





# The Role of Academic Self-Handicapping Behaviors in School Belongingness Among Students with the Mediating Role of Academic Hardiness and Academic Adjustment

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### ABSTRACT

**Objective:** A sense of school belonging can positively influence adolescents' self-perception, their perception of others, effective communication, and responsibility towards school. This study aimed to develop a structural equation model predicting school belonging based on academic self-handicapping with the mediating role of academic hardiness and academic adjustment among middle school students.

**Methods and Materials:** This descriptive and correlational study employed structural equation modeling. The statistical population included all middle school students attending public schools in Tehran during the 2021-2022 academic year. The research sample consisted of 300 students selected through convenience sampling and participated in the study online. Research instruments included the School Belonging Questionnaire (Barry et al., 2004), Academic Self-Handicapping Scale (Schwinger & Stiensmeier-Pelster, 2011), Academic Hardiness Scale (Benishek & Lopez, 2005), and Academic Adjustment Questionnaire (Trapp et al., 1953). After data collection, the proposed model was evaluated using Pearson correlation coefficients and structural equations through SPSS 24 and LISREL 8.8 software.

**Findings:** The results indicated that all three variables—academic self-handicapping (-0.18), academic hardiness (0.49), and academic adjustment (0.32)—had a direct and significant effect on school belonging. Additionally, there was a direct and significant relationship between school belonging and academic self-handicapping behaviors (-2.47).

**Conclusion:** Reducing academic self-handicapping behaviors, enhancing academic adjustment, and fostering academic hardiness significantly contribute to predicting students' sense of school belonging.

**Keywords:** School Belonging, Academic Self-Handicapping, Academic Hardiness, Academic Adjustment, Students.

## 1. Introduction

Adolescence should be recognized as a significant period in life, distinct from childhood or adulthood, and as the second critical developmental period in life after the fetal and infant stages (Viner et al., 2015). This period, beginning with the biological changes associated with puberty, has an endpoint that is not precisely defined and depends on cultural and historical differences (Crone & van Duijvenvoorde, 2021). It is a critical period during which adaptive and normative patterns or future maladaptive patterns are established (Sawyer et al., 2012). Given the importance of this critical period, identifying adolescents' needs during this time is also essential. According to Ryan and Deci's self-determination theory (2000), relatedness is one of the three central psychological needs (along with competence and autonomy) necessary for promoting well-being. Since adolescents spend a significant portion of their day at school, forming positive social relationships at school and perceiving a greater sense of belonging supports their need for relatedness and well-being (Jenaabadi et al., 2017; McCabe et al., 2021). The need to belong is a fundamental human motivation that enhances mental health and well-being. The need to form and maintain strong, positive interpersonal relationships plays an important role in healthy growth and well-being, and failure to meet this need leads to various social, emotional, and behavioral consequences (Arslan, 2018). Although the need to belong is likely a pervasive need throughout life, research has shown that during adolescence, the need for connection through mutual supportive relationships peaks (Hatchel & Marx, 2018; Montoro et al., 2021). Therefore, although research on belongingness is a specific area within the broad field of psychology, studying adolescents' attitudes and behaviors in this context within the school setting is appropriate (Walker & Greene, 2009).

Studies indicate that the incidence of emotional and behavioral problems during schooling, especially during adolescence, is relatively high among Iranian students (Hassanzadeh et al., 2019; Shalchi et al., 2017). One of the factors that play a significant role in reducing emotional and behavioral problems among adolescents is school belonging (Arslan & Allen, 2021). Students' sense of belonging to school is crucial for academic success; however, internationally, many secondary school students do not feel a sense of belonging to their school, and there is limited information on how schools can address this issue and what evidence-based interventions are available to increase

belonging among high school students (Allen et al., 2022). School belonging is a predictor of academic and psychosocial success (Xie & Xiao, 2018; Xu & Fang, 2021). School belonging refers to the feeling that students have that adults and peers at school care about their overall well-being (Marsh et al., 2019). The importance of school belonging should not be underestimated, as it is vital for supporting students' health and well-being. Lack of a sense of belonging to school can have adverse physical and psychological consequences (McCabe et al., 2021). School belonging is positively associated with students' academic performance, such as academic motivation (Walker & Greene, 2009), academic achievement (Palikara et al., 2021; Pope & Miles, 2022), mental well-being (Akar Vural et al., 2020), long-term developmental outcomes (Palikara et al., 2021), psychological well-being (Arslan & Allen, 2021), academic hardiness (Abdollahi, Panahipour, et al., 2020), resilience and academic engagement (Ebrahimi & Khalatbari, 2020), academic self-efficacy, and academic enthusiasm (Faroughi et al., 2020). It has a negative relationship with emotional problems (Arslan & Allen, 2021), academic burnout (Xie & Xiao, 2018), academic stress (Abdollahi, Maleki Farab, et al., 2020), academic bullying (Xu & Fang, 2021), and peer discrimination (Montoro et al., 2021).

One concept related to school belonging is academic self-handicapping. Self-handicapping is a maladaptive strategy that students use to protect their self-concept when they fear or anticipate academic failure (Schwinger & Stiensmeier-Pelster, 2011). Self-handicapping students use a set of strategies to appear as victims of circumstances rather than victims of their own inability (Ahmadian, 2019). Self-handicapping provides an opportunity for individuals to protect their weak self-concept by internalizing successes and externalizing failures. The obstacles are mainly considered external and, sometimes, internal by the self-handicapping individual but do not include their abilities and capabilities (Gupta & Gitika, 2020). This strategy allows individuals to reduce the responsibility for their failures and enhance the value of their successes. Self-handicapping students, due to increased self-handicapping over time, get trapped in a cycle of avoidance and failure because they detach themselves from learning environments (Mehdizadeh et al., 2018). Research has shown that academic self-handicapping is positively associated with academic procrastination (Mehdizadeh et al., 2018), academic anxiety (Jia et al., 2020; Jia et al., 2021), coping styles (Ahmadian, 2019), test anxiety, use of surface learning strategies, and lower grades (Gadbois & Sturgeon, 2011). It is negatively

related to hope (Ahmadian, 2019), specific self-concept, academic self-efficacy (Gadbois & Sturgeon, 2011), high self-control, and resilience (Jia et al., 2021). Given that academic self-handicapping is an avoidant behavior that severely impairs academic performance and can have a lasting impact on an individual's personality and adjustment in the future, ultimately hindering growth in adulthood, examining and addressing it is essential (Alipour et al., 2024; Delghandi et al., 2019).

Academic hardiness is another variable associated with school belonging (Yazdanpour et al., 2019). Resilience is a personality trait that all individuals possess to varying degrees and is continually changing and evolving like other personality traits (Yazdanpour et al., 2019). Kobasa et al. (Seifi et al., 2022) defined resilience as a combination of beliefs about oneself and the world, consisting of three components: commitment, control, and challenge. Resilience emphasizes the importance of engagement and attachment rather than isolation, control rather than helplessness, and challenge rather than commitment and fear (Abdollahi, Panahipour, et al., 2020; Cheng et al., 2019). Academic hardiness is a multidimensional concept introduced by Benishek and colleagues (2005), derived from resilience theory and Dweck's academic motivation theory (2000) (Abdollahi & Noltemeyer, 2018). Individuals with high academic hardiness are less likely to avoid tasks and engage in behaviors that limit them (Abdollahi, Maleki Farab, et al., 2020). Research shows that academic hardiness has a direct relationship with school belonging (Abdollahi & Noltemeyer, 2018), academic conscientiousness and performance (Seifi et al., 2022), academic self-efficacy (Cheng et al., 2019), and an inverse relationship with stress (Kamtsios & Karagiannopoulou, 2013a, 2013b, 2015) and academic procrastination (Abdollahi, Maleki Farab, et al., 2020; Abdollahi & Noltemeyer, 2018; Abdollahi, Panahipour, et al., 2020). Research findings suggest that understanding and examining this construct at various stages of life and in different cultural contexts is necessary, and many aspects of this construct remain unexplored (Kamtsios & Karagiannopoulou, 2013a, 2013b, 2015).

Life requires various adjustments, and humans are constantly facing diverse and unknown challenges in their interactions with their environment throughout the life cycle. Adolescents, especially students, are particularly vulnerable to various behavioral disorders and psychological abnormalities due to the complex and rapid changes they experience during this period. Achieving educational goals seems impossible amidst these emotional and adaptive

disturbances. Therefore, one important issue that requires attention is addressing students' adjustment, which is a manifestation of mental health (Jenaabadi et al., 2017). In general, adjustment is the process by which a living organism maintains a balance between its needs and the conditions affecting the satisfaction of these needs (Sekar & Lawrence, 2016). One of the critical issues during adolescence, especially in secondary education, is academic adjustment. Students' misbehavior and maladjustment affect and disrupt the entire teaching and learning process. Academic adjustment is essential for emotional and social health, growth, and academic progress (Kaur & Chawla, 2016; van Rooij et al., 2018). In fact, one of the factors influencing students' academic progress, which is related to academic enthusiasm, academic identity, and academic persistence, is academic adjustment (Jafariharandi & Rajaie Moosavi, 2019). Academic adjustment, as a type of adjustment, involves students' ability to adapt to the conditions and requirements of education and the roles that school, as a social institution, places before them (Azizinezhad, 1970). The ability to adapt enables students to better cope with peer pressure, academic life, and their academic tasks (Kaur & Chawla, 2016). Through academic adjustment, students abandon antisocial tendencies that can disrupt their academic activities and interpersonal relationships (Onyekuru & Zuru, 2017). A series of research results also show that academic adjustment has a positive relationship with self-efficacy, assertiveness, self-regulation in learning, academic self-efficacy, and academic self-concept, academic achievement and satisfaction, academic performance, and academic hardiness (van Rooij et al., 2018), and a negative relationship with social anxiety (Arjanggi & Kusumaningsih, 2016), negligence, perfectionism, and perceived stress (Montgomery et al., 2019). Given the importance of learning in developmental outcomes during adolescence, it is necessary to identify the determinants that may affect academic adjustment (Chen, 2017).

If the school environment meets adolescents' needs, it fosters a sense of school belonging. These needs include recognition, increased opportunities for individual autonomy, competition, care, and support from peers. Having a sense of school belonging creates a healthy environment for students to develop an independent personality and socialize and has positive academic outcomes (Delghandi et al., 2019). When a student classifies themselves as a member of a group or social class, a sense of belonging is formed, which dynamically motivates them

towards self-improvement and self-adjustment (Mirzabeigi et al., 2018). Understanding the role of students' academic hardiness and academic adjustment in the relationship between academic self-handicapping behaviors and school belonging can help educational specialists and policymakers in designing appropriate programs to enhance academic hardiness, academic adjustment, and empowering academic behaviors, thereby improving students' sense of school belonging. The challenge of this study lies in the lack of a single research that shows the role of variables such as self-handicapping, academic hardiness, and academic adjustment on school belonging in adolescents. Therefore, based on the aforementioned, the research question is whether academic self-handicapping behaviors with the mediating role of academic hardiness and academic adjustment predict school belonging. This study aimed to determine whether the model of school belonging based on academic self-handicapping behaviors with the mediating role of academic hardiness and academic adjustment among middle school students in Tehran fits well.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This research is applied in terms of its purpose and descriptive correlational in nature. The statistical population includes all middle school adolescent students (seventh, eighth, and ninth grades) in Tehran during the 2021-2022 academic year. Given that the minimum required sample size in structural equation modeling is 200 (Hooman, 2018), the sample size in this study was considered 340, taking into account potential dropouts. After removing outliers and standardizing the data, 300 questionnaires were included in the statistical analysis. The sampling method used was convenience sampling. The research process involved designing an online questionnaire through the Porsall website, requesting public middle school principals in Tehran who were willing to participate to distribute the questionnaire link along with attached explanations in student virtual learning networks. Participants participated online through virtual networks (Shad, Telegram, and WhatsApp) by distributing the online questionnaire link (Porsall); this method was chosen due to movement restrictions during the COVID-19 pandemic and the virtual nature of education during this period. Data analysis was conducted using SPSS 24 and LISREL 8.8 software. The conceptual model's fit was tested, and research hypotheses were analyzed. Ethical considerations were observed in this

study, with the initial questionnaires divided into two sections: the first section included demographic information (grade point average and academic level), and the second section included the questionnaires of school belonging, academic self-handicapping, academic hardiness, and academic adjustment. The inclusion criteria were explained at the beginning of the questions, and students were asked to complete the questionnaire only if they met the inclusion criteria. It was noted at the beginning of the questionnaire that no names or personal details would be recorded and that students' responses would remain confidential with the researcher. Inclusion criteria included residing in Tehran, studying in middle school, attending public schools, and not using psychiatric medications. Exclusion criteria included not responding to the instruments and inadequately completing the questionnaires. Before responding to the instruments, the purpose, significance, and necessity of the research were explained to the participants, and all participants were assured that all their information would remain confidential and would not be disclosed to any individual or organization.

### 2.2. Measures

#### 2.2.1. School Belonging

This questionnaire was designed by Barry and Batty (2004) and revised in 2005. It contains 27 items and six subscales, including belonging to peers, teacher support, sense of respect and fairness in school, community participation, personal connection with the school, and academic engagement. The questionnaire is designed in the form of positive statements and a Likert scale from strongly agree (4) to strongly disagree (1) (Faroughi et al., 2020). The reliability coefficient of the questionnaire through Cronbach's alpha for the whole questionnaire was reported as 0.75 (Beaty & Brew, 2005). In Iran, Makian and Kolantar Koshe (2015) examined the validity and reliability of this questionnaire. Construct validity of the school belonging scale using principal component analysis confirmed the existence of six factors. Cronbach's alpha coefficient of 0.88 was obtained for the scale (Abdollahi, Panahipour, et al., 2020; Akar Vural et al., 2020). In the present study, the reliability coefficient of the questionnaire through Cronbach's alpha was obtained as 0.88.

### 2.2.2. Academic Self-Handicapping

This questionnaire was designed by Schwinger and Stiensmeier-Pelster in 2011. It consists of 7 items, and responses are recorded on a 5-point Likert scale from strongly agree (5) to strongly disagree (1). The questionnaire is unidimensional and lacks subscales. The highest score an individual can obtain on this questionnaire is 35, and the lowest is 7. If an individual's score is above 21, they have scored above average, indicating higher academic self-handicapping, while a score below 21 indicates lower academic self-handicapping (Jenaabadi et al., 2017). The internal consistency coefficient of this questionnaire was reported as 0.80 by Schwinger and Stiensmeier-Pelster (2011). In the research by Tabar Bordbar and Rastegar (2015), the Cronbach's alpha coefficient for this questionnaire was calculated as 0.86, and in the study by Mousavi, Dortaj, and Aboulmaali (2019), it was 0.79 (Mousavi et al., 2020). In the present study, the reliability coefficient of the questionnaire through Cronbach's alpha was obtained as 0.83.

### 2.2.3. Academic Hardiness

This questionnaire was designed by Benishek and Lopez (2001) and revised in 2005. It consists of 40 items on a 5-point Likert scale (strongly agree (5) to strongly disagree (1)). A high score on this questionnaire indicates a high level of academic hardiness. Notably, items 1, 15, 16, 17, 20, 21, 22, 27, 29, 32, 35, and 37 are reverse scored. This questionnaire has three scales: commitment, control, and challenge. Items in the commitment subscale are 1-11 and 17, items in the control subscale are 12-16, 18, 19, and 31-40, and items in the challenge subscale are 20-30. The reliability coefficients of the questionnaire components in the study by Kametsios and Karagiannopoulou (2013) ranged from 0.77 to 0.82. In a study by Zeghibi Qanad and colleagues (2014), the three-factor model of academic hardiness was confirmed using factor analysis, and the correlation between the subscales was reported as positive and significant. The reliability coefficient for the scale was reported using Cronbach's alpha as 0.88, 0.89, 0.73, and 0.73 for the commitment, control, and challenge components, respectively (Abdollahi, Panahipour, et al., 2020).

### 2.2.4. Academic Adjustment

The Academic Adjustment subscale of the California Personality Inventory (CPI) by Thorpe, Clark, and Tiegs (1953) was used to measure academic adjustment. Each section of the test comprises 6 dimensions, with each dimension containing 15 questions, totaling 90 questions. In this study, the academic adjustment subscale includes 15 questions, each with a binary yes/no response option. According to the test's scoring instructions, correct answers are scored as 1 and incorrect answers as 0. However, items 2, 4, 5, 6, 8, 12, 14, and 15 are reverse scored. Haghghi, Shekarkan, and Mousavi Shushtari (2002) used a short researcher-made questionnaire as a criterion-related measure to determine the validity of this test. The correlation between the CPI and the criterion questionnaire was significant at the 0.001 level. The Cronbach's alpha coefficient and split-half reliability obtained in this study were 0.80 and 0.79, respectively, in the Iranian context (Arjanggi & Kusumaningsih, 2016; Jenaabadi et al., 2017). In the present study, the reliability coefficient of the questionnaire through Cronbach's alpha was found to be 0.90.

### 2.3. Data analysis

After data collection, the proposed model was evaluated using Pearson correlation coefficients and structural equations through SPSS 24 and LISREL 8.8 software.

## 3. Findings and Results

In examining demographic variables based on descriptive indicators, it was found that regarding gender, 53.3% of the sample were female (160 participants) and 46.7% were male (140 participants). Regarding the academic grade, 39.3% of the participants were in the seventh grade (118 participants), 29.7% in the eighth grade (89 participants), and 26% in the ninth grade (31 participants). Regarding academic performance, 0.7% of the sample needed more effort (2 participants), 2.3% were acceptable (7 participants), 31.3% were good (94 participants), and 65.7% were very good (78 participants). The main research variables (self-handicapping, school belonging, academic hardiness, and academic adjustment) are described using descriptive statistics in Table 1.

**Table 1**

*Means and Standard Deviations of Research Variables*

Variable	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
Self-handicapping	20.077	6.51708	7.00	35.00	0.250	-0.788
School Belonging	85.6933	13.90072	43.00	108.00	-0.797	0.299
Academic Hardiness	136.5200	24.80943	64.00	193.00	-0.077	-0.066
Academic Adjustment	8.9400	3.41496	0.00	15.00	-0.174	0.659

Table 2 presents the direct, indirect, and total standardized effects between variables, as well as the explained variance of the dependent variables in the model.

**Table 2**

*Direct, Indirect, and Total Standardized Effects of Main Research Variables*

From Construct	To Construct	Direct Effect	Indirect Effect	Total Effect	Explained Variance
Academic Self-handicapping	School Belonging	-0.18	0.31	0.49	0.25
Academic Self-handicapping	Academic Hardiness	-0.21	-	-0.21	0.04
Academic Self-handicapping	Academic Adjustment	-0.66	-	-0.66	0.43
Academic Hardiness	School Belonging	0.49	-	0.49	0.25
Academic Adjustment	School Belonging	0.32	-	0.32	0.10

The examination of the prerequisites for conducting structural equations also confirmed that the normality index of the data, the absence of multicollinearity among the independent variables, the normality of residual values, and the homogeneity of variance of the residuals were all validated. Using the structural equation model, the fit of the structural model and research hypotheses were examined.

Based on Table 2, the relationships between the research variables in the structural model are shown. The analysis of standardized impact coefficients indicates that self-handicapping has a negative impact coefficient of -0.18 on school belonging, a negative impact coefficient of -0.21 on academic hardiness, and a negative impact coefficient of -0.66 on academic adjustment. Additionally, the two mediating variables, academic hardiness and academic adjustment, had positive impact coefficients of 0.49 and 0.32 on school belonging, respectively. The significance of these coefficients was further examined.

The standardized coefficient of self-handicapping on school belonging is influenced by the role of the two mediating variables, academic hardiness and academic adjustment, on school belonging. Accordingly, the t-values for the existing relationships showed that the standardized impact coefficients of self-handicapping on school belonging, academic hardiness, and academic adjustment were -2.47, -3.28, and -5.23, respectively, and were significant. Furthermore, the standardized impact coefficients of academic hardiness and academic adjustment

on school belonging were 6.66 and 3.40, respectively, and were significant. The factor loadings and t-values of all the items in the questionnaires used to measure the research variables were confirmed to be at an appropriate level (factor loadings higher than 0.30 and t-values greater than 1.96). Based on these coefficients, the research hypotheses were tested.

The first hypothesis examination showed that self-handicapping has a relationship of -0.18 with school belonging (with a t-value of -2.47), indicating the confirmation of the direct relationship between these two variables. On the other hand, self-handicapping has a causal relationship of -0.23 with academic hardiness (with a significant t-value of -3.28), and academic hardiness has a causal relationship of 0.49 with school belonging (with a significant t-value of 6.66). Therefore, it can be said that academic hardiness is a significant mediating variable in moderating the effects of self-handicapping on school belonging. Thus, this hypothesis was confirmed.

The second hypothesis examination showed that, as stated, self-handicapping has a causal relationship of -0.18 with school belonging (with a significant t-value of -2.47), indicating the confirmation of the direct relationship between these two variables. On the other hand, self-handicapping has a causal relationship of -0.66 with academic adjustment (with a significant t-value of -5.23), and academic adjustment has a causal relationship of 0.32 with school belonging (with a significant t-value of 3.40).

Therefore, it can be said that academic adjustment is a significant mediating variable in moderating the effects of

self-handicapping on school belonging. Thus, this hypothesis was confirmed.

**Table 3**

*Model Fit Indices*

Fit Index	Index Value	Desired Level	Fit Status
Root Mean Square Error of Approximation (RMSEA)	0.081	Below 0.10	Desired
Chi-Square to Degree of Freedom Ratio (CMIN/df)	2.95	Below 3	Desired
Normed Fit Index (NFI)	0.92	0.90 or above	Desired
Comparative Fit Index (CFI)	0.92	0.90 or above	Desired
Goodness of Fit Index (GFI)	0.91	0.90 or above	Desired
Incremental Fit Index (IFI)	0.91	0.90 or above	Desired
Tucker-Lewis Index (TLI)	0.91	0.90 or above	Desired

Table 3 reports the fit indices to assess the model's adequacy. Accordingly, the Root Mean Square Error of Approximation (RMSEA) was 0.081, the chi-square to degree of freedom ratio (CMIN/df) was 2.95, and the Normed Fit Index (NFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), and Tucker-Lewis Index (TLI) were all 0.90 or above, indicating the model's confirmation.

**4. Discussion and Conclusion**

This study examined the role of academic self-handicapping behaviors in students' sense of school belonging with the mediating role of academic hardiness and academic adjustment. The results showed that the model of school belonging based on academic self-handicapping with the mediating role of academic hardiness and academic adjustment had a good fit. These findings are consistent with the prior studies (Alipour et al., 2024; Delghandi et al., 2019; Fariba Tabe & Ahmad, 2015; Gadbois & Sturgeon, 2011; Jia et al., 2021; Mousavi et al., 2020).

To explain the relationship between school belonging and academic self-handicapping behaviors, it can be said that humans are social beings, and as they grow older, they feel more connected to their parents, neighborhood, city, school, and family members. School belonging is presented as a sense of acceptance, respect, and support from the school environment towards the student (Delghandi et al., 2019). School belonging arises when students believe that school officials provide learning opportunities for them, respect them as individuals, support them, and meet each student's personal learning needs (Badri Gargari et al., 2020). When students feel a sense of school belonging, their participation in school activities increases. When a student actively participates in school, they have high self-awareness and

high academic self-regulation (Gadbois & Sturgeon, 2011). According to the results of previous research and consistent findings from this study, school belonging leads to understanding and support from teachers and friends. Receiving support from the school causes students to participate more actively in class, collaborate more with teachers in completing assignments, and interact more in class activities. Self-handicapping negatively impacts school belonging. This is because the sense of inefficacy and inability to progress in academic goals and the sense of inadequacy stemming from self-handicapping cause the individual to lack motivation in academic matters and feel detached from school, as they believe they cannot achieve success in their education.

To explain the relationship between school belonging and academic hardiness and adjustment, it can be said that since school is an environment where students spend most of their time, if the school environment and classroom are supported by teachers, it shapes students' behaviors and encourages them to adopt positive habits, fostering a sense of belonging (Faroughi et al., 2020; Hatchel & Marx, 2018), which can impact academic aspects. Adjusting to school requires students to develop and strengthen their cognitive and metacognitive processes in academic areas (Bilican & Yesilbursa, 2015). According to previous research findings and the findings of this study, it can be said that since school belonging is defined as participation in school, commitment to values, and belief in school, when the student-teacher relationship is positive, it fosters a sense of school belonging. This, in turn, increases the student's motivation, making them aware that achieving greater success requires good guidance and control in cognitive and metacognitive dimensions, leading to the achievement of goals and deep, lasting learning (Ramezanpour et al., 2019). Students who feel more connected to school put more effort into learning,

collaboration, and interaction at school, experiencing more success, which increases their perceived competence in completing school tasks. The support they receive from the school's social network enhances their academic adjustment. Academic hardiness among students requires sufficient motivation to study and attend school, where school belonging provides a suitable context. Academic hardiness, as an important variable, encourages students to attend and strive in school. It helps students appropriately handle problems when they arise, paving the way for academic success (Yazdanpour et al., 2019). According to various research findings, academic hardiness is an important educational variable that impacts some aspects of students' personalities, encouraging them to attend and strive in school, motivating them to solve problems effectively.

Based on the results of this study, it was found that school belonging is predicted based on academic adjustment, academic hardiness, and academic self-handicapping behaviors. These results indicate that the role of the student from a social perspective is realized when students feel connected to the school environment and its infrastructure and participate in school development (Brooms, 2016). Students who feel school belonging show more effort in learning, resulting in greater academic success, increasing their perceived competence in completing school tasks and enhancing self-efficacy (Faroughi et al., 2020). Teacher support, as a key component of school belonging, creates a sense of trust in students, increasing their participation in class activities and motivation to improve performance under challenging conditions (Mitchell et al., 2018), which can reduce stress in difficult situations (Gómez Molinero et al., 2018).

## 5. Limitations & Suggestions

This study is cross-sectional, and causal inferences from its findings are not possible for researchers. Thus, conducting longitudinal studies could provide more comprehensive results, and considering the study at a specific time point can be seen as a limitation. Using longitudinal studies and other research methods (a combination of qualitative and quantitative methods) could be more beneficial for this study. Therefore, it is suggested to use a qualitative study to examine factors affecting school belonging. Since this study was only conducted on middle school students, caution should be exercised in generalizing the results to other populations. Similar studies in other cities, cultures, and different educational levels are

suggested to identify factors affecting school belonging, emphasizing other variables such as family communication patterns, resilience, attachment styles, etc. Another limitation of this study was the use of questionnaires, which may have self-reporting biases. Thus, other methods besides questionnaires should be used for data collection. Future research should also examine other variables affecting school belonging to provide a more comprehensive explanation based on a structural equation modeling approach. Overall, given the role of school belonging in educational development, creating a lively and engaging educational environment is essential for attracting students. In such an educational environment, students with high intrinsic motivation participate in learning processes and are more interested in completing assignments and improving difficult situations. Therefore, planners and teachers must provide opportunities for participation and engagement, utilizing challenging tasks to help develop academic adjustment and resilience and reduce self-handicapping behaviors, increasing students' sense of belonging to the learning environment.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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## Authors' Contributions



All authors equally contributed to this article.

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