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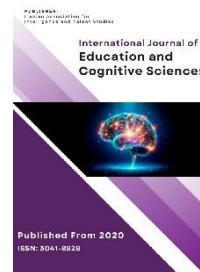
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## Investigating the Predictive Role of Temperament and Character Strengths in Students' Resilience

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### ABSTRACT

**Purpose:** The aim of the present study was to examine the predictive role of temperament and character strengths on resilience among students of the Islamic Azad University, Kermanshah Branch.

**Methods and Materials:** This study was correlational in nature and employed a descriptive-analytical method. The statistical population included all students enrolled during the 2016–2017 academic year, from which 129 individuals were selected using a cluster random sampling method. The research instruments consisted of the Connor-Davidson Resilience Scale (CD-RISC) and Cloninger's Temperament and Character Inventory (TCI). Data analysis was conducted using Pearson correlation and regression analysis via SPSS version 19.

**Findings:** The results of the Pearson correlation test showed a significant and positive relationship between the components of temperament and character and resilience ( $R = 0.52$ ,  $p < 0.01$ ). Moreover, regression analysis indicated that character components accounted for 23% and temperament components for 13% of the variance in resilience.

**Conclusion:** The findings suggest that personality—particularly the character dimension—plays a significant role in enhancing resilience levels.

**Keywords:** *Temperament, Character, Resilience.*

## 1. Introduction

Resilience, the capacity to adapt successfully in the face of adversity, trauma, or significant sources of stress, has become a central focus of psychological research, especially within academic settings where students face substantial challenges related to academic pressure, social adjustment, and future uncertainties. As Masten (2001) aptly described it, resilience is "ordinary magic"—a common yet essential human capacity that can be fostered under the right psychological and environmental conditions (Masten, 2001). Understanding what contributes to this capacity, particularly among university students who are at a pivotal developmental stage, is crucial for enhancing mental health and educational success. Personality traits, including both temperament (biologically based tendencies) and character (learned patterns shaped by environment and values), have been identified as significant psychological correlates of resilience (Cloninger, 1994; Cloninger et al., 2021).

Cloninger's psychobiological model of personality provides a comprehensive framework for understanding how individual differences in temperament and character contribute to adaptive functioning. This model posits that temperament reflects heritable emotional responses such as novelty seeking, harm avoidance, reward dependence, and persistence, whereas character refers to higher-order personality traits—self-directedness, cooperativeness, and self-transcendence—that develop over time and reflect individual goals and values (Cloninger, 1994; Cloninger et al., 1994). According to Cloninger et al. (2021), the interplay between temperament and character dimensions influences psychological outcomes including resilience, coping, and well-being (Cloninger et al., 2021). Recent empirical studies support the relevance of this framework in educational contexts. For instance, Dai (2024) found that psychological resilience buffered the effects of negative workplace dynamics, demonstrating its applicability across life domains, including academic and occupational settings (Dai, 2024).

The role of personality in resilience has also been supported in neurobiological and clinical studies. Kampman and Poutanen (2011) emphasized that temperament dimensions can predict both the onset and recovery from depression, suggesting their predictive validity in both maladaptive and adaptive processes (Kampman & Poutanen, 2011). Similarly, Josefsson et al. (2011) demonstrated that character traits like self-directedness and cooperativeness are positively correlated with well-being and psychological

resilience in general populations (Josefsson et al., 2011). These findings align with broader models of personality-resilience associations and indicate the necessity of further research in academic samples, particularly among students who are vulnerable to both internal (e.g., emotional instability) and external (e.g., academic stress) threats to their psychological well-being.

In Iranian academic contexts, several scholars have explored the intersection of resilience and personality traits. Narimani and Abolghasemi (2017), for instance, identified a significant positive relationship between self-directedness and resilience among university students, highlighting the importance of character development in promoting adaptive responses (Narimani & Abolghasemi, 2017). Similarly, Haqshenas and Shams (2011) found that students with higher levels of harm avoidance and lower novelty seeking exhibited more avoidant coping strategies and less resilience, emphasizing the relevance of temperament in determining students' coping profiles (Haqshenas & Shams, 2011). The Iranian validation of the Temperament and Character Inventory (TCI) by Kavyani and Poornasih (2005) also provided a culturally appropriate psychometric foundation for examining these constructs in Persian-speaking populations (Kavyani & Poornasih, 2005).

Resilience has also been shown to be a critical predictor of academic and emotional outcomes in students. Ghasemi and Miri (2023) reported that academic resilience, combined with ethical commitment, significantly predicted students' academic success (Ghasemi & Miri, 2023). Zimmerman (2002) proposed that self-regulation—a metacognitive function closely linked to self-directedness—serves as a mediating mechanism through which resilience enhances academic performance (Zimmerman, 2002). Furthermore, Rahimpour et al. (2023) examined resilience in student-teachers and found that resilience positively predicted perseverance and commitment to teaching, reinforcing its developmental and professional implications (Rahimpour et al., 2023). These findings indicate that resilience is not a standalone trait but rather a dynamic capacity shaped by personality dispositions and cultivated through experience and environment.

Integrative models of resilience now increasingly emphasize the role of psychological training and personality awareness. Schleider (2024) advocated for integrating resilience-building interventions into educational curricula, underscoring that strategies like cognitive reframing and values-based goal-setting are essential tools that should be taught universally (Schleider, 2024). In a similar vein,

Karimi Dastaki and Mahmudi (2024) demonstrated the effectiveness of meaning-centered workshops in enhancing resilience and reducing negative affect in students, further supporting the teachable nature of resilience when aligned with personal values and character strengths (Karimi Dastaki & Mahmudi, 2024). The inclusion of character development in such interventions could be crucial, given the strong empirical ties between character traits and adaptive functioning.

The relevance of character dimensions, particularly self-directedness and cooperativeness, is further supported by studies on emotional regulation and psychological health. Saidi et al. (2011) found that family spirituality and effective communication mediated the link between character traits and resilience in youth, reinforcing the interaction between individual and contextual resources (Saidi et al., 2011). Moghanloo and Valivand (2022) also observed that resilience mediated the relationship between personality traits and addiction potential, suggesting that resilience is a key pathway through which personality exerts its protective effects (Moghanloo & Valivand, 2022). Moreover, FooladiArdakani and ChoobforoushZadeh (2023) showed that resilience training programs that incorporate self-compassion can significantly reduce psychological distress in vulnerable populations, demonstrating the malleability of resilience capacities when character strengths are activated (FooladiArdakani & ChoobforoushZadeh, 2023).

It is also important to consider how broader life contexts—such as occupational or sociocultural environments—moderate the relationship between personality and resilience. Yang and Lee (2023), in the context of the COVID-19 pandemic, found that resilient employees with proactive personalities were more likely to resist career change intentions in turbulent times (Yang & Lee, 2023). Similarly, Mamcarz (2023) explored how spiritual fitness mediates the relationship between personality traits and risky driving, indicating that personality-resilience mechanisms are pervasive across domains (Mamcarz, 2023). These findings suggest that the interaction of temperament and character with resilience may vary depending on the specific challenges individuals face.

Given these theoretical insights and empirical findings, the present study aims to examine the predictive role of temperament and character strengths in explaining resilience among female postgraduate students. This target population is especially relevant, as they often face compounding academic, social, and cultural challenges during their

transition to professional roles. Research by Soltani et al. (2024) showed that personality traits influence both problem-solving and academic help-seeking behaviors in female students, underscoring the importance of understanding individual differences in this demographic (Soltani et al., 2024). Additionally, Dabholkar et al. (2024) found that gender interacts with personality to shape coping mechanisms and ego-resilience among medical interns, further supporting the value of gender-specific psychological assessments (Dabholkar et al., 2024).

Furthermore, recent studies emphasize the role of demographic and developmental factors in shaping resilience outcomes. Linnemann et al. (2022) identified childhood trauma, personality dimensions, and self-rated health as significant correlates of outcome resilience in middle-aged adults, implying that early and ongoing personality development has long-term consequences (Linnemann et al., 2022). Khalilnejad Narmigh and Abolmaali (2023) also revealed that readiness for behavioral change is predicted by basic beliefs and personality traits, mediated by self-determination—a character-related process that echoes Cloninger's conceptualization (Khalilnejad Narmigh & Abolmaali 2023).

In conclusion, the existing body of literature consistently supports the theoretical proposition that personality—especially in its psychobiological structure of temperament and character—is intricately linked to resilience. Both cross-sectional and intervention-based studies emphasize that character strengths like self-directedness and cooperativeness are not only predictors of resilience but are also cultivable traits that can be enhanced through education and self-awareness. However, few studies have comprehensively explored these relationships among female postgraduate students in the Iranian academic context, a gap this study seeks to address. The aim of the present study was to examine the predictive role of temperament and character strengths on resilience among students of the Islamic Azad University, Kermanshah Branch.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study was applied in terms of its aim and correlational-analytical in terms of its method. The research population included all female postgraduate (master's level) students in the fields of psychology, counseling, and educational sciences (210 individuals) enrolled during the 2016–2017 academic year. Based on the number of students

in the population and using Morgan's table, a sample of 129 female students from the Islamic Azad University, Kermanshah Branch, was selected. The sampling method used in this study was multistage cluster sampling. Specifically, out of five existing academic disciplines at the university, three were randomly selected, and approximately 43 students from each discipline were randomly included in the study.

To this end, necessary coordination was conducted with the university's president and relevant administrative staff of the Islamic Azad University, Kermanshah Branch, in order to obtain an introduction letter and permission to distribute the questionnaires among students. After completing the administrative procedures, determining the sample size and framework, and gaining access to students, the study purpose was explained to the participants. Their trust and consent were obtained by assuring them of the confidentiality of their information, after which the questionnaires were distributed. Subsequently, instructions regarding how to correctly respond to the items were also provided.

## 2.2. Measures

### 2.2.1. Connor-Davidson Resilience Scale (CD-RISC)

Developed by Connor and Davidson (2003) based on a review of resilience literature from 1979 to 1991, this scale consists of 25 items. Responses are scored on a 5-point Likert scale ranging from 0 to 4, where 0 = not true at all, 1 = rarely true, 2 = sometimes true, 3 = often true, and 4 = true nearly all of the time. The total score ranges from 0 to 100, with higher scores indicating greater resilience. The overall resilience score is categorized into four levels: 0–25, 26–50, 51–75, and 76–100. Samani et al. reported a Cronbach's alpha of 0.87 for this scale among students. Abolghasemi also reported a Cronbach's alpha of 0.87 for the scale (Karimi Dastaki & Mahmudi, 2024).

### 2.2.2. Temperament and Character Inventory (TCI)

Developed by Cloninger, Przybeck, Svrakic, and Wetzel in 1994, this inventory assesses biological/genetic temperament and acquired character traits. It includes 125 true-false items, scored in binary format (0 and 1). According to Kavyani and Pournasah (2005), internal consistency coefficients for the seven subscales of this questionnaire range from 0.55 to 0.80, and test-retest reliability coefficients range from 0.73 to 0.90. The correlations among the four temperament subscales and the three character subscales are generally weak to moderate (below 0.40), except for the correlation between self-directedness and harm avoidance, which exceeds 0.40. The only inter-character subscale correlation exceeding 0.40 is between cooperativeness and self-directedness (Kavyani & Pournasih, 2005).

## 2.3. Data Analysis

Data were analyzed using both descriptive and inferential statistics. The descriptive statistics section included central tendency and dispersion indices. In the inferential statistics section, Pearson correlation and stepwise multiple regression methods were used to analyze the data. Data analysis was conducted using SPSS software version 19.

## 3. Findings and Results

Based on the descriptive analysis of the sample group data, approximately 66% of participants were married, and 34% were single; about 68% were employed, while the rest were unemployed. The highest frequency of participants fell within the age range of 26 to 30 years (approximately 63%).

To apply inferential statistical methods for data analysis, it was necessary to examine certain assumptions, the most important of which is the normality of the data. To assess the normality of the data, the Kolmogorov–Smirnov test was used. The results of this test are shown in Table 1.

**Table 1**

*Mean, Standard Deviation, and Kolmogorov–Smirnov Test Results*

Variable	N	Mean	Standard Deviation	Z Statistic	Significance Level
Resilience	129	76.41	8.35	0.92	0.35
Temperament	129	51.40	4.13	1.28	0.07
Character	129	54.00	4.26	1.15	0.14
Temperament & Character	129	105.40	6.81	1.01	0.28

According to Table 1, since the Z statistic for none of the research variables is statistically significant ( $p > 0.05$ ), it can

be concluded that the distribution of the variable scores is normal, thus satisfying the assumption of normality.

Therefore, parametric tests can be used to examine the research questions.

To investigate the predictive role of temperament and character strengths in students' resilience, given that the

statistical assumptions were met, Pearson correlation and regression analyses were used. The results are presented below.

**Table 2**

*Pearson Correlation Test Results Between Resilience and Temperament & Character*

Variable	Correlation Coefficient (r)	Significance Level
Temperament & Character	0.52	0.001

Based on Table 2, the correlation coefficient between temperament and character and resilience is 0.52, which is statistically significant at the 0.01 level. The positive and significant correlation between these two variables indicates that the higher the level of temperament and character

strengths, the greater the likelihood of higher resilience. According to this result, it can be stated that there is a positive and significant relationship between resilience and temperament and character strengths ( $p < 0.01$ ).

**Table 3**

*Regression Model Summary Based on Research Variables*

Predictor Variable	Multiple Correlation Coefficient (R)	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard Error of Estimate (S.E.E)
Temperament & Character	0.528	0.279	0.275	7.12

In Table 3, the R<sup>2</sup> value indicates that temperament and character explain approximately 27% of the variance in resilience. To assess the significance of the regression—that is, whether the predictor variable can significantly predict

the criterion variable—analysis of variance (ANOVA) and the F-test were used. The results of this analysis are presented below.

**Table 4**

*One-Way ANOVA Results for Predictor Variable*

Predictor Variable	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance Level
Temperament & Character	2494.46	1	2494.46	49.20	0.001

According to the results of the data analysis, the obtained F-value for the temperament and character variable is significant at the 0.01 level ( $p < 0.01$ ). This indicates that temperament and character have a significant impact on the

presence or absence of optimal resilience. To examine the extent of the effect of the predictor variable on resilience, refer to the following regression coefficients table.

**Table 5**

*Regression Coefficients*

Variable	B	Standard Error	$\beta$	t	Significance Level
Temperament & Character	0.648	0.092	0.528	7.014	0.001

In the above table, the B and  $\beta$  values represent the unstandardized and standardized regression coefficients, respectively, indicating the extent of the predictor variable's effect in the regression equation. Accordingly, the effect of temperament and character in the equation is 0.648. This

means that, holding all other variables constant, a one-unit increase in temperament and character results in a 0.92 unit increase in resilience. The t-test value also shows that this variable's effect in the regression equation is statistically significant ( $t = 7.014, p < 0.001$ ).



#### 4. Discussion and Conclusion

The primary objective of this study was to examine the predictive role of temperament and character traits in determining the level of resilience among female postgraduate students. The findings revealed a statistically significant and positive relationship between temperament and character strengths and resilience ( $r = 0.52$ ,  $p < 0.01$ ). Additionally, the regression analysis indicated that temperament and character together accounted for approximately 27.9% of the variance in resilience ( $R^2 = 0.279$ ). These results underscore the substantial role that individual differences in personality dimensions play in fostering adaptive capacities in challenging academic and life contexts.

The significant correlation between temperament and character traits and resilience is in line with Cloninger's psychobiological model, which posits that character dimensions—particularly self-directedness and cooperativeness—serve as key predictors of psychological health and adaptive coping (Cloninger, 1994; Cloninger et al., 2021). The current study's results reaffirm this conceptual framework by showing that students with stronger personality profiles tend to exhibit higher resilience levels. This finding is consistent with the research by Josefsson et al. (2011), which demonstrated that individuals with higher self-directedness and cooperativeness report greater psychological well-being and resilience (Josefsson et al., 2011). Similarly, Kampman and Poutanen (2011) highlighted that temperament traits could serve as predictive markers for both vulnerability to depression and recovery trajectories, further validating the connection between personality and adaptive functioning (Kampman & Poutanen, 2011).

The findings also mirror those from the Iranian academic context. Narimani and Abolghasemi (2017) reported a positive association between the character dimension of self-directedness and resilience among university students, aligning closely with the results of the current study (Narimani & Abolghasemi, 2017). Moreover, Haqshenas and Shams (2011) identified significant associations between temperament traits—such as harm avoidance and novelty seeking—and coping mechanisms, suggesting that personality traits directly shape how individuals respond to stressors (Haqshenas & Shams, 2011). These findings are further corroborated by Kavyani and Poornasih's (2005) validation of the Temperament and Character Inventory (TCI) for the Iranian population, which established the

reliability of Cloninger's model for use in culturally diverse contexts (Kavyani & Poornasih, 2005).

The explanatory power of the regression model ( $R^2 = 0.279$ ) suggests that temperament and character traits, while significant, are not the sole predictors of resilience. This aligns with the multifactorial nature of resilience, which is influenced by intrapersonal, interpersonal, and environmental variables. For instance, Masten (2001) introduced the idea of “ordinary magic” to describe resilience as a product of normal developmental processes that interact with both stable traits and dynamic systems (Masten, 2001). In this regard, the findings of the present study do not negate the influence of external factors such as family support or socio-economic stability but rather highlight the foundational role of personality.

In relation to educational success, the findings support the conclusion of Ghasemi and Miri (2023), who found that academic resilience is significantly influenced by both personality and ethical commitment (Ghasemi & Miri, 2023). Zimmerman (2002) similarly emphasized the importance of self-regulation—closely linked to self-directedness—in academic achievement (Zimmerman, 2002). The current findings add to this body of evidence by showing that students with well-formed character traits are more likely to be resilient, thus potentially enhancing their academic persistence and success.

Moreover, the significance of character dimensions in resilience is echoed in recent intervention studies. For example, Schleider (2024) advocated for embedding resilience training into educational curricula, citing personality-informed coping strategies as essential components of psychological preparedness (Schleider, 2024). In support, Karimi Dastaki and Mahmudi (2024) reported that life meaning workshops targeting personal values and identity significantly increased resilience in students (Karimi Dastaki & Mahmudi, 2024). These findings suggest that resilience is not only a static personality product but also a dynamic attribute that can be nurtured through targeted interventions aligned with individual character profiles.

This view is further strengthened by clinical studies demonstrating the malleability of resilience. FooladiArdakani and ChoobforoushZadeh (2023) found that integrating self-compassion into resilience training significantly reduced psychological distress in mothers of children with disabilities (FooladiArdakani & ChoobforoushZadeh, 2023). Their findings align with those of Saidi et al. (2011), who found that family spirituality and

communication quality mediated the relationship between character traits and resilience (Saidi et al., 2011). These studies reinforce the conclusion that although character strengths are relatively stable, their expressions and functions are enhanced through environmental and relational supports.

The broader implications of these findings are reflected in occupational psychology as well. Dai (2024) found that resilience plays a moderating role between workplace gossip and innovative behaviors, suggesting that resilient individuals are better able to navigate complex social environments (Dai, 2024). Similarly, Yang and Lee (2023) demonstrated that proactive personalities, when coupled with resilience, reduce turnover intentions in the hospitality industry during crises like the COVID-19 pandemic (Yang & Lee, 2023). In both cases, the synergistic effect of personality and resilience leads to enhanced adaptation, which mirrors the findings from the present academic sample.

Additional support for these findings comes from studies in health psychology. Linnemann et al. (2022) found that outcome resilience in middle-aged adults was influenced by early trauma, current personality traits, and perceived health (Linnemann et al., 2022). Likewise, Mamcarz (2023) suggested that spiritual fitness acts as a mediator between personality traits and behavioral outcomes such as risky driving (Mamcarz, 2023). These results collectively suggest that personality-related resilience outcomes are not only applicable in academic environments but also hold relevance in various real-world contexts, strengthening the external validity of the current study.

The relationship between resilience and personality has also been explored in the context of psychological risk and protective factors. Moghanloo and Valivand (2022) illustrated that resilience mediates the relationship between five-factor personality traits and addiction potential among students, highlighting its protective role against maladaptive behaviors (Moghanloo & Valivand, 2022). This finding resonates with the current study's conclusion that fostering character strengths in students can serve as a buffer against psychological distress. Dabholkar et al. (2024) further supported the importance of gender in resilience-personality dynamics, showing that male and female interns differ in the degree to which personality traits predict coping and academic success (Dabholkar et al., 2024). Since the current study focused solely on female students, the role of gender must be further explored in future investigations.

Additionally, the findings of the present study complement those of Soltani et al. (2024), who showed that problem-solving and academic help-seeking behaviors were significantly associated with specific personality traits in female students (Soltani et al., 2024). Similarly, Khalilnejad Narmigh and Abolmaali (2023) found that personality traits predicted behavioral readiness for change, mediated by self-determination—again confirming that personality exerts a foundational influence on adaptive behavior (Khalilnejad Narmigh & Abolmaali 2023).

Taken together, the findings of this study provide compelling evidence that temperament and character traits play a significant predictive role in determining students' resilience. While personality traits are not the sole determinants of resilience, they constitute essential psychological resources that interact with contextual and relational factors to shape one's capacity to cope, adapt, and thrive.

Despite the valuable insights generated by this study, several limitations must be acknowledged. First, the cross-sectional design limits the ability to draw causal inferences between personality traits and resilience. Longitudinal studies would be more appropriate for assessing changes in resilience over time as influenced by personality. Second, the sample consisted exclusively of female postgraduate students from a single university, limiting the generalizability of the findings to other populations, including male students or individuals at different educational levels. Third, the study relied on self-report questionnaires, which may be subject to social desirability bias or inaccurate self-perceptions. Lastly, other potentially influential variables—such as emotional intelligence, family support, and cultural values—were not examined and could have moderated the observed relationships.

Future studies should employ longitudinal designs to explore the development of resilience over time and its interaction with evolving personality traits. Comparative studies between male and female participants would also help clarify the moderating role of gender. Expanding the sample across multiple academic disciplines and institutions would enhance generalizability. Additionally, incorporating qualitative methods such as in-depth interviews or narrative analysis could provide richer, contextually grounded insights into how students perceive their own resilience and personality traits. Finally, future research should examine the mediating and moderating effects of other psychological variables such as emotional regulation, self-efficacy, and

social support to build a more comprehensive understanding of resilience development.

Based on the findings of this study, educational institutions should consider integrating personality assessments into student development programs to identify individual strengths and vulnerabilities. Training programs aimed at enhancing character dimensions such as self-directedness and cooperativeness may be especially effective in building resilience. Counseling centers at universities can use these insights to tailor interventions that align with students' personality profiles, thereby improving their psychological readiness to face academic and life challenges. Additionally, resilience-building curricula, which incorporate experiential learning, values clarification, and reflective practices, can be embedded into student orientation and ongoing development workshops to support both academic success and emotional well-being.

### Authors' Contributions

All authors significantly contributed to this study.

### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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### Declaration of Interest

The authors report no conflict of interest.

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### Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance

of the research before the start of the interview and participated in the research with informed consent.

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