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The Psychosocial Contexts of Sustained Academic Excellence Among High-Achieving Secondary School Students

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Abstract

Academic achievement has long been a central concern of educational research, yet less attention has been given to the psychosocial contexts of students who sustain high levels of academic performance. This study described these contexts among high-achieving secondary school students, interpreting the findings through Bronfenbrenner's bioecological framework. The study analyzed psychoeducational records from 52 students who obtained a final Baccalaureate average of at least 16/20. Quantitative data were summarized using descriptive statistics, while documented information was reviewed to characterize students' academic trajectories, family contexts, school relationships, and psychoeducational follow-up. Students maintained high academic performance throughout secondary school, and the records generally indicated positive relationships with family members, teachers, peers, and educational staff. Psychoeducational follow-up primarily concerned common academic and developmental issues, including examination anxiety, concentration difficulties, motivational fluctuations, and educational decision-making, rather than major psychological difficulties. Overall, sustained high academic achievement was observed alongside favourable individual, family, and school contexts.

Keywords: Academic excellence; High-achieving students; Psychosocial contexts; Secondary education; Psychoeducational records.

1. Introduction

Despite decades of research on academic achievement, substantial attention has been given to academic underachievement, school failure, dropout, and learning difficulties, while the psychosocial contexts surrounding sustained high achievement have received comparatively less attention. Existing research has identified a wide range of individual, family, school, and contextual factors associated with academic achievement. High-achieving students, however, also navigate the academic, social, and developmental demands of adolescence. Examining the contexts in which they sustain high performance can therefore complement existing research by broadening attention beyond academic difficulties to the conditions surrounding successful achievement.

This perspective is also consistent with contemporary views of education, which emphasize that schools should support not only academic attainment but also the development of the knowledge, skills, attitudes, and values needed to adapt and thrive in changing environments (OECD, 2024). Understanding the psychosocial contexts associated with sustained high achievement may therefore contribute to a broader understanding of successful adolescent development and inform the work of educational and school-based support professionals.

1.1 Psychosocial influences on academic achievement

Academic achievement is shaped by the interplay of individual and contextual factors rather than by a single determinant. Research has identified contributions from cognitive and motivational processes, family characteristics, school experiences, and broader contextual conditions (Costa et al., 2024; Schneider & Preckel, 2017).

At the individual level, motivation, metacognition, and self-regulated learning are consistently associated with academic achievement. Students who effectively plan, monitor, and regulate their learning tend to achieve better academic outcomes (He et al., 2024; Jung, 2025). Research focusing specifically on high-achieving students also indicates that they are not a homogeneous group. Differences in motivational profiles, metacognitive processes, and achievement-related emotions can be observed even among students who achieve similarly high levels of academic performance (Moustakas & Gonida, 2023; Ziernwald et al., 2022).

Academic achievement is also embedded in the social environments in which adolescents develop. Supportive family relationships, positive school adjustment, constructive relationships with teachers and peers, and psychological well-being have been associated with more favourable educational outcomes (Azpiazu et al., 2024; Kaya & Erdem, 2021; Morales-Castillo, 2023). These findings indicate that academic performance cannot be understood solely in terms of students' individual characteristics; it is also shaped by the interpersonal and educational contexts in which learning takes place.

Although these factors are often examined separately, they operate simultaneously in adolescents' everyday lives. Students learn within families, schools, and peer environments, with experiences in one setting potentially coinciding with or interacting with experiences in another. An understanding of sustained high achievement can be strengthened by a framework that considers individual and contextual influences as interconnected rather than as isolated predictors.

1.2 A bioecological perspective on academic excellence

The view of academic achievement as shaped by multiple individual and contextual influences is consistent with Bronfenbrenner's bioecological theory of human development (Bronfenbrenner & Morris, 2006). The theory emphasizes that development occurs through ongoing interactions between individuals and the environments in which they participate. These developmental processes unfold within interconnected contexts, including immediate settings such as the family and school as well as broader social and cultural environments. The model therefore provides a framework for examining development as the result of relationships between the developing person and the contexts in which development takes place.

Applied to academic achievement, this perspective draws attention to the ways in which individual characteristics and experiences within students' social environments coexist over time. Motivation, learning strategies, family relationships, school experiences, and psychological well-being can thus be considered in relation to one another rather than as isolated influences on educational development.

This perspective is particularly relevant to the study of sustained high achievement. Rather than searching for a single characteristic that distinguishes high-achieving students, an ecological approach allows attention to the combination of individual, family, and school contexts surrounding their academic trajectories. In the present study, Bronfenbrenner's bioecological framework is used as a conceptual lens for interpreting the psychosocial contexts documented in students' psychoeducational records.

1.3 Research gap

Research in Algeria has examined several dimensions of academic excellence among secondary school students, including psychosocial needs, academic self-efficacy, attributions of academic success and failure, coping with psychological stress, and family-related factors (Meguehout, 2020; Aouchiche & Bouroubi-Radjah, 2020, 2024; Ben Aissa & Zouari, 2021; Liazid, 2024). More recent work has also examined the relationship between parental cultural capital and academic excellence among Algerian secondary students (Cheddad et al., 2025). Together, these studies provide evidence on specific psychological and contextual dimensions of high academic achievement. However, they have generally focused on particular variables or domains rather than examining multiple aspects of students' psychosocial environments together.

A further gap concerns the type of information used to study high academic achievement. The Algerian studies identified here have relied primarily on questionnaires, psychological scales, and comparative or descriptive designs. Less attention has been given to routine psychoeducational records as a source of information about students' academic trajectories, family circumstances, school relationships, and educational or psychoeducational needs. Such records offer a view of students' experiences as documented within everyday educational practice rather than through measures developed specifically for a research study.

1.4 Aim of the study

The present study aimed to describe the psychosocial contexts associated with sustained high academic achievement among high-achieving secondary school students. Using psychoeducational records, the study examined students' academic trajectories, family contexts, school relationships, and psychoeducational follow-up.

The study was guided by the following research question:

What psychosocial contexts characterize students who maintain high academic performance throughout secondary school?

To address this question, the study pursued three objectives:

1. To describe the academic trajectories of high-achieving secondary school students.
2. To examine the family and school contexts documented in their psychoeducational records.
3. To interpret the documented psychosocial patterns through Bronfenbrenner's bioecological framework.

2. Method

2.1 Study design and setting

This study employed a descriptive retrospective design based on the analysis of existing psychoeducational records from a single graduating cohort. It was conducted in a public residential secondary school in eastern Algeria that admits students through a highly selective academic admission process and provides educational and psychoeducational follow-up throughout the three-year secondary education program. Bronfenbrenner's bioecological theory served as the conceptual framework for interpreting the documented findings.

2.2 Participants and data source

The study included 52 male students from a single graduating cohort. High-achieving students were operationally defined as those who obtained a final Baccalaureate average of 16/20 or higher. All participants were between 17 and 18 years of age. The sample consisted exclusively of male students because the school admitted only boys during the period in which this cohort was enrolled.

The data source consisted of existing psychoeducational records maintained as part of the school's routine student follow-up. The records documented students' educational progress, school adjustment, and psychosocial experiences throughout secondary education. They contained quantitative and descriptive information on academic performance, demographic and family characteristics, relationships with family members and members of the school community, and psychoeducational follow-up. The documented concerns and activities included academic planning, examination preparation, concentration difficulties, motivation, and educational or career guidance.

Although the records were not originally designed for research purposes, they were maintained according to the school's standard procedures for psychoeducational follow-up, resulting in broadly comparable information across students.

2.3 Variables and data extraction

Information extracted from the psychoeducational records was organized into four domains: academic performance, family context, school context, and psychoeducational follow-up.

Academic performance: Academic records included students' average grades at school entry, during each year of secondary education, and in the final Baccalaureate examination.

Family context: Extracted information included parental presence, parents' educational level and employment status, number of siblings, housing characteristics, and documented information about students' relationships with family members.

School context: Extracted information concerned relationships with teachers, peers, and educational staff, as well as documented indicators of school adjustment.

Psychoeducational follow-up: Extracted information included the main reasons for educational and psychoeducational consultations, such as academic planning, examination preparation, concentration difficulties, motivation, career guidance, and other developmental or educational concerns.

Data were extracted using a structured extraction grid developed for the study. The grid reflected the four domains described above.

2.4 Data analysis

Quantitative data were summarized using descriptive statistics. Means were calculated for continuous variables, while frequencies and percentages were used for categorical variables.

Documented information from the psychoeducational records was reviewed to characterize students' academic trajectories, family contexts, school relationships, and psychoeducational follow-up. This information was used to provide context for the quantitative findings and was not subjected to formal qualitative analysis. The findings were then interpreted through Bronfenbrenner's bioecological framework.

2.5 Ethical considerations

The study used anonymized psychoeducational records maintained as part of routine student follow-up. No identifying personal information was available to the researchers, and findings were reported in aggregated form to protect participants' confidentiality. The use and analysis of the records followed principles of privacy, confidentiality, and responsible use of educational and psychoeducational information.

3. Results

3.1 Academic performance

Participants maintained high academic performance throughout the three years of secondary education (Table 1). The mean admission score was 17.22/20. Mean scores were 16.19/20 in the first year, 15.73/20 in the second year, and 16.14/20 in the third year. The mean score on the national Baccalaureate examination was 16.81/20.

Table 1. Mean academic performance of the participants across secondary education.

Academic stage	Mean score (/20)
Admission to secondary school	17.22
First year	16.19
Second year	15.73
Third year	16.14
National Baccalaureate examination	16.81

3.2 Family characteristics

Parents' educational and employment characteristics

The educational and employment characteristics of the participants' parents are presented in Tables 2 and 3. Most fathers were employed (94%), while 83% of mothers were not employed. Fathers most commonly had completed secondary education (46%), followed by university education (27%). Among mothers, 38% had completed secondary education, and 29% had completed university education.

Three participants (6%) had an absent father due to death or divorce, while all participants had mothers who were present in the household.

Table 2. Sociodemographic characteristics of participants' fathers.

Reasons for absence (Father)	n (%)	Father's employment	n (%)	Father's educational level	n (%)
Death	2 (4%)	Unemployed	3 (6%)	No formal education	3 (6%)
Divorce	1 (2%)	Employed	49 (94%)	Primary education	1 (2%)
				Middle school	10 (19%)
				Secondary education	24 (46%)
				University education	14 (27%)

Table 3. Sociodemographic characteristics of participants' mothers.

Reasons for absence (Mother)	n (%)	Mother's employment	n (%)	Mother's educational level	n (%)
Death	0 (0%)	Not employed	43 (83%)	No formal education	2 (4%)
Divorce	0 (0%)	Employed	9 (17%)	Primary education	6 (12%)
				Middle school	9 (17%)
				Secondary education	20 (38%)
				University education	15 (29%)

Family composition and relationships

The mean number of children per family was 3.10. All participants lived with their parents and siblings in separate households rather than in extended-family households.

The quality of family relationships was generally reported as positive (Table 4). Relationships with mothers were rated as very good by 92% of participants. Relationships with fathers were rated as good by 67% and very good by 31% of participants. Relationships with siblings were rated as good by 81% and very good by 19%.

Table 4. Participants' perceived quality of relationships with family members.

Relationship	Very good	Good	Poor	Very poor
Father	16 (31%)	35 (67%)	1 (2%)	0 (0%)
Mother	48 (92%)	4 (8%)	0 (0%)	0 (0%)
Siblings	10 (19%)	42 (81%)	0 (0%)	0 (0%)

Relationship ratings reflect students' self-reported perceptions recorded during routine psychoeducational follow-up interviews.

3.3 School relationships

Participants generally reported positive relationships within the school environment (Table 5). Relationships with teachers were rated as very good by 94% of participants, while relationships with peers were rated as very good by 86.5%. Relationships with educational staff were rated as good by 81% and very good by 19%.

Table 5. Participants' perceived quality of relationships within the school environment.

Relationship	Very good	Good	Poor	Very poor
Teachers	49 (94%)	2 (4%)	1 (2%)	0 (0%)
Peers	45 (86.5%)	4 (7.7%)	3 (5.8%)	0 (0%)
Educational staff	10 (19%)	42 (81%)	0 (0%)	0 (0%)

3.4 Psychoeducational follow-up

No significant difficulties in school adjustment or adaptation to the residential environment were documented in the available records. The records also contained no documentation of major physical or psychological health concerns during secondary education.

The most frequently documented reasons for psychoeducational consultations included examination anxiety, concentration difficulties, revision planning, fluctuations in academic motivation, educational and career decision-making, and occasional frustration or anger. Overall, psychoeducational follow-up primarily addressed academic and developmental demands rather than significant psychological difficulties.

4. Discussion

The findings describe a pattern of sustained high academic performance occurring alongside generally favourable individual, family, and school contexts. Participants maintained high academic achievement throughout secondary school, reported positive relationships with family members and members of the school community, and received psychoeducational support primarily for common academic and developmental concerns, such as examination anxiety, concentration difficulties, fluctuations in motivation, and educational decision-making. No major psychological or behavioural difficulties were documented in the available records.

Taken together, these findings are consistent with an ecological view of academic development. Bronfenbrenner's bioecological theory emphasizes that development unfolds through ongoing interactions between individuals and the contexts in which they participate (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006). From this perspective, the present findings do not point to a single characteristic that distinguishes sustained high achievement. Rather, they show that high academic performance coexisted with a range of favourable individual, family, and school conditions. Because the interactions among these contexts were not directly examined, the findings are best interpreted as a description of the ecological conditions surrounding sustained high achievement rather than evidence of causal or reinforcing processes.

4.1 Individual characteristics

A notable finding was the stability of participants' academic performance across secondary school. Mean achievement declined modestly in the second year but remained high throughout all three years and increased again in the third year, with the highest mean score recorded on the national Baccalaureate examination.

The present findings should be considered alongside research showing that high-achieving students are not a homogeneous group. Studies have identified differences in motivational profiles, metacognitive processes, and achievement-related emotions among students who achieve similarly high levels of performance (Jung, 2025; Moustakas & Gonida, 2023; Ziernwald et al., 2022). These findings suggest that sustained high achievement may occur through different individual pathways. However, the present study did not directly assess students' motivation, self-regulated learning, or metacognitive skills, and therefore cannot determine whether these characteristics contributed to the academic performance observed in this cohort.

The psychoeducational records documented a range of academic and developmental concerns, including examination anxiety, concentration difficulties, fluctuations in motivation, academic organization, frustration, and educational decision-making. At the same time, no major psychological or behavioural difficulties were documented in the available records. This pattern suggests that high academic performance coexisted with the kinds of academic and developmental challenges that can arise during adolescence. Research has likewise linked psychological well-being and school adjustment with academic achievement (Kaya & Erdem, 2021; Azpiazu et al., 2024), although the present study did not directly measure either construct.

4.2 The family microsystem

The family contexts documented in the records were generally stable. Most participants reported positive relationships with their parents, and parental educational attainment was relatively high, with most parents having completed at least secondary education. All participants lived with their parents and siblings in separate households before entering the residential school. Parent-child relationships were particularly positive. Nearly all participants rated their relationship with their mother as good or very good, and similar ratings were reported for fathers and siblings. These findings are consistent with research linking supportive family relationships with school adjustment, psychological well-being, and academic achievement during adolescence (Azpiazu et al., 2024; Morales-Castillo, 2023; Schmerse & Zitzmann, 2021).

Parental educational attainment also provides some context for the students' family backgrounds. More than one quarter of both mothers and fathers had completed university education, while secondary education was the most common level for both parents. Research has linked parental educational attainment with educational expectations, learning support, and access to academic resources (Costa et al., 2024).

Taken together, these findings show that high academic achievement in this cohort coexisted with stable family circumstances, positive family relationships, and relatively favourable parental educational backgrounds. Within a bioecological framework, these characteristics can be understood as features of the family microsystem surrounding the students' academic development.

4.3 The school microsystem

The school was an important context in the participants' daily lives. The records generally indicated positive relationships with teachers, peers, and educational staff. Relationships with teachers were particularly positive, with 94% of participants rating them as very good and 4% as good. Relationships with peers were also predominantly positive, although a small number of participants reported poor relationships.

Positive student-teacher relationships have been associated with academic engagement, school adjustment, and academic achievement (Schmerse & Zitzmann, 2021; Azpiazu et al., 2024). Positive peer relationships have likewise been linked to school belonging and psychological well-being (Azpiazu et al., 2024). The pattern observed in the present study is therefore consistent with research emphasizing the role of interpersonal relationships in students' school experiences.

The records also showed that psychoeducational follow-up focused mainly on examination anxiety, concentration difficulties, revision planning, fluctuations in motivation, frustration, and educational decision-making. Thus, the support documented in the records was primarily concerned with academic and developmental issues rather than significant psychological difficulties. Teachers, peers, educational staff, and psychoeducational follow-up can be viewed as components of the students' school microsystem. The present findings show that sustained high academic performance coexisted with generally positive school relationships and access to routine psychoeducational support. However, the study did not examine whether these factors directly contributed to students' achievement.

4.4 An ecological understanding of sustained academic excellence

Taken together, the findings show that sustained high academic performance coexisted with favourable conditions across several areas of students' lives. Participants maintained high academic achievement while generally reporting positive family and school relationships, relatively favourable parental educational backgrounds, and access to routine psychoeducational support. No single characteristic emerged as a defining feature of the cohort.

This pattern is consistent with a bioecological view of development, in which academic experiences are situated within multiple, interconnected contexts (Bronfenbrenner & Morris, 2006). At the microsystem level, the students' family and school relationships were generally positive. The coexistence of these patterns points to the relevance of multiple developmental contexts, although the study did not examine interactions between them directly. This interpretation is consistent with research showing that academic achievement is associated with multiple individual and contextual factors rather than a single determinant (Costa et al., 2024; Kassaw et al., 2024).

Finally, the findings suggest that sustained high achievement does not imply an absence of academic or developmental challenges. The records documented examination anxiety, concentration difficulties, fluctuations in motivation, frustration, and uncertainty about educational choices alongside positive family and school experiences. These challenges did not prevent students from maintaining high academic performance, although the study cannot determine how the different contexts or challenges influenced achievement over time. Future research using longitudinal designs and comparison groups could examine these relationships more directly.

5. Strengths and limitations

A main strength of the study is its use of psychoeducational records collected across the students' secondary-school years. This provided information on academic trajectories as well as family relationships, school experiences, and psychoeducational follow-up within routine educational practice. The study also focused on a cohort that maintained high academic performance, allowing sustained achievement to be described across the secondary-school period rather than at a single time point.

Several limitations should be considered. First, the descriptive retrospective design and absence of a comparison group do not allow causal conclusions or determine whether the documented contextual characteristics contributed to academic achievement. Second, the sample came from a single, highly selective residential school and included only male students from one graduating cohort, which limits the transferability of the findings to other student populations and educational settings. Third, the study relied on routinely maintained records whose content and level of detail depended on the consistency of the original documentation. Finally, constructs such as motivation, psychological well-being, and psychosocial adjustment were not assessed using standardized measures; interpretations concerning these domains were therefore limited to what was documented in the records.

6. Practical implications

The findings indicate that psychoeducational support should address the academic and developmental needs of high-achieving students as well as their academic performance. The records documented examination anxiety, concentration difficulties, fluctuations in motivation, frustration, and uncertainty about educational choices among students who nonetheless maintained high academic achievement. Routine follow-up may therefore be useful not only for students experiencing academic or behavioural difficulties but also for monitoring the changing needs of high-achieving students.

The findings also point to the importance of considering students' family and school contexts when providing support. Positive relationships with family members, teachers, peers, and educational staff were common in the records. In practice, maintaining communication among school professionals, students, and families may help ensure that academic concerns and developmental needs are identified within their broader context.

The study also highlights the potential value of routinely maintained psychoeducational records for educational practice and research. When records are structured consistently, they can provide information on students' academic trajectories, relationships, and changing educational or psychoeducational needs over time. Clearer and more systematic record-keeping could therefore improve continuity of student follow-up while also creating a more useful source of data for future research.

7. Conclusion

This study described the psychosocial contexts surrounding sustained high academic achievement among secondary school students using psychoeducational records collected across their secondary education. The students maintained high academic performance alongside generally positive family and school relationships and access to routine psychoeducational follow-up. The records also showed that high achievement coexisted with common academic and developmental challenges, including examination anxiety, concentration difficulties, fluctuations in motivation, and uncertainty about educational choices.

Interpreted through Bronfenbrenner's bioecological framework, these findings highlight the relevance of considering students' academic experiences within the broader contexts in which they develop and study. The study does not establish causal relationships among these contexts, but it provides a descriptive account of the individual, family, and school conditions documented alongside sustained high achievement in an Algerian educational setting.

Future research should examine these patterns using longitudinal designs, comparison groups, and more systematic measures of individual and contextual factors. Such studies could clarify whether and how the contexts identified here are related to sustained academic achievement across different student populations and educational settings.

Declarations

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Conflict of interest

The authors declare that they have no conflicts of interest related to this study.

Use of artificial intelligence

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) to assist with language refinement and the development and refinement of the conceptual framework. All AI-assisted content was critically reviewed, revised, and verified by the authors. The authors take full responsibility for the accuracy, interpretation, and final content of the manuscript.

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