



Home Stress and Academic Performance of Junior Secondary School Students in Integrated Science

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Authors' contributions

This work was carried out in collaboration between both authors. Author BUCU wrote the first draft of the manuscript, design the study and manage the analysis. Author RAN managed the literature searches and help in the analysis. Both authors read and approved the final manuscript.

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ABSTRACT

The aim of this study was to examine the relationship between home stress and academic performance of junior secondary school students in Integrated Science in Calabar Municipality. To achieve the purpose of this study, one hypothesis was formulated and tested. Expost-facto research design was adopted for the study because the researcher cannot manipulate the independent variable. A sample of one hundred and twenty (120) students was randomly selected from a population of 2,730 in Calabar Municipality in Cross River State, Nigeria for the study through the simple random sampling technique. The questionnaire, Home Stress Questionnaire (HSQ) and Achievement test on Integrated Science were the main source of instruments for data collection. Pearson Product Moment correlation analysis was used to test the hypothesis. The

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result of the analysis revealed that home stress significantly relate to students' performance in Integrated Science in Calabar Municipality, Cross River State. Based on the finding of the study, it was recommended that; government should create employment opportunities to raise the socio-economic status of parents so that they will stop involving their children or wards in hawking. Parents on the other should reduce the rate of sending children on errands throughout the day.

Keywords: Home stress; academic performance; integrated science; Calabar; Nigeria.

1. BACKGROUND OF THE STUDY

The education system in Nigeria places strong emphasis on science education. This is in response to the rapid advancement in science and technology so that the country will be able to surge forward in keeping pace with the process of modernization like the rest of the world. Studying science is therefore becoming more essential for the wellbeing of the individual and also to the society as a whole.

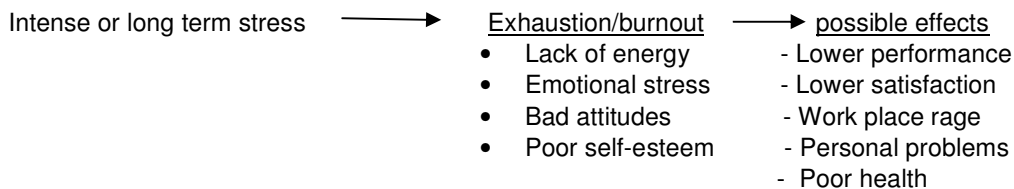
Integrated Science as the bases for the science subjects occupies a special position in the curriculum of junior secondary schools in Nigeria and it is a core subject. In the National policy on Education [1], each secondary school student is expected to study Integrated Science to meet one of the specific aims of secondary education that- to provide trained manpower in applied science. Therefore, it is pertinent to note that academic success in integrated science at the junior secondary level is sure to provide the students with a good footing in the world of science.

Evidence, however abounds that the performance of students in science subjects is not good enough. This may be due to some factors beyond the students' control. [2] Noted that there had been a steady increase in failure rates of secondary school students in science subjects over the years.

Thus, over the years, many educational authorities have sought to find out the reasons

for the downward trend in the academic performance of secondary school students. [3] Attributed it to the student's background that is, the type of home environment where the child is raised. The authors stressed that the environmental condition and the nature of the social interaction that goes on in the family may have some positive or negative influence on the academic achievements of a child.

One of the home factors that have been neglected in research is home stress. From morning till night, children are constantly been sent to do one house chores or another by adults forgetting that these may amount to stress on the children. For example, very early in the morning, children are seen hawking and selling items before getting ready for school and by the time they arrive school, they may have missed one or two lessons and are tired. This may be as a result of home stress. The question then is what is stress? Stress according to [4] is a state of tension experienced by individuals facing extraordinary demands, constraints or opportunities. For instance, when a school child faces too many demands at home such as doing numerous house chores, going on too many errands etc he/she may find it difficult to cope with school work. Home stress therefore, refers to stress that arise from excessive house chores, running of errands, change of school and home location, loss of parents or sibling and marital crises between husband and wife. [4] Further gave an illustration of the effects of home stress thus:



Also, [5] said that stress is a negative emotional state occurring in response to events that are perceived as tasking or exceeding a person's resources or ability to cope. Furthermore, [6] see stress as the physiological and psychological response to a condition that threatens an individual and requires some form of adaptation or adjustment. Stress has negative connotations in everyday life most especially when it is children, but these children may not know that they are under stress and may not know how to cope with it. This may affect them academically. Class teachers attest to the fact that, some children are perpetual late comers because of the house work they are subjected to do before going to school and these children are sometimes found wanting in doing their homework and they sleep during lesson. Apart from these, there are other things that can stress students. For instance, the loss of a sibling, parent or a closed relative can cause stress on the children. [7] Affirmed that one of the most noticeable effects of stress in one's life is the changes in his/her performance. The consequences of normal or excessive amount of stress can easily be recognized by mere observation where the performance level begins to decline. This is evidence in students who are experiencing stress. They can hardly do well in their academics right from school attendance, completing classroom task and the general performance.

It is based on this background that this study seeks to examine the relationship between home stress and academic performance of junior secondary students in integrated Science.

1.1 Theoretical Frame Work

This work is based on individual stress theory propounded by [8]. This theory states that life events are stressors which require change in the individual's ongoing life pattern. This theory is related to this work because it is talking about life events such as hassles or changes in family organization which are capable of stressing an individual and make him/her unproductive.

1.3 Literature Review

Stress in the home deteriorates the environment and these stressors affect achievements [9].

A factor often overlooked in research on home environment is that a child may not live with a parent at all or may leave away from them during the school week. Stress theory holds that changes in family organization or circumstances might cause stress in children's lives. Family events may directly increase children's stress because of changes in household composition or changes in residential location. In response to these changes, children would be alienated from or might disengage from home environment and receive less parenting, nurturing and socialization.

In relation to stress, [10] also indicated that a noticeable degree of adolescents stress emanates from three sources: Pressure at home, pressure at school and pressure other than school and home. For pressure at home, the predictors of stress under this factor includes death of parent or sibling, marital discord, work involvement of parent, socio-economic hardships, crowding, frequent transfers to a new home, parental alcoholism, child abuse, parental discipline techniques and adolescents autonomy [11].

A stressful situation at home can affect teenagers' performance at school for days, according to a new study. Researchers such as [5], and [12] found out that the negative effects of stress at home linger and affect teenagers' academic performance at school for up to two days.

Meanwhile, stress over grades and other demands at school may also spill over into the home life of teens. The findings from the new study indicate that there are indeed short-and long-term consequences of daily stress that should not be overlooked [13]. Accordingly, [14] conformed that stress and threat affect the brain in many ways and that, bad emotions reduce the capacity for understanding as well as reducing higher order thinking while good emotions create excitement and love of learning.

In the study, published in Child Development, researchers surveyed an ethnically diverse group of 589 ninth-graders in the Los Angeles area from three schools. The teens were asked to report their daily school and family experiences in a diary every day for two weeks. The diary

included a checklist that measured conflict with parents, family demands, learning difficulties, school attendance, and other potentially stressful issues. The results showed that when the teens experienced family stress at home they had more problems at school with attendance and learning the next day. The reverse was also true when teens had school stress, they experienced more problems at home the next day. Those stress spillover effects lasted for two days after the initial stress. In a separate analysis among 503 teens who participated in the study in both the ninth and 12th grade, researchers found those who had higher levels of family stress and school stress at the start of high school had poorer academic performance by their senior year. Also, students with higher levels of academic problems in ninth grade had greater levels of family stress in 12th grade [15].

According to [7] when stress is perceived as uncontrollable, the PERSON begins to experience a gradual to drastic decrease in performance level, causing a decline in productivity. The author further gave an instance where a very tight deadline is given to an office employee who has to take care of four children at home and a sick mother at the hospital. This overwhelming mix situations, if not managed carefully will result to poor performance at work, bad relationships with other members of the family, ill health and burnout. When this is applied to a school child who has to wake up by 4am to do house chores, by 6am, he is on the streets hawking food items and by 8am he is back to prepare for school. Certainly, this child cannot cope with academic work. This is because, by the time the child reaches the school, he is already exhausted and eventually, may not pay attention in class or may be sleeping to cover for the lost sleep.

The deaths of a loved one such as a parent or a sibling has always been a bitter experience that can constitute stress at home [16]. This may lead to reduced academic achievements. According to [11] death of a sibling is harder to accept than that of a parent. The author pointed out that adolescents like other people believe that only old people die. Hence a child's death has a greater impact on the adolescent's faith resulting in psychological adjustment reactions. The author further said that oppressed students

ultimately trace their problems back to family conflict and discords, parental work involvement (a case where both parents work), and the unemployment of both parents may lead to socio-economic hardship of the family. While in many families both parents are employed and have limited available time with which to take on the responsibilities of homework [17]. Much of the work –life balance issue centres on the inability of parents to spend what they perceive as sufficient leisure time with their children. Time constraint can contribute to stressful relations between parent and child but stress levels vary by child's age as well as the level of responsibility of parent's occupation [18]. Despite perceptions of pressure, working mothers appear to compensate by assigning high priority to school related parenting tasks such as homework [19]. An essential aspect of parenting is the provision of emotional support to children. While this is often a matter of comforting a distressed younger child, parents also work at the more difficult task of developing emotional competence in their children. The latter was viewed as investment or transfer of what she terms capital.

Furthermore, [20] reported in Steinberg [21] that nearly half of all adolescents today find difficulty in coping with stressful situations at home. These stressors according to Compass [22] include major life changes such as changing school, having someone in the family suddenly becoming ill; Chronically stressful conditions e.g. poverty, a disabling illness, constant family conflict; And day to day hassles e.g. argument with siblings and parents. It is important to recognize that parents and siblings if not all of the time constitute a source of stress at home.

Also, [23] found that stress can affect individuals both adult and young people in diverse ways. This may be noticeable in their behaviours and conduct.

1.4 Purpose of the Study

The purpose of the study was:

1. To determine the relationship between home stress and the academic

performance of secondary school students in Integrated Science.

1.5 Research Question

1. What is the relationship between home stress and the academic performance of students in Integrated Science?

1.6 Research Hypothesis

One hypothesis was formulated for the study thus:

1. There is no significant relationship between home stress and student's academic performance in Integrated Science.

2. MATERIALS AND METHODS

2.1 Research Design

The research design adopted for this study was Ex-post Facto design. This is because the researchers cannot manipulate the independent variable.

2.2 Population of the Study

The population of the study comprised all the junior secondary students offering Integrated Science in Calabar Municipality, Cross River State. The total population was 2,730.

2.3 Sampling Technique

The sampling technique adopted for this study was a simple random sampling of hat and draw method which was used to select a total number of 120 students to participate in the study.

2.4 Sample

The sample of this study is 120 junior secondary students to represent the population of all the junior secondary students offering Integrated Science. The sample consisted of 50 females

and 70 males. These are students who are between the ages of 11 years to 13 years old. Some of these students live with their biological parents while some of them live with extended family members. Also, some are house helps. Most of the parents of these students are traders, unemployed and workers.

2.5 Instrumentation

Two instruments were used for data collection. They were, Home stress questionnaire (HSQ) and a 20 item integrated Science achievement test. See Appendixes 1 and 2

2.6 Validity

The instruments were face validated by expert in the area of test and measurement to ascertain their validity. The instruments were constructed by the researchers for the purpose of this study.

2.7 Reliability

Reliability of the instruments was carried out using Cronbach coefficient Alpha method to measure internal consistency of the instruments which shows an estimate of 0.60 and 0.66 respectively. This was considered appropriate for use. Both instruments were administered to 20 students who were not part of the sample of the study. The data was coded and analyzed for significance. The values are shown in Table 1.

3. RESULTS AND DISCUSSION

3.1 Hypothesis

There is no significant relationship between home stress and the academic performance of students in Integrated Science. The independent variable in this hypothesis is home stress, the while dependent variable is students' academic performance. Pearson product moment correlation analysis was considered the most appropriate statistical technique employed to test the hypothesis. The result of the analysis is presented in Table 2.

Table 1. Cronbach coefficient alpha reliability estimates of the instruments

SN	Variables	No. of Items	X	SD	Alpha reliability estimate
1	Home stress	6	15.58	2.67	0.60
2	Academic achievement	6	16.98	2.89	0.66

Table 2. Pearson product moment correlation analysis of relationship between Home stress and academic performance in Integrated Science (N =120)

Variables	$\sum x$	$\sum x^2$	$\sum xy$	r-value
	$\sum y$	$\sum y^2$		
Home stress	2051	3674	56939	0.84*
Academic performance	1894	2585		

*significant at 0.05 level, critical $r = .178$, $df = 118$

The result of the statistical analysis presented in Table 2 revealed that the calculated r-value of 0.84 is greater than 0.178 at 0.05 level of significance with 118 degree of freedom. The result is significant, the null hypothesis was rejected. This therefore shows that there is a significant relationship between home stress and academic performance of students in integrated Science. The implication is that if children are burdened with a lot of work at home without rest they become stressed up and perform poorly academically but when they are less stressed, they will perform better.

3.2 Discussion

The result revealed that there is a significant relationship between home stress and academic performance of students in Integrated Science. The finding is in line with [23] who found that stress can affect individuals both adult and young people in diverse ways which may be noticeable in their behaviours and conduct. The finding also lend credence to [7] who said that when stress is perceived as uncontrollable, the person begins to experience a gradual to drastic decrease in performance level, causing a decline in productivity. Furthermore, the finding is in agreement with [4] who said that intense or long term stress can result to exhaustion and burnout and the possible effects are low performance, low satisfaction, work place rage, personal problems and poor health. When students

experience intense and long term stress at home, they will find it difficult to cope with academic work and the result will be poor performance.

Again, the finding of this study is in line with [11], who asserted that parental moves from one place to another are stressors. The implication here is that, adolescents would have to resettle themselves in new areas of their lives. These include new schools, new friends and encountering new demands of teachers.

The finding also lend credence to [16] who maintained that death of a loved one such as a parent or a sibling as a source of stress has always been a bitter experience which may lead to reduced academic achievements.

The finding of this study is further supportive of [18] who said that time constraint can contribute to a stressful relationship between parents and child. This is indicative that such stressor can affect the child's performance at school.

Additionally, this finding buttress the finding of [13] who discovered that when teens experienced family stress at home they had more problems at school with attendance and learning.... Again, this finding is in agreement with [14] who confirmed that stress and threat affect the brain in many ways and that bad emotions reduce the capacity for understanding as well as reducing higher order thinking while good emotions create excitement and love of learning.

It is important to note that, when children experience stress at home, it will affect them all round ranging from their conduct, mood, and relationship with peers, teachers to their academic performance.

4. CONCLUSION

Based on the finding of this study, it has been concluded that home stress has a significant

relationship with academic performance of students in Integrated Science in Calabar Municipality of Cross River State, Nigeria. This implies that when students are over burdened with house chores, hawking things to raise money for their families, going on errands etc, they become stressed up and this can affect their academic performance.

5. RECOMMENDATIONS

From the finding, it was recommended that:

1. Parents should reduce the work assigned to children to do at home to enable them have time to read.
2. Parents should endeavour to do most of the house chores or hire people to do the work.
3. Parents should avoid changing their children school every now and then to enable them cope.
4. Government should create employment opportunities to raise the socio-economic status of poor families so that their children and wards (other people's children staying with them) would be allowed to go to school in time.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

Appendix 1. Home stress Questionnaire (HSQ) Please kindly respond to the items in the table as it applies to you. Your response will be treated confidentially. Tick in the appropriate box

S/N	Home stress	SA	A	SD	D
1	I normally wake up by 4am to do things in the house.				
2	I hawk fruits or food items in the morning before I prepare for school.				
3	I sell kerosene in the morning before going to school.				
4	I wash plates daily before going to school.				
5	I am always late to school because of doing many things in the morning.				
6	I use to complete my home work in the morning because I do not have time after school				
7	My parent are not living together				
8	My parents are always quarreling and fighting				
9	I trek long distance to school daily.				
10	I do not do anything in the morning before going to school				
11	My mother does all the house chores.				
12	My parents always send me to do many things at home.				
13	I can only read at school because I do not have time at home.				
14	I do not use to sell anything before going to school				
15	My parents own a shop where we use to sell things.				
16	I am always at the shop selling for my parents				
17	I always go to the market to buy soup things after school				
18	I do help my mother to prepare the things she use in cooking				
19	I sweep the whole compound each morning before going to school				
20	I do not often concentrate in class because of tiredness from house work				

Key: S A – Strongly Agreed, A- Agreed, D-Disagreed, SD- Strongly Disagreed

Appendix 2. Integrated science achievements test instruction: Answer all questions and supply the necessary information demanded by each item by choosing the correct option from lettered A-D

1. Plants make their food in the presence of _____
(a) Water (b) Sunlight (c) Moonlight (d) Fire
2. The by-product of photosynthesis is _____
(a) Oxygen (b) Carbon dioxide (c) Nitrogen (d) Hydrogen
3. One of the components of air used by plants in making their food is known as _____
(a) Nitrogen (b) Oxygen (c) Carbon dioxide (d) Hydrogen
4. The normal body temperature of a healthy human being is -----
(a) 36°C (b) 38°C (c) 37°C (d) 40°C
5. _____ is that which push or pull objects
(a) Heat (b) Temperature (c) Machine (d) Force
6. _____ is a force which brings back an upward thrown object. (a) Frictional force (b) Gravitational force (c) Forceful force (d) Electric force
7. One of these is a source of heat
(a) Moon (b) Star (c) Mars (d) Sun
8. The unit of measurement of force is known as _____
(a) Isaac (b) Thomas (c) Centigrade (d) Newton
9. The best soil for agriculture is called
(a) Loamy soil (b) Clay soil (c) Sandy soil (d) Humus soil
10. The earth's natural satellite is known as _____
(a) Moon (b) Mars (c) Ozone (d) sun
11. The closest planet to the sun is _____
(a) Mercury (b) Mars (c) Earth (d) Venus
12. ---- is added to the soil to enrich its fertility
(a) Lime (b) Fertilizer (c) Acid (d) Sulphur
13. Day and night is brought about by _____
(a) Movement of the earth (b) Spinning of the earth
(c) Rotation of the earth (d) Revolution of the earth
14. A force which does not allow objects to move against each other freely is called
(a) Gravitational force (b) Frictional force (c) Directional force (d) Muscular force
15. Tailors use oils in sewing machines to:
(a) Reduce heat (b) Reduce speed (c) Reduce force (d) Reduce friction
16. One of the following is not a natural resource?
(a) Fanta (b) Gold (c) Limestone (d) Iron-ore
17. Limestone is found in -----
(a) Benue state (b) Enugu State (c) Abia State (d) Lagos State
18. When a book moves across a table the resultant friction is _____
(a) Rolling friction (b) Fluid friction (c) Sliding friction (d) Moving friction
19. Water is made up of two elements ___ and _____
(a) Oxygen and carbon (b) Carbon and hydrogen (c) Silicon and oxygen (d) Oxygen and hydrogen
20. The washing away of the top soil by wind or rain is known as -----
(a) Photosynthesis (b) Osmosis (c) Diffusion (d) Erosion

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