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Psychosocial Factors Associated with Academic Performance in Moroccan High School Students

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ABSTRACT

Objective: The present study aims to examine the effect of self-esteem on the academic performance of Moroccan high school students.

Methods and Materials: A quantitative and comparative study was conducted on 372 high school students in Kénitra city during the academic year 2024-2025. The Rosenberg Self-Esteem Scale was used to quantify self-esteem, and academic performance was determined by the annual average in science subjects. Studied parameters were gender, residence, age, and grade level. Statistical analyses consisted of Student's tests, analyses of variance, and Pearson correlations.

Findings: The results show a low level of self-esteem (M = 28.36) in general, and more than half of the students (60.36%) have low self-esteem. Significant differences were observed according to gender, with girls displaying significantly higher levels of self-esteem than boys ($p < 0.001$), as well as better academic performance. In contrast, no significant difference was found according to place of residence ($p > 0.05$). Furthermore, self-esteem and academic achievement distributions were broadly similar across age groups. Moderate academic achievement was the most prevalent category (37.1%), followed by good achievement (33.1%), with girls showing a modest advantage at the higher achievement levels. Finally, self-esteem was positively and significantly correlated with academic achievement ($r = 0.63$; $p < 0.001$).

Conclusion: Self-esteem is significantly associated with academic performance among Moroccan high school students. These findings highlight the potential importance of psychosocial factors in educational outcomes.

Keywords: Self-esteem, Academic Performance, Psychosocial Factors, Adolescents, Secondary Education, Morocco.

Introduction

Adolescence is a critical developmental stage characterized by psychological, social, and academic changes. Among the psychosocial factors influencing student outcomes, self-esteem has been identified as an important variable associated with academic performance. Numerous studies have highlighted several factors influencing academic success, including environmental factor (Niang & Sarr, 2022), socio-economics (Fabre, 2021; Sadoune et al., 2026), and institutional (Kamono, 2022).

Self-esteem is a variable very frequently encountered in psychological literature; it corresponds to the more or less favorable feeling that each individual has towards themselves, the consideration and respect they have for themselves, and the feeling they have of their own worth as a person (Noah &Douanla, 2022; Ouzennou et al., 2020). It is also considered a self-assessment expressing self-satisfaction, approval, and/or disapproval regarding one's personal worth (Badiaa & Belcaid, 2021)

Several studies have been conducted to determine the effect of self-esteem on academic performance (Latem & Mwimbilwa, 2023; Sainfa & Ste-Croix, 2022; Thibodeau et al., 2021) . For students with high self-esteem have a higher success rate than those with low self-esteem. Furthermore, these students meet the expectations of teachers, parents, and their peers (Sainfa & Ste-Croix, 2022). However, a study conducted by Ossi in 2022 has shown that high self-esteem does not necessarily lead to academic success; on the contrary, low self-esteem is associated with failure and difficulties (Ossi, 2022).

While numerous international studies have explored this relationship, evidence in Moroccan adolescents remains limited and fragmented. In particular, few studies have examined how self-esteem relates to academic achievement across different demographic factors such as gender, age, grade level, and place of residence. This study focuses specifically on Moroccan middle school students, aiming to address this gap by examining the association between self-esteem and academic performance. The objective of this study is to analyze the relationship between self-esteem, academic performance, and the living environment (rural or urban) of Moroccan students. We posit that high self-esteem is associated with better academic performance. The living environment (rural or urban) influences students' level of self-esteem.

This research thus aims to better understand the interactions between psychological and environmental factors in academic success in order to propose avenues for improvement for the Moroccan education system.

Methods and Materials

Study Design

This study adopts a quantitative correlational comparative design. It examines the relationships between self-esteem and academic performance while exploring the influence of moderating variables such as gender and place of residence (urban vs. rural). Data were collected cross-sectionally during the 2024-2025 academic year.

Population and Sampling

The study included middle school students from Rabat-Sale-Kenitra region (Morocco), enrolled in the first and third years. This educational level was consistently applied throughout the study. This population was chosen because adolescence is a pivotal period for the crystallization of self-esteem and orientation toward scientific fields. To be included in the study, students had to meet the following criteria: (1) be regularly enrolled in a public institution for the 2023/2024 school year, (2) belong to the collegiate level, and (3) have completed all modules of mathematics, life and earth sciences, and physics-chemistry during the year.

A stratified random sampling method was used. Schools were first stratified according to geographic location (urban vs. rural). Within each stratum, schools were randomly selected, followed by random selection of students within each school. This method resulted in a final sample of 372 students, ensuring a balanced distribution between rural (n=106) and urban (n=122) areas, as well as near gender equality. This method reduces selection bias and increases the robustness of subsequent comparative analyzes.

The final sample, drawn from this population, consists of 372 students. The demographic structure of this group has been carefully recorded for comparison of the living context,

and the participants are equally distributed by sex and place of residence (Table 1).

Table 1.

Sociodemographic characteristics of participants (N=372)

Variable		Number	Percentage (%)
Gender	Boy	209	56.18
	Girl	163	43.82
Origin	Rural	170	45.69
	Urban	202	54.31
Grade level	First year	166	44.63
	Third year	206	55.37

To guaranty the homogeneity of the studied population and to limit the confounding variables, some exclusion criteria have been applied. Students with incomplete academic records or who refused to participate in any phase of the psychometric evaluation have been excluded from the analysis. Also, students who joined the institution in the middle of the year have been excluded, to guaranty that the calculated academic averages reflect a stable and comparable learning trajectory in the same educational structures.

Self-Esteem Assessment

The participants' self-esteem was assessed using the Rosenberg Self-Esteem Scale (1965), a widely used psychometric instrument to measure individuals' self-image and level of self-evaluation, and the version utilized had previously been validated in adolescent populations and demonstrated acceptable reliability (El Mâachi & Belcaid, 2021).

Description of Rosenberg Scale

Developed by Morris Rosenberg in 1965, this scale was initially designed to assess the self-esteem of university students. It includes ten items, to which participants respond using a four-point scale. This tool is recognized for its ease of use and its ability to position individuals on a self-esteem continuum, ranging from a low level to a high level (Silber and Tippet, 1965).

Psychometric Characteristics

The Rosenberg scale is frequently associated with psychological variables such as anxiety, depression, and guilt. Its administration is quick, generally not exceeding five minutes. It was validated by Vallière & Vallerand (1990), with a Cronbach's alpha coefficient of 0.89, indicating excellent internal reliability, and a test-retest correlation coefficient of 0.84, demonstrating good temporal stability.

The total score is calculated on a scale ranging from 10 to 40 points. The scoring protocol distinguishes between two types of items: Direct items (1, 2, 4, 6, 7): Standard scoring; Reversed items (3, 5, 8, 9, 10): Recoding necessary (1 becomes 4, 2 becomes 3, etc.) to ensure the directionality of the construct. The interpretation of scores follows a standardized classification allowing for the categorization of self-esteem levels (Table 2).

Table 2.

Interpretation thresholds for Rosenberg scores

Score	Self-esteem level
< 25	Very low self-esteem – Self-work is recommended
25 - 31	Low self-esteem – Reinforcement is advised
31 - 34	Average self-esteem
34 - 39	High self-esteem
> 39	Very high self-esteem, indicating great self-confidence

School Achievement Assessment

Students' academic achievement was measured based on their average grades in science subjects. We opted for this approach because these subjects are standardized and comparable between schools, and these indicators are relatively stable to be representative of students' cognitive skills and academic achievement. The subjects considered in the computation are Mathematics, Life and Earth Sciences (LES) and Physics-Chemistry. This approach provides an objective estimate of students' academic level in core disciplines that are often considered as indicators of academic success.

Ethical Considerations

Ethical approval was obtained from the Faculty of science ethics committee of Ibn Tofail university, Morocco (05/2023). Written informed consent was obtained from legal guardians, and assent was also obtained from all participating students.

Statistical Analysis

The data were processed using R software. A descriptive analysis was conducted to characterize the sample using frequencies, means, and standard deviations. The normality of the distribution was verified using the Kolmogorov-Smirnov test to validate the use of parametric inferential statistics. Subsequently, the student's t-test for independent samples was applied to compare self-esteem levels according to gender and place of residence. Finally, the relationship between self-esteem and scientific performance was examined by calculating the Pearson correlation coefficient (r). To further analyze the distribution of performance levels across categorical variables such as age groups, a Chi-square test of independence was applied. The significance threshold for all tests was set at $p < 0.05$.

Findings and Results

Analysis of Self-Esteem

The analysis of the total sample (N=372) for the variable self-esteem presents an average score of 28.36 (SD=3.16), which according to the thresholds of the Rosenberg scale, indicates moderate self-esteem in the population. The distribution in categories (Figure 1) supports this trend: most participants (52.6%) have low self-esteem, and 7.9% are in the "very low" category. In contrast, only a small number of the sample has high and very high levels of self-esteem (12.7% and less than 1%, respectively).

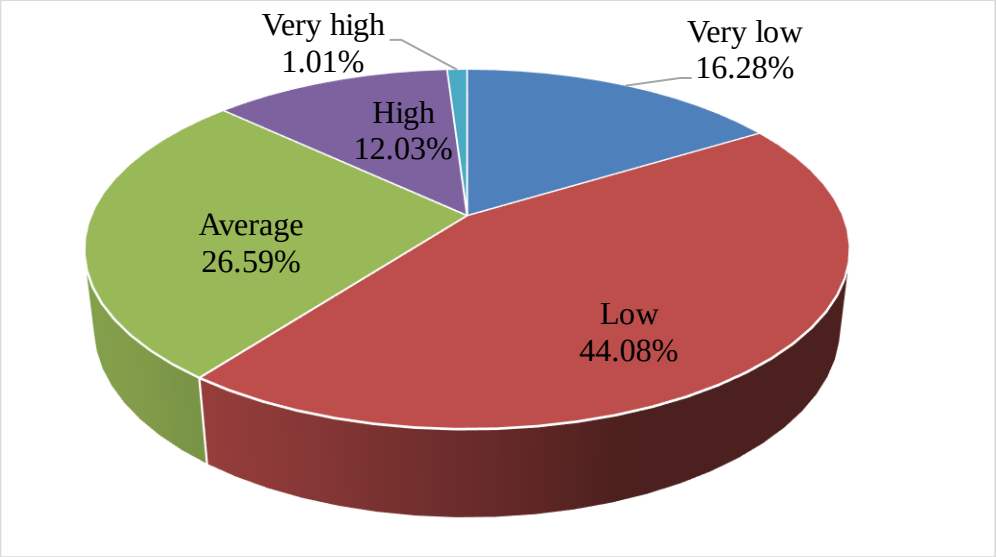


Figure 1.

Distribution of self-esteem types in the studied population

Self-Esteem variation by Socio-Demographic Variables

Gender-Based Variations

Descriptive data indicate that girls obtain a higher mean score (M = 29.52± 3.61) compared to boys (M=27.61±2.50) (Table 3). Inferential analysis using an independent samples t-test demonstrates that this difference is statistically highly significant (t=–3.627; p<0.001). Distributional data (Figure 2) further reveal that boys are predominantly represented in the "low" and "very low" categories, whereas girls show higher frequencies in the "average" to "high" self-esteem ranges.

Table 3.

Self-esteem mean according to gender

	Mean	SD	t	P value
Boy	27.61	2.50	-3.627	0.001
Girl	29.52	3.61		

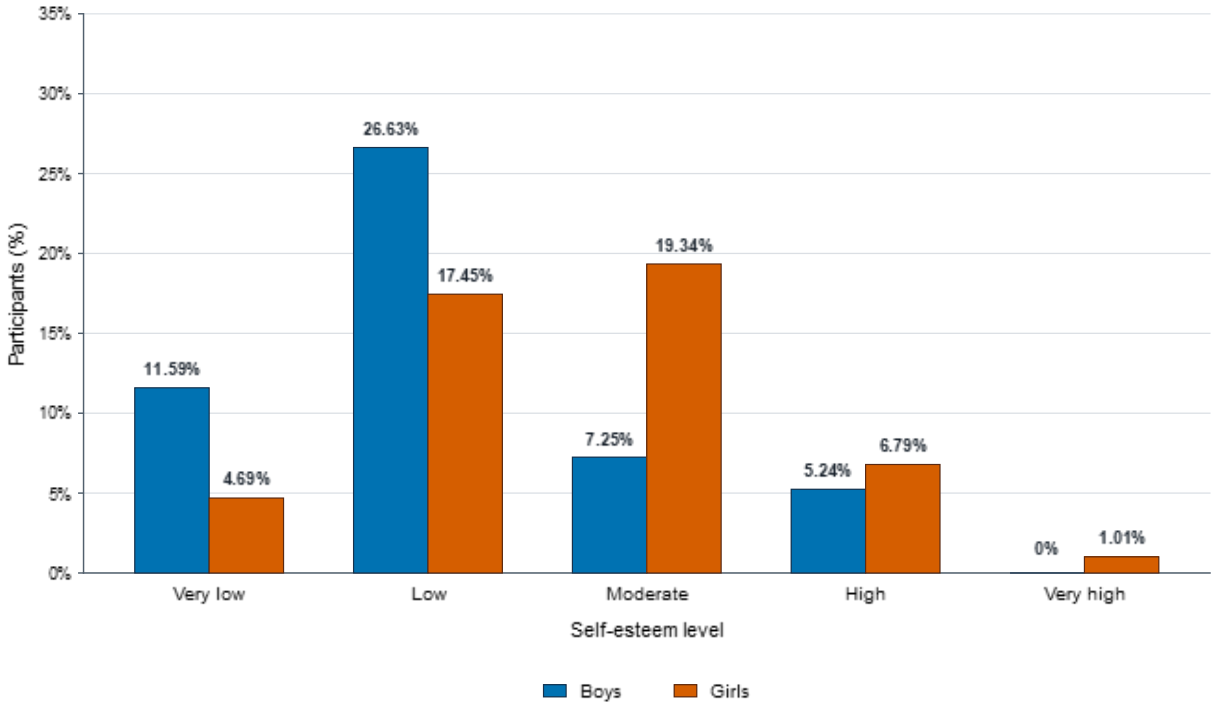


Figure 2.

Distribution of self-esteem types by gender

Influence of Residential Environment

Comparing students from rural and urban areas, the comparison shows slightly better results for urban students (M=29.12±3.21 vs. M=28.77±3.11). However, based on the results of the t-test (t=1.564; p=0.096), the environment does not significantly affect self-esteem levels (Table 4). In both cases, "low self-esteem" remains the dominant profile that affects 54.71% of rural students and 50% of urban students (Figure 3). Despite similar percentage distributions, there were no statistically significant differences between urban and rural students (p > 0.05).

Table 4.

Self-esteem according to origin

	Mean	SD	t	P value
Rural	28.77	3.11	1.564	0.096
Urban	29.12	3.21		

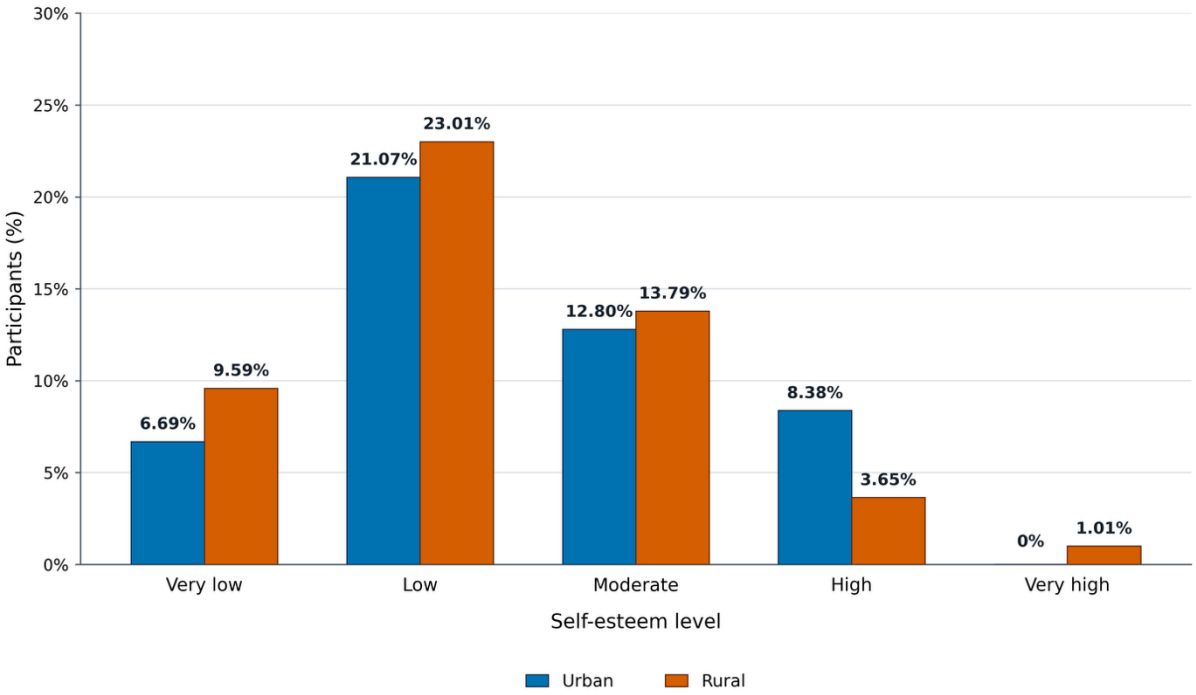


Figure 3.

Distribution of types of self-esteem according to origin

Impact of Academic Level and Age

One-way ANOVA showed a significant effect of age ($F=4.917$; $p<0.001$). Students aged 12 to 13 years had a higher prevalence of "high" self-esteem (27%), whereas the older age groups (15 to 17 years) were predominantly characterized by low self-esteem profiles (Figure 4).

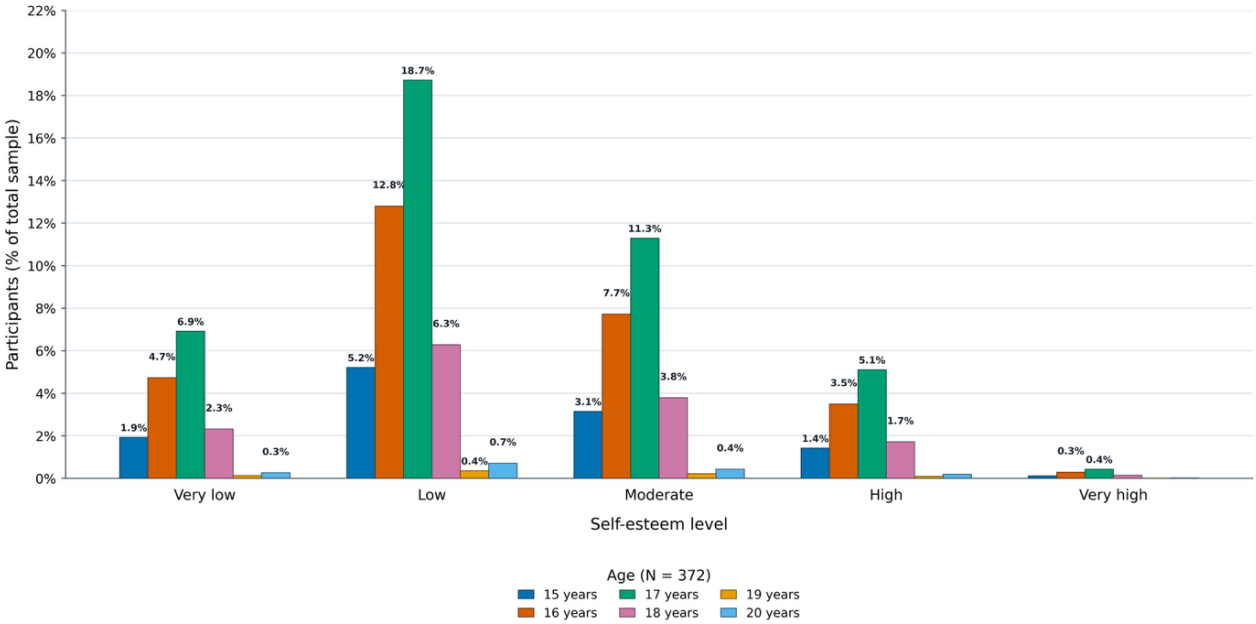


Figure 4.

Self-esteem and age

Academic Performance and self-esteem

General Overview and Gender Disparities

The academic achievement level of the students was as follows: 93 students (25.0%) had an insufficient level, 138 (37.1%) had a moderate level, 123 (33.1%) had a good level, and 18 (4.8%) had a very good level. The most frequent academic achievement level was moderate, but the students' academic level was good in 1/3 of the cases (Figure 5). A good or very good academic achievement level was observed among 39.8% of girls, compared with 36.0% of boys, indicating a modest advantage among female students.

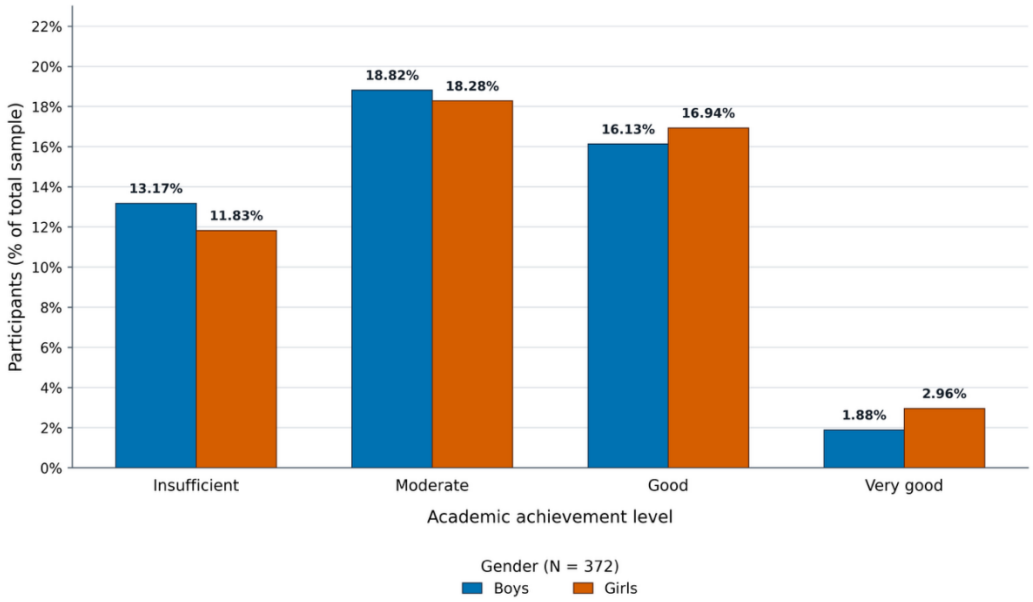


Figure 5.

Gender-Based Differences in Academic Achievement Levels

Influence of Residential Environment and Age on Performance

No significant difference in academic achievement was observed between urban and rural students ($p > 0.05$), with similar distributions across the insufficient, moderate, good, and very good categories (Figure 6). In contrast, self-esteem was positively and significantly correlated with academic achievement ($r = 0.63$, $p < 0.001$)

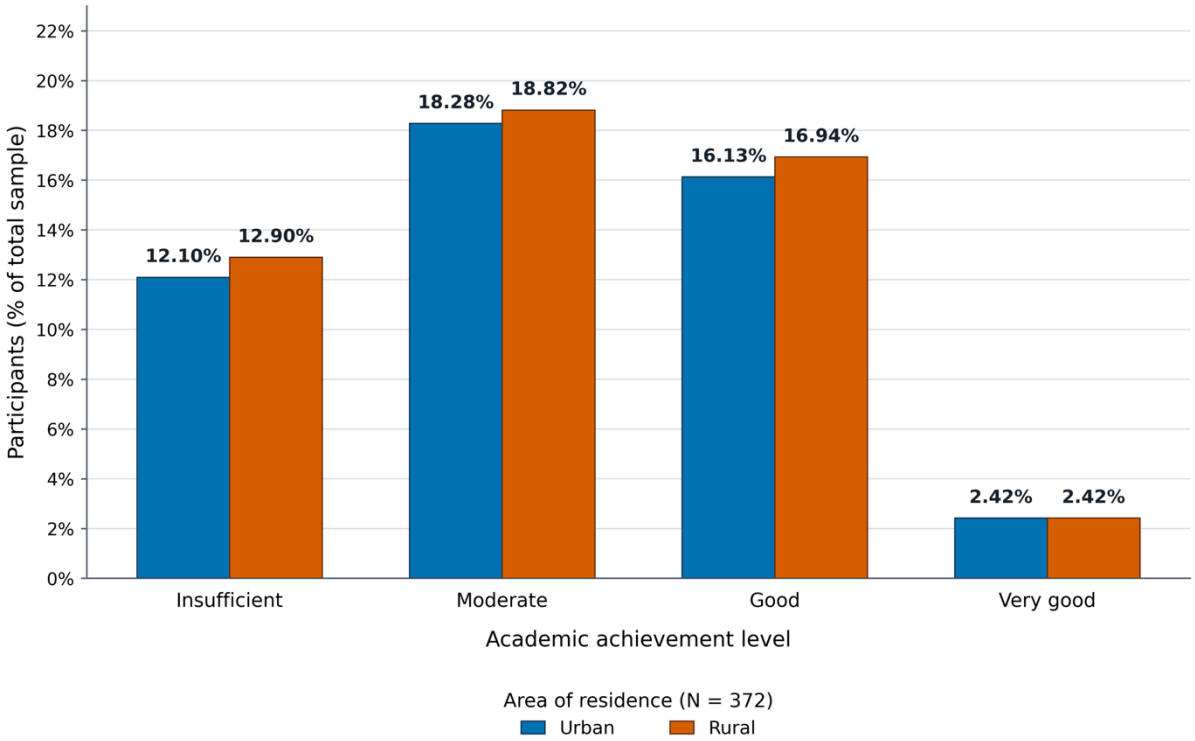


Figure 6.

Distribution of academic performance according to origin

As presented in Table 5, the chi-square test showed no significant association between age and academic achievement level ($\chi^2 = 1.56$, $p > 0.05$). The distribution of insufficient, moderate, good, and very good achievement levels was broadly similar across the different age groups. Therefore, age was not identified as a significant factor associated with academic achievement in the present sample.

Table 5.

Distribution of academic achievement levels according to age

		Level score				Total	p-value
		Insufficient	Moderate	Good	Very good		
Age (years)	15	11	16	15	2	44	0.988
	16	27	40	36	5	108	
	17	39	59	52	8	158	
	18	14	20	16	3	53	
	19	1	1	1	0	3	
	20	1	2	3	0	6	
Total		93	138	123	18	372	

Self-esteem and academic performance

Pearson correlation analysis showed a positive correlation between self-esteem and continuous academic performance ($r = 0.63$; $p < 0.001$; $N = 372$). This is a large correlation for the present sample: students with higher scores on self-esteem tended to have higher averages in the science subjects. The corresponding coefficient of determination was $r2 = 0.397$, which means that the two measures shared about 39.7% of their variance. This value provides an index of the strength of the bivariate relationship and should not be interpreted as the proportion of achievement caused by self-esteem. The association may be bidirectional and may also reflect unmeasured family, socioeconomic, school, or motivational factors (Table 6).

Table 6.

Association between self-esteem and academic performance

Variables	N	Pearson r	p-value	r^2
Self-esteem score vs. science-subject average	372	0.63	<0.001	0.397

Discussion and Conclusion

The present research aimed to analyze the influence of self-esteem as a psychosocial factor determining academic success among Moroccan high school students, incorporating contextual variables such as gender, age, level of education, and place of residence. The results show several main trends that contribute to a better understanding of the mechanisms underlying academic performance in this context.

The results show that the sample has a clear predominance of low self-esteem (60.36%), with a general mean in the "low" category. This finding is consistent with several studies in similar socio-economic contexts, which highlight that adolescents from disadvantaged backgrounds tend to have lower levels of self-esteem (Holopainen et al., 2020). This trend could be accounted for by the living conditions marked by economic constraints, the limited availability of educational resources, and sometimes unstable family environments, all factors likely to impair self-esteem and academic aspirations (Holopainen et al., 2020).

The findings indicate that girls have significantly higher self-esteem ($p<0.001$) and better performance in their studies than boys. This is contrary to previous studies that showed lower self-esteem in girls but is consistent with current studies that suggest a revolution of gender relations in educational environments, particularly in developing countries (Biro et al., 2006; Moustakbal & Maataoui, 2023). However, the explanations for these differences are speculative and may include several social and educational factors that were not measured in this study. This reversal can be explained by the increased school engagement of girls and specific social expectations that support their academic success (Lotfi et al., 2024; Sainfa & Ste-Croix, 2022b). Boys, by contrast, seem more prone to signs of academic disengagement and psychosocial fragility.

Likewise, no significant differences were found between students from urban and rural areas ($p>0.05$). Although there may be structural explanations, the present findings do not provide sufficient evidence to support such interpretations. This finding suggests that differences between rural and urban settings tend to fade away when considering generally adverse socioeconomic conditions, as evidenced in the sample examined here. This confirms findings from research indicating that educational differences are not solely associated with geographical location but primarily with the availability of socioeconomic resources (Wu et al., 2022).

Moreover, the analysis by grade and age shows that self-esteem tends to decline as students progress in their education. First-year students have significantly higher self-esteem than third-year students ($p=0.009$) (Lotfi & Chakit, 2024; Thibodeau et al., 2021b).

The present study found a significant positive relationship between self-esteem and academic performance among Moroccan high school students ($r = 0.63$; $p < 0.001$). This result is consistent with previous research showing that higher self-esteem is associated with better academic outcomes (Latem & Mwimbilwa, 2023b). But the cross-sectional design does not allow for causal inferences. Thus,

self-esteem should be interpreted as an associated factor rather than as a determinant of academic success.

The gender gap in performance underscores the reality that academic self-esteem is presently stronger among females in Morocco. This phenomenon, which some local writers call the "pedagogy of confidence," indicates that intervention programs should target boys in schools in order to strengthen their sense of self-efficacy. Self-esteem acts as a motivational and regulatory component that impacts academic participation, persistence, and the ability to recover from failures. However, these results should be taken with a grain of salt, since other researchers have suggested a bidirectional relationship, where academic achievement also plays a role in boosting self-esteem (Ossi, 2022).

Limitations

The present study has several limitations. First, the cross-sectional design does not allow for causal interpretation of the relationship between self-esteem and academic performance. Second, academic performance was assessed only through the average of the science subjects, which may not represent the overall academic achievement. Finally, although the study focused on high school students, previous inconsistencies in the definition of educational level have been corrected in this revised version.

Implications and perspectives

The findings of this research emphasize the need to incorporate the psychosocial component, especially self-esteem, into Moroccan educational policies. Interventions that target boosting students' self-esteem may be effective in increasing their engagement and academic achievement. This may involve psychological support programs, empowering teaching methods, and increased support for struggling students. Future studies should use longitudinal and multidimensional approaches to better understand the causal pathways and investigate other potential mediating variables.

Conclusion

The present study shows that self-esteem is significantly related to academic performance among Moroccan high school students. However, the cross-sectional design does not allow for causal inference. No significant differences were observed according to the place of residence, but this result should be taken with caution. These results suggest that psychosocial factors such as self-esteem may impact academic achievements. At the practical level, integrating psychosocial support strategies into educational environments could promote student well-being and academic success, but further longitudinal research is needed to confirm these associations.Acknowledgments

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

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 contribute to this study.

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