DATA ANALYSIS REPORT ON STUDENT PERFORMANCE FACTORS

1. Introduction

- Objective: To analyze factors influencing student performance and identify patterns or correlations that can help improve educational practices.

- Scope: Student performance measured by grades, attendance, extracurricular activities, parental involvement, etc.

2. Key Variables from the dataset;

  - Demographic: gender, family income, school type.

  - Academic: Exam scores, Attendance.

  - Behavioral: Attendance, class participation, extra-curricular activities, reading hours.

  - Environmental: parental involvement, access to resources, peer influence.

3. Insights

Chart 1: Motivation levels often have effects exam scores, as highly motivated students are more likely to engage in effective study habits, ask for assistance when needed.
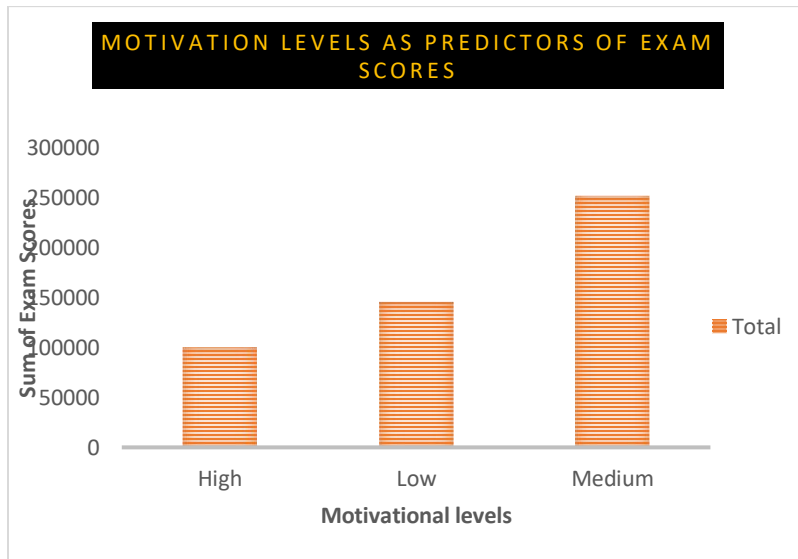
Chart 2: Internet access can be an essential tool for learning and a distraction as well, depending on how it's utilized.

Internet access: a tool or a distraction?

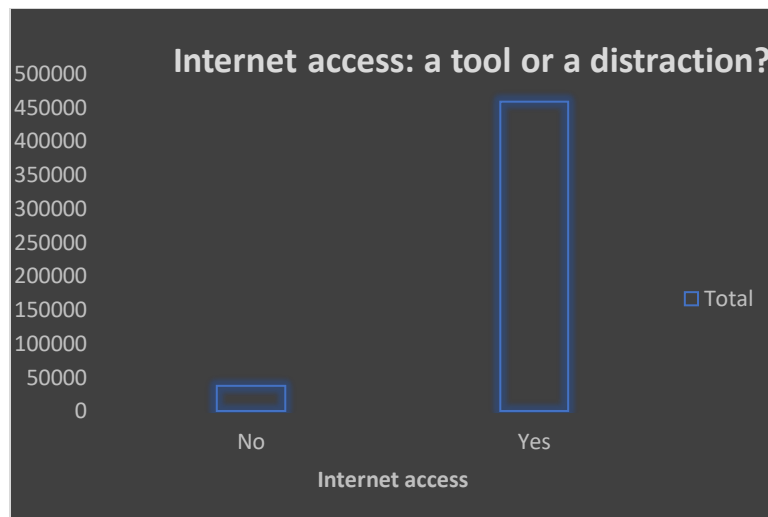| Internet access	Total
No	(small value)
Yes	~460000

Chart 3: Access to resources has positive impact on motivation level by providing students with the tools and support needed to achieve their academic goals effectively.

Access to resources and its relationship to motivation levels
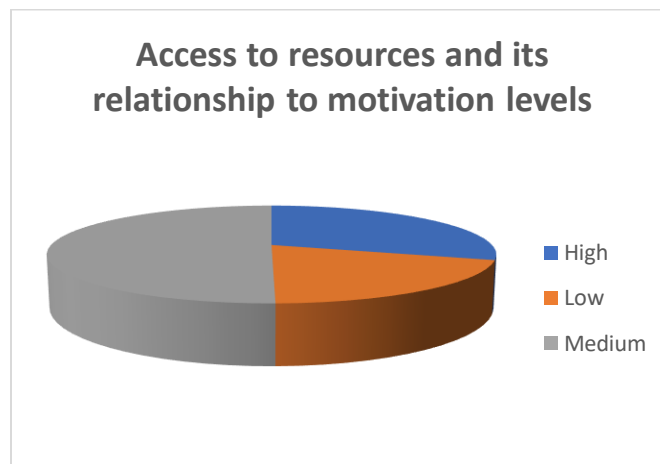
- High
- Low
- Medium

Chart 4: Higher parental educational levels can be linked to better student outcomes, as educated parents are likely to provide more academic support, encouragement, and a conducive learning environment.

Parental educational levels and student outcomes

97980

148471

242906

- College
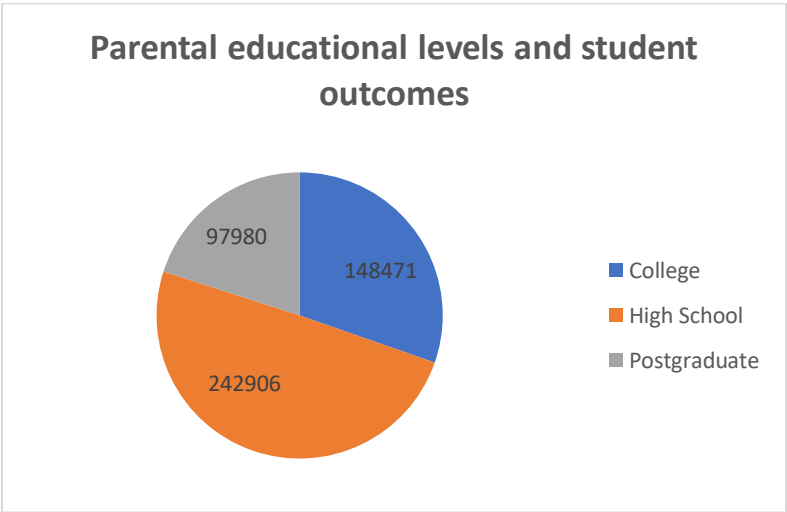- High School
- Postgraduate

Chart 5: Distance from home can be a hidden barrier to success, as farther distances may reduce study time, increase fatigue, and limit access to school resources and extracurricular activities.
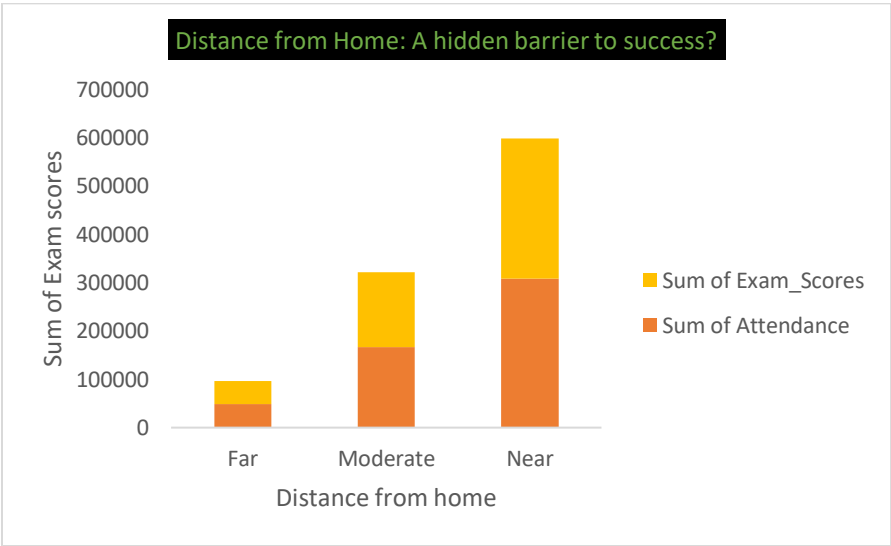
Distance from Home: A hidden barrier to success?

Sum of Exam scores

700000
600000
500000
400000
300000
200000
100000
0

Far   Moderate   Near

Distance from home

- Sum of Exam_Scores
- Sum of Attendance

Chart 6: Attendance significantly impacts school engagement, serving as an indicator of a student's participation, consistency, and connection to the learning environment, all of which influence academic success.
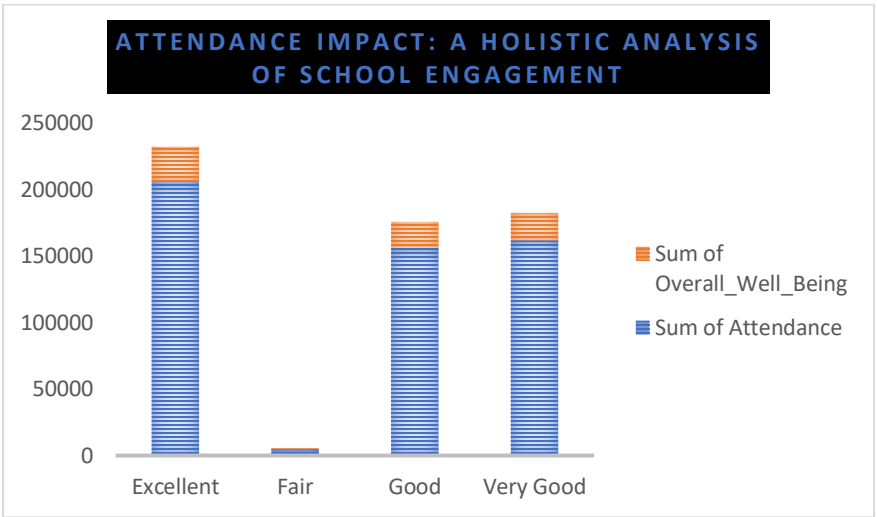

Chart 7: Sufficient sleep hours enhance motivation and academic results by improving focus, memory retention, and overall cognitive performance, while insufficient sleep often leads to tiredness and decreased productivity
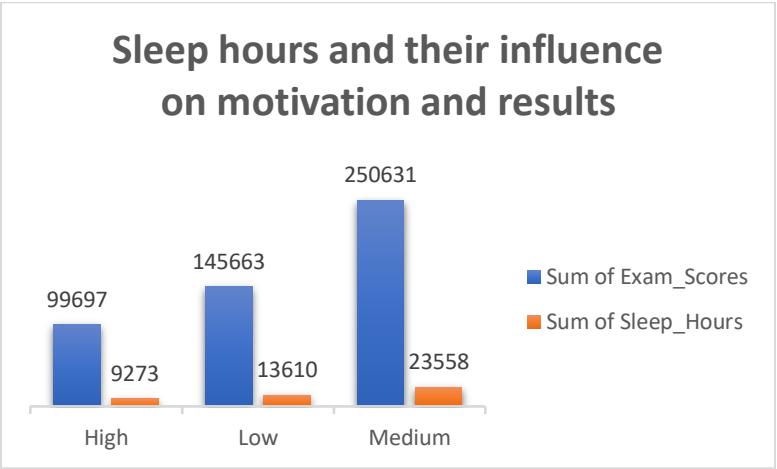
Chart 8: Economic factors strongly influence educational outcomes, as higher economic stability provides better access to quality resources, learning opportunities, and a supportive environment, whereas financial challenges can hinder academic achievement.
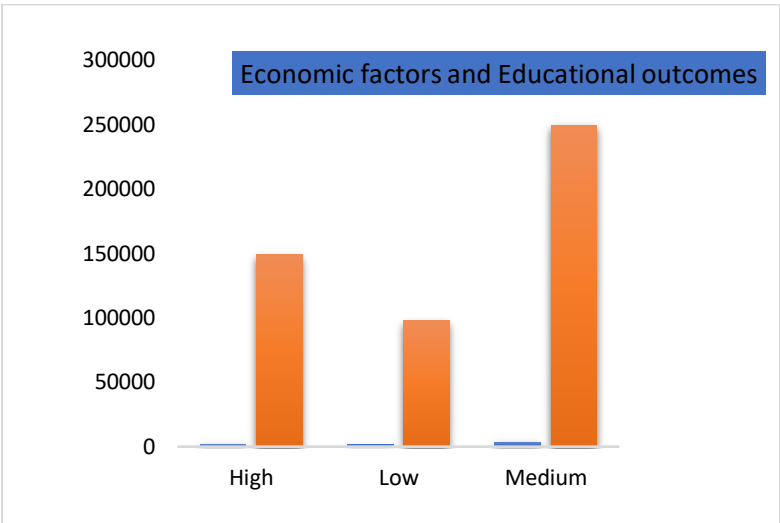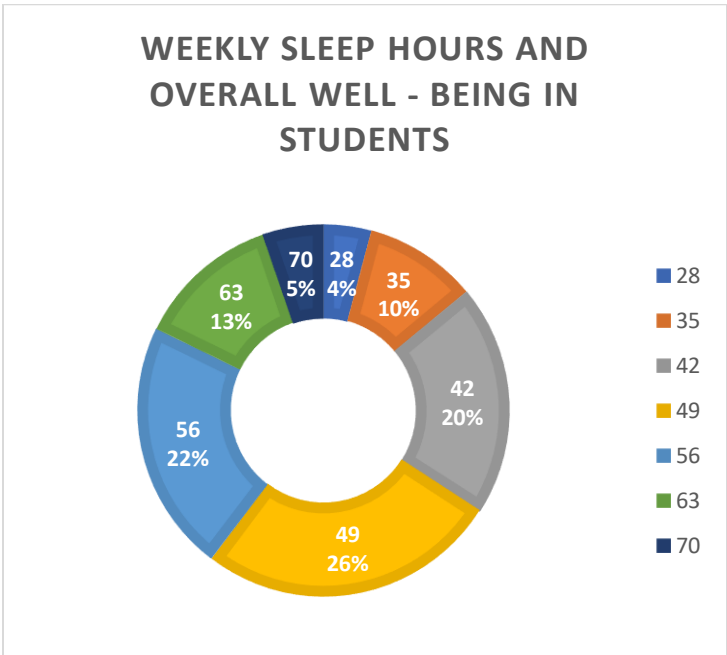

Chart 9: Adequate weekly sleep hours are essential for students' overall well-being, supporting physical health, emotional stability, and cognitive functions essential for learning and academic success.

4. Conclusion

This analysis is aimed at identifying the factors influencing student performance, with focus on the effect of weekly sleep hours, economic background, attendance, and access to resources.

- The Sleep Schedule

Students with irregular sleep patterns have lower motivation and are more likely to underperform in exams. The analysis explains that students who consistently get 7-8 hours of sleep each night are more engaged, have better focus, and experience higher academic success.

- Economic Backgrounds

The analysis uncovered a clear trend, students who faced economic hardships, were more likely to experience academic struggles. The analysis pointed out that students with better access to resources, such as tutors, books, or stable internet access, tended to have better outcomes. This case illustrated how economic factors plays a vital role in achieving academic success.

- Attendance

Through the analysis, the attendance was not just about being present, it is about engagement. Students who attended class regularly but felt emotionally disconnected or unsupported were less likely to succeed. On the other hand, students who not only attended but were actively engaged in their learning process perform significantly better.

- Access to Resources

Lack of the essential resources for learning can be detrimental to the general performance of students in the school environment. If the adequate resources are provided, students have better learning experiences and in turn, this leads to improved academic performance.