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# Structural Model Explanation of the Relationship Between Early Maladaptive Schemas and Adaptation in Students: The Mediating Role of Coping Strategies

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A B S T R A C T

Early maladaptive schemas lead to biases in individuals' interpretations of events, and these biases influence how individuals cope with events and the extent of their adaptation. The aim of the present study was to explain the structural model of the relationship between early maladaptive schemas and adaptation in students, with the mediating role of coping strategies. This was a correlational analytical study. The statistical population of the study included all students enrolled at the Islamic Azad University, Arak Branch, in the first half of 2022. Among them, 443 students were selected using voluntary sampling. The research tools included the Young Schema Questionnaire (1998), the Coping Styles Questionnaire by Folkman and Lazarus (1985), and the Bell Adaptation Questionnaire (1939). Data analysis was performed using path analysis and the software SPSS 24 and Amos 24, with a significance level of 0.05. The results of the study showed that the proposed model had a good fit with the collected data ($\chi^2$ = 244.65, df/$\chi^2$ = 3.45, CFI = 0.948, GFI = 0.931, AGFI = 0.898, RMSEA = 0.075). In this study, emotion-focused coping strategies (P < 0.001, β = 0.82) and problem-focused coping strategies (P < 0.001, β = 0.75) significantly mediated the relationship between early maladaptive schemas and adaptation. The findings of the study indicated that there is a significant relationship between early maladaptive schemas and adaptation in students, with problem-focused and emotion-focused coping strategies mediating this relationship.

***Keywords:*** *Coping strategies, adaptation, early maladaptive schemas.*

## 1. Introduction

Higher education plays a pivotal role in producing qualified human resources, which in turn facilitates the solution of real-life problems in society. By bringing about changes, higher education improves health and livelihood, and contributes to social stability. Considering that individuals with higher education have access to more economic and social opportunities, higher education is capable of creating a knowledgeable and skilled human capital, which serves as a driving force for economic growth and aids in development. However, acquiring knowledge, attitudes, values, and skills through education is not an easy task; rather, it is a long and challenging journey in life. It is expected that students spend the majority of their time studying and graduate with good academic results (Tadese et al., 2022). The period of study is a time in life during which rapid cognitive and social changes occur for students. Therefore, one of the key challenges during this period, regarding academic success, is to generate motivation and develop the necessary skills for students to cope with academic challenges (Ahmadi et al., 2022).

One of the variables that may increase students' vulnerability due to cognitive and emotional disabilities is problems in adaptation, particularly with regards to academic adaptation. Individuals who face difficulties in adaptation are likely to encounter problems in other aspects of adaptation and even in other areas of life (Yang, 2022). Adaptation refers to the individual traits that each person uses to manage psychological, emotional, and social aspects to improve their life. The process of adaptation to a chronic illness is dynamic and constantly influenced by personal and environmental stimuli (Chan et al., 2009). Adaptation also refers to an individual's ability to adjust to the conditions, requirements, and roles that the environment, as a social institution, imposes on them (Sánchez-Sandoval & Verdugo, 2022). Research results indicate a positive and significant relationship between adaptation and self-esteem, academic performance (Liu, 2013), life satisfaction in students (Prokopenko & Vera, 2022), quality of life, and academic motivation of graduate students (Wong & Liao, 2022), sleep quality (Chen et al., 2022), emotional resilience, and perceived stress management (Hu et al., 2023), as well as better social and family functioning (Schulte et al., 2022).

Numerous factors play a role in individual and social adaptation, as emphasized by various psychological theories and perspectives (Quero et al., 2023). Social-cognitive theories emphasize individuals' expectations of events and beliefs about themselves, and according to cognitive frameworks, schemas are one of the key cognitive structures that shape each individual's view of their life. These schemas can significantly influence their perception of their environment and thus their interpretation of life events (Bourdon et al., 2019; Farrell et al., 2017). Schemas are conceptualized as "highly stable and enduring patterns composed of memories, emotions, cognitions, and bodily sensations about oneself and one's relationship with others" that develop during childhood and are often maladaptive (Piadeh Amarghan et al., 2023; Vafayi Ghoshooni & Koochak Entezar, 2021). Generally, a schema is an abstract construct or a pattern of distinct elements of an object or event that influences how incoming information is organized and understood (Piadeh Amarghan et al., 2023). These schemas encompass beliefs, views, and expectations about oneself, others, and the world, giving shape and meaning to relationships, helping in the understanding of emotional experiences, and hindering the development of adequate emotional and interpersonal skills (Kaya Tezel et al., 2015). Maladaptive schemas may exist in individuals as core beliefs that guide their future assumptions about themselves and the world. These schemas may continue to exist unconsciously unless activated by a stressful or triggering situation. The activation of maladaptive schemas can directly impact future behavioral responses and interpersonal associations, thereby increasing the risk of psychological pathology (Rafaeli et al., 2014; Sadooghi et al., 2008).

These schemas act as guides for cognitive processes in situations such as attention, event interpretation, and memory retrieval. Cognitive structures organize the foundation of human thought and behavior (Farrell et al., 2017). Early maladaptive schemas affect individuals' perceptions of their environment, creating cognitive distortions that distort their reality and lead them to view events and environments through incorrect and unrealistic attitudes, assumptions, and expectations (Rafaeli et al., 2014). Early maladaptive schemas are inflexible and dysfunctional emotional-cognitive patterns that form within interpersonal relationships and are reflected in these relationships (Kaya Tezel et al., 2015). Early maladaptive schemas arise from unmet emotional needs in childhood and are grouped into five broad areas: 1) Disconnection and rejection, 2) Impaired autonomy and performance, 3) Impaired limits, 4) Other-directedness, and 5) Over-vigilance and inhibition (Young et al., 2006). In this regard, Ha and Park argued that early maladaptive schemas play a major role in psychological and social vulnerability,



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including in suicidal thoughts and attempts (Ha & Park, 2022).

Early maladaptive schemas cause biases in individuals' interpretations of events, and these biases influence how they cope with these events (Piadeh Amarghan et al., 2023). Bourdon et al. concluded that if individuals use effective coping strategies, they can adapt appropriately to stressful and challenging life events and be less susceptible to psychological damage from maladaptive schemas, anxiety, failure, and other issues (Bourdon et al., 2019). Therefore, one of the processes that can play an important role in mediating the psychological effects of adaptation to the environment and new standards is coping strategies, as they determine how individuals will adapt to stressful events and recover afterward (Gardner et al., 2023). Coping involves all cognitive, emotional, and behavioral efforts to control, reduce, or tolerate internal or external demands (Stanisławski, 2019). Coping strategies include problem-focused and emotion-focused strategies. Problem-focused strategies refer to approaches that address the issue causing emotional distress, while emotion-focused strategies refer to those that regulate emotions (Zimmer-Gembeck & Skinner, 2023). In this context, Einanloo and Qamari, by examining male high school students in Karaj, found a positive and significant relationship between coping strategies and academic adaptation (Einanloo & Ghamari, 2021). Vafayi Ghoshooni and Koochak Entezar demonstrated that coping strategies could mediate the relationship between early maladaptive schemas and self-handicapping in adolescents (Vafayi Ghoshooni & Koochak Entezar, 2021).

Although there have been many theoretical and empirical efforts to identify factors related to adaptation, these efforts have less frequently focused on identifying the role of early maladaptive schemas and constructs rooted in childhood and individual development. When examining the relationship between early maladaptive schemas and adaptation, several individual factors could act as mediating variables. Given the importance of adaptation and the mutual effects this variable can have on both social and individual environments, and its importance in aligning an individual's role with societal norms and group standards, the present study aims to explain the structural model of the relationship between early maladaptive schemas and adaptation in students, with the mediating role of coping strategies.

## 2. Methods and Materials

### *2.1. Study Design and Participants*

The research method was analytical-correlational, employing path analysis. The statistical population of the present study consisted of all students enrolled at Islamic Azad University, Arak Branch, in the first half of 2022 (Gregorian Calendar). Based on the number of parameters depicted in the conceptual model of the study (14 parameters), the sample size was estimated to be 14 times the number of parameters, amounting to 434 participants. Considering the potential sample attrition, 444 participants were selected through voluntary sampling. After removing one incomplete questionnaire, the final sample size was 443 participants. Inclusion criteria for the study were the participant's consent to join the study, at least two years of academic study, and no conditional semesters in their academic record. Exclusion criteria included chronic physical disabilities and diseases, severe mental disorders, receiving psychotherapy or medication in the past year, and withdrawal from participation.

### *2.2. Measures*

#### *2.2.1. Early Maladaptive Schemas*

The Young Schema Questionnaire, developed in 1998, consists of 75 items and covers five schema domains: disconnection and rejection, impaired autonomy and performance, other-directedness, hypervigilance and inhibition, and impaired limits. Items are rated on a 6-point Likert scale, from "Strongly Agree" (6) to "Strongly Disagree" (1). The minimum score for this tool is 75, and the maximum score is 450, with higher scores indicating more maladaptive schemas. Waller et al. (2001) reported a Cronbach's alpha of 0.98 as an indicator of internal consistency and a correlation of 0.38 with bulimia nervosa in women, indicating convergent validity (Waller et al., 2001). In Iran, Sadooghi et al. (2008) reported a Cronbach's alpha of 0.94 for the entire instrument and between 0.62 and 0.90 for the five schema domains, based on exploratory factor analysis with varimax rotation (Sadooghi et al., 2008).

#### *2.2.2. Social Adjustment*

The Bell Adjustment Questionnaire, developed in 1939, consists of 32 items and assesses five domains of adjustment: home, job, health, emotional, and social adjustment, with responses of "Yes" (1) and "No" or "I Don't Know" (0). The minimum score is 0, and the maximum score is 32, with higher scores indicating less adjustment (Bell,



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1939). Abraham and Verghese (1986) reported correlations with the neuroticism component of the Eysenck Personality Questionnaire ranging from -0.25 to -0.50, indicating divergent validity (Abraham & Verghese, 1986). In the Iranian adaptation, Torkaman et al. (2018) reported a Cronbach's alpha of 0.81 and convergent validity with the California Individual-Social Adjustment Scale, with values ranging from 0.79 for home adjustment to 0.91 for social adjustment (Torkaman et al., 2018).

#### *2.2.3. Coping Strategies*

The Coping Styles Questionnaire, developed by Folkman and Lazarus in 1985, contains 66 items. It categorizes coping strategies into emotion-focused coping (items 6, 7, 17, 28, 34, 46), avoidance (items 12, 13, 15, 21, 41, 44), self-restraint (items 10, 14, 35, 43, 54, 62, 63), and problem-focused coping (items 8, 18, 22, 31, 42, 45) with social support seeking (items 9, 25, 29, 51), responsibility (items 1, 26, 39, 48, 49, 52), planned problem-solving (items 20, 23, 30, 36, 38, 56, 60) on a four-point Likert scale from "Never" (0) to "Always" (3). The minimum score is 0, and the maximum score is 198 (Folkman & Lazarus, 1985). Folkman and Lazarus reported Cronbach's alphas ranging from 0.59 to 0.88 for this instrument. Clark et al. (1995) reported a correlation of 0.95 with the Coping Styles Questionnaire and 0.68 with the Multidimensional Coping Inventory, indicating convergent validity. Padyab (2012) reported Cronbach's alpha between 0.60 and 0.84 in the Iranian adaptation of this tool.

### *2.3. Data analysis*

After familiarizing the participants with the research objectives and ensuring the confidentiality of personal information, they provided their consent and entered the study. Because participants were consciously enrolled in the study at the final stage, their informed consent was sufficient, and formal permission was not obtained for conducting the research. The collected data were analyzed using path analysis, with SPSS 24 and AMOS 24 software. The data were analyzed using maximum likelihood estimation and bootstrapping with a significance level of 0.05, and fit indices, including Chi-square (with p-value > 0.05), Root Mean Square Error of Approximation (RMSEA < 0.08), Goodness of Fit Index (GFI > 0.95), Adjusted Goodness of Fit Index (AGFI > 0.80), and Comparative Fit Index (CFI > 0.95), were considered to assess model fit. For the present study, maximum likelihood estimation and bootstrapping were used to estimate total, direct, and indirect effects (Meyers, 2006).

## 3. Findings and Results

Table 1 presents the mean, standard deviation, and correlation coefficients between early maladaptive schemas, problem-focused and emotion-focused coping strategies, and the students' adaptation.

**Table 1**

*Mean, Standard Deviation, and Pearson Correlation of Research Variables*

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | | | | | | | | | | | | | |
| 2 | 0.62 | - | | | | | | | | | | | | |
| 3 | 0.64 | 0.47 | - | | | | | | | | | | | |
| 4 | 0.59 | 0.52 | 0.45 | - | | | | | | | | | | |
| 5 | 0.47 | 0.66 | 0.61 | 0.53 | - | | | | | | | | | |
| 6 | -0.12 | -0.12 | -0.20 | -0.15 | -0.21 | - | | | | | | | | |
| 7 | -0.08 | -0.08 | -0.13 | -0.18 | -0.24 | -0.51 | - | | | | | | | |
| 8 | -0.13 | -0.11 | -0.18 | -0.16 | -0.19 | -0.53 | 0.58 | - | | | | | | |
| 9 | -0.10 | -0.05 | -0.16 | -0.14 | -0.10 | -0.46 | 0.63 | 0.41 | - | | | | | |
| 10 | -0.15 | -0.16 | -0.23 | -0.19 | -0.25 | 0.39 | -0.12 | -0.30 | -0.36 | - | | | | |
| 11 | -0.19 | -0.11 | -0.19 | -0.14 | -0.21 | 0.30 | -0.15 | -0.14 | -0.14 | -0.47 | - | | | |
| 12 | -0.11 | -0.17 | -0.25 | -0.18 | -0.23 | 0.33 | -0.29 | -0.23 | -0.25 | -0.62 | -0.41 | - | | |
| 13 | -0.12 | -0.12 | -0.18 | -0.16 | -0.14 | -0.17 | -0.08 | -0.03 | -0.16 | -0.48 | -0.31 | -0.63 | - | |
| 14 | -0.18 | -0.16 | -0.21 | -0.13 | -0.19 | 0.35 | -0.29 | -0.22 | -0.31 | -0.39 | -0.20 | -0.35 | -0.17 | - |
| Mean | 95.71 | 56.58 | 87.31 | 01.28 | 98.29 | 73.11 | 69.7 | 84.11 | 09.13 | 87.8 | 12.9 | 96.13 | 45.12 | 49.11 |
| Standard Deviation (SD) | 01.12 | 68.10 | 20.7 | 48.7 | 66.7 | 80.3 | 02.2 | 19.3 | 61.3 | 00.3 | 18.3 | 21.4 | 92.3 | 57.3 |

1. Schema - Disconnection/Abandonment; 2. Schema - Impaired Autonomy & Performance; 3. Schema - Other-Directedness; 4. Schema - Vigilance; 5. Schema - Impaired Limits; 6. Problem-Focused - Seeking Support; 7. Problem-Focused - Responsibility; 8. Problem-Focused - Problem-Solving; 9. Problem-Focused - Positive Reappraisal; 10. Emotion-Focused - Direct Coping; 11. Emotion-Focused - Avoidance; 12. Emotion-Focused - Escape-Avoidance; 13. Emotion-Focused - Self-Control; 14. Adaptation



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In the present study, 443 students (265 women and 178 men) participated, with a mean age of 23.91 ± 5.86 years. Among the participants, 304 (68.6%) were single, and 139 (31.4%) were married. Additionally, 28 participants (6.3%) were enrolled in an associate degree program, 225 (50.8%) were in a bachelor's program, 169 (38.1%) were pursuing a master's degree, and 21 (4.7%) were doctoral students.

Table 1 shows that there was a significant negative correlation between early maladaptive schemas and problem-focused coping strategies, and a significant positive correlation between early maladaptive schemas and emotion-focused coping strategies. There was a significant negative relationship between early maladaptive schemas and adaptation, and between emotion-focused coping strategies and adaptation. Conversely, problem-focused coping strategies had a significant positive relationship with adaptation.

**Table 2**

*Total and Direct Path Estimates Between Research Variables in the Structural Model*

| Path | Unstandardized Path Estimate | Standard Error | Standardized Path Estimate | p-Value |
|---|---|---|---|---|
| Early Maladaptive Schemas → Emotion-Focused Coping | 0.40 | 0.08 | 0.28 | < 0.001 |
| Early Maladaptive Schemas → Problem-Focused Coping | -0.26 | 0.07 | -0.20 | < 0.001 |
| Early Maladaptive Schemas → Adaptation | 0.06 | 0.16 | 0.02 | 0.726 |
| Emotion-Focused Coping → Adaptation | 0.70 | 0.17 | 0.29 | < 0.001 |
| Problem-Focused Coping → Adaptation | -0.96 | 0.20 | -0.37 | < 0.001 |
| Early Maladaptive Schemas → Coping Strategies → Adaptation | 0.52 | 0.12 | 0.16 | < 0.001 |

Table 2 shows that the direct path coefficient between emotion-focused coping ($p < 0.001$, $\beta = 0.29$) and adaptation was positive and significant, while the path coefficient between problem-focused coping ($p < 0.001$, $\beta = -0.37$) and adaptation was negative and significant. The direct path coefficient between early maladaptive schemas and emotion-focused coping ($p < 0.001$, $\beta = 0.28$) was positive and significant, and between early maladaptive schemas and problem-focused coping ($p < 0.001$, $\beta = -0.20$) was negative and significant. Coping strategies mediated the relationship between early maladaptive schemas and adaptation ($p < 0.001$, $\beta = 0.16$).

To determine the mediating role of each coping strategy, the Baron and Kenny formula was applied. The results showed that emotion-focused coping ($p < 0.001$, $\beta = 0.81$) and problem-focused coping ($p < 0.001$, $\beta = 0.74$) mediated the relationship between early maladaptive schemas and adaptation.

**Table 3**

*Fit Indices of the Structural Model*

| Goodness-of-Fit Indices | Structural Model |
|---|---|
| Chi-Square ($\chi^2$) | 244.65 |
| Normed Chi-Square ($\chi^2$/df) | 3.71 |
| Goodness-of-Fit Index (GFI) | 0.94 |
| Adjusted Goodness-of-Fit Index (AGFI) | 0.93 |
| Comparative Fit Index (CFI) | 0.90 |
| Root Mean Square Error of Approximation (RMSEA) | 0.048 |


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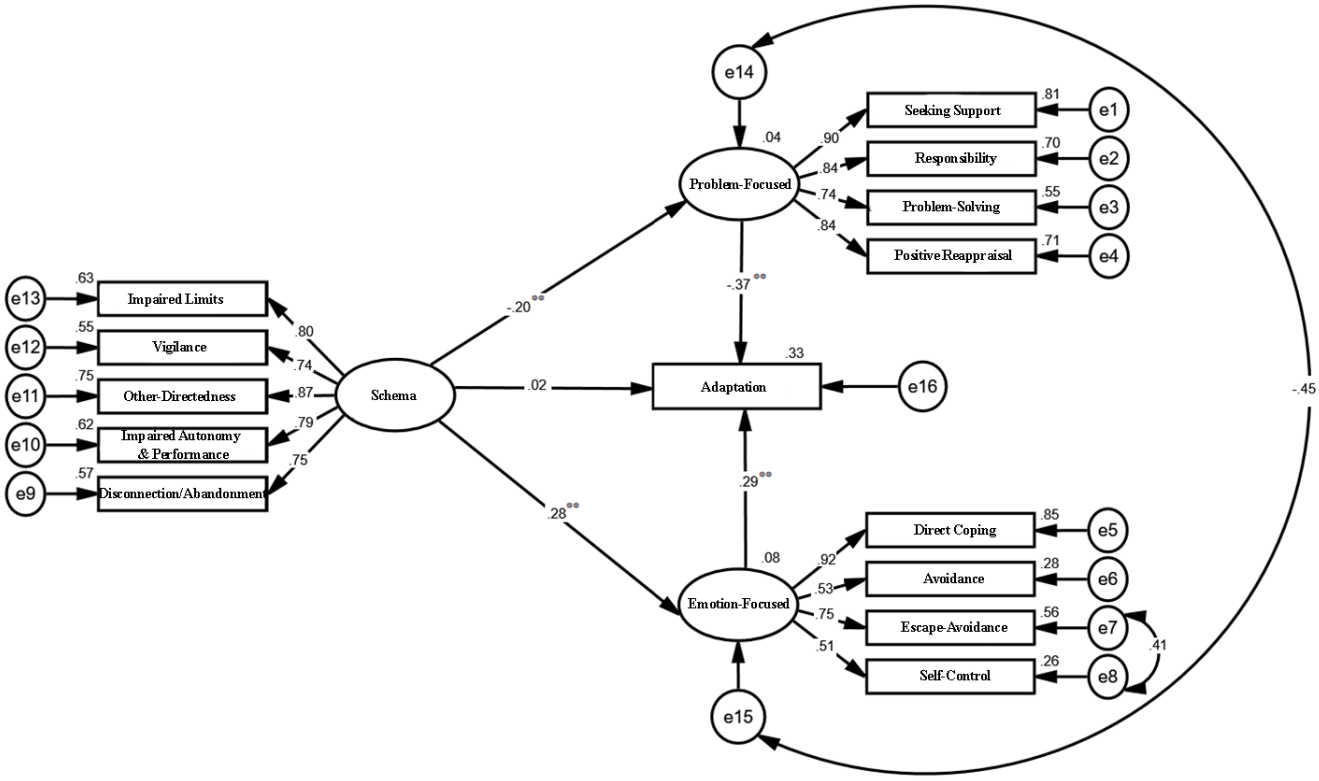
**Figure 1**

*Standardized Path Coefficients of the Model*




The results shows that the structural model exhibited a good fit with the collected data.

## 4. Discussion and Conclusion

The aim of the present study was to explain the structural model of the relationship between early maladaptive schemas and adjustment in students, with coping strategies as a mediator. The results of the present study showed a significant relationship between the maladaptive schemas of disconnection and rejection, self-direction and impaired functioning, other-directedness, hypervigilance, inhibition, and impaired limitations with students' adjustment, mediated by problem-focused and emotion-focused coping strategies.

In explaining the present findings, it can be stated that individuals perceive stress when they interpret situational demands as exceeding their capacity to cope. The perceived level of stress, an individual's ability, and confidence in coping with stress, as well as their current performance, are determined by their cognitive structures. When the deepest cognitive structures of schemas are activated, individuals typically experience high levels of emotions and employ different stress coping strategies that play an important role in adapting to stressful life events (Farrell et al., 2017). Coping styles or methods can manifest as cognitive, emotional, or behavioral responses. Individuals develop automatic processes to avoid schemas, including cognitive avoidance (automatic efforts to stop thoughts and images that may activate the schema), emotional avoidance (automatic or deliberate efforts to block feelings triggered by the schema), and behavioral avoidance, which involves withdrawing from situations or life circumstances that may activate painful schemas. Maladaptive schemas are more likely to lead individuals to use emotion-focused, unproductive coping strategies when dealing with stress-inducing and anxiety-provoking situations (Einanloo & Ghamari, 2021).

The presence of maladaptive schemas, which have emotional underpinnings, negatively impacts the process of identifying, understanding, and regulating emotions, leading to the use of emotion-focused coping strategies. Individuals with early maladaptive schemas, when facing stress-inducing stimuli and lacking cognitive flexibility, tend to persist in their beliefs despite contradictory evidence and employ ineffective problem-solving approaches, which have been identified as contributing to decision-making difficulties in response to environmental feedback.

Furthermore, they avoid using cognitive coping responses or strategies that facilitate effective problem-solving in stressful situations. Maladaptive behaviors, distorted self-image, and self-victimization in individuals with early maladaptive schemas lead to ineffective efforts to eliminate problems through emotion-focused strategies (Piadeh Amarghan et al., 2023).

Individuals with maladaptive schemas in the disconnection and rejection domain perceive themselves as inferior and incomplete, believing they lack the resources and abilities to cope effectively with stress-inducing situations and threats. These individuals, unable to regulate and manage their negative emotions due to adverse childhood experiences, engage in maladaptive (emotion-focused) coping strategies when confronted with stress-inducing situations and use these unhealthy strategies to try to regulate the activated negative emotions. Severe hypervigilance leads to significant impairments in various domains, such as attention. Close attention is strongly linked to working memory performance, which is negatively affected by the trait of anxiety. Severe anxiety results in deficits in the efficiency of executive functions that require attention, inhibition, and changes in executive functioning. Anxiety involves the persistent experience of intense unease for excessive periods. Individuals with high trait anxiety tend to worry excessively, leading them to avoid potential threats in an attempt to reduce negative emotions (Piadeh Amarghan et al., 2023). Interpersonally, individuals with early maladaptive schemas and excessive hypervigilance, due to their distrust and suspicion of others, benefit less from support, which in turn affects their ability to cope with stressful situations. Self-loathing and shame in individuals with self-direction and impaired functioning schemas lead to self-blame and pessimistic attribution styles, likely shaped by their negative beliefs about themselves. Individuals with self-direction schemas fear failure, and as a result, they avoid risks of making mistakes and engage less in life tasks. This fear of failure further weakens them and causes failure, which in turn creates discouragement, hopelessness, and breakdowns. Because they lack the ability to cope with stressful or critical situations, they cannot manage and regulate their emotions (Aftab et al., 2020). Individuals with impaired limitations schemas lack impulse control, self-discipline, and adaptability in stressful situations, relying on emotion-focused strategies. These strategies are linked to unstable self-esteem and negative consequences such as anxiety, guilt, and depression (Farrell et al., 2017). As a result, individuals with early maladaptive schemas have negative attitudes and self-evaluations, lacking self-efficacy, particularly in resolving psychological conflicts, and they experience feelings of helplessness. These destructive emotions affect an individual's adjustment to their environment. For individuals with other-directedness schemas, excessive obedience, helplessness, hopelessness, and feelings of loneliness may lead to a lack of problem-solving strategies (Vafayi Ghoshooni & Koochak Entezar, 2021).

Every study has its limitations. Some of the limitations of the present research are as follows: this study used self-report tools for measurement, which may have led participants to consciously or unconsciously present themselves in a more favorable light. Demographic characteristics of the participants, such as parental characteristics and socio-economic status, which the researcher had no control over, may have influenced the results. It is suggested that future researchers conduct qualitative studies using in-depth interviews to explore and identify other factors affecting academic performance. It is also recommended that future studies control or examine parental characteristics. The study should also be conducted on individuals from different socio-economic backgrounds.

The results of the present study showed a significant relationship between early maladaptive schemas and students' adjustment, mediated by problem-focused and emotion-focused coping strategies.

## Authors' Contributions

Authors contributed equally to this article.

## 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

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. This study is part of the doctoral dissertation of Ms. Leila Salari Moghadam, in the field of general psychology, supervised by Dr. Zabih Pirani at Islamic Azad University, Arak Branch. The study was registered on 29/09/2021 in the Pajouheshyar system with code 12114890036640573801316260087 8, and the financial support for the study was provided from personal sources.

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