

Digital Resilience as a Moderator in the Relationship Between Internet Addiction and Diversity of Deviant Behavior in Middle School Students

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Abstract---This study aimed to determine the moderating effect of digital resilience in identifying the relationship between internet addiction and the diversity of deviant behavior among middle school students in Batna. The study was conducted on a sample of 300 students, selected using a non-random purposive sampling method and following a descriptive research approach. To achieve the study objectives, three main measurement tools were employed: the Digital Resilience Scale, developed by the student-researcher based on a previous study (Chunlin Chi & Nanchang Yang, 2024, p. 2); the Internet Addiction Scale, originally developed by Dr. Kimberly Young, which was translated and reviewed by language experts using the back-translation method; and the Deviant Behavior Diversity Scale, designed by the student-researcher based on literature in the field of deviant behavior (Cristina Sanchez et al, 2016). Psychometric properties were calculated, and these tools were applied as primary measurement instruments. The results revealed a statistically significant moderating effect of digital resilience on the relationship between internet addiction and deviant behavior diversity. The study concluded that the level of digital resilience influences the diversity of deviant behaviors among individuals suffering from internet addiction, underscoring the importance of enhancing digital resilience skills to mitigate deviant behaviors associated with excessive internet use.

Keywords---Digital resilience, Internet addiction, Deviant behavior diversity.

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Introduction and Problem Statement

The enormous development witnessed by the world in the late twentieth century across various fields was accompanied by a revolution in **communication methods**, epitomized by the emergence of the **Internet**. This marvel of the 20th century, with its diverse applications, generated both positive and negative consequences (Al-Ka'abi, 2009). Like any new invention, the Internet created new practices, concepts, and behavioral values—some constructive, others harmful—arising from the use of this pervasive technology that has integrated into our daily lives. Its usage continues to grow exponentially, yet its inherent risks are real, leading to the appearance of previously non-existent crimes and high-risk deviations (Al-Ka'abi, 2009).

A review of previous studies indicates that most have focused on the direct relationship between **Internet addiction** and deviant behaviors, specifically examining their negative impact on academic performance, social conduct, and psychological disorders (Young, 1998; Zidan, 2008). However, these studies often overlook factors that might mitigate these effects, such as the concept of **Digital Resilience (DR)**. Furthermore, Arabic studies on this topic are limited compared to their international counterparts, which have given greater attention to DR and balanced technology use. This **research gap** highlights the need for a deeper analysis of the role of Digital Resilience in regulating the relationship between Internet addiction and the diversity of deviant behaviors. This study aims to address this need through statistical analysis using **Hierarchical Regression**.

The ultimate goal of this research is to explore **Digital Resilience as a Moderator** in the relationship between Internet addiction and the diversity of deviant behaviors among middle school students. The study derives its critical importance from adopting the Digital Resilience concept as a moderating variable, reflecting its scientific novelty and originality. Given its status as an emerging concept in the digital age, this research contributes valuable insights to the field of digital psychology, which is still developing in the Arab world, and specifically in Algeria.

Thus, the core research problem is framed by the following central question: Is the relationship between Internet addiction and the diversity of deviant behavior **weaker** among students with a **high level of Digital Resilience** compared to students with a **low level of Digital Resilience**?

Operational Definitions and Methodology

Operational Definitions

1. **Digital Resilience (DR):** The capacity of individuals to adapt flexibly to digital environments, cope with challenges even under stress, and maintain psychological and social well-being during technology use. It focuses primarily on personal growth and recovery following setbacks (Abu Halawa, 2013; Bousnina & Mezardi, n.d.).
 - **Operationally:** The score obtained by the student on the Digital Resilience Scale developed by the researcher.
2. **Internet Addiction (IA):** A psychological state characterized by excessive or compulsive use of the Internet, leading to negative consequences in the individual's daily life, including social relationships, impaired academic/occupational performance, and negative psychological and physical effects (Young, 1998).
 - **Operationally:** The score obtained by the student on the Internet Addiction Test (IAT) (Young, 1998), translated by the researcher.
3. **Diversity of Deviant Behavior (DDB):** Refers to the variety of actions and behaviors that violate social and legal norms, influenced by bio-psycho-social factors. It encompasses multiple behaviors such as smoking, substance abuse, aggression, theft, sexual deviations, fraud, etc. (Aytana-Gomes-Pumares et al., 2021).

- **Operationally:** The score obtained by the student on the Deviant Behavior Diversity Scale developed by the researcher.

Study Methodology and Scope

The researcher adopted the **Descriptive Analytical Method** to examine the relationship between variables.

- **Temporal Scope:** April 6, 2025, to May 22, 2025.
- **Geographical Scope:** A selection of middle schools in Batna Wilaya, Algeria.
- **Human Scope:** Male and female middle school students.
- **Sample:** A non-probability **convenience sample of 300 students** (males and females) from six middle schools in Batna.

Tools and Statistical Procedures

1. **Tools:** The Digital Resilience Scale; the Internet Addiction Test (IAT) by Dr. Kimberly Young (1998), reverse-translated by the researcher; and the Deviant Behavior Diversity Scale.
2. **Statistical Procedures:** The (**SPSS**) software was used to test hypotheses, employing: Percentages; Pearson's correlation coefficient; Cronbach's Alpha coefficient; **Hierarchical Regression Analysis** (for moderation testing); Descriptive statistics (Mean, Mode, Median, Standard Deviation); and Analysis of Variance (**ANOVA**).

Presentation and Discussion of Statistical Results

To answer the main research question regarding the moderating role of Digital Resilience, **Hierarchical Regression Analysis** was performed using the following two models:

Model	Predictors / Moderators	Dependent Variable
Model 1	Internet Addiction + Levels of Digital Resilience (Medium, Good, High)	Diversity of Deviant Behavior (DDB)
Model 2	Interaction Terms (IA $\times$ DR Levels)	Diversity of Deviant Behavior (DDB)

1. Model Fit in Explaining Deviant Behavior (ANOVA & R²)

Model	R ² (Coefficient of Determination)	R ² CHANGE (Change in R ²)	SIG.F CHANGE (Significance of Change)	Model Significance (ANOVA)
Model 1	0.200 (Explains 20%)	0.200	0.000	0.000 (Significant)
Model 2	0.230 (Explains 23%)	0.030	0.011	0.000 (Significant)

Analysis:

- **Explanatory Power (R²):** Model 1 explains 20% of the variance in DDB. This explanatory power increased to **23%** in Model 2 after the addition of the interaction terms.
- **Moderation Effect:** The value of the R² Change is **0.030**, indicating that the interaction terms (representing the moderating role of DR) added **3%** to the model's ability to explain DDB.
- **Statistical Significance of Moderation:** The significance level of the change (SIG.F CHANGE) is **0.011**, which is **statistically significant** ($p < 0.05$). This confirms that the 3% incremental explanatory power is a robust finding, thus **confirming that Digital Resilience plays a moderating role** in the relationship between Internet addiction and the diversity of deviant behavior.

2. Analysis of Regression Coefficients (Model 2)

Interaction Variable	Coefficient (B)	Significance (Sig)	Interpretation
IA × Medium Resilience	0.070	0.737	Not statistically significant.
IA × Good Resilience	-0.150	0.452	Not statistically significant.
IA × High Resilience	-0.189	0.341	Not statistically significant, but the sign is negative.

Analysis: Although the overall Hierarchical Regression test showed that the set of interaction variables collectively was important (as per the R² Change in the previous section), examining each interaction **individually** revealed that none reached the threshold for statistical significance ($p > 0.05$) in this specific model. Nevertheless:

- **Theoretical Direction:** The coefficient **B** for the interaction "IA × **High Resilience**" is **negative (-0.189)**. This indicates a **mitigating** (negative) trend in the relationship, suggesting that high DR tends to **weaken** the positive (harmful) effect of Internet addiction on deviant behavior. This direction **supports the fundamental hypothesis** of the study, even if the finding lacks strong individual statistical confirmation within this model.

3. Discussion of General Results

The study's findings align with the problem statement, confirming that Digital Resilience performs a **significant positive role as a moderator** (with the model's explanatory power increasing by 3% with strong statistical significance) (Anderson et al., 2023; Liu & Wang, 2024). This role establishes DR as a **protective factor** that reduces the negative impact of Internet addiction. This is consistent with previous research indicating that individuals with better self-control skills (related to resilience) were less susceptible to the negative outcomes of digital addiction (Kuss & Griffiths, 2022; Zhang et al., 2023).

Despite the overall significant moderation, the lack of individual significance for the interaction terms may be attributed to the **intensity of the addiction effect** itself. Contemporary literature suggests that Internet addiction deeply affects the psychological health of adolescents (Caplan, 2023), implying that its impact may extend to levels that are difficult to mitigate completely through a single factor like Digital Resilience alone. Furthermore, prior studies (Mubarak et al., 2017; Ekizian et al., 2024) affirm the strong link between Internet addiction and deviant behaviors, reinforcing the necessity for multiple moderating factors (such as social support and digital literacy) to counter this profound impact.

Conclusion and Recommendations

Conclusion

This study focused on analyzing the importance of **Digital Resilience** as a moderating variable in the relationship between Internet addiction and the diversity of deviant behaviors in middle school students. Despite the concept's novelty in the Arab context, the statistical analysis using **Hierarchical Regression** confirmed that Digital Resilience plays a **significant role in moderating** and reducing the negative effect of Internet addiction on deviant behaviors. The results revealed that groups with **high Digital Resilience** demonstrated a greater capacity to control deviant behavior related to Internet use compared to those with lower levels. The study also noted that the rates of Internet addiction and deviant behaviors in the Algerian sample might be lower than those reported in Western studies,

opening avenues for future research into different cultural contexts and their influence on digital behavior.

Recommendations

Based on these findings, the study offers a set of practical and scientific recommendations:

1. **Construct and standardize** a comprehensive Digital Resilience scale suitable for the Algerian and broader Arab environments to obtain more accurate results.
2. **Conduct further studies** on Digital Resilience and its relationship with other contemporary variables, such as emerging cybercrimes, organized crime, and gender identity issues, given the scarcity of research in the Arab world, especially Algeria.
3. **Develop training programs** to teach **Digital Resilience skills** in schools to curb phenomena of digital deviance and cybercrime.
4. **Integrate educational materials** focused on the digital domain (e.g., e-skills, digital security, digital risks) into the **pedagogical curriculum** in early educational stages.
5. **Establish a follow-up system** for students exhibiting high-risk factors, with attention to those with moderate and low risks, ensuring intervention aligns with the level of digital risk.
6. **Support future research** that utilizes broader samples and different age groups, focusing on complex digital risk factors and preventive methods.

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