is statistically significant, indicating that emotional intelligence significantly moderates the relationship between resilience and internet addiction. Specifically, the negative coefficient suggests that the positive relationship between resilience and internet addiction diminishes as emotional intelligence increases. The significant moderation is further presented in the Figure 1.
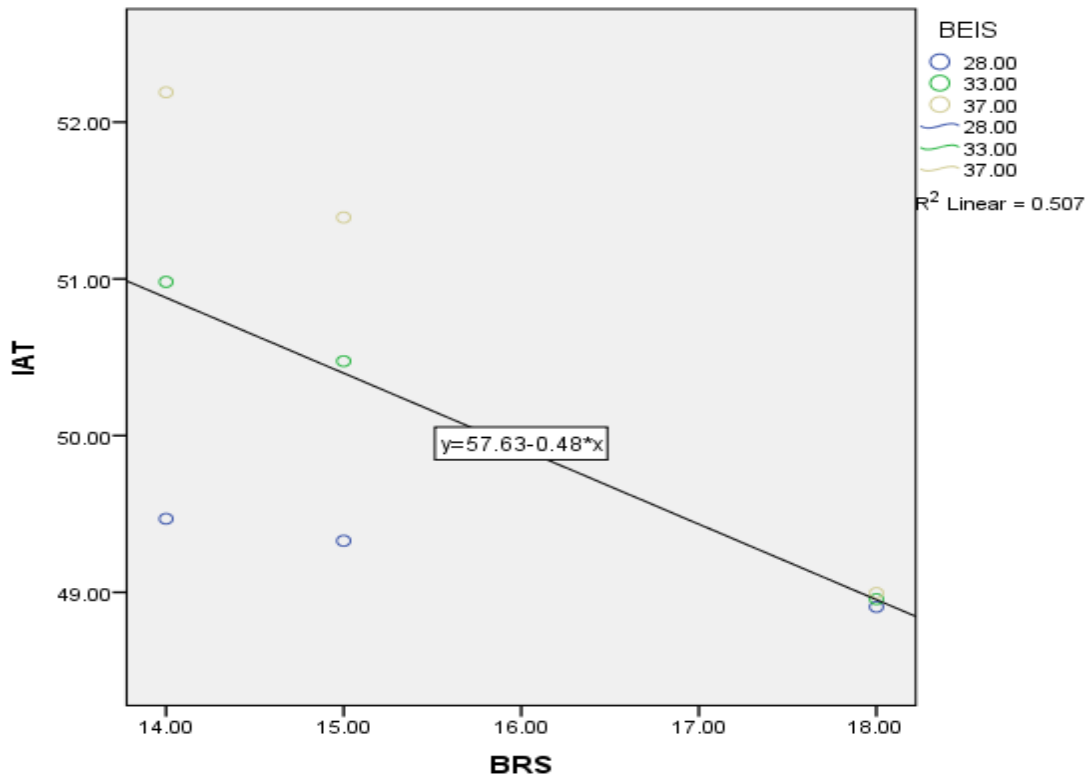
Figure 1.
Regression analysis illustrates the relationship between resilience and internet addiction, with emotional intelligence as a moderator.

The interpolation graph presents the regression results illustrating the relationship between resilience and internet addiction, with emotional intelligence included as a moderator. The black line in the graph represents the regression equation, y = 57.63 - 0.48x. This equation indicates that for each unit increase in resilience, internet addiction (IAT) decreases by 0.48 units, starting from a base value of 57.63 when resilience is zero. The R² value of 0.507 signifies that approximately 50.7% of the variance in internet addiction can be explained by resilience and the moderating effect of emotional intelligence. The negative slope of the regression line suggests that higher resilience is associated with lower levels of internet addiction. This trend is consistent across different levels of emotional intelligence, as indicated by the overlapping data points and the linear regression line. Although the graph primarily shows the main effect of resilience on internet addiction, the color-coding for emotional intelligence hints at its moderating role. Higher levels of emotional intelligence might influence the strength of the relationship between resilience and internet addiction, as different emotional intelligence levels cluster around the regression line in distinct patterns.

4. Discussion

The study sought to establish the moderating ability of emotional intelligence (EI) on the relationship between resilience and internet addiction. The findings indicate significant but weak positive correlations between emotional intelligence and resilience, suggesting that higher levels of emotional intelligence are associated with higher levels of resilience among the participants. This finding aligns with existing literature, which emphasizes the role of emotional intelligence in fostering psychological well-being and adaptability in the face of adversity [1, 24]. Emotional intelligence enables individuals to recognize and manage their own emotions and the emotions of others, thus enhancing their ability to navigate challenging environments and achieve better learning outcomes [2, 3]. Despite the positive correlation between emotional intelligence and resilience, the study found no significant relationship between emotional intelligence and internet addiction. This suggests that emotional intelligence alone does not directly influence internet addiction levels. Previous research has also shown mixed results regarding the direct impact of emotional intelligence on internet addiction, highlighting the complexity of this relationship and the potential involvement of other mediating factors such as stress, coping strategies, and social

support [9, 10]. The significant negative correlation between resilience and internet addiction indicates that higher resilience is associated with lower internet addiction. This supports the view that resilience acts as a protective factor against maladaptive behaviors like internet addiction [25, 26]. Resilient individuals are better equipped to manage stress and are less likely to resort to excessive internet use as a coping mechanism. The moderation analysis revealed that emotional intelligence significantly moderates the relationship between resilience and internet addiction. The significant negative interaction term suggests that the positive association between resilience and internet addiction diminishes as emotional intelligence increases. This indicates that emotional intelligence enhances the protective effect of resilience by improving emotional regulation and coping skills, thereby reducing the likelihood of internet addiction [27].

5. Conclusion
The study highlights the complex interplay between emotional intelligence, resilience, and internet addiction. Enhancing emotional intelligence and resilience can potentially mitigate the risk of internet addiction among students. These findings underscore the need for a holistic approach to addressing internet addiction, considering both individual psychological traits and broader educational and policy interventions.

5.1. Implications For Policy and Practice
The findings of the study have important implications for educational institutions, mental health professionals, and policymakers. Educational institutions should consider integrating emotional intelligence training into their curricula to help students develop better emotional regulation and coping strategies. Such programs could enhance resilience and reduce the risk of internet addiction among students. Mental health professionals should focus on strengthening both emotional intelligence and resilience in their interventions, providing a more comprehensive approach to preventing internet addiction. Tailored interventions that address both emotional regulation and resilience building are likely to be more effective than those focusing on a single aspect.

Policymakers should recognize the importance of emotional intelligence and resilience in educational settings and support programs aimed at developing these psychological traits. Funding and support for such programs could lead to healthier student populations, both mentally and behaviorally.

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