DO STUDENTS' ACADEMIC PERFORMANCE AND PARTICIPATION GET BETTER THROUGH SCHOOL FEEDING IN ETHIOPIA?

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ABSTRACT

According to the Ethiopia Ministry of Education (2015), school feeding initiatives, such as feeding children in food insecure conditions, providing educational resources, and school meals are essential for supporting access to general education. The purpose of this study was to assess the impact of school feeding program on the academic performance and class participation of Grade 8 students in the primary public schools in Gulele sub city, Ethiopia. A quantitative research method with a quasi-experimental design was used in conducting the study. From Grade 8, two hundred students were selected by using purposive sampling technique. From five out of ten Woredas, the sample primary schools with Grade 8 were selected. Standardized Attentions Check List and the roster cards were used to solicit the primary and secondary sources of data. Difference in Difference linear regression and Independent Sample t- test were applied for analyzing academic achievement, attendance and attention data respectively. Result of data analysis indicated the positive effect of school feeding program on academic achievement and attendance of Grade 8 students. The school feeding also has an effect on the students' attention span. Providing for greater financing and more coverage for the school-feeding program at country level is recommended.

BACKGROUND OF THE STUDY

Over 1.2 billion people are affected by the persistent issue of hunger worldwide (Morrissey et al, 2014). School feeding programs (SFPs) are aimed at reducing temporary hunger, better children's diets and cognitive development, and give families more financial support (Jomaa et al., 2011). When we think of the very meaning of school feeding, it is nothing but the provision of food to school children on the school premises. But, the form of school feeding based on their modalities can be grouped into two categories, i.e., children in school eating and children taking food home for the family (Bundy et al., 2009). Providing high energy food, biscuits or snacks to the attending elementary school students are also the part of in school feeding according to the statement of World Food Program (WFP) (WFP, 2016). School feeding programs are considered as investments in the world's poorest children. Through this program as a catalyst, students can be out of hunger and can come to school to study.

In developing countries, everyday an average of 60 million students go to school hungry (Neeser, 2012). International and local organization policy makers use various mechanisms like social safety nets to minimize the problem of malnutrition and hunger in their countries. To tackle such problem, programs, such as food for education (FFE), are initiatives supported by public or private funding sources (Lawson, 2012). Since 2009 the world food program is working on the integration of school feeding program on the comprehensive and holistic system of government policies in education rather than focusing food as project approach (Alderman et al., 2012). The policy directive included a reformed focus on government ownership by having a strong local procurement (Abiy, 2017).

Linking with small holder farming and committing to a better nutrition's food baskets, the Home-Grown School Feeding Program (HGSFP) (WFP, 2016) is targeted to increase the students school performances, class attention, attendance, enrollment and retention rates (Bundy et al., 2009; Songa, 2011). The essential of better food and better learning capacity of students is emphasized by the Ethiopian government with initiatives of school health strategies. By the same token, various studies have also shown that the students' aptitude, concentration and attentiveness can be positively affected by food nutrition (Zenebe et al., 2018). Food in school can also help improve school attendance and decrease dropout (Kazianga et al., 2009).

An Ethiopian school health strategy is to recommend that schools need to promote a better nutrition practice of governmental and non-governmental organizations to integrate school feeding programs to reach the children and youth (MOE, 2008). It is true that children can be attracted to school if there is a strong implementation of school feeding programs (WFP, 2016). Since 2011, the Addis Ababa school feeding program has been operated by Yenate Weg Charity Organization providing meals for more than 25,000 school children. Food items distributed to school children were fresh traditional meals, locally purchased, and were more diversified than the food provided by the World Food Program. Additionally, Yeneat Weg Charity Organization has offered employment opportunities to 849 food cooking women living near the school areas (Abiy, 2017).

REVIEW OF LITERATURE

The urban food item price inflation affects urban school student's parents to fulfill their children's food need. However, a good number of government data failed to tell the urban school students' food insecurity status. According to the study done by Addis Ababa Women and Children Affair Bureau (AABWC) and Addis Ababa Education Bureau (AAEB), 26.5% of vulnerable primary school students eat once a day and 15.8% of them do have an experience of not taking any food for the whole day. The study also showed that 14.7% of the students were beggars. The information was gathered from 220 primary public schools and from 11,682 students in the capital city, Addis Ababa. (AABWC, & AAEB, 2015).

Various scholars have done their research on the negative impact of malnutrition and food insecurity on the students' academic performance. Belachew et al., (2011) showed by their findings as food insecurity affects academic performance and school attendance of the students negatively at Jimma Zone. These researchers applied the 2009 two consecutive surveys of a 5-year longitudinal family investigation and addressed on 2,100 adolescents in the age group of thirteen up to seventeen. The insecure students were absent from the school repeatedly where the researchers compared with similar age students with secured food supply.

Similarly, the negative effect of undernourishment on the students' average score, memory, attention and general school activities were studied by another researcher (Beminet, 2015). Income, occupation of the parents, household size and the sex of the household head affect the level of under nourishment. This study used qualitative method with 13 students who were learning at "Atse Libnedingel" primary public school in Gulele sub city of Addis Ababa. As a result of the study, the author recommended to follow school feeding program as a good strategy for addressing the under-nutrition problem among primary school students.

According to Lawson (2012), Food for Education Program (FFE) has encouraged parents to send their children to school. As a result of reviewing literature from twenty-six countries, he claimed that FFE helped improve school enrollment and attendance. He also suggested that FFE can also improve student performance and reduce dropout rate. He also verified that the health status of the targeted students can also be improved due to the impact of Food for Education program.

The impact of school feeding on the students' academic achievement was studied by Pope, Prollch and Haile in 2016 and it was found that providing meals both at school and at home has long lasting effect on the concentration power, reading, writing and arithmetic skills for students aging from seven to thirteen. Data in this study were collected from four regions of Ethiopia (Amhara, Tigray, Oromia and Southern Nation's Nationalities and Peoples) with the household survey conducted by the World Food Program of Ethiopia in collaboration with Mannheim University in 2010.

STATEMENT OF THE PROBLEM

The review of literature has shown somewhat a positive impact of the school feeding programs on the academic achievement of the students. However, the findings were superficial with no in-depth elaboration. This research has attempted to assess the impact of school feeding programs using difference in difference estimator at least to assess the listed three basic research questions to minimize the limitation of using cross sectional and time series quasi-experimental designs. Thus, this research has tried to evaluate how school feeding programs could impact the student academic achievement and participation in school in Gulele sub city in connection with the concept of the economics of education principles. The researcher hope that the findings of this study could lead to drawing an idea on the relevance and effectiveness of school feeding program that informs programmatic actions and policy guides to improve the program in the future.

RESEARCH QUESTIONS

1. What is the impact of school feeding program on the Grade 8 students' academic achievement at Gulele sub city's primary public schools?
2. What is the impact of school feeding program on the Grade 8 students' attendance at Gulele sub city's primary public schools?
3. What is the impact of school feeding program on the Grade 8 students' attention at Gulele sub city's primary public schools?

SIGNIFICANCE OF THE STUDY

Even though the Yenate Weg school feeding program was here in Addis Ababa city some 6 years back, the impact of the program on the student's academic achievement, attendance and attention was not evaluated by experienced researchers and by the project implementers themselves. This research will benefit schools and other concerned body to get involved in the issue of school feeding program on the policy and on research areas since the program focused vulnerable school aged children. Additionally, this research may provide useful suggestions and recommendations for school feeding program implementers and other interested stakeholders to improve the effectiveness of the current program.

OPERATIONAL DEFINITIONS

School Feeding is the provision of food to school children on the school premises.

School Performance refers to the extent to which a student has attended their short- or long-term educational goals or completion of educational benchmarks.

Academic Achievement is the level at which a student performs in education to achieve or score the entry point or pass mark of each grade according to the standard set by Ministry of Education or the Regional Bureaus of Education. It is measured in average pass marks awarded by the school.

Attendance Rate measures the percentage of students who are attending the classes within a given time frame.

Attention Measure is measuring how fast students can orient or shift their attention to a particular idea in response to a cue. In this research, Attention Check List (ACL) developed by Dr. Das was used to measure the student attention span by twelve items in four scales. (Papadopoulos, et al, 2002).

RESEARCH METHOD

A quantitative, quasi-experimental design was used in this study. A standardized Attention Check List (ACL) and the 2010 and 2011 students' pre-existing roster analysis was used to measure the attention span and academic performance of the students after attending the school feeding program in the selected government primary schools. Here, the roaster analysis was considered as secondary source and the attention checklist was the primary data source.

Research Design

Since the study was focused on evaluating the impact of school feeding program on the Grade 8 student performances of primary schools, quasi-experimented design approach was used having experimental and comparable groups at the same time. In doing so, experimental group and comparable group cannot be assigned randomly. Therefore, the researcher tried to match the experimental group with a comparison group from similar class that of Grade 8 and similar number of students, i.e., 100 as experimental and 100 as comparable group assigned. Additionally, the basic two groups "Pretest – Posttest" design is identical to that in pure experimental research in order to evaluate the very impact of school feeding program on the Grade 8 students' academic performance, attention span and attendance.

This quasi-experimental design used two sub-designs named as Difference in Difference (DID) to assess academic achievement and attendance and with in – without design (the two-group posttest only design) to evaluate the attention span of the Grade 8 students. In the DID design, the 2010 and 2011 roster data were used by having two comparable groups. DID is a stronger impact estimator than a single difference or within- without design which only compares the difference in outcomes between treatment and comparison groups (White & Sabarwal, 2014). DID controls all the characteristics that do not change over time either observable or unobservable (Pomeranz, 2015).

Description of The Study Area

Gulele sub city is one of the sub cities here in Addis Ababa city Administration. This sub city was established in the early Nineteenth Century in the northern part of the city having ten Woredas. In this sub city, there are 43 public primary schools, 464 sections, 21,461 primary school students

(12,321 boys and 9140 girls), and 1003 public primary school teachers in 2018/19 academic year. Thus, the primary school teacher student ratio was (1:21) and section student ratio was (1:46)

Sampling Technique

In this research, much emphasis was given to a quantitative approach and quasi-experimental design with two groups of samples. The experimental and comparable groups were selected by employing a purposive sampling scheme accordingly in eight primary schools. One hundred students who were in Grade 6 and 7 and currently promoted and attending in Grade 8 were chosen by calculating the 10% of the food feeding program attendances as experimental group. Another one hundred students who were learning in the selected schools since the very start at school feeding program by **"**Yenat Weg" charitable organization served as the controlled group. The sample schools were selected from five out of ten administrative Woredas. (See school demographics in Table 1.)

Table 1

Selected Primary Public Schools Data

Name of Selected Primary Public Schools	Number of Grade 8 Students			Number of Grade 8 Students Taking School Feeding			Number of Grade 8 Students Not Taking School Feeding		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
No 1 Primary Public School	197	225	422	121	74	195	76	151	227
No 2 Primary Public School	102	126	228	50	60	110	52	66	118
No3 Primary Public School	139	157	296	68	64	132	71	93	164
No 4 Primary Public School	26	29	55	11	13	24	15	16	31
No 5 Primary Public School	44	130	174	21	71	92	23	59	82
No 6 Primary Public School	28	52	80	14	22	36	14	30	44
No 7 Primary Public School	127	180	307	64	98	162	63	82	145
No 8 Primary Public School	78	88	166	29	61	90	49	27	76
Total	741	987	1728	378	463	841	363	524	887

All the 100 comparable group of Grade 8 students are purposively selected since they were registered in the waiting list of additional school feeding needy students in the sub city education office. The reason why the researcher chose both the experimental group (100) and the comparable group only those permanent students who were learning in the selected schools for the past three years is for the sake of getting base line data from the roster analysis which was helpful to follow up with their progress in their academic attendance and attention.

Sample Size

A sample size between 10% and 20% of the total population is representative (Gay & Airasian, 2003). Similarly, the researcher took 13% and 14 % of the experiment and the comparable Grade 8 students totaling 200 (100 for the experiment group and 100 for the controlled group).

Data Collection Instrument

In this school feeding program impact analysis research, the data were selected by using both primary and secondary data sources. The standardized attentions check list (ACL) was the primary data source and the students' 2010 and 2011 roster card was the secondary source. The change in the academic performance and attendance was seen using the roster card data obtained from the selected schools' record offices.

Roster Card

The researcher used the 2010 and 2011 rosters of Grade 8 students of the selected 8 sample schools. There was no need of taking the 2012 Grade 8 students roster card since the 2012 Grade 8 student were grade 6 and 7 during 2010 and 2011 respectively.

The Standardized Scale

Doctor J. P. Das in 1989 has developed a standardized instrument called Attention Check List (ACL) which was useful to measure attention span. This standardized instrument was used by the researcher to measure the attention span of the selected 100 experimental and 100 controlled group of Grade 8 students. Twenty-four subject and home room teachers also participated in administering the measuring instrument. The maximum score of the measuring scale is 46 and the minimum score is 11.

Data Analysis and Interpretation Procedure

The Difference in Difference linear regression analysis was performed for controlling of difference in initial characteristics between comparable and treatment groups and for the changes in exogenous variables. Regression analysis was done to see the difference in academic and attendance before and after the implementation of the school-feeding program.

To test the impact of school feeding program on the Grade 8 students attention measure, an Independent t – test analysis was used. This was done by the assumption of no significant difference between the mean value of school feeding program participants and that of the non – participants.

The computer software, SPSS version 24.00 and STATA 13 were used to transfer the inferential statistical data to be analyzed. The effect of the school feeding program on Grade 8 students' academic performance and attendance were generalized. Similarly, The Independent t-test analysis was calculated by using SPSS to determine if there was any significant difference in student class attention span between the experimental group and the controlled group.

Ethical Considerations

Ethical issues are often demanded to be resolved by procedures such as voluntary participation, informed consent, absence of risk or harm, confidentiality and anonymity. Creswell (2003) described research ethics as referring to the moral dimensions of researching about what right and wrong are engaged in research. With this regard, the researcher has in person communicated with the selected 8 primary school principals and 24 teachers about the purpose of conducting this study and the issue of anonymity. On top of using fictitious names for the schools, the researcher has also used official

support letter of Addis Ababa University to get the permission of the selected 8 schools in the sub city. In addition, the school students, teachers and record offices were informed that the information they provided would be kept confidential and undisclosed to anyone else including members of their school community.

DATA PRESENTATION AND INTERPRETATION

Participants' Demographic Characteristics

From 200 students of Grade 8, 100 students were in the treatment group and the remaining 100 were in the comparable group. Below in Table 2, the demographic characteristics of Grade 8 students in the treatment and controlled groups are presented.

Table 2

Participants Demographic Characteristics

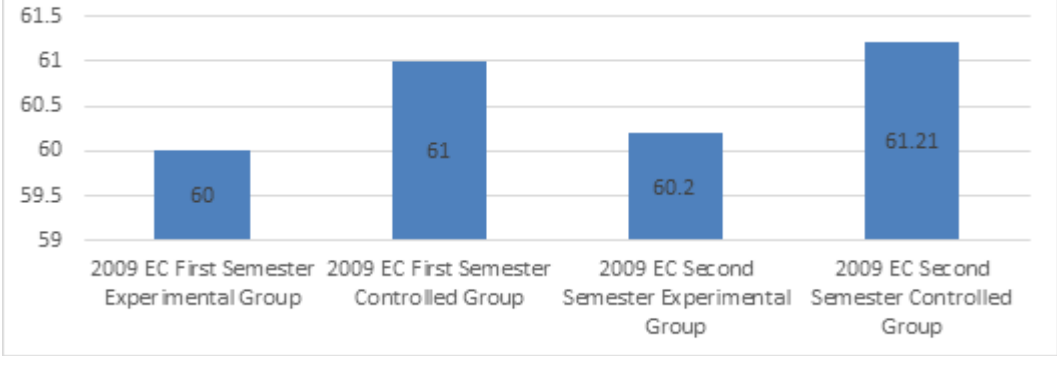
Demographic Characteristic	Category	Groups			
		Controlled Group		Experimental Group	
		NO	%	NO	%
Sex	Male	67	67	52	52
	Female	33	33	48	48
Age	13-15	64	64	59	59
	16-18	36	36	41	41
Grade	8	100	100	100	100

From the above Table 2, we can see that male Grade 8 students had a larger number in both controlled and treatment groups than their female counterparts. The mean age in the study group was 15.5. In terms of age, there was no significant difference between the two groups of students. This is crucial for determining the study's goals.

Average Scores Before School Feeding

Figure 1

Year average of 2009 (score Source: Roster of 2009)

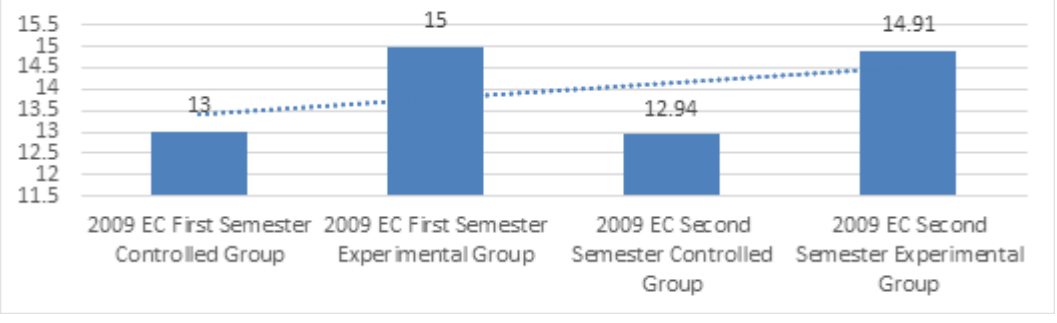


As it is kept in the figure above, the main score of the experiment group in the second semester of 2009 increased by 0.2 mean differences**.** Similarly, the comparable groups have shown an increment of 0.21 mean values. These mean values are implying that both the experimental and controlled groups had identical average score before the school-feeding program started.

By the same token, the figure below shows the movement of absence score using parallel trend assumption by referring the 2009 academic year data for both the comparable and experimental group.

Figure 2

The movement of absence score before the implementation of the treatment in 2009



As it can be clearly seen from the Figure 2 above, a decrease of (0.06) absenteeism from the controlled group is observed during the first semester of 2009. Similarly, the experimental group has shown a decreasing of (0.09) mean score absenteeism for the mentioned consecutive semesters i.e. (2009). By reviewing the above finding, one can easily notice that before the very start of the school feeding program at the study area, the experimental group and the controlled group had almost similar class attendance records.

Average Score and Absence Score Movement per Group and Year

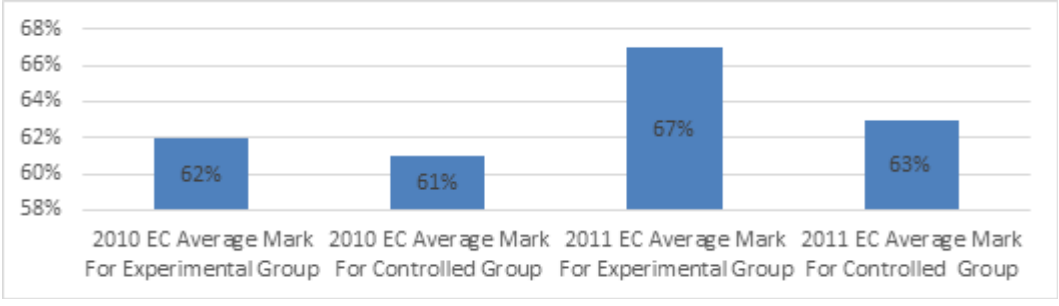
In the presented two figures below, a descriptive analysis of both average and absence score of change done. On top of this analysis, more scientifically, these are analyzed using Different in Different estimator (DID) which are presented later. The DID method is a better way to identify the net difference and the school feeding program level of significance.

Average Scores of Movements per Group and Year

By referring to the students' roster result, for an academic year of 2010 and 2011 respectively, the average score changes were calculated and analyzed for both comparable and experimental group. Consequently, the Figure 3 below shows the change shift pattern.

Figure 3

Average scores movement per group and year

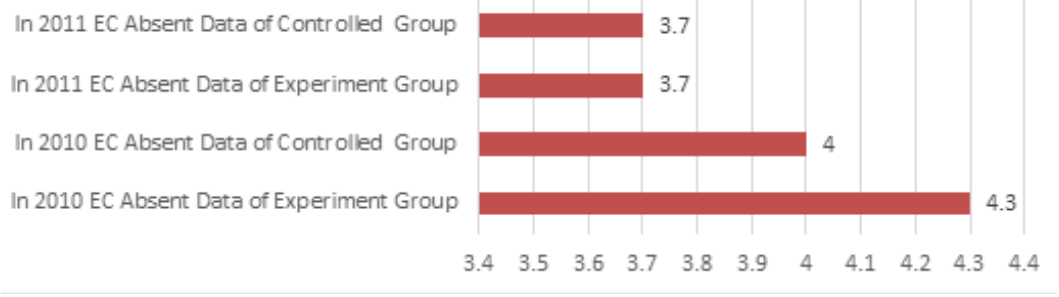


As one can easily see the above Figure 3, the average score result for both groups increased significantly. However, the increasing rate for the experimental group is 5% since there is a clear shift of 62% to 67%. And, by the mentioned year, the comparable group also had indicated an increase of 2%, which is from 61% to 63 %. Therefore, since there is a remarkable shift particularly for those who used the school meal, the effect of the school feeding program cannot be ignored.

Absence Score Movement Per Group and Year

Figure 4

Absence scores movement per group and year



In the above Figure 4, for both experimental and controlled groups, the absent score data were analyzed. And, as the figure clearly shows both the experimental and controlled groups have shown a decreasing rate of absenteeism i.e., 0.3 for the comparable group and 0.6 point for experiment group. Here, as there is a double change difference for the experimental group, the very effect of providing school meal cannot be overlooked.

Average Score Difference between Two Different Periods per Group

By referring again to the data from 2010 and 2011, the average result difference for both the experimental and controlled group were analyzed so as to observe the movement of change during the mentioned years. In Table 4 below, the very result of the analysis is well presented.

Table 4

Average score difference between two different periods per group

Academic Year with Average Score			Groups	Number of the Group
2010 EC	2011 EC	(d)		
62	67	5	Experimental Group	100
61	63	2	Controlled Group	100

Referring to Table 4 above, in the academic year of 2010 and 2011, the experimental group (those who were using school feeding) has shown an average mark improvement of 5%. Similarly, although comparatively speaking with experimental group the increasing is lesser, the controlled group (those who were not using the school feeding) also have shown a 2% performance improvement in the identified years.

Absence Score Difference between Two Different Periods per Group

For the academic year of 2010 and 2011, the absence score improvement and shift for both experimental and controlled groups were analyzed by using the data found in the roster. The analysis result is presented in Table 5 below.

Table 5

The two groups Absence score difference

2010 EC Absent Score Difference in Semester Based Time			The Two Groups	Absent Score Difference in Two Years, Time		
1st Semester	2nd Semester	(d)		2010 EC	2011 EC	(d)
1.56	1.49	0.07	Experimental	1.525	1.32	0.205
1.39	1.36	0.03	Controlled	1.375	1.32	0.055

As it is clearly indicated, in the above Table 5, the absent score substantially differed in both groups. Consequently, the experimental groups had an absent score difference of (d= 0.07 to d= 0.205). Similarly, the controlled group had an absent score difference value of (d= 0.03 to d= 0.055). Since this difference between the two groups is statistically large, there is a remarkable uniqueness at both groups.

Difference in Difference Analysis of Academic Achievement

In a basic inferential statistics concept, Difference in Difference (DID) is one of the analysis methods that allow researchers just to find out the very effect of a given treatment by clearly examining the pretreatment background case of the study groups. In connection with this, Table 6 below shows the result of DID linear regression analysis using time and group variables for a simple case column.

Table 6

DID Regression results for average score

Variables	Coef.
Time	0.382
	(0.24)
Group	2.24*
	(-2.41)
DID	0.046
	(0.29)
P>| t |	0.043
_Cons	51.81
	(42.33)
N	532
t statistics in parentheses ***p*< 0.05	

As it is indicated in Table 6 above, gradually, the time variable does have differences, which are not connected to the treatment. This variable group tells us making pretreatment group was essential. Regarding the time value significant level, statistically speaking, it was not significant at a .05 level. However, it is technically significant for the group alone. From this statistical data, we can conclude that for the base line data of 2009, there was significant mean score initial difference, which are 61.6 for experimental group and 62 for comparable group. Surprisingly speaking, the difference between the mentioned groups was amazing. It tells technically that as the given treatment was not random, the result of analysis is affected. The DID method analyzed the change of mean difference rather than the groups raw mean score. Since there is a coefficient value of 0.046, P= 0.29, the estimated DID coefficient for the school feeding program is POSITIVE and SIGNIFICANT for the average score difference after the very implementation of the program. Again, statistically speaking, having such value is interpreted as the school feeding program provides relatively less as a catalyst and incentive factor for the experimental group average score improvement.

Difference in Difference Analysis of Attendance

For performing the attendance change of the students, the DID linear regression method was also performed in order to estimate the net effect of time both for experimental and comparable groups. Below, in Table 7, I have clearly provided the DID analysis of attendance.

Table 7

DID regression results for attendance score

	time	group	DiD	p>| t |	_cons	*N*
Coefficient	0.023	-0.003	0.044	0.041	0.453	532
	(0.431)	(0.31)	(0.021)		(432.4)	

As indicated in Table 7, there is a positive and significant estimated coefficient with a statistical numeric value of coefficient of DID = 0.044 and p =0.041 which tells us there was an improvement of student's attendance right after starting to use the school feeding program.

Independent t-test Analysis for Attention Measure

Statistically, by using sample t test, it is possible to test the effect of school feeding program on attention span of the students. Consequently, as it is presented in Table 8 below, by calculating the mean score of difference and standard deviation values for the two groups, the needed t- test analysis with its result is performed.

Table 8

Number of grade 8 students and groups' mean of attention

The Two Groups	N	Mean	SD
Experimental Group	100	43.21	6.42
Controlled Group	100	41.33	5.91

The Independent t- test value presented in Table 8 was performed by making an assumption of no significant difference between both the comparable and experiment groups by considering the little works which was done in school feeding program previously here in Ethiopia. Consequently, the mean numeric value and standard deviations are M=43.21, SD =6.42, N= 100 and M=41.33, SD =5.91, N= 100 are the final values for both experimental and comparable groups respectively.

Table 9

Independent t-test analyses (equal variance assumed) for attention

t	Sig. (2-tailed)	Mean Difference
0.024	*0.012*	*0.012*

Concerning attention span and SFP, a mean difference of (d=0.012) is observed. And since p<0.05 value, statistically, two tailed significant effect is found by employing that school feeding program do have strong contributions for the program participants. In simple term, from the result of the analysis, we can observe that there is a causal relationship between school feeding program and attention span.

MAJOR FINDINGS OF THE STUDY

After completing the major analysis part in above, the major findings of the study on school-feeding program are presented in this session. This study was designed to examine the effect of SFP on the Grade 8 students' academic achievement, attendance and attention. Consequently, the following parts will discuss the findings of the research by making a logical connection with the related theoretical explanations, previous similar empirical work on this specific topic and in line with the specific basic research questions.

Between the experimental and comparable groups, if there is an identical movement on the parallel trend assumptions, it is possible to use Difference in Difference (DID) regression analysis with other descriptive measures (White & Sparawal, 2014). Hence, in this school feeding impact assessment research, before the program implementation or before using school meal, the test of parallel assumption has indicated that in similar fashion, the two groups were moving on the variables of average and absence score. Besides, in sex, age and grade level too, demographically speaking, proportional distribution is found.

Numerous studies have shown that having a balanced diet meal affects students' ability to attend school on a regular basis, perform better, and other things of the like. Conversely, when there is a shortage of food and malnutrition, students will find it difficult to attend school consistently, and their attention span and academic ability will suffer. The intervention of the school food program had a considerable favorable influence on the academic success of the study participants in Gulele Sub city, according to this study. This suggests that program participants benefited significantly from the school food program, especially in terms of achieving the necessary academic goals.

This study attempted to examine how the school food program affected the Grade 8 students' attendance in detail during the specified academic years, as stated in the fundamental research question section. By comparing what was provided before the school feeding program with what is currently provided, the research findings indicated that the experimental group of children have experienced a pretty excellent improvement as a result of the SFP. The SFP significantly contributes to improving student attendance at school and can reduce absenteeism rates, according to the statistical findings that are shown in the analysis section.

This study has produced findings by demonstrating the considerable shift in attention span on the part of the experiment group, which are similar to the fundamental notions mentioned above. This finding was reached because, informally and with the use of reliable statistical techniques and a psychological standard attention assessment, the researcher was able to determine that the SFP is effective in increasing pupils' attention spans.

DISCUSSION

School Feeding Program and Academic Achievement

A good number of studies have indicated that getting a balanced nutrition has a long-lasting impact for children to attend school regularly and to have improved performance. On the other hand, where there is lack of food and malnourishment, children will have a problem to attend class regularly, their attention span and academic performance will be lower. According to Kazianga et al (2009), Vermeersch and Kremer (2004) and Neeser (2012), sufficient and balanced school feeding program helped children to have a better educational performance. As the findings of this study indicated

that the intervention of school feeding program showed significant positive effect on the academic achievement of the study participants in Gulele Sub city. This implies that the program participants gained a significant benefit of school feeding program particularly for the needed academic achievements. Thus, the findings of this study echo the prior studies done by Ahmed (2004), Afridi et al (2013), and Chepkwony et al (2012). These researchers have concluded that providing school feeding has a positive impact for the students' academic performance. However, at the same time, the Grade 8 students themselves and other concerned stakeholders also contributed much to the students' academic improvement.

As can be seen from the result of the statistical analysis, the experimented Grade 8 students showed a better average academic performance than the controlled group Grade 8 students. This finding is again similar with the study of Hinrichs (2010) which indicated that the school feeding program impacted various educational performances for different class levels. In line with this, similarly, Kaziang et al (2009) have also shown students' performance improvements due to the usage of school feeding program. However, Kaziang`s study showed no improvement on attendance of students. Here, in our study case, other variables affecting the performance of students have not been investigated.

By making the comparison of the student academic performance, it is confirmed that the gain of 0.8 for the experiment group and 0.1 for the controlled groups were observed, definitely right after using the school meal. If the school-feeding program continues, student performance will continue to improve. Some of the drawbacks of the school feeding program can be worked on over time.

School Feeding Program and Attendance

The findings of this research showed that the SFP has resulted in relatively a good improvement on the attendance of the experimental group of students. The statistical data presented clearly indicated that the SFP has a significant contribution for improving the students school attendance as well as the absenteeism rate. Alderman and Bundy (2012) and Ermias (2008) have done somehow similar research on this topic and, on the parameter of attendance improvement, all have said that the SFP has a significant effect on improving the students' attendance rate.

School Feeding Program and Attention

Many scholars have agreed that there is a strong causal correlation between the school feeding program and attention span. On this topic, Kazianga (2009) stated that hungry students had difficulties in focusing and performing complex tasks when compared with those who had a balanced diet. Poor nutrition among children affects their cognitive function and hence limits them not to be active participants in the school. Abraham Maslow also argued that from the psychological point of view human beings cannot be well concentrated and attended school unless their basic nutritional need is fulfilled. The findings of this study agree with the many known scholars that the school feeding program is helpful for improving the attention span of the students.

CONCLUSION

By using a strong statistical test, this research has been made to assess the effect of school feeding programs on the educational performance of Grade 8 primary public-school students who were initially benefiting from Yenat Weg charity organization in Gulele Sub city before the formal start of SFP by Addis Ababa city administration officially in 2012. In doing so, the researcher did his level best by having a similar comparable group by controlling sex, age, and grade distribution

and providing both the experiment and control groups similarly on their average and attendance score. By the same token, regarding the attention span of the two groups, before doing the research, by making prior correlation analysis from their average score recorded on their roster, a careful background check was done. With respect to educational progress, attendance rate, and attention span, it is reasonable to assume that the impact of SFP is responsible for the observed difference between the experiment and control groups. This conclusion is supported by the study's utmost professionalism.

Thus, the finding of this research showed that the already started school-feeding program has positive effect on the Grade 8 academic achievements and school attendance. And because there were registered valid numerical data, this outcome was determined statistically to be significant. Similarly, in relation to the improvement of the attention span of the selected school feeding beneficiary students, relatively a good change had been observed. And, we can say that the SFP has served as catalyst and motivational tools for the improvement of the students' attention span level.

Generally speaking, to the best of this research data finding, the SFP has a significant impact on the students' academic performance, attendance and attention rate in addition to minimizing the hunger and malnutrition problem of the city`s students. As it was presented clearly in the general finding part, the mentioned experiment groups of Grade 8 students have shown a valid difference from their controlled groups counterpart on their learning improvement, attendance and attention span condition. The very difference of these students before starting the school feeding program was totally different and the experiment groups have had a lesser average mark, attendance problem that is already recorded on the roster card. However, regarding the performance average result of the controlled group, since their average result and attendance is recorded in the students' roster, they have shown a bit change only as opposed to the SFP beneficiary students. This finding definitely will lead us to conclude as the School Feeding Program has a significant effect on the teaching and learning process.

It was not possible to employ difference in difference (DID) design to measure attention due to impossibility of getting baseline data regards to attention. Therefore, the researcher used the cross sectional (within - without) design by assuming as if no difference between the mean value of school feeding participants and non-participants. The researcher tried to do his level best to minimize the limitation of within – without approach by dividing the groups in different strata and tried to match the experimental and comparable groups.

RECOMMENDATIONS

Considering the effectiveness of the school-feeding program, the author would like to make the following recommendations:

1. Policy makers, donors, school staff and legislators need to watch for the implementation of the school feeding program for improvement.
2. Research work on the school feeding program in the Addis Ababa City Administration needs to be continuously performed.
3. Sufficient public funding needs to be allocated to continue to enrich the school feeding program.
4. Government policies need to be made to have the school feeding program to cover the entire country including the poor rural areas.

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