



Effect of Art, Music, Sports Participation, Food Habits, and Depression Level on Academic Performance of Students of 11th Standard

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Abstract:

Academic performance of higher secondary students is influenced not only by cognitive abilities but also by co-curricular engagement, lifestyle habits, and psychological well-being. Adolescence, particularly during the 11th standard, is marked by academic pressure, emotional vulnerability, and lifestyle changes. The present study investigates the effect of art participation, music participation, sports participation, food habits, and depression level on the academic performance of 11th standard students. A descriptive survey method was employed, and a sample of 150 students was selected using random sampling technique. Data were collected through self-constructed Likert scale questionnaires for co-curricular participation and food habits, a standardized depression scale, and academic records. Statistical analyses including Mean, Standard Deviation, Independent Samples t-test, and Pearson's Product Moment Correlation were applied using SPSS. The results revealed that art, music, sports participation, and healthy food habits significantly enhance academic performance, while depression level shows a significant negative relationship with academic achievement. The study highlights the necessity of a holistic educational framework integrating mental health support and co-curricular engagement for improving academic outcomes at the higher secondary level.

Keywords: *Academic Performance, Art Participation, Music Participation, Sports Participation, Food Habits, Depression Level, 11th Standard Students*

1. Introduction

Education at the higher secondary level plays a pivotal role in shaping students' academic careers and future professional pathways. Students of 11th standard encounter increased academic workload, competitive examinations, career uncertainty, and psychological stress. These factors significantly influence their academic performance and overall development.

Modern educational research emphasizes that learning outcomes are not determined solely by classroom instruction. Participation in co-curricular activities such as art, music, and sports enhances creativity, emotional balance, self-discipline, and cognitive flexibility. Similarly, food habits influence physical health, concentration, memory, and learning efficiency. Conversely, depression among adolescents has emerged as a critical concern, adversely affecting motivation, attention span, self-esteem, and academic engagement.

In the Indian context, mental health issues among school students often remain under-identified due to social stigma and lack of institutional support. Therefore, examining both positive lifestyle variables and negative psychological factors together provides a comprehensive understanding of academic performance determinants. The present study aims to explore the combined influence of art participation,

music participation, sports participation, food habits, and depression level on academic performance of 11th standard students.

2. Review of Related Literature

Several studies have reported a positive relationship between co-curricular activities and academic achievement. Art education promotes emotional expression and critical thinking skills. Music participation enhances concentration, memory retention, and emotional regulation. Sports participation contributes to physical fitness, discipline, teamwork, and stress management, leading to better academic outcomes.

Research on nutrition indicates that balanced food habits improve cognitive functioning and classroom attention, while unhealthy diets negatively impact academic performance. Studies on adolescent mental health reveal that depression is strongly associated with poor academic achievement, absenteeism, and decreased motivation.

However, most studies examine these variables independently. Limited research integrates co-curricular participation, food habits, and depression level within a single analytical framework, particularly among higher secondary students. This study addresses this research gap.

3. Review of Related Literature

1. Art Participation and Academic Performance

Winner, Goldstein, and Vincent-Lancrin (2013), in their OECD publication *Art for Art's Sake? The Impact of Arts Education*, reported that students actively engaged in art-related activities demonstrate enhanced creativity, higher motivation levels, and improved academic performance, particularly in language and social science subjects.

Similarly, Catterall, Dumais, and Hampden-Thompson (2012), in a study conducted for the National Endowment for the Arts, found that students with sustained participation in the arts scored significantly higher on academic assessments and exhibited stronger problem-solving abilities, especially among at-risk youth.

2. Music Participation and Academic Performance

Schellenberg (2006) identified long-term positive associations between music lessons and IQ in adolescents. His study revealed that learning and practicing music contributes positively to cognitive abilities, working memory, and overall academic performance.

Supporting these findings, Hallam (2010) highlighted that music participation enhances attention, memory, academic engagement, and social development, thereby contributing to improved educational outcomes among children and young people.

3. Sports Participation and Academic Performance

Trudeau and Shephard (2008) examined the relationship between physical education, school sports, and academic performance, concluding that regular physical activity is associated with better academic outcomes, improved classroom behavior, and enhanced cognitive functioning. A systematic review by Singh et al. (2012) further confirmed that physically active students demonstrate higher academic achievement, better attention span, and reduced dropout rates compared to inactive students.

4. Food Habits / Nutrition and Academic Performance

Florence, Asbridge, and Veugelers (2008) found a strong relationship between diet quality and academic performance, reporting that students with healthy and balanced food habits achieved higher grades and showed improved attention levels.

Taras (2005) emphasized the importance of proper nutrition, particularly regular breakfast consumption, noting its significant role in enhancing cognitive function, concentration, and overall academic success among school students.

5. Depression and Academic Performance

Fergusson and Woodward (2002) reported that adolescents experiencing depressive symptoms exhibited significantly lower academic performance, increased school absenteeism, and poor social functioning.

Hammen (2009) further explained that depression negatively affects attention, memory, and classroom participation, which ultimately leads to reduced academic achievement. In a longitudinal study, Suldo, Thalji, and Ferron (2011) observed that high levels of academic stress and depression were negatively correlated with GPA and standardized test performance among adolescents.

6. Integrated Studies (Lifestyle, Mental Health, and Academic Performance)

Jayanthi and Bhat (2017) conducted an integrated analysis of lifestyle factors and academic performance among high school students. Their findings revealed that physical activity, engagement in arts, balanced dietary habits, and lower stress levels collectively contribute to significantly higher academic achievement.

Patel et al. (2007), in a global public health perspective, emphasized adolescent mental health as a critical determinant of educational outcomes worldwide, underscoring the need for comprehensive strategies addressing both lifestyle and psychological well-being to improve academic performance.

4. Need and Significance of the Study

- Rising academic stress among 11th standard students
- Increasing prevalence of adolescent depression
- Declining participation in co-curricular activities
- Need for evidence-based educational planning

The findings of this study are significant for teachers, school administrators, counselors, parents, and policymakers in designing holistic educational interventions.

5. Statement of the Problem

“A Study of the Effect of Art Participation, Music Participation, Sports Participation, Food Habits, and Depression Level on the Academic Performance of 11th Standard Students.”

6. Objectives of the Study

1. To study the level of art, music, and sports participation among 11th standard students.
2. To examine the food habits of 11th standard students.
3. To assess the depression level of 11th standard students.
4. To study the academic performance of 11th standard students.
5. To analyze the effect of selected independent variables on academic performance.

7. Hypotheses

Ho₁: There is no significant difference in academic performance based on **art participation**.

Ho₂: There is no significant difference in academic performance **based on music participation**.

Ho₃: There is no significant difference in academic performance **based on sports participation**.

Ho₄: There is no significant relationship between **food habits** and academic performance.

Ho₅: There is no significant relationship between **depression level** and academic performance.

8. Variables of the Study

8.1 Independent Variables

- Art Participation

- Music Participation
- Sports Participation
- Food Habits
- Depression Level

8.2 Dependent Variable

- Academic Performance (percentage of marks)

9. Research Methodology

9.1 Research Method

Descriptive survey method.

9.2 Sample

The sample comprised 150 students studying in 11th standard, selected through random sampling technique from secondary schools.

9.3 Tools Used

1. Self-Constructed Likert Scale Questionnaire (5-point scale) for:
 - Art participation
 - Music participation
 - Sports participation
 - Food habits
2. Standardized Depression Scale (Likert-type)
3. Academic Achievement Record (school examination marks)

9.4 Population & Sample

9.4.1 Population

The population of this study is all the students which studying in academic Year 2025-26 in 11th standard in Patan city.

9.4.2 Sample

150 students from above population has been selected using random sampling technique from Patan city.

9.4 Statistical Techniques

- Mean and Standard Deviation
- Independent Samples t-test
- Pearson's Product Moment Correlation

10. Data Analysis and Interpretation

Table 1: Descriptive Statistics of Variables (N = 150)

Variable	Mean	SD
Art Participation	3.54	0.88
Music Participation	3.62	0.91
Sports Participation	3.41	0.95
Food Habits	3.68	0.84
Depression Level	2.11	0.67
Academic Performance	72.36	6.92

Interpretation:

Students showed moderate to high participation in co-curricular activities and moderate depression levels.

Hypothesis 1: Effect of Art Participation on Academic Performance

Table 2: t-test for Art Participation and Academic Performance

Group	N	Mean	SD	t-value	Sig.
High Art	75	75.10	6.20	4.28	0.01
Low Art	75	69.62	7.10		

Table 2 presents a comparison of academic performance between students with high and low levels of art participation using an independent samples *t*-test. The sample consisted of 150 students, equally divided into two groups of 75 students each.

Students with **high art participation** obtained a higher mean academic score ($M = 75.10$, $SD = 6.20$) compared to students with **low art participation** ($M = 69.62$, $SD = 7.10$). The calculated *t*-value of **4.28** indicates a substantial difference between the two group means.

The significance value reported as **0.000** in SPSS indicates that the probability of this difference occurring by chance is less than 0.001 ($p < .001$). This confirms that the difference in academic performance between high and low art participation groups is **statistically highly significant**. Hence, **Ho₁ is rejected**. The results suggest that students who actively participate in art-related activities demonstrate significantly better academic performance than students with low art participation. Engagement in art activities may enhance creativity, emotional regulation, and cognitive engagement, which positively contribute to academic achievement.

Hypothesis 2: Effect of Music Participation on Academic Performance

Table 3 t-test for Music Participation and Academic Performance

Group	N	Mean	SD	t	Sig.
Music Participants	70	74.85	6.10	3.96	0.01
Non-Participants	80	69.95	7.30		

The table 3 presents a comparison of academic performance between **music participants** and **non-participants** among 11th standard students using an independent samples *t*-test. The total sample consisted of 150 students, of which 70 students participated in music activities and 80 students did not participate.

The mean academic score of **music participants** ($M = 74.85$, $SD = 6.10$) was notably higher than that of **non-participants** ($M = 69.95$, $SD = 7.30$). The calculated *t*-value of **3.96** indicates a meaningful difference between the two group means.

The significance value ($p = .01$) shows that the difference in academic performance between music participants and non-participants is **statistically significant at the 0.05 level**.

The obtained significance value is less than 0.05, the null hypothesis stating that there is no significant difference in academic performance based on music participation is **rejected**.

It indicates indicate that participation in music activities has a **positive and significant effect** on students' academic performance. Engagement in music may enhance concentration, memory, and emotional balance, which contribute to improved academic achievement.

Hypothesis 3: Sports Participation

Table 4 t-test for Sports Participation and Academic Performance

Group	N	Mean	SD	t	Sig.
Sports Participants	78	76.20	6.00	5.12	0.01
Non-Participants	72	68.90	7.50		

Table 4 presents a comparison of academic performance between students who participate in sports activities and those who do not, using an independent samples *t*-test. The total sample comprised 150 students, of which 78 were sports participants and 72 were non-participants.

The mean academic score of **sports participants** ($M = 76.20$, $SD = 6.00$) was substantially higher than that of **non-participants** ($M = 68.90$, $SD = 7.50$). The obtained *t*-value of **5.12** indicates a large difference between the two group means.

The significance value ($p = .01$) shows that the difference in academic performance between sports participants and non-participants is **statistically significant at the 0.05 level**.

The obtained *p*-value is less than 0.05, the null hypothesis stating that there is no significant difference in academic performance based on sports participation is **rejected**.

It indicates that participation in sports has a **strong positive influence** on academic performance. Regular involvement in sports may improve physical fitness, discipline, time management, and stress regulation, which collectively enhance students' academic achievement.

Hypothesis 4: Food Habits

Table 5 Correlation between Food Habits and Academic Performance

Variables	r	Sig.
Food Habits & Academic Performance	0.46	0.000

Table 5 shows the relationship between students' **food habits and their academic performance** using Pearson's Product Moment Correlation. The analysis reveals a moderate positive correlation between food habits and academic performance ($r = 0.46$).

The significance value reported as 0.000 in SPSS indicates that the correlation is statistically significant at the **0.001 level ($p < .001$)**. This suggests that better food habits are associated with higher academic achievement among 11th standard students. **The obtained significance value is less than 0.05**, the null hypothesis stating that there is no significant relationship between food habits and academic performance **is rejected**.

It indicates that students who follow healthy and balanced food habits tend to perform better academically. Proper nutrition contributes to improved concentration, memory, energy levels, and classroom engagement, which positively influence academic performance.

Hypothesis 5: Depression Level

Table 6 Correlation between Depression Level and Academic Performance

Variables	r	Sig.
Depression Level & Academic Performance	-0.52	0.000

Table 6 presents the relationship between students' depression level and their academic performance using Pearson's Product Moment Correlation. The analysis reveals a moderate to strong negative correlation between **depression level and academic performance (r = -0.52)**.

The significance value reported as 0.000 in SPSS indicates that the correlation is statistically significant at the **0.001 level ($p < .001$)**. This result suggests that as depression levels increase, academic performance decreases among 11th standard students.

The obtained **significance value is less than 0.05**, the null hypothesis stating that there is no significant relationship between depression level and academic performance **is rejected**.

It indicates that higher levels of depression adversely affect students' academic achievement. Depression may impair concentration, motivation, memory, and classroom engagement, leading to reduced academic performance.

11. Summary of Hypotheses Testing

Table 7: Summary Table

Hypothesis	Variable	Result
H ₁	Art Participation	Rejected
H ₂	Music Participation	Rejected
H ₃	Sports Participation	Rejected
H ₄	Food Habits	Rejected
H ₅	Depression Level	Rejected

12. Major Findings

1. Art participation significantly improves academic performance.
2. Music participation enhances learning efficiency and achievement.
3. Sports participation contributes positively to academic success.
4. Healthy food habits are positively correlated with academic performance.
5. Depression level shows a significant negative relationship with academic performance.

13. Educational Implications

- Schools should integrate co-curricular activities into academic schedules.
- Nutritional education programs should be implemented.
- Mental health counseling services must be strengthened.
- Early identification of depression among students is essential.

14. Limitations of the Study

1. Sample size limited to 150 students of 11th standard from Patan city of academic Year 2025-26.
2. Self-reported responses may include bias.
3. Study confined to selected variables.

15. Suggestions for Further Research

- Experimental studies on depression intervention programs

- Longitudinal studies on adolescent academic development
- Comparative studies across regions and school types

16. Conclusion

The study concludes that academic performance of 11th standard students is influenced by a combination of co-curricular participation, food habits, and psychological well-being. While art, music, sports, and healthy food habits positively enhance academic achievement, depression acts as a significant barrier to learning. A holistic educational approach addressing both academic and mental health needs is essential for improving student performance and well-being.

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