

Chapter-VI

Evaluation of Mid Day Meal

Data Analysis and Interpretation

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6.1 INTRODUCTION

Data often refer to a set of sources on two or more variables. Collection of information, measurement and analysing of significance, conclusion and recommendations are made through data analysis in research. Conclusion and findings are usually drawn with the help of statistical methods and procedures. Data is first collected form sample area through a questionnaire, and the analysis of data is done with the help of SPSS software. After the collection of data, various charts, graphs and tables are prepared to summarise the data for better understanding and clarity. the statistical software has been used to interpret and analysis of data

Variables are appropriately set with the proper identification of dependent and independent variables in context with the hypothesis. Many research tools and techniques have been used in research work, but the specific tools and techniques are applied to each hypothesis relating to dependent and independent variables. The tests on hypothesis provide conclusions and results.

This section attempts to analyse the data with the help of statistical package for the social science (SPSS) and results have arrived it. The researcher has completed the survey in two selected sample area(Jalpaiguri Sadar and Rajgung with complete questionnaire and data was arranged in an excel sheet. The hypothesis has been created, and results have been tested using SPSS (version 16) software. Various research methodologies have been used in research, but the appropriate research model should be used to determine the proper result. Different statistical techniques and tools were used for analysis included, tabulation of data, Co-relation analysis, regression analysis, Crosstab, Chi-square test.

The chi-square test is found to be more effective in establishing the relationship between dependent and independent variables. Kregg Cuellar (2011), Andrew S.Frye (2003)., Swati.S.Desai (2012) have used the chi-square test to ascertain whether there a statistically significant difference between the expected and observed frequencies in one or more categories. The chi-square test enables to explain the association between two or more

attributes and also whether the occurrence of events follows uniformity or not. In addition to that, contingency coefficient explains the relationship between variables to show their strength of a relationship.

Margaret.A.Waterman(2015),S.Srivastava (2013), Rajandran(2012), have used cross tabulation analysis to analysis the data and achieved the significant result.

E.L Daniel (2016),Sandra .k. Warner (2015) have used the t-test to analyse data to determine whether there is a significant difference between two means of the different group.

Jim Knutson-kolodzne (2017), Timothy plots(2011), T. Zsuzsanna & L. Marian (2012) have used multiple regression to examine how multiple independent variables are related to a dependent variable in arriving their result. Further, ANOVA test has been carried out on independent variables. Statistical tools used by them have resulted from excellent work.so.on the basis of such work, the researcher have adopted a similar type of statistical tools to research Jalpaiguri and Rajganj block.

6.2 Variables

Aspects of Mid Day meal in Jalpaiguri Municipality and Rajganj block are dependent on independent variables which were the deciding factors for evaluation of MDM for these two sample areas. The independent variables are FAMILY INCOME,DAILY ATTENDANCE,ILLNESS or HEALTH ISSUES AFTER CONSUMPTION OF MEAL,ENROLMENT,TASTE,FEELING FULL STOMACH AFTER MDM,TIMELY DELIVEY OF MDM,CLEANNESS OF DINING AREA,DRINKING WATER,PROVISION OF WASHING HANDS,CLEANNESS OF KITCHEN STORE.

6.3 Hypothesis testing –Crosstab and Chi- square Test

6.3.1 Cross tabulation analysis of parents in regard to satisfaction of MDM w.r.t family income in Jalpaiguri

Table 6.1 Response analysis of parents regarding family Income and MDM satisfaction in Jalpaiguri

Parents' satisfaction with MDM (Jalpaiguri)						Total
Frequency		Low	Moderate	High		
Income (F _J)	up to 5000 (F _{J1})	Count	1	0	5	6
	Very low	% within Income	16.67	0.00	83.33	100.00
		% within Do parents satisfy with MDM	3.33	0.00	33.33	7.50
	5000-10000(F _{J2})	Count	4	7	1	12
	Low	% within Income	33.33	58.33	8.33	100.00
		% within Do parents satisfy with MDM	13.33	20.00	6.67	15.00
	10000-15000 (F _{J3})	Count	13	21	8	42
	Moderate	% within Income	30.95	50.00	19.05	100.00
		% within Do parents satisfy with MDM	43.33	60.00	53.33	52.50
	15000> (F _{J4})	Count	12	7	1	20
	High	% within Income	60.00	35.00	5.00	100.00
		% within Do parents satisfy with MDM	40.00	20.00	6.67	25.00
Total		Count	30	35	15	80

Source-Field Survey

The analysis of cross-tabulation on variable family income(F_J) disclosed that count of 35 out of 80 (43.75%) parents agreed that, they always have been moderately satisfied with MDM and 30 (37.5 percent) not satisfied with MDM.

Among the different income groups,F_{J1}(0-Rs.5000) and F_{J2} (Rs.5000-10,000) were satisfied somewhat about the provision of MDM At a glance, parents shows their disagreement about satisfaction of MDM w.r.t increase of their income level.

6.3.2 Chi square test on family income and MDM satisfaction in Jalpaiguri

For assessing the response of the parents between family income and mid-day meal satisfaction by their children in Jalpaiguri, the chi-square test was used with the following hypothesis.

Hypotheses 1

H₀= Family income and mid day meal satisfaction are independent

H₁== Family income and mid day meal satisfaction are not independent

Table 6.2

Table 6.2 Chi square and correlation test on family income and MDM satisfaction

Chi-Square Tests				Correlation		
	Value	df	Asymp.Sig (2 sided)		r	Sig
Pearson Chi-Square	23.92381	6	.001	Pearson correlation	-0.345	.001
Likelihood Ratio	21.1418	6	.002			
Linear-by-Linear Association	9.415399	1	0.002			
N of Valid Cases	80					

Analysis of the above table revealed that the relationship between family income and mid-day meal satisfaction in the Jalpaiguri was high. The calculated value of chi-square (23.92) is more than table value of chi-square (12.59) at $P \leq 0.05$ level, $df=1$. Thus null hypothesis (H₀) “Family income and mid-day meal consumption are independent” is rejected while the alternative hypothesis (H₁) “Family income and mid-day meal consumption are not independent” was accepted. The coefficient of calculated contingency was $C=0.480$. It was found that family income as a parameter had a significant role in the satisfaction of mid-day meal in Jalpaiguri. By correlation analysis, it has been found that there is negative ($r= -0.345$) and significant relationship between satisfaction of MDM and family income.

6.3.3 Cross tabulation analysis of parents in regard to satisfaction of MDM w.r.t family income in Rajganj

Table 6.3 Response analysis of parents regarding family Income and MDM satisfaction in Rajganj

parents satisfaction with MDM		Low	Moderate	High		
Income (Fr)	0-5000(Fr1) (very Low)		2	2	7	11
		% within income Rajganj	18.18	18.18	63.64	100.00
		% within Do parents satisfy with MDM	16.67	6.25	19.44	13.75
	5000-10000 (Fr2)	Count	5	24	20	49
	Low	% within income Rajganj	10.20	48.98	40.82	100.00
		% within Do parents satisfy with MDM	41.67	75.00	55.56	61.25
	10000-15000 (Fr3)	Count	4	6	7	17
	Moderate	% within income Rajganj	23.53	35.29	41.18	100.00
		% within Do parents satisfy with MDM	33.33	18.75	19.44	21.25
	15000> (Fr4)	Count	1	0	2	3
	High	% within income Rajganj	33.33	0.00	66.67	100.00
		% within Do parents satisfy with MDM	8.33	0.00	5.56	3.75
	Total	Count	12	32	36	80
		% within income Rajganj	15	40	45	100

Source-Field Survey

The analysis of cross tabulation on variable F_r revealed that the highest count 45 out of 80 (56.25 percent), parents agreed that they have highly satisfied with MDM always irrespective of their family income. Among the different income groups, Fr1 have expressed their strong opinion about the satisfaction of mid day meal daily basis,

6.3.4 Chi square and correlation test on family income and MDM satisfaction in Rajganj

For assessing the response of the parents between family income and mid day meal satisfaction by their children in Jalpaiguri, chi square test was used with the following hypothesis

Hypothesis 2

H_0 = Family income and mid day meal consumption are independent

H_1 = Family income and mid day meal consumption are not independent

Table 6.4 Chi square and correlation test on family income and MDM satisfaction

Chi-Square Tests				Correlation		
	Value	df	Asymp. Sig. (2-sided)		r	Sig
Pearson Chi-Square	7.321 ^a	6	.292	Pearson correlation	-	.351
Likelihood Ratio	8.458	6	.206			
Linear-by-Linear Association	.657	1	.418			
N of Valid Cases	80					
a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .45.						

The analysis of above table disclosed that the relationship between family income and mid-day meal consumption in Rajganj was low. This indicated that there is no significant association between family income and mid-day meal satisfaction. The calculated value of Chi-square (7.321) is less than the table value of chi-square (12.59) at $P \leq 0.05$ level df 6. The null hypothesis (H0) “Family income and mid-day meal consumption are independent”, was accepted and while alternative hypothesis(H1) “Family income and mid-day meal consumption are not independent” was rejected.

By correlation analysis, it is observed that there is a negative relationship ($r = -0.091$) and an insignificant relationship between satisfaction and income level of parents.

6.3.5 Cross tabulation analysis of parents regarding MDM quantity w.r.t Health Problems in Jalpaiguri

Table 6.5 Response analysis of parents regarding MDM quantity and health problems in Jalpaiguri

Children provided sufficient quantity MDM		Low	Moderate	High	Total	
Children suffer from illness	High	Count	3	12	2	17
		% within Do your children suffer	17.65	70.59	11.76	100.00
		% within children provided sufficient quantity MDM	37.50	35.29	5.26	21.25
	Moderate	Count	1	10	4	15
		% within Do your children suffer	6.67	66.67	26.67	100.00
		% within children provided sufficient quantity MDM	12.50	29.41	10.53	18.75
	Low	Count	4	12	32	48
		% within Do your children suffer	8.33	25.00	66.67	100.00
		% within children provided sufficient quantity MDM	50.00	35.29	84.21	60.00
Total		Count	8	34	38	80
		% within Do your children suffer	10	42.5	47.5	100

Source-Field Survey

The analysis of cross-tabulation revealed that the highest count of 48 out of 80 (about 60 per cent) of the parents agreed that health problems rarely occur to their children

6.3.6 Chi square and correlation test on MDM quantity and health problems in Jalpaiguri

Hypothesis 3

H_0 = There is no significant association between quantity of MDM and health problem of the children in Jalpaiguri

H_1 = There is significant association between quantity of MDM and health problem of the children Jalpaiguri.

Table 6.6 Chi square and correlation test on MDM quantity and health problem

Chi-Square Tests				Correlation		
	Value	df	Asymo Sig (2 sided)	Pearson Correlation	r	Sig
Pearson Chi-Square	19.62326	4	0.001		-0.405	0.000
Likelihood Ratio	21.07737	4	0.000			
Linear-by-Linear Association	12.95235	1	0.000			
N of Valid Cases	80					

The analysis of above table disclosed that the relationship between quantity and health problem in Jalpaiguri was high. It indicated that there is a significant association between quantity and health problem. The calculated value of Chi-square (19.62) is more than the table value of chi-square (9.49) at $P \leq 0.05$ level df 4. The null hypothesis (H_0) “There is no significant association between quantity of MDM and health problem of the children.”, was rejected and while alternative hypothesis (H_1) “There is a significant association between the quantity of MDM and health problem of the children” was accepted

By correlation analysis, it has been examined that there is a negative and significant correlation ($r = -0.405$) found between quantity and health problem. It means that there is the possibility of student would suffer less from health problem by proving a sufficient amount of MDM.

6.3.7 Cross tabulation analysis of parents regarding MDM quantity and Health Problems in Rajganj

Table 6.7 Response analysis of parents regarding MDM quantity and health problems in Rajganj.

Children provided sufficient quantity MDM		Low	Moderate	High	Total	
children suffer illness	Low	Count	5	3	19	27
		% within illness	18.52	11.11	70.37	100.00
		% within quantity	41.67	18.75	36.54	33.75
	Moderate	Count	6	5	17	28
		% within illness	21.43	17.86	60.71	100.00
		% within quantity	50.00	31.25	32.69	35.00
	High	Count	1	8	16	25
		% within illness	4.00	32.00	64.00	100.00
		% within quantity	8.33	50.00	30.77	31.25
Total		Count	12	16	52	80
		% within illness	15	20	65	100

Source-Field Survey

The analysis of cross-tabulation revealed that of 25 out of 80 (about 31 per cent) of the parents agreed that health problems frequently occur to their children and 28(35 per cent) parents confirmed about the occurrence of illness frequently.

6.3.8 Chi square and correlation test on MDM quantity and health problems in Rajganj

Hypothesis-4

H_0 = There is no significant association between quantity of MDM and health problem of the children in Rajganj

H_1 = There is significant association between quantity of MDM and health problem of the children Rajganj

Table 6.8 Chi square and correlation test on MDM quantity and health problem in Rajganj

Chi-Square Tests				Correlation		
	Value	df	Asymo Sig (2 sided)	Pearson Correlation	r	Sig
Pearson Chi-Square	6.1446547	4	0.189			
Likelihood Ratio	6.8052658	4	0.147			
Linear-by-Linear Association	0.1382448	1	0.71			
N of Valid Cases	80				0.042	0.713

The analysis of above table disclosed that the relationship between quantity and health problem in Rajganj was low. It indicated that there is no significant association between quantity and health problem. The calculated value of Chi-square (6.14) is less than the table value of chi-square (9.49) at $P \leq 0.05$ level df 4. The null hypothesis (H_0) “There is no significant association between quantity of MDM and health problem of the children.”, was accepted and while alternative hypothesis (H_1) “There is a significant association between the quantity of MDM and health problem of the children” was rejected

By correlation analysis, it has been examined that there is a very little and insignificant correlation ($r = 0.042$) is found between quantity and health problem. It means that there is a possibility that by providing a sufficient quantity of MDM student would suffer from a health problem.

6.3.9 Cross Tabulation of Mid Day meal satisfaction and Daily attendance in Jalpaiguri

Table 6.9 Response analysis of students regarding beneficiary satisfaction (students) and attendance in Jalpaiguri

MDM Beneficiary's satisfaction & attendance in Jalpaiguri		Attendance					Total	
		Never	Rare	sometimes	very Often	Always		
Beneficiary Satisfaction	YES	Count	0	16	48	70	14	148
		% within satisfaction	0.00%	10.80%	32.40%	47.30%	9.50%	100.00%
		% within attendance	0.00%	72.70%	88.90%	81.40%	82.40%	82.20%
		% of Total	0.00%	8.90%	26.70%	38.90%	7.80%	82.20%
	NO	Count	1	6	6	16	3	32
		% within satisfaction	3.10%	18.80%	18.80%	50.00%	9.40%	100.00%
		% within attendance	100.00%	27.30%	11.10%	18.60%	17.60%	17.80%
		% of Total	0.60%	3.30%	3.30%	8.90%	1.70%	17.80%
Total		Count	1	22	54	86	17	180

Source-Field Survey

The analysis of cross-tabulation on revealed that the highest count of 86 out of 180 (about 47 per cent) of the students indicated they have agreed that they came to school very often. It is clear from the table that, out 180 students 17(9.4 per cent) recorded as very high attendance. Likewise, out of 180 students, 148 (82.2 per cent) confirmed that they have a favourable opinion about the mid-day meal which was provided in the school. In the case of attendance, those out of 148 students, 16 (10.8 per cent) students have shown their disinterest in respect to come to school every day.

6.3.10 Chi square and correlation test on beneficiary satisfaction (students) and daily attendance in Jalpaiguri

Hypothesis 5

H₀= There is no significant association between MDM satisfaction and Attendance

H₁= There is significant association between MDM satisfaction and Attendance

Table 6.10 Chi square and correlation test on beneficiary satisfaction (students) and daily attendance in Jalpaiguri

Chi-Square Tests				Correlation test	
	Value	df	Asymp. Sig. (2-sided)	Pearson Correlation	-.053 (Sig0.482)
Pearson Chi-Square	7.664 ^a	4	.105		
Likelihood Ratio	6.547	4	.162		
Linear-by-Linear Association	.497	1	.481		
N of Valid Cases	180				

The analysis of above table disclosed that the relationship between attendance and mid-day meal satisfaction in Jalpaiguri was low. This indicated that there is no significant association between family income and mid-day meal consumption. The calculated value of Chi-square (7.436) is less than the table value of chi-square (7.81) at $P \leq 0.05$ level df 3. The null hypothesis (H0) "There is no significant association between MDM satisfaction and Attendance, was accepted and while alternative hypothesis(H1) "There is a significant association between MDM and Attendance " was rejected

By correlation analysis, it is observed that there is a negative relationship ($r = -0.053$) and the insignificant relationship between attendance and MDM satisfaction.

6.3.11 Cross Tabulation analysis of Mid Day meal satisfaction and Daily attendance in Rajganj

Table 6.11 Response analysis of students regarding beneficiary satisfaction (students) and attendance

MDM Beneficiary's satisfaction & attendance in Rajganj		Attendance				Total	
		Rare	Sometimes	Very often	Always		
Beneficiary Satisfaction	YES	Count	5	2	92	65	164
		% within Do you like MDM l(Raj)	3.00%	1.20%	56.10%	39.60%	100.00%
		% within Come to school every day(Rajganj)	62.50%	18.20%	96.80%	98.50%	91.10%
	NO	Count	3	9	3	1	16
		% within Do you like MDM l(Raj)	18.80%	56.20%	18.80%	6.20%	100.00%
		% within Come to school every day(Rajganj)	37.50%	81.80%	3.20%	1.50%	8.90%
Total		Count	8	11	95	66	180

Source-Field Survey

The analysis of (midday meal satisfaction) disclosed that the highest count of 95 out of 180 (about 52. per cent) of the students confirmed that they came to school frequently. It is also found that 66 (36.7 per cent) respondents confirmed their daily attendance at the school which is higher than Jalpaiguri. Only 8 (4.44 percent) recorded as low attendance.

From the above table, it is clear that 164 (91.1%) confirmed that, they have a high opinion about the midday meal. However, it also significant that out of 180 respondents,16 (8.9 per cent) said that they have not satisfied with the midday meal.

6.3.12 Chi square and correlation test on beneficiary satisfaction (students) and daily attendance in Rajganj

Hypothesis-6

H₀= There is no significant association between MDM satisfaction and Attendance

H₁= There is significant association between MDM satisfaction and Attendance

Table 6.12 Chi square and correlation test student’s satisfaction in MDM and attendance in Rajganj

Chi-Square Tests				Correlation test		
	Value	df	Asymp. Sig. (2-sided)	Pearson Correlation	r	Sig
Pearson Chi-Square	88.610 ^a	3	.000		0.456	.001
Likelihood Ratio	49.969	3	.000			
Linear-by-Linear Association	37.256	1	.000			
N of Valid Cases	180					

Analysis of table revealed that the relationship between midday meal and attendance in Rajganj was high. The calculated value of χ^2 (88.610) is more than the table value of χ^2 (7.81) at $P \leq 0.05$ level, $df=3$. The null hypothesis (H0) “There is no significant association between MDM and Attendance”, thus is rejected while the alternative hypothesis (H1) “There is a significant association between MDM satisfaction and Attendance” was accepted.

Through correlation analysis , the relationship has been studied between two variables i.e attendance and satisfaction of MDM in response to students opinion. The Pearson’s value is 0.456 indicates that there is a positive and significant association between two variables

6.3.13 Cross tabulation analysis of MDM quantity and health problems/illness in Jalpaiguri

Table 6.13 Response analysis of students regarding MDM quantity and Health Problems/illness in Jalpaiguri

children provided sufficient quantity MDM			Low	Moderate	High	Total
Illness/health problems	Low	Count	8	21	97	126
		% within illness	6.35	16.67	76.98	100.00
		% within Quantity	34.78	60.00	79.51	70.00
	Moderate	Count	7	12	18	37
		% within illness	18.92	32.43	48.65	100.00
		% within Quantity	30.43	34.29	14.75	20.56
	High	Count	8	2	7	17
		% within illness	47.06	11.76	41.18	100.00
		% within Quantity	34.78	5.71	5.74	9.44
Total		Count	23	35	122	180
		% within illness	12.78	19.44	67.78	100.00

Source-Field Survey

The above table disclosed that 122 (67.78 per cent) respondents agreed that they had provided sufficient quantity of MDM frequently

The analysis of above table disclosed that the highest count of 126 out of 180 (70 per cent) of the students confirmed that they there was no illness or health problems after the midday meal consumption. From the table, it is clear that a very few numbers of students 17(9.44 per cent) responded about the illness.

6.3.14 Chi square and correlation test on MDM quantity and health problems/ illness in Jalpaiguri

Hypothesis-7

H₀= There is no significant association between quantity of MDM and health problem of the children in Jalpaiguri

H₁== = There is significant association between quantity of MDM and health problem of the children Jalpaiguri

Table 6.14 Chi square and correlation test on MDM quantity and health problems/illness

Chi-Square Tests				Correlation		
	Value	df	Asymo Sig (2 sided)	Pearson Correlation	r	Sig
Pearson Chi-Square	30.37598	4	.000		-0.360	.000
Likelihood Ratio	24.75123	4	.000			
Linear-by-Linear Association	23.18431	1	.000			
N of Valid Cases	180					

The above table disclosed that the relationship between MDM quantity and illness of MDM in the Jalpaiguri was high. The calculated value χ^2 (30.37) is more than the table value of χ^2 (9.49) at $P \leq 0.05$ level; $df=4$. The null hypothesis (H_0). Hence rejecting null hypothesis while the alternative hypothesis “There is a significant association between MDM quantity and illness of MDM” was accepted. By correlation analysis, it has been examined that there is a negative and significant correlation ($r = -0.360$) is found between quantity and health problem. It means that there is a possibility of student would suffer less from health problem by proving a sufficient amount of MDM.

6.3.15 Cross tabulation analysis of MDM quantity and health problems/illness in Rajganj

Table 6.15 Response analysis of students regarding MDM quantity and Health Problems/illness in Rajganj

children provided sufficient quantity MDM		Low	Moderate	High	Total	
Illness	Low	Count	6	3	60	69
		% within Illness	8.70	4.35	86.96	100.00
		% within quantity	31.58	42.86	38.96	38.33
	Moderate	Count	5	1	44	50
		% within Illness	10.00	2.00	88.00	100.00
		% within quantity	26.32	14.29	28.57	27.78
	High	Count	8	3	50	61
		% within Illness	13.11	4.92	81.97	100.00
		% within quantity	42.11	42.86	32.47	33.89
Total		Count	19	7	154	180
		% within Illness	10.56	3.89	85.56	100.00

Source-Field Survey

The above table disclosed that 154 (85.56 per cent) respondents agreed that they had provided sufficient quantity of MDM frequently

The analysis of above table disclosed that the highest count of 69 out of 180 (38.33 per cent) of the students confirmed that they there was no illness or health problems after the midday meal consumption. From the table, it is clear that a significant (61.66 per cent) number of students responded about the illness or health problems.

6.3.16 Chi square and correlation test on MDM quantity and health problems/illness in Rajganj

Hypothesis-8

H₀= There is no significant association between quantity of MDM and health problem of the children in Rajganj

H₁== = There is significant association between quantity of MDM and health problem of the children in Rajganj

Table 6.16 Chi square and correlation test on MDM quantity and health problems/illness

Chi-Square Tests				Correlation		
	Value	df	Asymo Sig (2 sided)		r	Sig
Pearson Chi-Square	1.4240263	4	0.840	Pearson Correlation	-0.062	0.407
Likelihood Ratio	1.4982726	4	0.827			
Linear-by-Linear Association	0.6927551	1	0.405			
N of Valid Cases	180					

The above table disclosed that the relationship between MDM quantity and illness of MDM in the Jalpaiguri was high. The calculated value χ^2 (1.424) is less than the table value of χ^2 (9.49) at $P \leq 0.05$ level; $df=4$. Hence accepting the null hypothesis while the alternative hypothesis “There is a significant association between MDM quantity and illness of MDM” was rejected.

By correlation analysis, it has been examined that there is a negative and insignificant correlation ($r= -0.062$) is found between quantity and health problem. It means that there is the possibility of student would suffer less from health problem by proving a sufficient amount of MDM. It implies an increase of sufficient quantity of MDM would not decrease the health problems.

6.3.17 Cross tabulation analysis of MDM quality and overall satisfaction in MDM in Jalpaiguri

Table 6.17 Response analysis of parents regarding quality of MDM and overall satisfaction

children provided sufficient quality of MDM		Low	Moderate	High	Total	
satisfy with MDM	Low	Count	23	5	2	30
		% within satisfy with MDM	76.67	16.67	6.67	100.00
		% within quality	53.49	20.00	16.67	37.50
	Moderate	Count	19	14	2	35
		% satisfy with MDM	54.29	40.00	5.71	100.00
		% within quality	44.19	56.00	16.67	43.75
	High	Count	1	6	8	15
		% within satisfy with MDM	6.67	40.00	53.33	100.00
		% within quality	2.33	24.00	66.67	18.75
Total		Count	43	25	12	80

Source-Field Survey

The above table disclosed that 12 (15 per cent) respondents agreed that sufficient good quality of MDM supplied. The analysis of the above table disclosed that the highest count of 43 out of 80 (56.73 per cent) of the parents perceived that poor quality of MDM supplied to their children.

6.3.18 Chi square and correlation test on MDM quality and overall satisfaction of MDM in response to parents in Jalpaiguri

Hypothesis 9

H₀-Quality of MDM has no significant impact on overall satisfaction of MDM in response to parents in Jalpaiguri

H₁- Quality of MDM has significant impact on overall satisfaction of MDM in response to parents in Jalpaiguri

Table 6.18 Chi square and correlation test on MDM quality and overall satisfaction

Chi-Square Tests				Correlation		
	Value	df	Asymo Sig (2 sided)		r	Sig
Pearson Chi-Square	30.48151	4	.000	Pearson Correlation	0.521	.000
Likelihood Ratio	29.31854	4	.000			
Linear-by-Linear Association	21.4446	1	.000			
N of Valid Cases	80					

The above table disclosed that the relationship between MDM quality and satisfaction of MDM in Jalpaiguri. The calculated value χ^2 (30.48) is more than the table value of χ^2 (9.49) at $P \leq 0.05$ level; $df=4$. Hence rejecting null hypothesis while the alternative hypothesis accepted.

By correlation analysis, it has been examined that there is a positive and significant correlation ($r= 0.521$) is found between quality and satisfaction. It means that there is a possibility of increasing satisfaction by providing sufficient quality of MDM.

6.3.19 Cross tabulation analysis of MDM quality and overall satisfaction in MDM in Rajganj

Table 6.19 Response analysis of parents regarding quality of MDM and overall satisfaction

children provided sufficient quality of MDM		Low	Moderate	High	Total	
satisfy with MDM	Low	Count	12	3	2	17
		% within satisfy with MDM	70.59	17.65	11.76	100.00
		% within Quality	46.15	6.98	18.18	21.25
	Moderate	Count	13	19	3	35
		% within satisfy with MDM	37.14	54.29	8.57	100.00
		% within Quality	50.00	44.19	27.27	43.75
	High	Count	1	21	6	28
		% within satisfy with MDM	3.57	75.00	21.43	100.00
		% within Quality	3.85	48.84	54.55	35.00
Total		Count	26	43	11	80
		% within satisfy with MDM	32.5	53.75	13.75	100
		% within Quality	100	100	100	100

Source-Field Survey

The above table disclosed that 11 (13.75 per cent) respondents agreed that sufficient good quality of MDM supplied. The analysis of the above table disclosed that the highest count of 43 out of 80 (53.75 per cent) of the parents perceived that average quality of MDM supplied to their children.

6.3.20 Chi square and correlation test on MDM quality and overall satisfaction of MDM in response to parents in Rajganj.

Hypothesis 10

H₀-Quality of MDM has no significant impact on overall satisfaction of MDM in response to parents in Rajganj.

H₁ - Quality of MDM has significant impact on overall satisfaction of MDM in response to parents in Rajganj

Table 6.20 Chi square and correlation test on MDM quality and overall satisfaction in Rajganj

Chi-Square Tests				Correlation		
	Value	df	Asymo Sig (2 sided)	Pearson Correlation	r	Sig
Pearson Chi-Square	23.439037	4	.000		0.443	.000
Likelihood Ratio	27.221381	4	.000			
Linear-by-Linear Association	15.469655	1	.000			
N of Valid Cases	80					

The above table disclosed that the relationship between MDM quality and satisfaction of MDM in Rajganj. The calculated value χ^2 (27.22) is more than the table value of χ^2 (9.49) at $P \leq 0.05$ level; $df=4$..Hence rejecting null hypothesis while the alternative hypothesis accepted.

By correlation analysis, it has been examined that there is a positive and significant correlation ($r= 0.443$) is found between quality and satisfaction. It means that there is a possibility of increasing satisfaction by providing sufficient quality of MDM.

Table 6.21 Summary of Hypothesis Testing

Hypothesis No	Jalpaiguri				Rajganj		
	Null Hypothesis	Tools Used	Decision	Conclusion	Tools Used	Decision	Conclusion
1&2	Family income and mid day meal consumption	Chi square (Sig 0.001)	H ₀ Rejected	Family income as a parameter had significant role on the consumption of mid day meal and negative significant relationship between two variables	Chi Square (Sig 0.292)	H ₀ Accepted	Family income and mid day meal consumption are independent and negative insignificant relationship between two variables
		Correlation (sig 0.001)			Correlation (sig 0.351)		
3&4	MDM quantity and illness/ health problems	Chi Square (Sig 0.001)	H ₀ Rejected	significant association between MDM quantity and illness/ health problems of MDM and there is possibility of student would suffer less from health problem by proving sufficient amount of MDM.	Chi Square (Sig0.189)	H ₀ Accepted	No Significant association between quantity of MDM and health problem of the children and there is a very little and in significant correlation (r= 0.042) is found between quantity and health problem
		Correlation (sig 0.000)			Correlation (Sig 0.713)		
5&6	MDM satisfaction and Attendance	Chi Square (sig 0.105)	H ₀ Accepted	no significant association between MDM satisfaction and Attendance and is a negative relationship (r= - 0.084) between two variables	Chi Square (Sig 0.000)	H ₀ Rejected	significant association between MDM satisfaction and Attendance and there is positive and significant association between two variables.
		Correlation (sig 0.482)			Correlation (Sig 0.001)		
7 &8	MDM quantity and health problem of the children	Chi Square (Sig 0.00)	H ₀ Rejected	significant association between MDM quantity and illness of MDM and there is possibility of student would suffer less from health problem by proving sufficient amount of MDM.	Chi Square (Sig 0.840)	H ₀ Accepted	Negative and in significant correlation (r= -0.062) is found between quantity and health problem and no significant association between quantity of MDM and health problem
		Correlation (sig 0.000)			Correlation (sig 0.407)		
9 & 10	Quality of MDM and satisfaction of MDM	Chi Square (Sig 0.00)	H ₀ Rejected	Quality of MDM has significant impact on overall satisfaction of MDM and positive and significant correlation (r= 0.521) is found between quality and satisfaction	Chi Square (Sig 0.00)	H ₀ Rejected	positive and significant correlation (r= 0.443) is found between quality and satisfaction and Quality of MDM has significant impact on overall satisfaction of MDM
		Correlation (sig 0.000)			Correlation (sig 0.000)		

6.4 Measuring the association or relationship between Urban (Jalpaiguri Municipality) and Rural (Rajganj) in respect to increase in enrolment, drop out, attendance, improvement in study, quality and quantity of MDM , impact on nutritional and educational, in response to teachers

Hypothesis 11

H₀-There is no significant association between location of the school (rural and urban) and increase in enrolment which has an overall impact on SSA, in response of teachers.

H₁- There is significant association between location of the school (rural and urban) and increase in enrolment which has an overall impact on SSA, in response of teachers

Table 6.22 Cross tabulation analysis between area (urban and rural) and increase in enrolment

		Increase in enrolment			Total	
			Disagree	undecided	Agree	
Area	Jalpaiguri (Urban)	Count	38	6	36	80
		% within area	47.5	7.5	45	100
		% within Increase in enrolment	77.55	60	35.64	50
	Rajganj (Rural)	Count	11	4	65	80
		% within area	13.75	5	81.25	100
		% within Increase in enrolment C	22.44	40	64.35	50
Total		Count	49	10	101	160
		% within area	30.62	6.25	63.12	100

Source-Field Survey

Table 6.23 Chi square test to access the association between area (urban and rural) and increase in enrolment

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.604 ^a	2	.000
Likelihood Ratio	24.588	2	.000
Linear-by-Linear Association	23.414	1	.000
N of Valid Cases	160		

From the above table, chi-square is significant (Significant value is less than .05), hence rejecting the null hypothesis. It means there is a significant difference location of the school (rural and urban) and increases in enrolment which has an overall impact on SSA.

Hypothesis 12

H0- There is no significant difference between the location of the schools (rural and urban) in the response of teachers and their opinion on reduction in drop out which has a significant impact on the performance of SSA.

H1- There is a significant difference between the location of the schools (rural and urban) in the response of teachers and their opinion on reduction in drop out which has a significant impact on the performance of SSA.

Table 6.24 Cross tabulation analysis between area (urban and rural) and reduction in drop out.

		Reduction in drop out				Total
			Disagree	Undecided	Agree	
Area	Jalpaiguri (Urban)	Count	9	16	55	80
		% within area	11.25	20	68.75	100
		% within Reduction in drop out	60	64	45.83	50
		% of Total	5.62	10	34.37	50
	Rajganj (Rural)	Count	6	9	65	80
		% within area	7.5	11.25	81.25	100
		% within Reduction in drop out	40	36	54.16	50
		% of Total	3.75	5.62	40.62	50
Total	Count	15	25	120	160	
	% within area	9.37	15.62	75	100	

Source-Field Survey

Table 6.25 Chi square test to access the association between area (urban and rural) and reduction in drop out

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.393 ^a	2	.183
Likelihood Ratio	3.425	2	.180
Linear-by-Linear Association	2.541	1	.111

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.393 ^a	2	.183
Likelihood Ratio	3.425	2	.180
Linear-by-Linear Association	2.541	1	.111
N of Valid Cases	160		

From the above table, it is revealed that chi-square value is not significant as the significance value is higher than 0.05, hence null hypotheses is accepted. It means there is there is no significant difference between the location of the schools (rural and urban) in the response of teachers and their opinion on reduction in drop out which has a significant impact on the performance of SSA

Hypothesis 13

H0-There is no significant difference between the location of the school (rural and Urban) and teachers' opinion on an increase in school attendance which has an overall impact on SSA.

H1- There is a significant difference between the location of the school (rural and Urban) and teachers' opinion on an increase in school attendance which has an overall impact on SSA

Table 6.26 Cross tabulation analysis between area (urban and rural) and increase in school attendance.

		Increase in School attendance				
			Disagree	undecided	Agree	Total
Area	Jalpaiguri (Urban)	Count	20	4	56	80
		% within area	25	5	70	100
		% within Increase in School attendance	74.07	36.36	45.94	50
		% of Total	12.5	2.5	35	50
	Rajganj (Rural)	Count	7	7	66	80
		% within area	8.75	8.75	82.5	100
		% within Increase in School attendance	25.92	63.63	54.09	50
		% of Total	4.375	4.375	41.25	50
Total		Count	27	11	122	160
		% within area	16.87	6.87	76.25	100

Source-Field Survey

Table 6.27 Chi square test to access the association between area (urban and rural) and increase in school attendance.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.897 ^a	2	.009
Likelihood Ratio	8.176	2	.017
Linear-by-Linear Association	5.677	1	.017

From the above table, it is revealed chi-square is significant (Significant value is less than .05), hence rejecting the null hypothesis. It means there is a significant difference between the location of the school (rural and urban) and increase in attendance which has an overall impact on SSA. The conclusion can be drawn from the table is that attendance practice is different in the rural and urban area.

Hypothesis 14

H0- There is no significant association between the location of the schools (rural and urban) and teacher's opinion regarding the increase in study behaviour which has an overall impact on SSA.

H1- There is a significant association between the location of the schools (rural and urban) and teacher's opinion regarding the increase in study behaviour which has an overall impact on SSA.

Table 6.28 Cross tabulation analysis between area (urban and rural) and increase in study behaviour

Area		Increase in study behaviour			Total	
			Disagree	undecided		Agree
Area	Jalpaiguri (Urban)	Count	18	14	48	80
		% within Area	22.5	17.5	60	100
		% within increase in study behaviour	36.73	37.83	64.86	50
		% of Total	11.25	8.75	30	50
	Rajganj (Rural)	Count	31	23	26	80
		% within Area	38.75	28.75	32.5	100
		% within increase in study behaviour	63.26	62.162	35.13	50
		% of Total	19.37	14.37	16.25	50
Total	Count	49	37	74	160	

Source-Field Survey

Table 6.29 Chi square tests to access the association between area (urban and rural) and increase in study behaviour.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.179 ^a	2	.002
Likelihood Ratio	12.342	2	.002
Linear-by-Linear Association	10.222	1	.001
N of Valid Cases	160		

From the above table, it is revealed that chi-square value is significant as the significance value is less than 0.05, hence null hypotheses is rejected. It means there is a significant association between the location of the schools (rural and urban) and teacher's opinion regarding increasing in study behaviour of the students which has an overall impact on SSA. The inference from the above chi-square test reveals that study behaviour of the students is dependent on the location of the schools.

Hypothesis 15

H0-There is no significant association between the location of the schools (rural and urban) and teacher's opinion regarding the quantity of MDM served in the school which has an overall impact on SSA.

H1- There is no significant association between the location of the schools (rural and urban) and teacher's opinion regarding the quantity of MDM served in the school which has an overall impact on SSA.

Table 6.30 Cross tabulation analysis between area (urban and rural) and sufficient quantity of MDM

Area		Sufficiency of MDM			Total
		Count	Disagree	undecided	
Jalpaiguri (Urban)	Count	3	18	59	80
	% within area	3.75	22.50	73.75	100
	% within Quantity of MDM sufficient	21.43	66.67	49.58	50
	% of Total	1.88	11.25	36.88	50
Rajganj (Rural)	Count	11	9	60	80
	% within area	13.75	11.25	75.00	100
	% within quantity of MDM sufficient	78.57	33.33	50.42	50
	% of Total	6.88	5.63	37.50	50
Total	Count	14	27	119	160

Source-Field Survey

Table 6.31 Chi square tests to access the association between area (urban and rural) and sufficient quantity of MDM

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.580 ^a	2	.023
Likelihood Ratio	7.926	2	.019
Linear-by-Linear Association	.760	1	.383
N of Valid Cases	160		

From the above table, it is revealed chi-square is significant (Significant value is less than .05), hence rejecting a null hypothesis. It means there is a significant association between the location of the schools (rural and urban) and teacher's opinion regarding the quantity of MDM served in the school which has an overall impact on SSA. The inference from the above chi-square test reveals that quantities of MDM served in the schools are dependent on the location of the schools.

Hypothesis 16

H1-There is no significant difference between the location of the schools (rural and urban) and teacher's opinion regarding the increase in girls enrolment which has an overall impact on SSA.

H0- There is a significant difference between the location of the schools (rural and urban) and teacher's opinion regarding the increase in girls' enrolment which has an overall impact on SSA

Table 6.32 Cross tabulation analysis between area (urban and rural) and increase in girl's enrolment

		Increase in girl's enrolment				
			Disagree	undecided	Agree	Total
Area	Jalpaiguri (Urban)	Count	9	7	64	80
		% within area	11.25	8.75	80	100
		% within Increase in girls enrolment	52.94	46.66	50	50
		% of Total	5.625	4.375	40	50
	Rajganj (Rural)	Count	4	9	67	80
		% within area	5	11.2	83.8	100
		% within Increase in girls enrolment	30.8	56.2	51.1	50
		% of Total	2.5	5.6	41.9	50
Total	Count	17	15	128	160	

Source-Field Survey

Table 6.33 Chi square tests to access the association between area (urban and rural) and increase in girl's enrolment.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.242 ^a	2	.326
Likelihood Ratio	2.293	2	.318
Linear-by-Linear Association	1.116	1	.291
N of Valid Cases	160		

From the above table, it is revealed that chi-square value is not significant as the significance value is higher than 0.05, hence null hypotheses is accepted. It means there is no significant association between the location of the schools (rural and urban) and teacher's opinion regarding the increase in girls' enrolment which has an overall impact on SSA. The inference from the above chi-square test reveals that girls' enrolment is not dependent on the location of the schools.

Hypothesis 17

H0-There is no significant association between the location of the schools (rural and urban) and teacher's opinion regarding the quality of MDM served in the school which has an overall impact on SSA.

H1- There is a significant association between the location of the schools (rural and urban) and teacher's opinion regarding the quality of MDM served in the school which has an overall impact on SSA.

Table 6.34 Cross tabulation analysis between area (urban and rural) and quality of MDM served in the school

		Quality of MDM sufficient	Disagree	undecided	Agree	Total
Area	Jalpaiguri (urban)	Count	11	9	60	80
		% within Area	13.80%	11.20%	75.00%	100.00%
		% within Quality of MDM sufficient	64.70%	69.20%	46.20%	50.00%
	Rajganj (Rural)	Count	6	4	70	80
		% within Area	7.50%	5.00%	87.50%	100.00%
		% within Quality of MDM sufficient	35.30%	30.80%	53.80%	50.00%
Total		Count	17	13	130	160

Source-Field Survey

Table 6.35 Chi square tests to access the association between area (urban and rural) and quality of MDM served in the school.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.163 ^a	2	.125
Likelihood Ratio	4.236	2	.120
Linear-by-Linear Association	3.328	1	.068
N of Valid Cases	160		

From the above table, it is revealed chi-square is significant (Significant value is more than .05), hence accepting the null hypothesis. It means there is no significant association between the location of the schools (rural and urban) and teacher's opinion regarding the quality of MDM served in the school which has an overall impact on SSA.

Hypothesis 18

H0-There is no significant association between the location of the schools (rural and urban) and teacher’s opinion regarding the sufficiency of education and nutritional effect of MDM which has an overall impact on SSA.

H1-There is a significant association between the location of the schools (rural and urban) and teacher’s opinion regarding the sufficiency of education and nutritional effect of MDM which has an overall impact on SSA.

Table 6.36 Cross tabulation analysis between area (urban and rural) and sufficiency of nutritional & educational effects of MDM served in the school

		Nutritional and education is sufficient				Total
			Disagree	undecided	Agree	
Area	Jalpaiguri (Urban)	Count	9	5	66	80
		% within area	11.20%	6.20%	82.50%	100.00%
		% within Nutritional and education is sufficient	69.20%	55.60%	47.80%	50.00%
		% of Total	5.60%	3.10%	41.20%	50.00%
	Rajganj (Rural)	Count	4	4	72	80
		% within area	5.00%	5.00%	90.00%	100.00%
		% within Nutritional and education is sufficient	30.80%	44.40%	52.20%	50.00%
		% of Total	2.50%	2.50%	45.00%	50.00%
Total		Count	13	9	138	160

Source-Field Survey

Table 6.37 Chi square tests to access the association between area (urban and rural) and sufficiency of nutritional and educational effects.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.295 ^a	2	.317
Likelihood Ratio	2.346	2	.309
Linear-by-Linear Association	2.254	1	.133
N of Valid Cases	160		

From the above table, it is revealed that chi-square value is not significant as the significance value is higher than 0.05, hence null hypotheses is accepted. It means there is no significant association between the location of the schools (rural and urban) and teacher’s opinion regarding the sufficiency of education and nutritional effect of MDM which has an

overall impact on SSA. The inference from the above chi-square test reveals that education and nutritional support are not dependent on the location of the schools

6.5 Comparison of Enrolment, Drop out, attendance, improvement in study, quality and quantity of MDM, between Jalpaiguri municipality (Urban) and Rajganj block (rural) according to perception of teachers.

It is considered essential to see whether the group of teachers in the two sample area significantly differed or not on six variables. Therefore it is attempted to study the significance of difference between the mean performance of Jalpaiguri Municipality(Urban) and Rajganj (Rural) in enrolment, drop out, attendance, improvement in studies, quantity and quality of MDM served and regular inspection by authorities towards MDM effectiveness through testing the following hypotheses using Independent sample ‘t’ test for significance of difference between the means and details are presented in the table

Hypotheses 19 –There is no significant difference for improvement in enrolment after implementation of MDM scheme between Jalpaiguri Municipality(Urban) and Rajganj(Rural)

Hypothesis 20 -There is no significant difference for reduction in drop out after implementation of mid-day meal scheme between Jalpaiguri Municipality (urban) and Rajganj (rural)

Hypothesis 20- There is no significant difference in the responses teachers for improvement in school attendance after implementation of MDM scheme between Jalpaiguri Municipality (Urban) and Rajganj (rural)

Hypothesis 22-There is no significant difference in the responses teachers for improvement in study after implementation of MDM scheme between Jalpaiguri Municipality (urban) and Rajganj (Rural)

Hypothesis 23-There is no significant difference in the responses teachers for the quality of MDM served between Jalpaiguri Municipality (urban) and Rajganj block(rural)

Hypothesis 24- There is no significant difference in the responses teachers for an increase in girls enrolment after implementation of MDM between Jalpaiguri Municipality (urban) and Rajganj block (rural)

Hypothesis25 - There is no significant difference in the responses teachers for the quantity of MDM served between Jalpaiguri Municipality (urban) and Rajganj block(rural)

Hypothesis 26 - There is no significant difference in responses teachers for sufficiency of education and Nutrition after implementation of MDM between Jalpaiguri Municipality(Urban) and Rajganj Block (Rural)

Table 6.38 Details of ‘t’test for difference in enrolment, Drop out, attendance, improvement in study, quality and quantity of MDM served between Jalpaiguri Municipality (Urban) and Rajganj (rural)

Hypothesis number	Variables	Group Statistics				t value	p value
		Area	N	Mean	Std. Deviation		
19	Increase in enrolment	Jalpaiguri (Urban)	80.00	1.98	0.97	5.223	0.000(HS)
		Rajganj (Rural)	80.00	2.68	0.71		
20	reduction in drop out	Jalpaiguri (Urban)	80.00	2.58	0.69	1.602	0.111(NS)
		Rajganj (Rural)	80.00	2.74	0.59		
21	Increase in School attendance	Jalpaiguri (Urban)	80.00	2.45	0.87	2.419	0.017(HS)
		Rajganj (Rural)	80.00	2.74	0.61		
22	Increase in study behaviour	Jalpaiguri (Urban)	80.00	2.35	0.86	1.211	0.001(HS)
		Rajganj (Rural)	80.00	1.93	0.84		
23	Quantity of MDM sufficient	Jalpaiguri (Urban)	80.00	2.70	0.53	0.871	0.385(NS)
		Rajganj (Rural)	80.00	2.61	0.72		
24	Increase in girls enrolment	Jalpaiguri (Urban)	80.00	2.69	0.67	1.05	0.292(NS)
		Rajganj (Rural)	80.00	2.78	0.52		
25	Quality of MDM satisfactory	Jalpaiguri (Urban)	80.00	2.61	0.72	1.838	0.068(NS)
		Rajganj (Rural)	80.00	2.80	0.56		
26	Nutritional and education is satisfactory	Jalpaiguri (Urban)	80.00	2.712	0.66	1.507	0.134(NS)
		Rajganj (Rural)	80.00	2.852	0.47		

Note-HS-Highly Significant-Significant ,NS- Non Significant at 0.05 level

6.5.1 Results of hypothesis

Hypothesis 19-the p-value is less than 0.05; the null hypothesis is rejected at 5% level of significance concerning improvement in enrolment. Hence there is There is a significant difference for improvement in enrolment after implementation of MDM scheme between Jalpaiguri Municipality(Urban) and Rajganj(Rural).based on the mean score it is found that mean value of the improvement in enrolment of in Jalpaiguri 1.937, and that of Rajganj is 2.68. It means that Rajganj has higher enrolment than Jalpaiguri Municipality.

Hypothesis 20- the p-value is greater than 0.05, the null hypothesis is accepted at 5% level of significance concerning reduction in drop out. Hence there is no significant difference with regard to reduction in drop out .based on the mean score, Jalpaiguri municipality has a lower reduction in drop out (2.58) than Rajganj.

Hypothesis 21-- the p-value is less than 0.05; the null hypothesis is rejected at 5% level significance with regard to improvement in school attendance. Hence there is a significant difference with regard to improvement in school attendance. Based on the mean score, Rajgunj block (2.74) have higher improvement in attendance than Jalpaiguri Municipality.

Hypothesis 22 – here the p-value is less than 0.05, the null hypotheses is rejected at 5% significance level with regard to improvement in the study. Hence, there is There is a significant difference in the responses teachers for improvement in study after implementation of MDM scheme between Jalpaiguri Municipality (urban) and Rajganj (Rural)

Hypothesis 23- here the p-value is more than 0.05, the null hypothesis is accepted at 5% significance level concerning the quantity of MDM served in the school. Hence there is There is no significant difference in the responses teachers for the quantity of MDM served between Jalpaiguri Municipality (urban) and Rajganj block(rural)

Hypothesis 24-It is revealed that p-value is more significant than 0.05, null hypothesis is accepted at 0.05 level of significance concerning the increase in girls enrolment (0.162)t after the implementation of MDM. Hence it is concluded that There is no significant difference in the responses teachers for an increase in girls enrolment after implementation of MDM between Jalpaiguri Municipality (urban) and Rajganj block(rural)

Hypothesis 25-The p-value here the p-value is more than 0.05, the null hypothesis is accepted at 5% significance level concerning the quality of MDM served in the school. Hence there is no significant difference in the responses teachers for the quality of MDM served between Jalpaiguri Municipality (urban) and Rajganj block(rural)

Hypothesis 26- The p-value is greater s than 0.05, the null hypothesis is accepted at 5% level of significance with regard to education and nutrition provision .hence there is no significant difference with regard to education and nutritional support

6.6 Regression Analysis: Measuring Students’ satisfaction in Mid Day Meal in Jalpaiguri

Table 6.39 Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.484 ^a	.235	.217	.81436
a. Predictors: (Constant), Going to school Empty stomach, Mid day meal provided timely, feeling full stomach after MDM, Taste of the food				

The above regression table 6.39 summarises the model performances where R represents the multiple correlation coefficient with a range lies between -1 and +1. The R-value is 0.484, and it means enhancing students' satisfaction in MDM has a positive relationship with an empty stomach, timely delivery, feeling of full stomach and taste of the food.

R square represents the coefficient of determination and ranges between 0, and 1. Since R square value is 0.235, 23.5 percent of the variation in enhancing students' participation in MDM by an empty stomach, timely delivery, feeling of a full stomach after MDM and taste of the food.

Table 6.40 ANOVA^b						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.587	4	8.897	13.415	.000 ^a
	Residual	116.057	175	.663		
	Total	151.644	179			
a. Predictors: (Constant), Going to school Empty stomach, Mid day meal provided timely, feeling full stomach after MDM, Taste of the food						
b. Dependent Variable: satisfaction in MDM						

From the ANOVA table 6.40 F value is significant (significant value is less than 0.05) it means dependent variable is more reliable. The following table 6.40 shows the results of multiple regressions predicting the factors having a significant impact on dependent variable

Table 6.41 Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.945	.449		4.332	.000
	Taste of the food	.273	.099	.236	2.762	.006
	Feeling full stomach after MDM	.214	.103	.174	2.077	.039
	Mid day meal provided timely	.247	.093	.176	2.645	.009
	Going to school Empty stomach	-.162	.062	-.177	-2.630	.005
a. Dependent Variable: satisfaction in MDM						

6.6.1 Analysis of Regression Result (Urban-Jalpaiguri)

Hypothesis 27

H0- Taste of the food has no significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri

H1- Taste of the food has a significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri

Thus, the null hypothesis 27 is rejected as the p-value is 0.006 which is less than 0.05. Hence the taste of the food has a significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri

Hypothesis 28

H0 Feeling of the full stomach has no significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri

H1 Feeling of the full stomach a significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri.

Thus, the null hypothesis 26 is rejected as the p-value is 0.039 which is less than 0.05. Hence, the feeling of the full stomach a significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri.

Hypothesis 29

H0 Timely delivery of MDM in the schools has no significant impact on an overall enhancement student satisfaction in mid-day meal in Jalpaiguri.

H1 Timely delivery of MDM in the schools has a significant impact on an overall enhancement student satisfaction in mid-day meal in Jalpaiguri

Thus, the null hypothesis 27 could be rejected as the p-value is 0.009 which is less than 0.05. Hence, timely delivery of MDM has a positive impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri.

Hypothesis 30

H0 Empty stomach has no significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri.

H1 Empty stomach has a significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri

For hypotheses 28, the null hypothesis is rejected as the p-value is 0.005 which is less than 0.05. Hence empty stomach has a significant negative impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri.

6.6.2 The Regression model

The above regression model coefficient table discloses that coefficients for the taste of the food, feeling full stomach after MDM, provision of MDM timely helps for enhancing student satisfaction in MDM but coefficient for empty stomach have the negative impact on for enhancing student participation in MDM

The regression Equation can be written as follows

$$Y_j = 1.945 + 0.236X_{j1} + 0.174X_{j2} + 0.176X_{j3} - 0.177X_{j4}$$

Y_j = Students' satisfaction in Mid Day Meal in Jalpaiguri, X_{j1} = taste of the MDM, X_{j2} = Feeling of full stomach after MDM, X_{j3} = Timely delivery of MDM in the schools, X_{j4} = Empty stomach

6.7 Regression Analysis: Measuring Students' satisfaction in Mid Day Meal in Rajganj

Table 6.42 Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.710 ^a	.504	.493	.74157
a. Predictors: (Constant), Going to school Empty stomach, Do you feel full stomach after MDM?, Mid day meal provided timely, Taste of the food				

The above regression table 6.42 summarises the model performances where R represents the multiple correlation coefficient with a range lies between -1 and +1. As The R value is 0.710, it means enhancing students' performance in MDM has a positive relationship with the empty stomach, timely delivery of mid-day meal, feeling of the full stomach after MDM and taste of the food. R square represents the coefficient of determination and ranges between 0, and 1. Since R square value is 0.504, 50.4 per cent of the variation in enhancing students' participation in MDM by the empty stomach, timely delivery of MDM, feeling of the full stomach after MDM and taste of the food.

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	97.956	4	24.489	44.531	.000 ^a
	Residual	96.238	175	.550		
	Total	194.194	179			
a. Predictors: (Constant), Going to school Empty stomach, feeling full stomach after MDM, timely delivery of MDM, Taste of the food						
b. Dependent Variable: satisfaction in MDM						

From the ANOVA table 6.43 F value is significant (significant value is less than 0.05) it means dependent variable is more reliable.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.822	.256		3.212	.002
	Taste of the food	.431	.075	.439	5.734	.000
	Do you feel full stomach after MDM?	.257	.096	.209	2.685	.008
	Mid day meal provided timely	.160	.069	.142	2.323	.021
	Going to school Empty stomach	.079	.072	.067	1.101	.272
a. Dependent Variable: satisfaction in MDM						

The above table 6.44 shows the results of multiple regressions predicting the factors having a significant impact on dependent variable.

6.7.1 Analysis of Regression Results (Rural- Rajganj)

Hypothesis 31

H₀ Taste of the food has no significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj

H1 Taste of the food has a significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj.

For hypothesis 29, the null hypothesis is rejected as the p-value is 0.000 which is less than 0.05. Hence the taste of the food a significant impact on overall enhancement of satisfaction in mid-day meal in Rajganj.

Hypothesis 32

H0 Feeling of the full stomach has no significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj.

Ha Feeling of the full stomach a significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj.

For hypothesis 30, the null hypothesis is rejected as the p-value is 0.008 which is less than 0.05. Hence, the feeling of the full stomach has a positive impact on overall enhancement student satisfaction in mid-day meal in Rajganj

Hypothesis 33

H0 Timely delivery of MDM in the schools has no significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj.

H1 Timely delivery of MDM in the schools has a significant impact on an overall enhancement student satisfaction in mid-day meal in Rajganj

For hypothesis 31, The null hypothesis is rejected as the p-value is 0.021 which is less than 0.05. Hence, timely delivery of MDM has a significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj.

Hypothesis 34

H0 Empty stomach has no significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj.

H1 Empty stomach has a significant impact on overall enhancement student satisfaction in mid-day meal in Rajganj

For hypothesis 32, the null hypothesis is accepted as the p-value is 0.272 which is more than 0.05. Hence empty stomach has no significant impact on overall enhancement student satisfaction in mid-day meal in Jalpaiguri

6.7.2 The Regression Model

The above regression model coefficient table discloses that coefficients for a taste of the food, feeling full stomach, timely delivery of MDM and empty stomach helps for enhancing student participation in MDM. The regression Equation can be written as follows

$$Y_i = 0.822 + 0.439X_{r1} + 0.209X_{r2} + 0.142X_{r3} + 0.067X_{r4}$$

Y_j = Students' satisfaction in Mid Day Meal in Rajgunj, X_{r1} = taste of the MDM, X_{r2} = Feeling of full stomach after MDM, X_{r3} = Timely delivery of MDM in the schools, X_{r4} = Empty stomach

6.8 Regression Analysis: Hygiene of Mid Day Meal (Jalpaiguri)

Table 6.45 Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.742 ^a	.551	.538	.82393
a. Predictors: (Constant), cleanness and adequacy of kitchen, , health problems, washing hands, drinking water, cleanness of dining area				
Dependent Variable: Hygiene of MDM				

The above regression table 6.45 summarises the model performances where R represents the multiple correlation coefficient with a range lies between -1 and +1. As The R value is 0.742, it means hygienic midday meal (served) has a positive relationship between cleanness and adequacy of the kitchen, health problems, school, washing hands, drinking waters, cleanness of dining area. R square represents the coefficient of determination and ranges between 0, and 1. Since R square value is 0.551, 55.1% of the variation in the hygiene of MDM by cleanness and adequacy of the kitchen, health problems, school, washing hands, drinking waters, cleanness of dining area

Table 6.46 ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	144.828	5	28.966	42.668	.000 ^a
	Residual	118.122	174	.679		
	Total	262.950	179			
a. Predictors: (Constant), cleanness and adequacy of kitchen, , health problems, school, washing hands, drinking waters, cleanness of dining area						

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	144.828	5	28.966	42.668	.000 ^a
	Residual	118.122	174	.679		
	Total	262.950	179			
a. Predictors: (Constant), cleanness and adequacy of kitchen, , health problems, school, washing hands, drinking waters, cleanness of dining area						
b. Dependent Variable: Hygiene of MDM						

From the ANOVA table 6.46 ,F value is significant (significant value is less than 0.05) it means dependent variable is more reliable. The following table shows the result of multiple regression predicting the factors having a significant impact on dependent variable.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.236	.323		3.826	.000
	Cleanness of Dining area	.344	.070	.337	4.930	.000
	drinking water facilities	.211	.081	.162	2.598	.010
	Illness	-.462	.079	-.308	-5.861	.000
	washing hands	.156	.067	.128	2.319	.022
	Cleanness of kitchen store	.245	.077	.203	3.167	.002
a. Dependent Variable: Hygiene of MDM						

6.8.1 Analysis of Regression Results (urban-Jalpaiguri)

The hypotheses were tested through statistical analysis given in **Table 6.47**

Hypothesis 35

H0 The cleanness of the dining area has no significant impact on the hygiene of MDM in Jalpaiguri.

H1 The cleanness of the dining area has no significant impact on the hygiene of MDM in Jalpaiguri

For hypothesis 33, the null hypothesis is rejected as the p-value is 0.000 which is less than 0.05. Hence the cleanness of the dining area has a significant impact on the hygiene of MDM.

Hypothesis 36

H0 The provision of drinking water facilities have no significant impact on the hygiene of MDM.

H1 The provision of drinking water facilities have a significant impact on the hygiene of MDM

For hypothesis 34, the null hypothesis is rejected as the p-value is 0.010 which is less than 0.05. Hence The provision of drinking water facilities has a significant impact on the hygiene of MDM in Jalpaiguri.

Hypothesis 37

H0 Illness or health problems have no significant impact on the hygiene of MDM

H1 Illness or health problems have a significant impact on the hygiene of MDM

For hypothesis 35, the null hypothesis is rejected as the p-value is 0.000 which is less than 0.05. Hence, illness has a significant negative impact on the hygiene of MDM in Jalpaiguri.

Hypothesis 38

H0 Provision of washing hands has no significant impact on the hygiene of MDM in Jalpaiguri

H1 Provision of washing hands has a significant impact on the hygiene of MDM in Jalpaiguri

For hypothesis 36, the null hypothesis is rejected as the p-value is 0.022 which is less than 0.05. Hence, Provision of washing hands has a significant impact on MDM in Jalpaiguri.

Hypothesis 39

H0 The cleanness and adequacy of kitchen store have no significant impact on the hygiene of MDM in Jalpaiguri.

H1 The cleanness and adequacy of kitchen store have a significant impact on the hygiene of MDM in Jalpaiguri.

For hypotheses 37, the null hypothesis is rejected as the p-value is 0.002 which is less than 0.05. Hence, cleanness and adequacy of kitchen store have a significant impact on the hygiene of MDM in Jalpaiguri.

6.8.2 Regression Model

The above regression model coefficient table 6.46 discloses that coefficients for cleanness and adequacy of the kitchen, health problems, washing hands, drinking waters, and cleanness

of the dining area help to increase the hygiene of MDM. The regression Equation can be written as follows

$$Y_{jh}=1.236+0.337X_{jh1}+0.162X_{jh2}-0.308X_{jh3}+0.128X_{jh4}+0.203X_{jh5}$$

Y_{jh} =Hygiene of MDM in Jalpaiguri, X_{jh1} =cleanness of dining area, X_{jh2} =drinking water, X_{jh3} =illness, X_{jh4} =washing hands, X_{jh5} =Cleanness of kitchen store

6.9 Regression Analysis: Hygiene of Mid Day Meal (Rajganj)

Table 6.48 Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.802 ^a	.644	.634	.72241
a. . Predictors: (Constant), cleanness and adequacy of kitchen, , health problems, school, washing hands, drinking waters, cleanness of dining area Dependent Variable- Hygiene of MDM				

The above regression table 6.48 summarises the model performances where R represents the multiple correlation coefficient with a range lies between -1 and +1. As The R value is 0.802, it means hygienic midday meal (served) has a positive relationship between cleanness and adequacy of the kitchen, health problems, school, washing hands, drinking waters, cleanness of dining area R square represents the coefficient of determination and ranges between 0, and 1. Since R square value is 0.644, 64.4 per cent of the variation in the hygiene of MDM by cleanness and adequacy of the kitchen, health problems, school, washing hands, drinking waters, cleanness of dining area.

Table 6.49 ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	164.145	5	32.829	62.907	.000 ^a
	Residual	90.805	174	.522		
	Total	254.950	179			
a. Predictors: (Constant), cleanness and adequacy of kitchen, , health problems, school, washing hands, drinking waters, cleanness of dining area b. Dependent Variable: Hygiene of MDM						

From the ANOVA table 6.49, F value is significant (significant value is less than 0.05) it means dependent variable is more reliable. The following table shows the result of multiple regressions predicting the factors having a significant impact on dependent variable.

Table 6.50 Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.550	.243		2.260	.025
	Cleanness of Dining area	.369	.059	.404	6.213	.000
	drinking water facilities	.151	.062	.149	2.434	.016
	Illness/ health problem	-.089	.063	-.067	-1.403	.162
	washing hands	.114	.058	.096	1.957	.032
	Cleanness of kitchen store	.365	.081	.305	4.501	.000
a. Dependent Variable: The midday meal served to you is hygienic						

The hypotheses were tested through statistical analysis given in Table 6.50

6.9.1 Analysis of Regression Results (Rural –Rajganj)

Hypothesis 40

H0 The cleanness of the dining area has no significant impact on the hygiene of MDM.

H1 The cleanness of the dining area has a significant impact on the hygiene of MDM.

For hypothesis 38, the null hypothesis is rejected as the p-value is 0.000 which is less than 0.05. Hence the cleanness of the dining area has a significant impact on the hygiene of MDM.

Hypothesis 41

H0 The provision of drinking water facilities have no significant impact on the hygiene of MDM in Rajganj

H1 The provision of drinking water facilities have a significant impact on the hygiene of MDM in Rajganj.

For hypothesis 39, the null hypothesis is rejected as the p-value is 0.036 which is less than 0.05. Hence The provision of drinking water facilities has a significant impact on the hygiene of MDM in Rajganj.

Hypothesis 42

H0 Illness has no significant impact on the hygiene of MDM in Rajganj.

H1 Illness has a significant impact on the hygiene of MDM in Rajganj.

For hypothesis 40 , the null hypothesis is accepted as the p-value is 0.162 which is more than 0.05. Hence, illness have no significant impact on the hygiene of MDM and

Hypothesis 43

H0 Provision of washing hands has no significant impact on the hygiene of MDM

H1 Provision of washing hands has a significant effect on the hygiene of MDM

For hypothesis 41, the null hypothesis is rejected as the p-value is 0.032 which is less than 0.05. Hence, Provision of washing hands has a significant impact on the hygiene of MDM in Jalpaiguri.

Hypothesis 44

H0 The cleanness of the kitchen store has no significant impact on the hygiene of MDM in Rajganj.

H1 The cleanness and adequacy of kitchen store have a significant impact on the hygiene of MDM in Rajganj

For hypothesis 42, the null hypothesis is rejected as the p-value is 0.001 which is less than 0.05. Hence, cleanness and adequacy of kitchen store have a significant impact on the hygiene of MDM in Rajganj.

6.9.2 Regression Model

The above regression model coefficient table 6.49 discloses that coefficients for cleanness and adequacy of the kitchen, health problems, washing hands, drinking waters, and cleanness of the dining area help to increase the hygiene of MDM. The regression Equation can be written as follows

The regression Equation can be written as follows

$$Y_{rh}=0.550+0.404X_{rh1}+0.149X_{rh2}-0.067X_{rh3}+0.096X_{rh4}+0.305X_{rh5}$$