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Original Article

Investigating the Mediating Role of Academic Self-Regulation in the Relationship between Risky Behaviors and Social Competence among High School Students with Learning Disabilities

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Abstract

Background: Strengthening students with self-efficacy in emotional management and self-regulation can be a potent deterrent against risky behaviors. This study sought to explore the mediating effect of academic self-regulation on the relationship between risky behaviors and social competence among high school students with learning disabilities (LDs).

Methods: This was a descriptive correlational study. The population encompassed all high school students with LDs in Ahvaz, Iran from February 2023 to April 2023. One hundred fifty-eight students were chosen using cluster sampling and received research questionnaires. The study tools comprised the Iranian Adolescents Risk-taking Scale (IARS), Social Competence Questionnaire (SCQ), and Academic Self-Regulation Questionnaire (SRQ-A). Using Structural Equation Modeling (SEM), the hypothesized model underwent evaluation, and bootstrapping was utilized to assess indirect relationships. Data analysis was conducted with SPSS version 26 and AMOS version 25.

Results: The mean and standard deviation (SD) for students' risky behaviors, social competence, and academic self-regulation were 86.75±12.39, 112.18±24.25, and 42.05±9.86, respectively. The findings highlighted a significant relationship between social competence and academic self-regulation (β=0.71, P<0.001) and between academic self-regulation and risky behaviors (β=-0.65, P<0.001). However, the direct link between social competence and risky behaviors was insignificant (β=-0.16, P=0.115). However, the relationship between social competence and students' risky behaviors became significant when mediated by academic self-regulation (P<0.001). In the final model, the values for CFI and RMSEA were 0.98 and 0.041, respectively.

Conclusion: The study's outcomes indicated that the final model was well-fitted and crucial for recognizing factors influencing risky behaviors in students with LDs. Enhancing social competence and academic self-regulation might offer a pathway to mitigate risky behaviors among these students.

Keywords: Health risk behaviors, Learning disabilities, Social

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1. Introduction

Learning disabilities (LDs) are childhood disorders resulting from minor neurological issues and dysfunctions that impact cognitive skills, including reading, writing, mathematical calculations, and handwriting (1). Between 5% and 15% of learners are affected by LDs. These disabilities are more prevalent in boys than girls, with an 8.81% incidence among students in Iran (2, 3). Notably, adolescents comprise a significant segment of the population in developing nations. The latest World Health Organization (WHO) report stated that 26% of the global population are adolescents (4). In some developing countries, this demographic exceeds one-third of the population (5).

Recent trends show that adolescents increasingly engage in risky behaviors, a matter of concern for health organizations, law enforcement agencies, and policymakers (6). Such behaviors, which threaten the health and well-being of adolescents, youth, and the broader society, span several domains: tobacco use, addiction and substance abuse, physical inactivity, unhealthy dietary habits, risky sexual behaviors, and actions leading to injuries and accidents (7). Arabnejad and colleagues (8) observed that Iranian adolescents commonly engage in behaviors like suicide, violence, reckless driving, alcohol and substance use, tobacco consumption, unhealthy eating, and neglecting physical activity. Furthermore, Tariq and Gupta (9) noted that boys exhibit riskier behaviors than girls.

Recognizing the various external and internal factors that drive adolescents toward these

behaviors is essential; social competence is one such influential factor (10, 11). Kaeppler and Erath (12) defined social competence as a combination of cognitive, behavioral, emotional, and motivational skills essential for successful psychological and societal adaptation. Luna and co-workers (13) described social competence as functioning while displaying social responsibility and autonomously.

This skill set includes achieving personal objectives and fostering positive social relationships, which helps mitigate social interaction challenges and boost adolescents' well-being and academic achievements (14).

Academic self-regulation involves managing one's thoughts, feelings, and actions to realize personal objectives (15, 16). Within self-regulated learning environments, learners take the initiative and direct their efforts toward skill and knowledge acquisition rather than solely depending on teachers, parents, or other educational resources (17). Mohammadkhani and colleagues (18) revealed a significant link between ethical foundations, emotional self-regulation, and risky behaviors. Their findings suggested reinforcing ethical values and emotional self-regulation can curtail risky behaviors. Similarly, Heidari and colleagues (19) deduced that robust family support and guidance effectively discourage tendencies toward risky behaviors. Therefore, imparting emotional management skills to students is a promising preventive measure (20).

Studies indicated that overt externalized and covert internalized behavioral issues during childhood can foreshadow adverse academic and social outcomes during adolescence and beyond (21). Hence, detecting these behavioral challenges is of paramount importance. In this context, students with LDs often exhibit more pronounced risky and illicit behaviors and face more significant stressors than their non-LD peers (22). Students with LDs tend to grapple with more behavioral challenges and report heightened emotional distress than their typically developing counterparts (23, 24).

Adolescence is a pivotal developmental phase characterized by significant physical and psychological transformations. This period and a heightened curiosity for novel experiences predispose teenagers to risky behaviors. Moreover, the digital age, marked by rapid technological advancements, might inadvertently promote the erosion of specific social values, amplifying risky behaviors. Notably, no studies have explored the potential mediating role of academic self-regulation concerning the relationship between risky behaviors and social competence. Given this backdrop, the current research investigated the intermediary role of academic self-regulation in the connection between risky behaviors and social competence among high school students with LDs.

2. Methods

The present research is a descriptive correlational study. It targets the population of high school students with learning disabilities (LDs) in Ahvaz, Iran for the academic year 2022-2023. A sample of 158 students was chosen using the cluster sampling method. The sample size was determined based on the 24 research variables. For each variable, 10 samples were required, yielding 240 samples. However, anticipating potential dropouts, 160 questionnaires were disseminated among the students. After excluding 2 incomplete questionnaires, the final analysis included 158 participants. The inclusion criteria for the study were as follows:

- Participants had to be students with a documented history of learning disorders in high school, aged between 16 to 18 years.

- Both students and their parents had to provide informed consent to participate in the study.

- Students had to assert that they had no severe psychological or physical issues.

In addition, exclusion criteria of this study was incomplete or improperly filled out questionnaires.

2.1. Procedure

The ethics committee of the university approved the study with the code of IR.IAU.AHVAZ.REC.1402.007. From February 2023 to April 2023, District 3 was randomly chosen out of the four districts in Ahvaz, Iran. After coordinating with the education authorities of the district, six schools (comprising three girls' and three boys' schools) were randomly selected. From each of these schools, four classes were chosen at random. Upon examining student records, 170 individuals with a

documented history of learning disabilities were chosen for the sample. The research questionnaires were then distributed to these participants. After discarding any incomplete or improperly filled-out questionnaires, 158 individuals who had fully completed the questionnaires were incorporated into the study. The first author conducted the sampling process and oversaw the study's execution. Furthermore, the students completed the research questionnaires under her guidance.

2.2. Instruments

2.2.1. Iranian Adolescents Risk-taking Scale (IARS): The IARS was developed by Zadeh Mohammadi and colleagues (25) and comprises 38 items. These items are rated on a five-point Likert scale that ranges from 1 to 5. This scale evaluates tendencies towards risky behaviors across seven domains including drug abuse, alcohol consumption, smoking, violence, sexual behavior, relationships with the opposite sex, risky driving, and a general risky behavior category. IARS scores range from 38 to 190, with a higher score indicating increased risk-taking tendencies. The IARS demonstrated a reliability of 0.94, as determined by Cronbach's alpha coefficient (25). In study by Zadeh Mohammadi and colleagues (25), the IARS's validity was endorsed by six experts, resulting in a CVI of 0.95 and a CVR of 0.94. In the current study, the Cronbach's alpha of IARS was 0.89.

2.2.2. Social Competence Questionnaire (SCQ): Developed by Flener and Lease (26), the SCQ consists of 47 items divided into four dimensions including cognitive abilities and skills, behavioral skills, emotional competence, and motivational-expectancy domains. The questionnaire employs a 7-point Likert scale, with responses ranging from strongly disagree (1) to strongly agree (7). The overall score is derived from the aggregate of all item scores, with a potential range of 47 to 329. The SCQ's validity was authenticated with a CVI of 0.83 and a CVR of 0.85 (27). The Persian version of the questionnaire reported a reliability of 0.90 using Cronbach's alpha coefficient (27). In this research, the Cronbach's alpha of SCQ was 0.85.

2.2.3. Academic Self-Regulation Questionnaire (SRQ-A): This questionnaire, created by Bouffard and colleagues (28), aims to gauge participants' academic self-regulation levels. It includes 14 items grouped into cognition, metacognition, and motivation. Items are rated on a 5-point scale, with 1 indicating "does not match me at all" and 5 representing "matches me completely." The SRQ-A scores can vary between 14 and 70. The questionnaire's reliability, measured by Cronbach's alpha coefficient, was 0.90 (29). The SRQ-A's validity was validated with a CVI of 0.82 and a CVR of 0.85 (29). In this study, the Cronbach's alpha of SRQ-A was 0.86.

2.3. Data Analysis

Pearson's correlation coefficient was utilized to examine the relationship between variables. The Structural Equation Modeling (SEM) was conducted using SPSS version 26 and AMOS version 25 to assess the proposed model.

3. Results

The data related to demographic variables showed that, based on grade level, 61 students were in the tenth grade, 52 in the eleventh, and 45 in the twelfth. Regarding gender distribution, there were 66 female and 92 male students. In the sample, 71 students had a history of dysgraphia, 35 of dyslexia, and 52 of dyscalculia. The average age of the participants was 16.89±1.35 years. Table 1 presents the mean, SD, and Pearson correlation coefficient of the variables.

As illustrated in Table 2, the Pearson correlation coefficients showed significant associations between all the research variables (P<0.001). This study formulated an initial model to delineate risky behaviors based on students' social competence and academic self-regulation, as portrayed in Figure 1.

From the data in Table 2, the initial model yielded a Root Mean Square Error

Table 1: Mean, standard deviation, and Pearson correlation coefficient of the variables

Variables	Mean	SD	1	2	3
1- Risky behaviors	86.75	12.39	1		
2- Social competence	112.18	24.25	0.34**	1	
3- Academic self-regulation	42.05	9.86	0.88**	0.46**	1

**P<0.01, SD: Standard Deviation

Table 2: The fit indices of the initial and final models

Fit indicators	χ^2	df	(χ^2/df)	TLI	CFI	RFI	NFI	RMSEA
Initial model	85.27	85	1.03	0.94	0.97	0.91	0.92	0.143
Final model	93.29	74	1.26	0.98	0.98	0.92	0.93	0.041

TLI: Tucker–Lewis index; CFI: Comparative Fit Index; RFI: Relative Fit Index; NFI: Normed Fit Index; RMSEA: Root Mean Square Error of Approximation

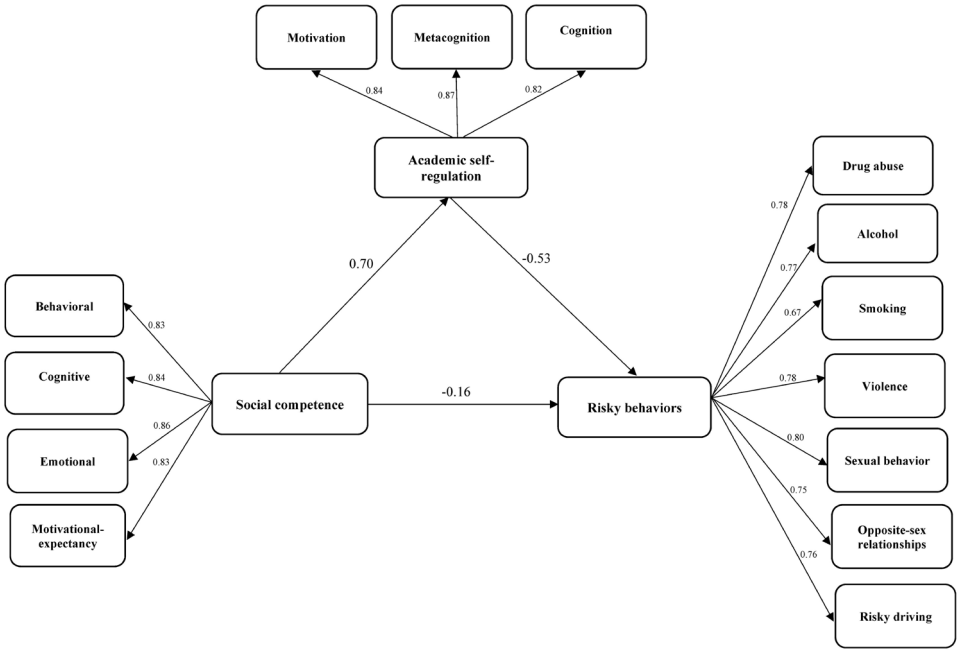

Figure 1: The figure shows the initial model of the research.

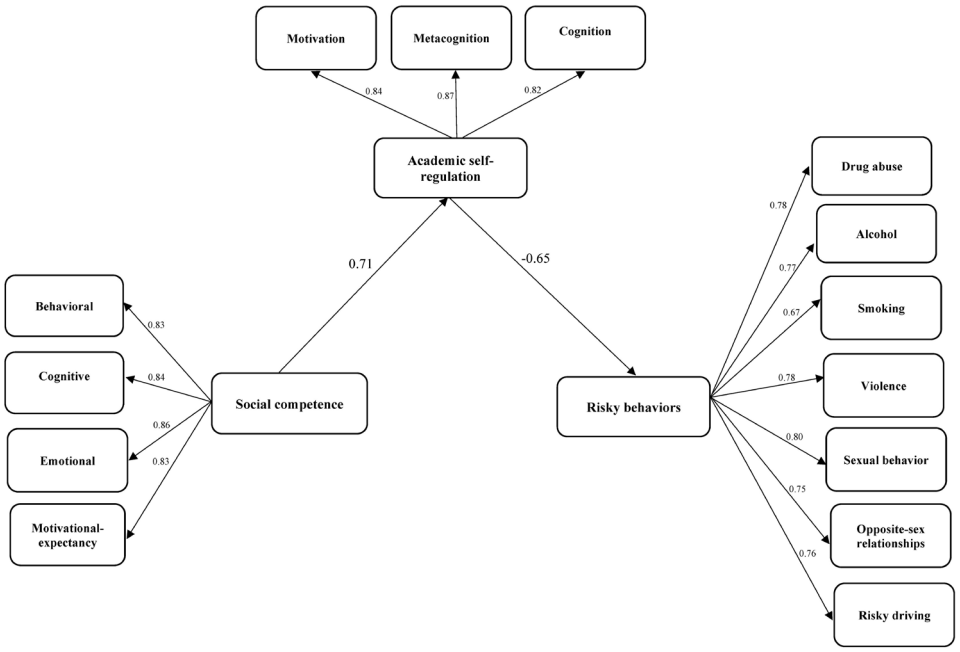

Figure 2: The figure shows the final model in standard mode.

of Approximation (RMSEA) value of 0.143, suggesting an unsatisfactory fit of the research model. The path from social competence to risky behaviors (β=-0.160, P=0.115) was removed to enhance the model's fit. The adjusted model can be seen in Figure 2. An RMSEA value of 0.041 in this revised model indicates a satisfactory fit. Following this, Table 3 displays the findings related to the estimated path coefficients for both direct and indirect associations.

Table 3: Estimated path coefficients for direct and indirect associations

Path	Initial model		Final model	
	β	P	β	P
Social competence → Risky behaviors	-0.160	0.115	-	-
Social competence → Academic self-regulation	0.702	0.001	0.712	0.001
Academic self-regulation → Risky behaviors	-0.527	0.001	-0.651	0.001
Risky behaviors through the mediating role of academic self-regulation	-0.058	0.005	-0.073	0.001

The results underscored significant relationships between social competence and academic self-regulation (β=0.71, P<0.001), as well as between academic self-regulation and students' risky behaviors (β=-0.65, P<0.001). However, the connection between social competence and risky behaviors was insignificant (β=-0.16, P=0.115). Notably, the study identified a significant link between social competence and risky behaviors when mediated by academic self-regulation in students (β=-0.07, P<0.001), as detailed in Table 3.

4. Discussion

This study explored the mediating role of academic self-regulation concerning the relationship between risky behaviors and social competence among high school students with Learning Disabilities (LDs). The findings revealed no significant connection between social competence and risky behaviors. The finding is at odds with the results from Korsavi and Sadoughi (30), as well as Major and colleagues (31). Korsavi and Sadoughi (30) identified a notable negative correlation between bullying and social competence in high school students. While the studies mentioned above relied on Pearson correlation analysis to validate the relationship between variables, our study employed Structural Equation Modeling (SEM). At first, the Pearson correlation coefficient substantiated the relationship between these two variables. However, this connection was nullified in the final model analysis due to the introduction of a mediating factor. The entire influence of social competence was attributed to academic self-regulation.

Social competence denotes an individual's capacity to forge positive and meaningful relationships with others, cultivate a sense of community belonging, and actively participate therein. Adolescents with specific LDs might confront heightened social hurdles for diverse reasons, potentially leading to risky behaviors (30). Several factors might dictate the relationship between these adolescents' social competence and risky behaviors. For instance, they might grapple with feelings of desolation and hopelessness stemming from academic challenges and peer rejection, which could manifest in risky behaviors such as substance abuse, suicidal ideation, and self-harm (31). Their struggles in forming social bonds, comprehending social norms, effective communication, and understanding behavioral consequences might steer them toward these dangerous behaviors. Intrinsic challenges exacerbate these tendencies, such as stigmatization, ridicule, and external peer pressures (22).

Additionally, the results illustrated a significant negative correlation between academic self-regulation and risky behaviors. Aligning with our findings, Heidari and colleagues (19) discerned a notable link between self-regulation and risky behaviors among first-year high school students. Academic self-regulation pertains to a student's aptitude for overseeing and structuring academic duties, encompassing positive aspects like strategic planning, self-discipline, and goal orientation. When adolescents display proficiency in self-management and sound academic planning, they often exhibit heightened self-assuredness and life control, reducing tendencies towards risky behaviors (32). Meaningful goals further accentuate this reduction, as academic and career aspirations amplify study motivation, diminishing the appeal of risky behaviors (17).

Youth typically possess robust academic self-regulation and demonstrate stress handling, problem-solving, social adaptability, and decision-making prowess. Such competencies innately deter risky behaviors. Conversely, specific LDs can hinder learning, potentially inducing adverse adolescent behaviors (20). Some might grapple with academic setbacks due to these learning challenges, leading to diminished self-worth, escalated stress levels, inattention, impatience, and disconnection from academic environments (19). Those often deploy academic self-regulation strategies to witness

academic enhancements and curtail aggressive and risky behaviors.

Furthermore, the study pinpointed a significant relationship between social competence and risky behaviors when mediated by academic self-regulation. No extant research directly corroborates this finding. Our initial hypothesis posited an insignificant link between social competence and risky behaviors. However, the mediating path unveiled that, by bolstering academic self-regulation, social competence can indirectly diminish risky behaviors. The interplay between adolescents' social competence and academic self-regulation can profoundly shape their behavior. Social competence, which encompasses essential skills like effective communication, collaboration, critical analysis, problem-solving, and decision-making, plays a pivotal role (31).

Adolescents with distinct LDs often face daunting academic challenges, struggling with self-regulation due to understanding novel concepts, premature exhaustion, dwindling study interest, and difficulties maintaining a systematic study routine (21). However, social competence emerges as a vital catalyst in amplifying academic self-regulation among these adolescents. Social competence augments feelings of acceptance and academic belonging by facilitating constructive relationships with peers, educators, and the academic system. Such an emphasis on social competence accentuates academic self-regulation, prompting adherence to a coherent, goal-driven study regimen. Hence, academic self-regulation mediates the relationship between social competence and risky behaviors.

4.1. Limitations

The scope of this study was confined to middle school students with a history of LDs in Ahvaz, Iran. As such, caution should be exercised when generalizing the results to male and female students at different educational levels and from various cities. Another constraint was the reliance on self-reported data, which might be influenced by social desirability bias, thereby affecting the precision of the participants' accounts. Additional challenges included the limited availability of experts, the lukewarm enthusiasm of school administrators in supporting the research, and difficulties in accessing exclusive student databases. Consequently, future studies should consider incorporating control variables such as educational level, gender, and students' Grade Point Averages (GPAs) to delve deeper into other potential determinants.

5. Conclusion

The study correlated students' social competence, risky behaviors, and academic self-regulation. A meaningful relationship between social competence and risky behaviors via academic self-regulation was observed. Given the satisfactory alignment of the revised research model, it emerges as an innovative and groundbreaking discovery that can substantially mitigate risky behaviors. Educational stakeholders in Iran must recognize the need to mold the school environment to amplify students' positive personality traits and behaviors. By fostering social competence and academic self-regulation, we can move closer to curtailing risky behaviors among students. Therefore, it is suggested that official educational curricula integrate teachings on social competence and academic self-regulation skills.

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Ethical Approval

The Ethics Review Board of Islamic Azad University- Ahvaz Branch approved the present study with the code of IR.IAU.AHVAZ.REC.1402.007. Also, written informed consent was obtained from the participants.

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Authors' Contribution

Neda Shooshtari: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work, reviewing the work critically for important intellectual content. Rezvan Homaei:

Substantial contributions to the conception and design of the work, the acquisition, analysis, and interpretation of data for the work, drafting the work and reviewing it critically for important intellectual content. Fariba Hafezi: Substantial contributions to the design of the work, drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such that the questions related to the accuracy or integrity of any part of the work.

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