Effect of Family Environment on the Academic Achievement of Senior Secondary Boys and Girls

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Abstract: The present research paper is entitled as a study on the effect of family environment on the academic achievement of senior secondary boys and girls. Objectives: 1) to find the effect of family environment on the academic achievement of senior secondary boys and girls. Hypotheses: 1) there is no significant effect of family environment on the academic achievement of senior secondary boys and girls. Methodology: The researcher has employed descriptive survey method in this research. Academic achievement is taken the dependent variable while family environment is the independent variable in this study. For the present study, 600 senior secondary students from District Haridwar were selected using the random sampling technique. Family Environment Scale developed by Dr. Harpreet Bhatia and Dr. N.K. Chandra was used for the collection of data. Academic achievement has been measured in terms of the percentage of the marks obtained by the students in class-10. Collected data was analyzed using two-way analysis of variance. Findings: Gender had a significant impact on academic achievement, with girls achieving higher than boys. A cohesive environment significantly influenced achievement, as students with high cohesion performed best. An expressive environment also had a significant positive influence, with students from highly expressive families showing the highest achievement. A conflicting environment significantly affected achievement, with students from low-conflict environments performing better. Accepted and caring environments significantly enhanced achievement, with high levels showing better performance. Independent environments significantly influenced achievement, where low independence showed higher overall achievement. Active recreational-oriented, organized, and controlled environments all significantly influenced academic achievement, with high levels leading to better performance. Overall, family environment significantly influenced academic achievement, with students from good family environments performing best.
Keywords: Family Environment, Academic Achievement, Senior Secondary Boys and Girls.

1. Introduction

Academic achievement at the senior secondary stage is a decisive educational outcome in India, as performance during this stage often determines students' access to higher education, vocational pathways and future socioeconomic mobility. Although school-related factors such as teacher quality and instructional resources are important, research increasingly highlights that learning is also shaped by the everyday contexts in which adolescents live and interact. In Indian households, family expectations, routines and emotional climates play a central role in structuring adolescents' study habits and attitudes toward education, making the family environment a powerful developmental context that can either support or constrain academic striving (**Mohanraj & Latha, 2005, Praveen & Shafeeq, 2019**). This relevance becomes more pronounced at the senior secondary level, where academic pressure intensifies due to complex curricula, board examinations and competitive entrance tests (**Mittal & Suman, 2025**).

The family environment is a multidimensional construct that includes relationship qualities such as cohesion and conflict, communication patterns such as expressiveness, and system-maintenance processes such as organization and control. Indian studies using family and home environment frameworks demonstrate that these dimensions are closely related to adolescents' emotional adjustment, learning habits and academic. During the senior secondary years, when sustained concentration, emotional regulation and structured routines are required, the influence of family interactions and parental practices becomes particularly visible (**Jegadha & Francisca, 2016**). Positive family dimensions such as cohesion, expressiveness and acceptance and caring have been consistently associated with better academic functioning among adolescents (**Kumari, Devi, & Mayuri, 2017**). Expressive environments that promote open communication allow students to share academic stress and seek guidance, thereby improving engagement and performance (**Akter & Khatun, 2023**). Similarly, accepted and caring environments enhance motivation, confidence and resilience in the face of academic challenges. In contrast, negative family conditions such as high conflict or poorly balanced independence can undermine academic achievement.

Independence within the family requires careful balance, as excessive autonomy without guidance may reduce academic direction, while autonomy supported by monitoring and involvement can foster self-regulation and responsible learning (**Gogoi & Rajkhua, 2021**). Active recreational orientation, organization and control further shape academic outcomes (**Sharma & Raina, 2024**). Gender adds an important dimension to the study of family environment and academic achievement, as boys and girls may experience different expectations, freedoms and forms of supervision. Research indicates gender-related differences in perceived family dimensions and suggests that family support and structure can influence academic outcomes across genders, sometimes in distinct ways. Therefore, the present study seeks to examine how various dimensions of family environment influence academic

achievement and whether these effects differ for boys and girls. Such insights can inform parent education, school counseling and family-focused interventions aimed at strengthening supportive home environments and promoting academic success at the senior secondary level.

2. Objectives of the Study

The objective of the present study is to study the effect of family environment on the academic achievement of senior secondary boys and girls.

3. Hypotheses of the Study

The hypothesis of the study is that there is no significant effect of family environment on the academic achievement of senior secondary boys and girls.

4. Method and Materials

The researcher has employed descriptive survey method in this research. Academic achievement is taken the dependent variable while family environment is the independent variable. 600 senior secondary students from District Haridwar were selected using the random sampling technique. Family Environment Scale developed by Dr. Harpreet Bhatia and Dr. N.K. Chandra was used for the collection of data. Academic achievement has been measured in terms of the percentage of the marks obtained by the students in class-10. Collected data was analyzed using two-way analysis of variance.

5. Analysis and Interpretation of Data

Table – 1(a): Mean and S.D. of the Effect of Cohesion Dimension of Family Environment on the Academic Achievement

Variable	Gender	Cohesion	Academic Achievement		N
			Mean	S.D.	
Effect of Cohesion Dimension of Family Environment on the Academic achievement	Boys	High	329.50	60.64	16
		Average	290.65	47.11	130
		Low	246.56	43.14	154
		Total	270.09	52.46	300
	Girls	High	403.64	107.92	14
		Average	351.54	80.78	125
		Low	303.14	65.00	161
		Total	328.00	79.41	300
	Total	High	364.10	92.41	30
		Average	320.49	72.41	255
		Low	275.48	62.15	315
		Total	299.04	73.22	600

The table 1(a) shows that for boys, the mean scores for academic achievement corresponding to high, average and low levels of cohesive family environment are 329.50, 290.65 and 246.56. These values show that the boys with a high cohesion show high academic achievement and those in average and low cohesive environment exhibit average academic achievement. For girls, the respective mean scores of academic achievement for high, average and low cohesion are 403.64, 351.54 and 303.14. These values reveal that girls with high, average and low cohesive family environment demonstrate high academic achievement. Overall, the students who experience high cohesive family environment exhibit best academic achievement, whereas those with low cohesive environment show the least levels of academic achievement.

Table – 1(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	226194.316	1	226194.316	59.381**	Significant
Cohesion	444375.281	2	222187.641	58.329**	Significant
Interaction	2386.488	2	1193.244	0.313	Insignificant
Between Group	948542.245	5	189708.449		
Within Group	2262683.714	594	3809.232		

** = 0.01 Level of Significance.

Table 1(b) indicates that gender has significant impact on students' academic achievement. This is supported by the obtained F-value of 59.381 at df (1, 594), with a significance level of 0.01.

The table also shows that a cohesive environment significantly influences academic achievement. The F-value for this effect is 58.329 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and cohesive environment is not significant. With F-value of 0.313 at df (2, 594), the results suggest that their combined effect does not influence students' academic achievement.

It shows that "**There is no significant effect of cohesion dimension of family environment on the academic achievement of senior secondary boys and girls**" is mostly rejected and partly accepted.

Table – 2(a): Mean and S.D. of the Effect of Expressiveness Dimension of Family Environment on the Academic Achievement

Variable	Gender	Expressiveness	Academic Achievement		N
			Mean	S.D.	
Effect of Expressiveness Dimension of Family Environment on the Academic achievement	Boys	High	324.33	57.69	30
		Average	283.19	44.06	153
		Low	239.04	41.93	117
		Total	270.09	52.46	300
	Girls	High	406.74	98.07	35
		Average	329.81	71.55	160
		Low	298.99	64.92	105

	Total	328.00	79.41	300
Total	High	368.71	91.28	65
	Average	307.02	64.03	313
	Low	267.40	61.70	222
	Total	299.04	73.22	600

The table 2(a) shows that for boys, the mean scores for academic achievement corresponding to high, average and low levels of expressive family environment are 324.33, 283.19 and 239.04. These values show that the boys with a high expressiveness show high academic achievement and those in average and low expressive environment exhibit average academic achievement. For girls, the respective mean scores of academic achievement for high, average and low expressiveness are 406.74, 329.81 and 298.99. These values reveal that girls with high and average expressive family environment demonstrate high academic achievement; while those facing low expressiveness reflect average academic achievement. Overall, the table highlights a clear pattern that the students who experience high expressive family environment exhibit best academic achievement, whereas those with low expressive environment show the least levels of academic achievement.

Table – 2(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	384978.160	1	384978.160	105.140**	Significant
Expressiveness	502656.061	2	251328.031	68.639**	Significant
Interaction	18962.623	2	9481.312	2.589	Insignificant
Between Group	1036240.33	5	207248.066		
Within Group	2174985.626	594	3661.592		

** = 0.01 Level of Significance.

Table 4.5.2(b) indicates that gender has a significant impact on students' academic achievement. This is supported by the obtained F-value of 105.140 at df (1, 594), with a significance level of 0.01.

The table also shows that expressive environment significantly influences academic achievement. The F-value for this effect is 68.639 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and expressive environment is not significant. With F-value of 2.589 at df (2, 594), the results suggest that their combined effect does not influence students' academic achievement significantly.

It shows that "**There is no significant effect of expressiveness dimension of family environment on the academic achievement of senior secondary boys and girls**" is mostly rejected and partly accepted.

Table – 3(a): Mean and S.D. of the Effect of Conflict Dimension of Family Environment on the Academic Achievement

Variable	Gender	Conflict	Academic Achievement		N
			Mean	**S.D.**	
Effect of Conflict Dimension of Family Environment on the Academic achievement	Boys	High	235.82	42.22	107
		Average	279.49	40.86	157
		Low	330.92	53.66	36
		Total	270.09	52.46	300
	Girls	High	285.16	60.94	113
		Average	335.20	64.45	146
		Low	420.41	86.91	41
		Total	328.00	79.41	300
	Total	High	261.16	58.07	220
		Average	306.33	60.28	303
		Low	378.57	85.57	77
		Total	299.04	73.22	600

The table 3(a) shows that for boys, the mean scores for academic achievement corresponding to high, average and low levels of conflicting family environment are 235.82, 279.49 and 330.92. These values show that the boys with a high and average conflict show average academic achievement and those in low conflicting environment exhibit high academic achievement. For girls, the respective mean scores of academic achievement for high, average and low conflict are 285.16, 335.20 and 420.41. These values reveal that girls with high conflicting family environment demonstrate average academic achievement; while those facing average low conflict reflect high academic achievement. Overall, the table highlights a clear pattern that the students who experience high conflicting family environment exhibit least academic achievement, whereas those with low conflicting environment show the best levels of academic achievement.

Table – 3(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	452811.993	1	452811.993	143.807**	Significant
Conflict	797739.747	2	398869.873	126.676**	Significant
Interaction	23525.889	2	11762.944	3.736*	Significant
Between Group	1340868.02	5	268173.605		
Within Group	1870357.936	594	3148.751		

** = 0.01 Level of Significance.   * = 0.05 Level of Significance.

Table 4.5.3(b) indicates that gender has a significant impact on students' academic achievement. This is supported by the obtained F-value of 143.807 at df (1, 594), with a significance level of 0.01.

The table also shows that conflicting environment significantly influences academic achievement. The F-value for this effect is 126.676 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and conflicting environment is significant at 0.05. With F-value of 3.736 at df (2, 594), the results suggest that their combined effect influences students' academic achievement significantly.

It shows that "**There is no significant effect of conflict dimension of family environment on the academic achievement of senior secondary boys and girls**" is totally rejected.

Table – 4(a): Mean and S.D. of the Effect of Acceptance and Caring Dimension of Family Environment on the Academic Achievement

Variable	Gender	Acceptance and Caring	Academic Achievement		N
			Mean	S.D.	
Effect of Acceptance and Caring Dimension of Family Environment on the Academic achievement	Boys	High	328.29	69.25	14
		Average	289.20	46.33	145
		Low	244.65	43.08	141
		Total	270.09	52.46	300
	Girls	High	394.18	107.65	17
		Average	347.63	77.40	145
		Low	299.00	65.77	138
		Total	328.00	79.41	300
	Total	High	364.42	96.80	31
		Average	318.42	70.08	290
		Low	271.64	61.75	279
		Total	299.04	73.22	600

The table 4(a) shows that for boys, the mean scores for academic achievement corresponding to high, average and low levels of accepted and caring family environment are 328.29, 289.20 and 244.65. These values show that the boys with a high acceptance and caring show high academic achievement and those in average and low accepted and caring environment exhibit average academic achievement. For girls, the respective mean scores of academic achievement for high, average and low acceptance and caring are 394.18, 347.63 and 299.00. These values reveal that girls with high and average accepted and caring family environment demonstrate high academic achievement; while those facing low acceptance and caring reflect average academic achievement. Overall, the table highlight a clear pattern that the students who experience high accepted and caring family environment exhibit best academic achievement, whereas those with low accepted and caring environment show the least levels of academic achievement.

Table – 4(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	202035.162	1	202035.162	52.824**	Significant
Acceptance and Caring	432671.495	2	216335.747	56.563**	Significant
Interaction	1172.039	2	586.019	0.153	Insignificant
Between Group	939368.926	5	187873.785		
Within Group	2271857.033	594	3824.675		

** = 0.01 Level of Significance.

Table 4(b) indicates that gender has significant impact on students' academic achievement. This is supported by the obtained F-value of 52.824 at df (1, 594), with a significance level of 0.01.

The table also shows that accepted and caring environment significantly influences academic achievement. The F-value for this effect is 56.563 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and accepted and caring environment is not significant. With F-value of 0.153 at df (2, 594), the results suggest that their combined effect does not influence students' academic achievement.

It shows that "**There is no significant effect of acceptance and caring dimension of family environment on the academic achievement of senior secondary boys and girls**" is mostly rejected and partly accepted.

Table – 5(a): Mean and S.D. of the Effect of Independence Dimension of Family Environment on the Academic Achievement

Variable	Gender	Independence	Academic Achievement		N
			Mean	S.D.	
Effect of Independence Dimension of Family Environment on the Academic achievement	Boys	High	250.22	58.36	32
		Average	254.36	42.53	125
		Low	288.28	53.21	143
		Total	270.09	52.46	300
	Girls	High	335.13	71.71	30
		Average	321.31	70.19	108
		Low	331.13	86.37	162
		Total	328.00	79.41	300
	Total	High	291.31	77.50	62
		Average	285.39	66.02	233
		Low	311.04	75.71	305
		Total	299.04	73.22	600

The table 5(a) shows that for boys, the mean scores for academic achievement corresponding to high, average and low levels of independent family environment are 250.22, 254.36 and 288.28. These values show that the boys with high, average and low independence show average academic achievement. For girls, the respective mean scores of academic achievement for high, average and low independence are 335.13, 321.31 and 331.13. These values reveal that girls with high, average and low independent family environment demonstrate high academic achievement. Overall, the table highlights a clear pattern that the

students who experience average independent family environment exhibit least academic achievement, whereas those with low independent environment show the best levels of academic achievement.

Table – 5(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	399076.220	1	399076.220	90.846**	Significant
Independence	66044.124	2	33022.062	7.517**	Significant
Interaction	32986.126	2	16493.063	3.754*	Significant
Between Group	601853.838	5	120370.768		
Within Group	2609372.121	594	4392.882		

** = 0.01 Level of Significance.   * = 0.05 Level of Significance.

Table 4.5.5(b) indicates that gender has a significant impact on students' academic achievement. This is supported by the obtained F-value of 90.846 at df (1, 594), with a significance level of 0.01.

The table also shows that independent environment significantly influences academic achievement. The F-value for this effect is 7.517 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and independent environment is significant at 0.05. With F-value of 3.754 at df (2, 594), the results suggest that their combined effect influences students' academic achievement significantly.

It shows that "**There is no significant effect of independence dimension of family environment on the academic achievement of senior secondary boys and girls**" is totally rejected.

Table – 6(a): Mean and S.D. of the Effect of Active Recreational Orientation Dimension of Family Environment on the Academic Achievement

Variable	Gender	Active Recreational Orientation	Academic Achievement		N
			Mean	S.D.	
Effect of Active Recreational Orientation Dimension of Family Environment on the Academic achievement	Boys	High	324.85	53.51	41
		Average	275.12	44.48	143
		Low	244.53	44.23	116
		Total	270.09	52.46	300
	Girls	High	413.45	93.33	40
		Average	336.63	67.74	114
		Low	297.84	63.99	146
		Total	328.00	79.41	300
	Total	High	368.60	87.55	81
		Average	302.40	63.73	257
		Low	274.24	61.97	262
		Total	299.04	73.22	600

The table 6(a) shows that for boys, the mean scores for academic achievement corresponding to high, average and low levels of active recreational orientation are 324.85, 275.12 and 244.53. These values show that the boys with a high active recreational orientation show high academic achievement and those in average and low active recreational oriented environment exhibit average academic achievement. For girls, the respective mean scores of academic achievement for high, average and low active recreational orientation are 413.45, 336.63 and 297.84. These values reveal that girls with high and average active recreational oriented family environment demonstrate high academic achievement; while those facing low active recreational orientation reflect average academic achievement. Overall, the table highlights a clear pattern that the students who experience high active recreational oriented family environment exhibit best academic achievement; whereas those with low active recreational oriented environment show the least levels of academic achievement.

Table – 6(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	513263.839	1	513263.839	147.110**	Significant
Active Recreational Orientation	610521.233	2	305260.616	87.493**	Significant
Interaction	19191.607	2	9595.803	2.750	Insignificant
Between Group	1138767.13	5	227753.426		
Within Group	2072458.826	594	3488.988		

* = 0.01 Level of Significance.

Table 6(b) indicates that gender has a significant impact on students' academic achievement. This is supported by the obtained F-value of 147.110 at df (1, 594), with a significance level of 0.01.

The table also shows that active recreational orientated environment significantly influences academic achievement. The F-value for this effect is 87.493 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and active recreational orientated environment is not significant. With F-value of 2.750 at df (2, 594), the results suggest that their combined effect does not influence students' academic achievement significantly.

It shows that "**There is no significant effect of active recreational orientation dimension of family environment on the academic achievement of senior secondary boys and girls**" is mostly rejected and partly accepted.

Table – 7(a): Mean and S.D. of the Effect of Organization Dimension of Family Environment on the Academic Achievement

Variable	Gender	Organization	Academic Achievement		N
			Mean	S.D.	
Effect of Organization Dimension of Family Environment on the Academic achievement	Boys	High	330.59	56.83	27
		Average	298.54	43.48	94
		Low	246.02	39.97	179
		Total	270.09	52.46	300
	Girls	High	449.74	53.49	31
		Average	332.15	70.51	124
		Low	298.41	64.52	145
		Total	328.00	79.41	300
	Total	High	394.28	81.08	58
		Average	317.66	62.51	218
		Low	269.47	58.46	324
		Total	299.04	73.22	600

The table 7(a) shows that for boys, the mean scores for academic achievement corresponding to high**,** average and low levels of organized family environment are 330.59, 298.54 and 246.02. These values show that the boys with high organization show high academic achievement and those in average and low organized environment exhibit average academic achievement. For girls, the respective mean scores of academic achievement for high**,** average and low organization are 449.74, 332.15 and 298.41. These values reveal that girls with high and average organized family environment demonstrate high academic achievement; while those facing low organization reflect average academic achievement. Overall, the students who experience high organized family environment exhibit best academic achievement, whereas those with low organized environment show the least levels of academic achievement.

Table – 7(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	418879.089	1	418879.089	135.151**	Significant
Organization	766762.764	2	383381.382	123.698**	Significant
Interaction	83161.659	2	41580.829	13.416**	Significant
Between Group	1370219.96	5	274043.993		
Within Group	1841005.995	594	3099.337		

** = 0.01 Level of Significance.

Table 7(b) indicates that gender has a significant impact on students' academic achievement. This is supported by the obtained F-value of 135.151 at df (1, 594), with a significance level of 0.01.

The table also shows that organized environment significantly influences academic achievement. The F-value for this effect is 123.698 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and organized environment is significant at 0.01. With F-value of 13.416 at df (2, 594), the results suggest that their combined effect influences students' academic achievement significantly.

It shows that "**There is no significant effect of organization dimension of family environment on the academic achievement of senior secondary boys and girls**" is totally rejected.

Table – 8(a): Mean and S.D. of the Effect of Control Dimension of Family Environment on the Academic Achievement

Variable	Gender	Control	Academic Achievement		N
			Mean	S.D.	
Effect of Control Dimension of Family Environment on the Academic achievement	Boys	High	325.74	52.39	43
		Average	284.33	43.45	115
		Low	241.70	39.63	142
		Total	270.09	52.46	300
	Girls	High	373.85	96.48	67
		Average	335.09	66.36	104
		Low	298.47	66.07	129
		Total	328.00	79.41	300
	Total	High	355.05	85.14	110
		Average	308.43	60.94	219
		Low	268.72	60.80	271
		Total	299.04	73.22	600

The table 8(a) shows that for boys, the mean scores for academic achievement corresponding to high**,** average and low levels of controlled family environment are 325.74, 284.33 and 241.70. These values show that the boys with high control show high academic achievement and those in average and low controlled environment exhibit average academic achievement. For girls, the respective mean scores of academic achievement for high**,** average and low control are 373.85, 335.09 and 298.47. These values reveal that girls with high and average controlled family environment demonstrate high academic achievement; while those facing low control reflect average academic achievement. Overall, the table highlights a clear pattern that the students who experience high controlled family environment exhibit best academic achievement, whereas those with low controlled environment show the least levels of academic achievement.

Table – 8(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	339768.561	1	339768.561	92.638**	Significant
Control	521453.688	2	260726.844	71.088**	Significant
Interaction	1861.684	2	930.842	0.254	Insignificant
Between Group	1032621.53	5	206524.306		
Within Group	2178604.430	594	3667.684		

** = 0.01 Level of Significance.

Table 8(b) indicates that gender has a significant impact on students' academic achievement. This is supported by the obtained F-value of 92.638 at df (1, 594), with a significance level of 0.01.

The table also shows that controlled environment significantly influences academic achievement. The F-value for this effect is 71.088 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and controlled environment is not significant. With F-value of 0.254 at df (2, 594), the results suggest that their combined effect does not influence students' academic achievement significantly.

It shows that "**There is no significant effect of control dimension of family environment on the academic achievement of senior secondary boys and girls**" is mostly rejected and partly accepted.

Table – 9(a): Mean and S.D. of the Effect of Total Family Environment on the Academic Achievement

Variable	Gender	Family Environment	Academic Achievement		N
			Mean	S.D.	
Effect of Total Family Environment on the Academic achievement	Boys	Good	305.10	51.97	103
		Average	254.88	41.10	184
		Low	207.92	40.08	13
		Total	270.09	52.46	300
	Girls	Good	372.70	87.54	102
		Average	311.45	61.38	183
		Low	225.87	33.07	15
		Total	328.00	79.41	300
	Total	Good	338.73	79.32	205
		Average	283.09	59.33	367
		Low	217.54	36.93	28
		Total	299.04	73.22	600

The table 9(a) shows that for boys, the mean scores for academic achievement corresponding to good, average and low family environment are 305.10, 254.88 and 207.92. These values show that the boys with good family environment show high academic achievement, those with average family environment show average academic achievement and those in low family environment exhibit low academic achievement. For girls, the respective mean scores of academic achievement for high, average and low family environment are 372.70, 311.45 and 225.87. These values reveal that girls with good and average family environment demonstrate high academic achievement; while those facing low family environment reflect average academic achievement. Overall, the table highlights a clear pattern that the students who experience good family environment exhibit best academic achievement, whereas those with low family environment show the least levels of academic achievement.

Table – 9(b): ANOVA

Source	SS	df	MS	F-value	Result
Gender	116072.863	1	116072.863	33.167**	Significant
Family Environment	606079.929	2	303039.964	86.590**	Significant
Interaction	16038.304	2	8019.152	2.291	Insignificant
Between Group	1132407.97	5	226481.594		
Within Group	2078817.989	594	3499.694		

** = 0.01 Level of Significance.

Table 9(b) indicates that gender has significant impact on students' academic achievement. This is supported by the obtained F-value of 33.167 at df (1, 594), with a significance level of 0.01.

The table also shows that family environment significantly influences academic achievement. The F-value for this effect is 86.590 at df (2, 594), and the significance level is 0.01, confirming the strength of this relationship.

However, the interaction between gender and family environment is not significant. With F-value of 2.291 at df (2, 594), the results suggest that their combined effect does not influence students' academic achievement.

It shows that "**There is no significant effect of family environment on the academic achievement of senior secondary boys and girls**" is mostly rejected and partly accepted.

6. Conclusions

Following conclusions can be drawn from the present study:

➢ Gender had significant impact on students' academic achievement. Girls had higher academic achievement.

➢ Cohesive environment significantly influenced academic achievement. Students with high cohesive environment showed highest academic achievement. Interaction between gender and cohesive environment did not influence students' academic achievement.

➢ Expressive environment significantly influenced academic achievement. Students with high expressive environment showed highest academic achievement. Interaction between gender and expressive environment did not influence students' academic achievement.

- ➢ Conflicting environment significantly influenced academic achievement. Students with low conflicting environment showed highest academic achievement. Interaction between gender and conflicting environment influenced students' academic achievement. Girls with low conflicting environment had highest academic achievement.
- ➢ Accepted and caring environment significantly influenced academic achievement. Students with high accepted and caring environment showed highest academic achievement. Interaction between gender and accepted and caring environment did not influence students' academic achievement.
- ➢ Independent environment significantly influenced academic achievement. Students with low independent environment showed highest academic achievement. Interaction between gender and independent environment influenced students' academic achievement. Girls with high independent environment had highest academic achievement.
- ➢ Active recreational orientated environment significantly influenced academic achievement. Students with high active recreational orientated environment showed highest academic achievement. Interaction between gender and active recreational orientated environment did not influence students' academic achievement.
- ➢ Organized environment significantly influenced academic achievement. Students with high organized environment showed highest academic achievement. Interaction between gender and organized environment influenced students' academic achievement. Girls with high organized environment had highest academic achievement.
- ➢ Controlled environment significantly influenced academic achievement. Students with high controlled environment showed highest academic achievement. Interaction between gender and controlled environment did not influence students' academic achievement.
- ➢ Family environment significantly influenced academic achievement. Students with good family environment showed highest academic achievement. Interaction between gender and family environment did not influence students' academic achievement.

7. Educational Implications

For better academic achievement, children should be raised in a caring, expressive, and organized family environment rather than a conflicting or poorly controlled one. In a caring environment, parents show warmth, emotional support, and encouragement, which builds children's self-confidence and motivation to learn. An expressive family atmosphere, where children are free to share ideas, ask questions, and express feelings without fear, helps develop communication skills and critical thinking. When this expressive nature is combined with an organized and controlled environment-such as fixed study schedules, clear rules, and parental guidance-children are more focused, disciplined, and better able to manage academic responsibilities.

In contrast, a conflicting family environment-marked by frequent arguments, tension, or inconsistent discipline-can negatively affect academic achievement by causing stress, distraction, and emotional insecurity. However, an independent yet supportive environment, where children are encouraged to take responsibility for their studies while still receiving guidance, positively influences learning outcomes. When families balance independence with care and structure, children learn self-regulation, problem-solving, and persistence. Thus, a family environment that is caring, expressive, organized, controlled, and appropriately independent is most effective in enhancing students' academic achievement, while excessive conflict tends to hinder it.

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