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MANAGERIAL STRATEGIES FOR PROPER HANDLING OF WORKSHOP TOOLS BY BUILDING TECHNOLOGY EDUCATION STUDENTS IN RIVERS STATE

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ABSTRACT: *The study investigated the managerial strategies for proper handling of workshop tools by building technology education students in Rivers State. Specifically, the study sought to investigate planning, organising, co-coordinating and controlling strategies for proper handling of workshop tools by building technology education students in Rivers State. The study adopted a descriptive survey design. The population of the study comprised 21 lecturers and 12 workshop attendants in state and federal institutions which encompassed Rivers State University, Port-Harcourt, Ignatius Ajuru University of Education, Port-Harcourt and Federal College of Education (Technical) Omoku. The population was manageable and hence the entire population was used for the study. Therefore, no sampling method was adopted. The objectives were formulated, answered and tested at a .05 level of significance. The instrument used for the study was a survey questionnaire. The instrument was face validated by two Vocational Technology Education lectures at Rivers State University, Port-Harcourt, and it was tested for reliability using the Cronbach alpha reliability coefficient method. A reliability value of .82 was obtained. Mean and standard deviation was used to answer the research questions while the t-test statistical tool was used to test the hypotheses. The study found among others that planning out the required logical steps for students on the usage of workshop tools, arranging for proper integration of workshop tools in students' practical section, organising safety procedures for students on the usage of workshop tools, organising requisite guideline for students towards the handling of workshop tools. Co-ordinating students to secure workshop tools properly during practical activities, co-ordinating students to maintain a cordial relationship in handling workshop tools, controlling students to be violent free when handling tools in the workshop and overseeing students to avoid anxiety in the use of workshop tools are managerial strategies for proper handling of workshop tools by building technology education students in Rivers State. Therefore, it was recommended that educators of building technology should ensure that the required logical steps concerning general workshop tools management are assured because it will help in giving out requisite guidelines for practical activities.*

KEYWORDS: Managerial, Strategies, Proper Handling, Workshop Tools, Building Technology Education Students.



INTRODUCTION

Technical and Vocational Education and Training (TVET) is programmed to be dynamic towards solving national development as they emanate. It has been a fundamental part of national development in many nations because of its positive effect on national industrial productivity and economic growth (Nwankwo et al, 2013). TVET is pertinent simply because individuals who get involved in it retain skills that strive them to become useful citizens in the nation at large and as well contribute tremendously to adequate building development. It is also a process involved in the study of technologies and related science meant for the acquisition of requisite skills, attitude, understanding and knowledge that is in consonance with occupation relating to building technology education. Building Technology education is designed towards the learning of basic building drawings, blueprint reading, building codes, construction project management and general building construction encompassing walls, roofs, floors, foundations and other interior and exterior structures. According to Anaele et al (2016), the major goal of building technology education is to prepare students for successful employment in the labour market and equip students with the required skills that can enable them to earn a living. Nigeria, like most developing nations of the world, needs well-articulated building programmes to enable her to gain economic and technological development. Consequently, building technology education programmes are designed to have classrooms with workshops. A workshop refers to a room or building where tools and machines are kept and used for making or preparing things (Okala, 2015). Also, Amadike and Ochogba (2019) described a workshop as a place or building where technology products are produced or repaired through technological manipulations. In order to achieve the aims of the workshops, several tools, machines and other equipment are provided. Thus, in building technical education, students are expected to get involved in adequate usage of tools, such as hammers, tapes, trowels, spirit levels, shovels, head Pan, spades, Pointer, Lines, and among others and not otherwise in workshop practical settings. Uzoegula (2016) affirmed that the utilisation of workshop tools enhances students' acquisition during workshop practices. The use of workshop tools provides a platform for the students to experiment, study, imagine, create, design, construct, dismantle, repair and build equipment (sulamen, 2017).

Unfortunately, in building technology education, students are accused of improper handling of workshop tools. The improper handling of workshop tools has overtimes resulted in aggression, frustration, stealing, financial and psychological stress, and other respective social vices. This is indeed very regrettable considering the fact that graduates of the building are not supposed to be involved in this kind of activity, because they are meant to be self-reliant. However, the improper handling of workshop tools by building technology students may be a result of poor management in building workshops. Management is the coordination of people's efforts to accomplish goals by using available resources effectively and efficiently (Olaye, 2006). Meanwhile, for effective management, different management strategies are usually employed.

Amesi (2011) describe strategy as a careful plan or method for achieving a particular goal usually over a long period. Therefore, management strategy strategies include planning, organising, directing, coordinating, leading, motivating and controlling strategies that are geared towards the accomplishment of organisational set goals (Fayol,2019).

Tripeny et al (2013) observed that poor management strategies adopted in building workshops by both educators and workshop attendants have caused a lot of problems due to lack of



planning, poor housekeeping, damaged equipment, students' exposure to workshop hazards, cases of accident and students graduating without acquiring the required skills for effective use in their occupation. Buttressing more on this, planning in managerial strategies stipulates the first logical step or decision indicated for adequate handling of tools in building workshops. Olabiyi (2005) posited that planning is the process of preparing a set of decisions for action in the future directed at achieving goals by optical means. Meanwhile, the strategy involved in organising building workshops reflects on the division of works performed by students, the arrangement and assigning of equipment, tools and materials to be used and the development of structures to facilitate and ensure its completion (Isodu, 2017). In coordinating the process, the efforts of all the groups of staff in the implementation are caused to function appropriately at the right time towards achieving the objective of tools management in the workshops projects (Olaitam 2010). Significantly, the outlined controlling strategies reflect on carrying out regular inspection during and after the Practical section, regular observation of healthful ventilation, enforcing noise control on and equipment adequate guild line for students on the proper usage of tools and equipment and adequate guidelines line to avoid anxiety (Adiela and Ochogba 2010). Therefore, this research work is designed to ascertain the managerial strategies for the proper handling of workshop tools by building technology education students in Rivers State.

Statement of the Problems

Over the years, TVET programmes have increasingly contributed to preparing knowledgeable students to meet the industrial age to the information age. Adiela (2020) puts it that the approach to TVET can be articulated to mean the source or the bedrock of a meaningful technological breakthrough all over the world. TVET is understood as comprising educational training in the workshop and skills development relating to a wide range of building technology education programmes. Building technology education workshops have been faced with the challenges of frequent wastage, indiscriminate loss and damage of tools by students, workshop attendants and even educators. At times, some of the tools wasted and damaged are not replaced and the available ones are mishandled due to poor management. Consequently, some practical activities that students are supposed to participate in eluding them since the tools needed are not available. Therefore, some students may graduate without the requisite skills due to a lack of facilities as a result of poor management. This could cause graduates that would have been gainfully employed in building industries to demonstrate their potential and resourcefulness to lack competency. This incompetency has now shifted their attention to so many undesirable activities such as kidnapping, armed robbery, cultism, oil and pipeline vandalization and among others. All these situations and many more which seem to be escalating are articulated to poor tool management planning systems (UNESCO, 2002). Therefore, in accordance with these challenges, this study is posed to ascertain the managerial strategies for proper handling of workshop tools by building technology education students in Rivers State.

Purpose of the Study

The main purpose of the study was to investigate managerial strategies for the proper handling of workshop tools by building technology education students in Rivers State. Specifically, the objectives of the study sought to;



1. Examine the planning strategies for proper handling of workshop tools by building technology education students in Rivers State.
2. Determine the organising strategies for proper handling of workshop tools by building technology education students in Rivers State.
3. Ascertain the coordinating strategies for proper handling of workshop tools by building technology education students in Rivers State.
4. Determine the controlling strategies for proper handling of workshop tools by building technology education students in Rivers State.

Research Questions

Based on the stated purpose of the study, the following questions guided the study.

1. What are the planning strategies for the proper handling of workshop tools by building technology education students in Rivers State?
2. What are the organising strategies for the proper handling of workshop tools by building technology education students in Rivers State?
3. What are co-ordinating strategies for the proper handling of workshop tools by building technology education students in Rivers State?
4. What are the controlling strategies for the proper handling of workshop tools by building technology education students in Rivers State?

Hypotheses

The following null hypotheses were tested at a .05 level of significance.

1. There is no significant difference between the mean responses of lectures and workshop attendants on the planning strategies for proper handling of workshop tools by building technology education students in Rivers State.
2. There is no significant difference between the mean responses of lectures and workshop attendants on the organising strategies for proper handling of workshop tools by building technology education students in Rivers state.
3. There is no significant difference between the mean responses of lectures and workshop attendants on co-ordinating strategies for proper handling of workshop tools by building technology education students in Rivers State.
4. There is no significant difference between the mean responses of lecturers and workshop attendants on controlling strategies for proper handling of workshop tools by building technology education students in Rivers State.



METHODOLOGY

The study was carried out in three tertiary institutions, that offer to build technology education which are Rivers State University Port Harcourt (RSU), Ignatius Ajuru University of Education, Port Harcourt (IAUOE) and Federal College of Education (Technical) Omoku (FCET) in Rivers State. The research design adopted for this study was a descriptive survey design. It was descriptive because the researcher collected a large sample from lectures and workshop attendants in all the mentioned institutions under study. The population for the study was 33, comprising 21 lecturers and 12 workshop attendants from the institutions under study. The population was manageable hence, the entire population was used for the study which means that there was no sampling method utilised for the study. In eliciting information from the respondents, research instruments such as questionnaires were used. The questionnaire was self-made and tagged “Managerial Strategies for Proper Handling of Workshop Tools by Building Technology Education students in Rivers state (MSPHWTBTES). It was structured in the pattern of 5 point Likert rating scale of Strongly Agree (SA-5), Agree (A-4), Undecided (U-3), Disagree (D-2) and Strongly Disagree (SD-1). The instrument was validated by two experts in Vocational Technology Education Department based on spelling, tenses used, appropriateness and among others. Also, the reliability of the instrument was established using Cronbach Alpha Reliability Co-efficient. To achieve the reliability of the instrument, 8 lectures and 6 workshop who were not part of the sample, were simple randomly selected. The responses to the instrument were correlated. A reliability value of 0.82 was obtained which was adequate for the study. After the reliability exercise, the instrument was administered, retrieved on the spot. Also the instruments administered were retrieved and used for the analysis of the study. Mean and standard derivation was used to answer the research questions, while t-test statistical tool was used to test the hypotheses at a 0.05 level of significance. Mean values less than 3.00 were rejected meaning that the mean value was disagreed, while the mean values equal or greater than 3.00 were accepted meaning that the mean value was agreed upon. Moreso, t-calculated (t-cal) less than t-critical (t-crit) was accepted meaning that the hypothesis was not significant while t-cal greater than t-crit was rejected meaning that the hypothesis was significant.

RESULTS AND FINDINGS

Research Question 1

What are the planning strategies for proper handling of Workshop tools by Building Technology education students in Rivers State?



Table 1 Mean Scores on Planning Strategies for Proper Handling of Workshop Tools by Building Technology Education Students.

S/N Planning Strategies	Lecturers (n=21)		Decision	Workshop attendants (n=12)		
	\bar{X}_1	SD1		\bar{X}_2	SD2	Decision
1. Planning out requisite logical steps for students in the usage of workshop tools	3.61	.91	Agree	3.59	.66	Agree
2. Arranging for proper integration of workshop tools in students practical sections	3.40	.63	Agree	3.41	.75	Agree
3. Arranging a list of tools and specifications for students practical activities in the workshop premises	3.31	.74	Agree	3.57	.91	Agree
4. Mapping out workshop tools assessment procedure	3.50	.74	Agree	3.47	.70	Agree
5. Preparing guideline for tools used in the workshop	3.30	.59	Agree	3.25	.63	Agree
6. Projecting requisite methods for securing workshop tools	3.73	.99	Agree	3.42	.90	Agree
7. Working out suitable environment for storage of tools in the workshop	3.44	.81	Agree	3.81	.31	Agree
8. Setting up decision rules for the usage of workshop tools in future by optimal Means	3.31	.82	Agree	3.38	.61	Agree
Grand mean & SD	3.45	.78	Agree	3.49	.68	Agree

Source: Field Survey, 202



Table I on planning strategies for proper handling of workshop tool by building technology education students in Rivers State showed that lecturers and workshop attendants agreed that all the items highlighted are planning strategies for proper handling of workshop tools by building technology education students. This is based on the grand mean scores of 3.45 and 3.49 respectively, which is above 3.00 which was earlier stated as the acceptable mean. Also, the grand mean scores for each of the items show a high level of acceptance for each of the items by each group. Furthermore, the closeness in the standard deviation for the two groups which is .78 and .68 shows homogeneity in their responses. This finding is in line with Olayi (2009) that planning is the process of preparing a set of decisions for actions in future directed at achieving goals by optional means.

Research Question 2

What are the organising strategies for proper handling of workshop tools by building technology education students in Rivers state?

Table 2: Mean Scores on Organising Strategies for Proper Handling of Workshop Tools by Building Technology Education Students.

S/N	Organising Strategies	Lecturers (n=21)		Decision	Workshop attendants (n=12)		
		\bar{X}_1	SD1		\bar{X}_2	SD2	Decision
1	Organising Safety procedures for students on the usage of workshop tools	3.20	.58	Agree	3.62	.83	Agree
2	Organising requisite guidelines for students towards the handling of workshop tools.	3.21	.95	Agree	3.82	.77	Agree
3	Organising students to harmoniously handle tools in the workshop.	3.33	.56	Agree	3.76	.53	Agree
4	Organising relevant procedures to guide student on tools utilisation in the workshop.	3.67	1.22	Agree	3.50	.64	Agree
5	Assembling workshop tools	3.37	.86	Agree	3.78	1.14	Agree



	properly for students practical activities.						
6	Sorting out relevant workshop tools set aside for students practical activities	3.35	.32	Agree	3.88	.38	Agree
7	Organising requisite structures needed to adequately secure tools in the workshop	3.73	.92	Agree	3.57	.42	Agree
8	Organising seminars for students on the methods involved in handling tools in the workshop.	3.46	.22	Agree	3.44	.55	Agree
	Grand mean and S.D	3.37	.70	Agree	3.67	.66	Agree

Source: field survey 2022.

Table 2 on organising strategies for proper handling of workshop tools by building technology education students in Rivers state showed that lecturers and workshop attendants agreed that all the items highlighted are organising strategies for proper handling of workshop tools by building technology education students. This is based on the grand mean scores of 3.37 and 3.67 respectively, which is above 3.00 which was earlier stated as the acceptable mean. Also, the grand mean scores for each of the items show a high level of acceptance for each of the items by each group. Furthermore, the closeness in the standard deviation for the two groups which is .70 and .66 shows homogeneity in their responses. This finding is in agreement with **Isiodu (2017)** that the strategy involved in organising building workshops reflects on the division of works performed by students, the arrangement and assigning of equipment, tools and materials to be used and the development of structures to facilitate and ensure its completion.

Research Question 3

What are the co-coordinating strategies for the Proper handling of Workshop tools by building technology Education Students in Rivers state?



Table 3 Mean Scores on Co-ordinating Strategies for Proper Handling of Workshop Tools by Building Technology Education Students.

S/N	Co-ordinating Strategies	Lecturers (n=21)			Workshop attendants (n=12)		Decision
		\bar{X}_1	SD1	Decision	\bar{X}_2	SD2	
1.	Coordinating students to secure tools properly during the practical section in the workshop	3.79	.66	Agree	3.73	.91	Agree
2.	Coordinating students to maintain cordial relationships in the handling of workshop tools	3.42	.44	Agree	3.60	.59	Agree
3.	Coordinating students towards proper tools management in the workshop.	3.31	1.24	Agree	3.67	.72	Agree
4.	Coordinating students towards the maintenance of workshop tools on regular basis.	3.52	1.29	Agree	3.47	.56	Agree
5.	Coordinating students on the procedures to handle tools in the workshop	3.66	.99	Agree	3.53	1.14	Agree
6.	Coordinating students towards providing an enabling environment in the workshop that will be frustration and aggression free for	3.74	.62	Agree	3.80	.49	Agree

the utilisation of
tools.

Grand mean and S.D	3.57	.87	Agree	3.63	.73	Agree
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Source: field survey 2022.

Table 3 on co-coordinating strategies for proper handling of workshop tools by building technology education students in Rivers state showed that lecturers and workshop attendants agreed that all the items highlighted are co-ordinating strategies for proper handling of work tools by building technology education students. This is based on the grand mean scores of 3.57 and 3.63 respectively, which is above 3.00 which was earlier stated as the acceptable mean. Also, the grand mean scores for each of the items show a high level of acceptance for each of the items by each group. Furthermore, the closeness in the standard deviation for the two groups which is .87 and .73 shows homogeneity in their responses. This finding is in agreement with (Olaitan 2010) that the efforts of all the groups of staff in the implementation are caused to function appropriately at the right time towards achieving the objective of tools management in workshop projects.

Research Question 4

What are the controlling strategies for the Proper handling of Workshop tools by building technology Education Students in Rivers state?

Table 4 Mean Scores on Controlling Strategies for Proper Handling of Workshop Tools by Building Technology Education Students.

S/N	Controlling Strategies	Lecturers (n=21)		Workshop attendants (n=12)			
		\bar{X}_1	SD1	Decision	\bar{X}_2	SD2	Decision
1	Controlling students to be violence-free when handling tools in the workshop	3.83	.62	Agree	3.67	.31	Agree
2	Overseeing students to avoid anxiety	3.91	.72	Agree	3.44	.89	Agree



	about the usage of workshop tools.						
3	Controlling students to handle tools properly during and after a practical section in the workshop	3.52	.89	Agree	3.76	.51	Agree
4	Guiding students on the procedure to work with tools in the workshop	3.35	1.13	Agree	3.94	.21	Agree
5	Directing students to handle tools with care in the workshop	3.21	.63	Agree	3.80	1.14	Agree
6	Supervising students during practical activities to pick up the right tools in the workshop.	3.84	1.50	Agree	3.98	.75	Agree
	Grand mean and S.D	3.61	.91	Agree	3.76	.63	Agree

Source: field survey 2022.

Table 4 on controlling strategies for proper handling of workshop tools by students in building technology education in Rivers state showed that lecturers and workshop attendants agreed that all the items highlighted are planning strategies for proper handling of workshop tools by building technology education students. This is based on the grand mean scores of 3.61 and 3.76 respectively, which is above 3.00 which was earlier stated as the acceptable mean. Also, the grand mean scores for each of the items show a high level of acceptance for each of the items by each group. Furthermore, the closeness in the standard deviation for the two groups



which is .91 and .63 shows homogeneity in their responses. This finding is in agreement with Adiola and Ochogba (2010) that outlined controlling strategies to reflect on the carrying out of regular inspections during and after the practical section, regular observation of healthful ventilation, enforcing noise control on tools and equipment, adequate guidelines for students on the proper usage of tools and equipment and among others.

Hypothesis 1

There is no significant difference between the mean response of lectures and workshop attendants on the planning strategies for proper handling of workshop tools by building technology education for students in Rivers state.

Table 5: t-test Analysis on Planning Strategies for Proper Handling of Workshop Tools by Building Technology Education Students.

Categories	n	X	SD	DF	t-Cal	t-Crit	Remark
Lecturers	21	3.45	.78	31	.15	2.02	Not Significant
Workshop attendants.	12	3.49	.68				

Source: Researcher's field survey 2022. Accept h_0 if $t\text{-cal} < t\text{-crit}$; otherwise reject

Table 5 showed that lecturers had the mean and standard deviation scores of 3.45 and .78 respectively, while the workshop attendant had the mean and standard deviation scores of 3.49 and .68 respectively. The t-cal value obtained was .15, while the t-crit was 2.02 with $DF = 31$ at a .05 level of significance for two tail test. This result showed that t-cal was less than t-crit, which means that the null hypothesis was accepted. Thus there was no significant difference between the mean responses of lecturers and workshop attendants on the planning strategies for proper handling of workshop tools, by building technology education for students in Rivers state.

Hypothesis 2

There is no significant difference between the mean responses of lecturers and workshop attendance on co-ordinating strategies for proper handling of workshop tools by building technology education students in Rivers state.



Table 6: t-test Analysis on Organizing Strategies for Proper Handling of Workshop Tools by Building Technology Education Students.

Category	n	X	SD	DF	t-cal	t-crit	Remark
Lecturers	21	3.37	.70	31	1.23	2.02	Not significant
Workshop attendants	12	3.67	.66				

Source: Researcher's field survey 2020 accept Ho if $t\text{-cal} < t\text{-crit}$ otherwise reject.

Table 6 showed that lectures had the mean and standard deviation scores of 3.37 and .70 respectively, while workshop attendants had the mean and standard deviation scores of 3.67 and .66 respectively. The t-cal value obtain was 1.23, while the t-crit was 2.02 with DF=31 at a .05 level of significance for two tail test. This result showed that t-cal was less than t-crit, which means that the null hypothesis was accepted. Thus, there was no significant difference between the mean responses of lectures and workshop attendants on organising strategies for proper handling of workshop tools by building technology education students in Rivers state.

Hypothesis 3

There is no significant difference between the mean responses of lectures and workshop attendants on co-ordinating strategies for proper handling of workshop tools by building technology education students in Rivers state.

Table 7: t-test Analysis on Co-ordinating Strategies for Proper Handling of Workshop Tools by Building Technology Education students

Category	n	X	SD	DF	t-cal	t-crit	Remark
Lecturers	21	3.57	.87	31	.21	2.02	Not significant
Workshop attendants	12	3.63	.73				

Source: Researcher's field survey 2020 Accept Ho if $t\text{-cal} < t\text{-crit}$, otherwise reject

Table 7 showed that lecturers had the mean and standard deviation scores of 3.57 and .87 respectively, while the workshop attendants had the mean and standard deviation scores of 3.63 and 0.73 respectively. The t-cal value obtained was .21, while the t-crit was 2.02 with DF=31 at .05 level of significance for two tailed test. This result showed that t-cal was less than t-crit, which means that the null hypothesis was accepted. Thus there was no significant difference between the mean responses of lectures and workshop attendants on the co-



ordinating strategies for proper handling of workshop tools by building technology education students in Rivers state.

Hypothesis 4

There is no significant difference between the mean responses of lectures and workshop attendants on controlling strategies for proper handling of workshop tools by building technology education students in Rivers state.

Table 8: t-test Analysis on Controlling Strategies for Proper Handling of Workshop Tools by Building Technology Education Students

Category	n	X	SD	DF	t-cal	t-crit	Remark
Lecturers	21	3.61	.91				
				31	.56	2.02	Not significant
Workshop attendants	12	3.76	.63				

Source: Researcher's field survey 2020 Accept H_0 if $t\text{-cal} < t\text{-crit}$, otherwise reject.

Table 8 showed that lecturers had mean and standard deviation scores of 3.61 and .91 respectively while the workshop attendants had mean and standard deviation scores of 3.76 and .63 respectively. The t-cal value obtained was .56, while the t-crit was 2.05 with DF=31 at .05 level of significance for two-tailed test. This result showed that t-cal was less than t-crit, which means that the null hypothesis was accepted. Thus, there was a significant difference between the mean responses of lecturers and workshop attendants on the coordinating strategies for proper handling of workshop tools in building technology education in Rivers state.

CONCLUSIONS

The study concludes that planning strategies for proper handling of workshop tools by building technology education students entail, planning out the required logical steps for students in the usage of workshop tools, arranging for proper integration of workshop tools in students practical sections, arranging a list of specifications for students practical activities in the workshop premises, mapping out workshop tool assessment procedures, among others. Apart from this, organising strategies for proper handling of workshop tools by building technology education students including organising safety procedures for students on the usage of workshop tools, organising requisite guidelines for students towards the handling of workshop tools, organising students to harmoniously handle tools in the workshop, and organising relevant procedures to guide students on tools utilisation in the workshop and many others. Moreso, coordinating strategies for proper handling of workshop tools by building technology education students encompass coordinating students to secure workshop tools properly during practical activities, coordinating students to maintain cordial a relationship in the handling of



workshop tools, coordinating students towards proper tools management in the workshop, coordinating students to handle workshop tools properly on regular basis and others. Equally, controlling strategies for proper handling of workshop tools in building technology education students include controlling students to be violent free when handling tools in the workshop, overseeing students to avoid anxiety in the usage of workshop tools, guiding students on the procedure involved in noise control when working with tools in the workshop and among others.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made;

1. Educators of building technology should ensure that, the required logical steps concerning general workshop tools management is assured. This will help in giving out requisite guidelines for practical activities.
2. Educators of building technology should ensure that regular safety procedures are obtainable in the usage of workshop tools by students during practical activities for longevity and sustainability of tools.
3. Educators of building technology should ensure that cordiality is assured between the students and authorities involved, for questions concerning practical difficulties to be freely addressed.
4. Educators of building technology should ensure that they oversee students on regular bases to avoid anxiety during and after the usage of workshop tools in every practical section in tertiary institutions in Rivers state. This will help in reducing the constraints students are passing through.

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OUT-OF-SCHOOL CHILDREN IN NIGERIA: A CREATION BY SOCIETY AND ITS IMPLICATIONS FOR NATION BUILDING

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ABSTRACT: Education is a major key to the development of any nation. The realization that education is an engine room to the advancement of both industrial and technological growth of nations has propelled the leadership and citizens of many nations to consider the training of their younger generations with seriousness. The school is a formal institution vested with the responsibility to ensure that children are properly trained in the methods, ways and means for the future progress of the society. In Nigeria, there are educational policies put in place in line with other international institutions to ensure that all children at least acquire the basic level of education. Presently, there are millions of children that lack access to basic education. These children are referred to as out-of-school children. The real statistical figure of these children appears obviously shady. With the rapid explosion of the number of out-of-school children, Nigeria has been described globally as the country with the largest population of such children. It is on record that one out of every child that is excluded from formal education in Africa is a Nigerian child. There are many reasons that evidently might be responsible for lots of these children being out-of-school. Among them are poverty, ignorance, insecurity, corruption, the devaluation of education and knowledge in the social system, materialism and many more. No one can expect to reap what he/she did not give or sow, subsequently the aftermath of leaving out these children without completing their education had multiple negative consequences to the child, the society and the country at large. For one, such children might become ready crop of adults later in life to serve in menial positions of responsibilities with low salary grades; experience marital instabilities due to their economic status and therefore become ready tools that could be ignorantly manipulated by the political elite in the society. They may also raise families without birth control, thereby extending a vicious cycle of people living in poverty and low self-esteem. Beyond being easily exploited, most of them become known for anti-social vices, such as cultism, criminals with tendencies as armed robbery, drug addicts, rapists, kidnapers, hoodlums, and sex workers (prostitutes). The implications of all these to nation building is stagnation and general insecurity to life and property. The article then proffered some likely suggestions that can assist the society to overcome some of these psychosocial challenges once taken into consideration.

KEYWORDS: Creation, Implications, Nation-Building, Out-of-School Children.



INTRODUCTION

The critical roles education plays in the socio-economic and political development of any nation can never be over emphasized. Education is the pivot upon which the quality of a country's human capacity development is enhanced. From every indication, the economic and technological advances recorded in every nation is tied to the educational attainment of its citizens globally. It is obvious therefore that the survival of any organized nation depends on the quality of education of its population. Beyond the production of a capacity of think-tanks for the advancement of the people, education creates room for better health and nutrition, thereby helping to improve hygiene. It also assists societies to experience a higher child survival rate and provides an avenue for a greater sense of health awareness (Esu, 2022). Again, education as submitted by Adeyinka (2014) is a tool for liberating the individual from the shackles of ignorance to the world of ideas, knowledge and imagination. Internationally, education is accepted as a fundamental tool of human development, and an essential element for the preparation of an informed individual. There is no gain saying that education is power. Education helps to moderate social tensions in society. It emancipates the minds of men to be creative and enables them to think without limitations. A well-educated person, according to Ikiyei (2014), is generations ahead of the poorly educated ones. Education also creates an opportunity for the child to become an asset to the society, while the absence or mal-education of the child prepares that child to grow up in most circumstances as a burden to that community.

In modern societies, the school is generally accepted as the place where children are sent to by their parents to acquire formal education which prepares the growing child to assume adult responsibilities later in life. Yes, a child could also acquire informal education by passing through an apprenticeship scheme to actualize their future. The school is a place where teachers who are professionally trained are given the responsibility to train children from varied backgrounds about academic knowledge, provide an opportunity for children to meet and interact with other children beyond their immediate environment and from that point learn to cooperate more with other children outside their neighborhood. The school teaches children life and survival skills from which they will develop themselves for sustainability in the future. The school is a creator of self-actualization and a director to the growing child as they are being prepared to chart a course for their future aspirations. The school is a place where talents are discovered, nurtured and empowered for their future well-being. Out-of-school children certainly may not benefit from this empowerment process which the school provides. Research according to Darma (2022) indicates that education or formal school training had enabled man to improve in agricultural productivity, assisted women and girls to enhance their status and wellbeing, ensure a better protection of the environment, supported man in reducing unchecked population growth rate and, without doubt, enable them to utilize a variety of skills for the improvement of their standard of living. All of these implies that schooling vis-à-vis education is a means for the creation of human happiness. A builder for a healthier society, a provider that enhances man with skills and information to be more self-confident, education also enables an efficient and productive workforce, and indeed a holistic personality. The school is an organ of the society that enables man to, through the knowledge acquired, be better prepared to make genuine choices concerning the type of life human beings are expected to lead. The place of the school then corroborates the position of Mohammed, Quadri and Yshifumi (2021). Development globally is also often a qualitative measure of the literacy rate and the productive capacity of skilled labor, level of technology, education and so on.



Considering that the school and indeed education has multiple benefits to offer to society, the question as to why some children should be identified as ‘out-of-school children’ (OOSC) is difficult to accept in the 21st century setting and in particular, a nation as Nigeria that is endowed with multiple human and material resources. According to the United Nations, out-of-school children are yet to be enrolled in any formal schools excluding pre-primary education. The definition further pegs the age range for out-of-school children as those between 6 -11 years. They are a category of young people who are within the age bracket of attending primary or secondary schools but are not engaged in learning whether in non-formal education, nor are they enrolled within the formal education system. These categories of children also include those children living with disabilities that are not engaged in either formal or non-formal educational endeavors (UNESCO, 2014). Globally, according to the UNESCO Institute for Statistics (2015), for example, only 9 percent of out-of-school children come from wealthy households, whereas that figure tiptoed to 31 per cent for children from poor households. In the same vein, only 12 percent of out-of-school children are settled in urban areas compared to 23 per cent of those from rural areas. This is evidence of severe disparities based on household economic standing and geographic location. Out of school children are pupils who have never been privileged to enroll as students or who dropped out of the system as a result of poor academic records, lack of sponsors, employment or being disillusioned with the educational system. They are kids who leave school without completing their course of study (Amede, 2022).

It is no longer news that Nigeria is known as the most populated black nation in the entire world; what is difficult to accept but is now a fact, is that Nigeria is also being ascribed with statistical evidence as the home with the largest number of out-of-school children in the West African sub-region. Researchers like Odeyemi in the Guardian Newspaper (2021) opine that for every five (5) out-of-school children in Africa, one is a Nigerian. The country is in dire need for a situation to ‘right the wrongs’ because an idle young population without a legacy of literacy and any viable skills bequeathed to them portends a serious challenge to that nation. The inherent challenges which the nation is finding difficult to tackle are multifarious. The first Premier of the Western region, Awolowo as cited by Gbenga in The Guardian (2020) warned the political leaders many years ago that “the children of the poor you failed to train will never let your children have peace”. Gbenga also cited Mallam Aminu Kano as saying that “Nigeria will know no peace until the son of a nobody can become somebody without knowing anybody”. Nigerians must note that if your neighbor is hungry, your chicken is not safe. It would be appropriate to maintain that while there could be many underlying reasons for the nation drifting to its present level of insecure state, the out-of-school children may not be possibly exonerated from the complexities of the spate of security challenges the nation is experiencing. No region or state in Nigeria can strictly beat her chest and say confidently that they are not contending with this hydra-headed monster known as out-of-school children. This not with-standing, the northeastern part of the country is by far the worst hit by this man-imposed damage on herself. The Nigerian nation has degenerated so much to the extent that fear and anxiety are the hall-marks of household names that Nigerians live with presently, due to the sophisticated crime rates and horrific happenings bedeviling the citizens daily.

The education sector had, on its own part over the years, put in place a number of measures and policies with the intent of ensuring or cushioning and providing equal playing ground that all Nigerian children can enjoy a right to free/compulsory primary education. To make this project work, governments at different levels had built public schools within trekable distances



for the children to attend. Although the government had supported the education sector at the federal, state and local governments at different instances, these measures put together by the government to reduce the statistics of out-of-school children had created even further gaps. The trend had pressured the Federal Government into the establishment of the Nomadic Education Commission with the intent to cater for the immigrant herdsmen; Educationi, the Fishing Port Education to take care of the immigrant fishing populations along the riverine settlements/communities and the river basins in the Lake Chad areas; however, something desperate most definitely still needs to be done. In most states of the Federation, there are also special schools for the disabled children. The country is a signatory to the 'Education for All' convention, entered into in the United States of America and an active partner to the Sustainable Development Goals of which, child literacy is uniquely enshrined. Although these policies of the government are quite laudable, in most cases policy implementation appears to be either inefficient, poor or weak. Nigeria is currently being described globally as the nation with the highest number of out-of-school children globally. This assertion may not go down well with those in positions of leadership, however, it is a wakeup call for a nation with the kind of per-degree and resources as Nigeria (Daily Trust, 2022).

As Chukwumerije (n.d.) would capture the situation poetically, a country that pretends not to see its young ones lying fallow (idle) certainly will reap the outcomes of her lukewarm attitude in no distant time. Nigeria is experiencing a variety of social challenges presently and out-of-school children might as well constitute part of the cumulative tensed situation the country is struggling hard to contend with. Chukwumerije's submission may not be far-fetched when he frankly states that education helps to moderate social tensions in society and in a country like Nigeria, attempts at neglecting the education of the young ones is like asking for trouble. In other words, keeping young children out-of-school is a guarantee for trouble and a subtle means of investing in a crisis for Nigeria. This paper intends to identify some of the likely consequences and menace that could be averted if the nation can contain and reduce the high rate of out-of-school children roaming the streets. The conclusion is that some of the security challenges will be drastically reduced once, if children of school age are given the opportunity to attend schools and to be meaningfully engaged either in the formal school setting or encouraged to learn a skill through the informal sector, as against the present prevailing scenario where in these children are allowed to stray aimlessly. Nigerians, especially the political class should be aware that protecting their material resources without investing in education, is like stealing the future from the growth of their children whom they (the elite/politicians) are thinking of accumulating their ill-gotten-wealth for. It should be noted that only quality education can help societies to contribute sophisticated ideas and advance new concepts which must be testable. Until this is done, Nigeria will live in uncertain times.

Theoretical framework

This work adopted the "Life Chance Theory" which was advanced by Max Weber, a German sociologist. According to Bello and Mohammed (2017), the theory emphasized that all human beings have opportunities and are endowed with the potential to improve their quality of life. However, the way and manner an individual is provided with the required incentives to achieve his or her goals may determine the level of education the person attains. The Life Chance Theory is a hypothetical conception which postulates how the life of an individual might turn out to become. The main implication of the theory is that the opportunities and requisite resources a person is privileged to interact with in the course of life explains the length at which success or failure in life may be attained. In real terms, the theory means that life is a game of



chance and the earlier one is exposed to and attain their life goals especially through education, the better the chances of the individuals' increased socio-economic status and growth. Education is a catalyst for socio-economic well-being of an individual. Bello and Mohammed then reiterated from Max Weber's position that schooling could insure a person's comfort in the areas of real estate ownership, creates room for advances in meaningful lifestyle, makes way for an improved standard of living, among other variables of an individuals' life chances and well-being, including improved health and longevity. Summarily, the theory implies that with quality education a child acquires from going through the processes of school, the probability of that child raising the quality of his life chances increases. The reverse is also possible where the child drops out of school without completion.

Out-of-school Children: A Creation by Society

Every child has a potential that once adequately nurtured by the society and its institutions, it will become qualitatively fulfilling. The child is a product of the society into which it is born into. The depth of a tree is determined by the depth of its roots. Only few children will grow above the type of training and educational system that they are being exposed to and the circumstances that are prevalent at the disposal of the child while pursuing their education. In Nigeria, a combination of factors might be responsible for children not enrolling at schools at all or dropping out of school a short while later. These school dropouts and those who are not privileged to attend schools at all or engage in any meaningful skills that can prepare them for a better future, are all collectively described as out-of-school children. Again, no one can specifically point out the total number of children who are not engaged in the formal school sector today in Nigeria. The above notwithstanding, most authorities believe that there are more than 10 million Nigerian children who are out-of-school (Ihejirika, 2013). These figures have been strongly disputed by the Minister of Education, Adamu Adamu (The Guardian, 2021). One vital question begging for answers from the education authorities is, should any child be left out of school? The argument as to whether there is only one child that is out-of-school may not be necessary or hold water. It is the duty of every responsible government to ensure that the upcoming generations measure up to the standard it requires through adequate implementation of the curriculum; furthermore, education is the right of every child.

In saner societies, according to Mohammed and others, no child is deprived of sound and qualitative education no matter the circumstance. Citing Yekeen, they submitted that, children no matter their geographical location, place of birth and circumstance are entitled to quality education. It is therefore heartbroken to imagine that of all five (5) out-of-school children globally, one (1) is a Nigerian. No thanks to the Nigerian Minister of Education, Adamu Adamu, who had also admitted that with the massive increase in the number of out-of-school children in Nigeria, the country had fallen short of the Education For All (EFA) goals and the Millennium Development Goals for providing education for all children which is a universal human suffrage (Worldmeters, 2019; Edema, 2021). Surprisingly, more than 95% of the reasons why children drop out of school appear to be reasons beyond their own (children) control and traceable to the ineptitude of the government and the entire adults within that society. In other words, it is the weakness or lack of commitment of the society rather than the child in question. The child is born into a society that requires them to become responsible citizens in the future. A critical observation as to why children drop out of school had revealed that poverty, religio-cultural practices, unemployment, lack of planning, corruption especially among the political class and elites, insecurity in the school environments (which could be either from an external or internal context), lack of commitment on the part of the teachers and



school administrators, poor learning environments, lack of basic instructional materials, lack of parental supervision of their wards, the perceived devaluation of education by society, exposure to the internet as well as peer influence that might have contributed to the high rate of out-of-school children in Nigeria (Mohammed, Quadri & Yoshifumi, 2021). Some of these factors are considered one after the other briefly:

1. Poverty

The Nigerian economy is really at its wits-end and most families are extremely finding it difficult to even eat three square meals a day. The inflation rate is biting hard on the majority of the citizens and this has affected every other aspect of the peoples' perception about life. Most Nigerians may be aware of the importance of education to the future of their children, yet they lack the financial capacity to send their children to schools. The government might announce that primary and secondary schools are tuition-free (in terms of fees officially), however, in many public schools, the administrators still impose lots of levies on the school children to pay. For instance, parents are subtly made to pay admission fees, sports levies, labor dues (even in federal government colleges); the school authorities may prepare uniforms but the parents are made to pay/buy for their wards. Additionally, the school feeding policy of the present Federal Government initiated by the President Muhammadu Buhari administration (which is laudable) appears to be a scam or non-functional in most states. The school feeding programme's success is appearing suspicious in that in 2020, a better half of the world nations were on "lockdown" due to the Covid-19 pandemic. Surprisingly, the Ministry of Humanitarian Affairs still announced that it utilized over 500 million naira of taxpayers money to feed school children when all schools were indeed "closed" (Adebowale, 2020). An average Nigerian family especially in the rural areas are living in abject, unimaginable and pitiable circumstances in the midst of squalor cum poverty; in view of these, most people (parents) see sending their wards to school is an added burden to the already over stressed family income/budgets.

2. Religio-cultural practices

Another challenge which society has created against the growth of the child is the religious and cultural norms being strongly adhered to by some tribes/sections of the country. In Northern Nigeria for instance, where the Islamic religion is being practiced, alms-giving is seen as a sacred principle. Alms-giving is one of the five pillars of Islam. Children who are sent to the Quranic clerics for Islamic studies are sent out by their teachers to ask for support in the streets. This system is known as the Almajiri system. Millions of children have been turned out as "street children" roaming to beg for alms without adequate care and guidance. The children are being exploited by a lot of their masters and are indeed without real care and protection. The highest number of such Almajiri children are reported to be in Bauchi State, followed by Kano, Katsina, Zamfara among others. In the Southern part of Nigeria, Rivers state is reported to be taking the lead of children living out-of-school. These out-of-school children have little or no one to fend for them and have constituted a myriad of security and national shame to the Nigerian state (Ezegwu, Adedokun & Ezegwu, 2017). In their gullibility, these street children are used as tools to commit mayhem in most communities due mainly to their ignorance and irrational submission to those who have indoctrinated them.

Some obnoxious cultural practices appear to die-hard in sub-Saharan Africa. In most rural communities in the sub-region, the majority of the people still see and adhere to the patriarchal systems. They will appreciate sending the male child to school rather than their female child.



There still appears to be a strong sentimental feeling that the girl-child will be married out to another family while the boy-child will stay back home to bring up the name of the family (Ikiyei, 2019). Invariably, many potentially brilliant female children are forced into either early marriage, others are forcefully married out even before puberty especially in the Northern parts of the country. In other settings, girls especially from states like Akwa Ibom, Cross Rivers and the Ogoni tribes in Rivers State are notably being sent out-of-school by their parents to go and serve people as “house-helps” or domestic servants for paltry sums of money which the same parents or caregivers will collect directly from those with whom they leave the care of their children to. It is significant to state that some parents had lost their beloved ones to child traffickers’ in many instances due to such obnoxious practices. Furthermore, the inhuman treatment and agony some of these children undergo is despicable and criminal. Beyond being shabbily treated, these classes of children in most cases lose their self-esteem, become unproductive and a continuous liability to society due mainly to the treatment/trauma they had been subjected to. They are abused physically and emotionally in the homes where they serve as house helps rather than being at school.

The case of the boy-child may not be exceptionally different in some climes like the southeastern region. Rather than send the boy-child to school, parents here perceive that the economic fortunes of the male children may not be much when they finally graduate and enter the civil service with their academic certificates. Subsequently, the male child is encouraged either to join in the businesses or trades of their parents at a tender age without acquiring any basic education. This trend had left most young Igbo children as street hawkers and hustlers exposed to exploitation, unnecessary hazards such as road accidents and easily swayed to committing crimes like indulging in ritual killings all in a bid to amass wealth through whatsoever illegitimate methods just to be considered as relevant stakeholders in their respective communities (Akinwumi & Unaeze, 2013).

3. Lack of Planning

There is an adage that those who fail to plan, have planned to fail. Invariably, any society that its members refuse to plan for their younger generations is likely sitting on a proverbial gun powder waiting to explode. About sixty (60) percent of Nigerian entire population is reportedly made up of youth. Maximizing this youth population for sustainable development is fundamental. It will not be out of place to emphasize that at no point had the policy makers implemented the nation's educational policies and developmental plans holistically. For example, in 1976, General Olusegun Obasanjo introduced the Universal Primary Education (UPE) Scheme. The UPE scheme was remarkably considered a success story between 1977 – 1979. However, the scheme’s impact began to wither as from the early 1980s with the change of government to democracy under the National Party of Nigeria (NPN). One bitter experience in Nigeria which the policy-makers appear to find difficult to correct is that there is no continuity with any policies of a previous administration no matter how laudable the policy may appear to be. Most times, those in positions of authority hardly realize that governance is a continuum and that it is still the same state resources that a previous administration expended in the implementation of that project. Every new administration assumes that completing a predecessors’ project is a waste or not a plus to their own administration. Invariably, there are lots of uncompleted projects dotting every available space in the country. Nigerians may also plan to control their population in line with the realities of time. Due to lack of planning, even the National Bureau of Statistics may not be precise about the population figures in the country. Under such lack of planning, it becomes extremely difficult to ascertain what would be the



relevant needs for the education of the children in schools. It is also apt to unequivocally maintain that when a school system is disorganized or incoherent, it creates enough room for the ruling class to systematically have the opportunity to manipulate the downtrodden.

4. Corruption among the Political Class and the Elite

The most fundamental problem bedeviling Nigerian society is corruption. The level of moral decadence in the country is unimaginably high and the concept of corruption is almost becoming a norm. Billions of naira that should have been invested into education and other socioeconomic sectors such as health care, technological innovations and building of industries are swindled by organized cartels and syndicates. A recent example is the ongoing strike of the Academic Staff Union of Universities (ASUU) which began in the month of February, 2022. For over seven months running, the Federal Government has not been able to address the issues properly with the excuses that there are no funds. However, only recently the Accountant General of Nigeria was alleged to have singlehandedly embezzled close to two hundred billion naira. Nigeria is one country where presidential aspirants from the major political parties are purchasing their nomination forms for as much as one hundred million naira each but the public Universities are on strike for legitimate demands on the need for revitalization of the educational sector (Banjo, 2022). With weak institutions that could hardly probe corrupt political officials and their sources of income, the political class are at liberty to enrich themselves by looting the public treasury empty without being questioned. This is a major bane to the future growth of education, and by extension the other sectors of the economy. Nigeria is like a fattened cow, being milked by those who ordinarily are expected to protect its existence. Honesty and integrity have since become laughable phrases. Those who are hardworking and diligent appear to be ignoble. Corruption is virtually (openly being) celebrated in broad-daylight. Under the aforementioned circumstances, attending schools for donkey years only to become endless job seekers is an abnormality. The young ones are copying from the corrupt attitudes of the elders, after all, the child is a product of the environment. Huge sums fraudulently siphoned are supposed to be used for the educational and other social needs of the society.

5. Insecurity

Another obvious factor that has made Nigeria a leading headquarter of out-of-school children in the world is the rising spate of insecurity in the country. Presently, there is the terrorists' threat in the North with Boko Haram and the ISWAP (Islamic State in West African Province) causing lots of destruction of lives and properties in the entire Northern region; unknown gunmen and IPOB (Indigenous People of Biafra) agitators in the Eastern regions and the Niger Delta militants in the Southern parts of Nigeria; there is actually no part of the country that can be considered safe. Odeyemi (2021) had stated that in the Northern part of the country, not less than 600 teachers have been murdered in Borno state, at least more than 19,000 teachers are displaced and well over 1,200 schools completely destroyed. It could be recalled that Nigerians woke up on 14th day of February, 2014 with the shocking news from Chibok Girls Secondary School in Borno state that about 276 innocent female students preparing for their final year examinations have been kidnapped (Nwadiani, 2016). As we speak, only a handful of those girls were recovered. That incident was followed by the case of the Dapchi Girls Secondary School incident in Adamawa State wherein Leah Shaibu (a Christian female girl had since been held captive allegedly because of her faith) and then just in 2021, the Bethel Secondary School invasion in Kaduna where over a hundred innocent school students were taken into captivity.



Furthermore, during the 2021 West African School Certificate Examination section, a Catholic Priest was killed in the East for not obeying the “sit at home order” declared by IPOB, and for allowing the school in the church premises to write English Language which is a compulsory subject on that day. In a situation such as the examples cited above, there is certainly a threat and serious menace to human security, and the dignity of life. People will prefer that their children stay safe at home with them rather than send them to school to either be killed, kidnapped or trafficked by men of the underworld. The fears experienced from insurgencies according to Umaru and Terhemba (2014) is one reason why the number of out-of-school children had skyrocketed in Nigeria. It must also be pointed out in clear terms that insecurity, hunger, terrorism, poverty and disease have a lot in common. Either of these terms could be divorced or separated from the other. McCawley in Umaru and Terhemba (2014) had emphatically stated that severe poverty may expose citizens to every form of unsecure circumstances. The poor according to these scholars are relatively at higher risks exposed to domestic violence, crime, sickness and unemployment.

These security threats had forced many children out-of-school. The children forced out are now among millions of others denied their fundamental right to education and disadvantaged for life except something urgent is done to rehabilitate them. A graphic survey as captured by Gambo (2017) indicated that 85 percent of the children in Borno state do not attend schools due to insecurity. The damage which these figures alone could mean for the future of the Nigerian child could better be imagined in a technological age where the rest of the world had left us behind.

6. The Perceived Devaluation of Education by Society

The society had placed little or no value on the pursuit of education in Nigeria. Most people believe that education and educationists can hardly make it in life. The perception that education is not empowering anybody again in a society that has become highly materialistic is quite alarming. It is unarguable that with the way the school curriculum is designed, schooling does not make one successful or prosperous. A society where university graduates seek for job placements until their youthfulness is wasted is a pointer to how debased education could be in Nigeria. Many young people would prefer to cut corners to achieve their ambitions rather than waste their youthful years going to schools. The society, especially the political class in most states of the federation, had preferred to recognize the “area boys” (hoodlums and school dropouts) whom they empowered with political appointments. Other young people will prefer to use the internet to defraud unsuspecting members of the society and ride big cars. Nigeria is one country where a man’s source of income is rarely questioned. Under such a scenario, anything goes. Schooling and education are downplayed, as what society wants to see is “money”. Dubious elements are therefore publicly celebrated.

In a nutshell, Okoh, Emenike, Doma and Akinsola (2020) had pinpointed that changes in the family structure and income had also resulted in the upsurge of out-of-school children in Nigeria. Okoh and his colleagues opined that relationships with parents due to changes in family structure, lack of teacher support, motivation, school performance, drug usage and abuse, distance of school location, in addition to the factors earlier discussed are likely reasons for out-of-school children syndrome in Nigeria. They also maintained that the Nigerian borders are relatively poorly secured. This implies that a lot of children could be immigrating from neighboring countries (Niger Republic, Chad, Mali, Sudan among other countries within the African sub-region) as a result of insecurity and famine without check. All these constitute the



menace of out-of-school children in Nigeria. Other factors could be due to the death of a parent; sicknesses; early marriages; teenage pregnancies; child labour; unattractive school environment, proximity or distance of school from the home of the child; poor academic performances; lack of interest by the child; etc.

Implications to Nation Building

Children who do not complete their school programmes may have multiple implications for the individuals themselves, society and the nation at large. Out-of-school children may live with a social stigma for the rest of their life for not being able to complete their education. They may be seen by society as “never-do-wells” except they struggle to acquire some form of informal education. Many who could not complete their education may grow to become permanent liabilities to their relatives and society as they have fewer opportunities of employment in a digital society today. The deficiency will affect all aspects of human life as there will be vacancies in several areas that demand skills acquired through education at school. Some authorities have found that there exists a relation between participation in required training courses, work-based development activities and job satisfaction. Children who do not attend school are often exposed to violence and menial jobs. Further, even when they are employed, the tendency that they would be placed on far lower salaries than their contemporaries is glaringly inevitable. The implication of these circumstances could translate into marital instability at home between spouses due to inadequate finances for the household. An unsettled marital situation no doubt may lead to domestic violence with its dear consequences that may culminate to divorce and cases of single parenthood. Going further, the young people who are school drop-outs are more likely to embark on illegal and risky behaviors and ventures that may put their lives in danger. They may be more prone to criminal tendencies, such as cultism, armed robbery, kidnappers, political thuggery, ritualists and prostitutes, drugs abusers, and gamblers (the Nairabets and Betnaija syndrome addicts). These classes of people may also be easily exploited by human traffickers due to their poor and ignorant conditions. For example, most of the crisis brewing in some parts of the nation are believed to be masterminded by the elite and political class who use these out-of-school children and adolescents as their foot soldiers to commit atrocities among the unsuspecting public (Aghedo & Eke, 2013). This category of people may face more psychological issues such as depression and are more likely to report greater levels of stress both of which have been likened to deficits in parenting behaviors.

Unemployability

The Nigerian state is saturated with lots of graduates that are being turned out on a yearly basis from the higher institutions of learning. Due to the quality of education/curriculum received from these tertiary institutions, most of these graduates had only acquired cognitive knowledge without any vocation skills. The government civil service is overburdened with most of the employees almost redundant. In a scenario such as this, graduates who are expected to be productive, now sit at home constituting an additional burden and liability to their parents. In the light of the above, one can begin to imagine the agony and predicament of the out-of-school children in Nigeria who have not even perhaps attended or obtained primary school leaving certificates. For one, they have little or no experience to call their own to meander through the hazards of a welfareless society where there is a clear divide between the “haves” and the “have-nots”. Such children progress in life to become political thugs, extremely violent criminals, social misfits and in some cases paranoids, ready to unleash vendetta on the society



for their lack of support and care for them. They will not develop trust or be empathetic in a society that never protected them while growing up. These children will never trust anyone and therefore capitalizes on any opportunity to unleash their venom on the society that they considered to have destroyed their future. These out-of-school children may find it difficult to survive even in adulthood as they may likely raise families with multiple instances of marital instabilities and disaffection along the line.

Out-of-school children are most likely to become a major burden to society. Since more of them are unemployable, they are perpetual liabilities to their relatives and society. For example, in the area of reproductive health, out of ignorance, it is evidenced that those who are less educated tend to have more children as compared to the better/higher educated ones. The implication here is that they constitute more challenges to the issues of family planning. Out-of-school children could affect a child's upbringing as many baby mothers will lack the knowledge to raise their children efficiently. Teenage mothers due to lack of knowledge, exposure and experience have a lot of influence on the upbringing of the child. This would imply that both the child and the mother would suffer a lot (Okoh and others). Invariably, they may also constitute and contribute to more of child and mother's mortality in sub-Saharan Africa. The situation may also translate to the level of life expectancy among those living in poverty since they may have little or no access to modern medical facilities. The Editorial of the Guardian (28 October, 2018)) explains that a bleak future awaits Nigeria unless the issue of out-of-school children is addressed because there is a link between education and development. Citing Nelson Mandela, the editor stated that "an educated, enlightened and informed population is one of the surest ways of promoting the health of a democracy". Essentially, education is a leverage, it makes citizens have choices, strengthens the office of the citizens, and develops critical minds needed to question daily bearers and brings them to account, which is essential for social justice. Nigeria is a very highly indebted country, with an excuse that the money so borrowed was to be invested in infrastructure. Surprisingly, this does not reflect in the building of the minds that will use them (the infrastructure) patriotically. Essentially, untrained children will filter away the nation's wealth. This argument may be understood much better when illustrated with a rich father who acquired a lot of property for the children without developing the children's characters. It is likely that these children will lavish the wealth of their father even before his death. That is the situation Nigeria and its half educated people without character appear to be experiencing.

SUGGESTIONS

Every child is important and requires to be properly educated. Education is a right of every child. It is an inalienable right of all children to be educated for their innate potentials to be properly annexed and developed. Based on the impact of the challenges and significance of out-of-school children to national development, the underlisted suggestions are proffered as strategies that will help to reduce this menace from the streets of the cities in Nigeria and change the very embarrassing phenomenon.

1. For a start, there is a need for public enlightenment among the adult population on the need for adequate family planning policies. While it is the right of a citizen to give birth to any number of children they desire, it is also significant for members of the society to understand the dynamics or changing economic times and trends. Families should be



discouraged from engaging in polygamous marriages as part of effort to reducing the number of children they could afford to raise and fend for. There is a need to regulate and provide birth control measures; this will help to boost the standard of living among the populace of the nation. Countries such as China had adopted such measures and this has helped in the economic development of such societies.

2. Encouragement and provision of school-friendly environments, especially for the girl-child. Schools with hundreds of children do not have enough infrastructure. More than 80 percent of schools in Nigeria do not have adequate or separate toilets for male and female pupils. Portable water is an essential ingredient of life, but a handful of primary and secondary schools in Nigeria can boost portable water facilities. The classrooms are without enough seats for the pupils to sit and write. Children are forced to sit in some cases on bare floors or makeshift blocks while learning. Classrooms in most urban settlements are overpopulated and teachers are having a lot of trouble maintaining discipline in the classes rather than delivering the lessons. There is a need to create a friendly classroom environment, with the required modern equipment, such as electric fans, good classroom furniture, computers, modern chalkboards, spacious classrooms and properly ventilated rooms, etc. Provision of the state-of-the-art infrastructure that creates a conducive learning environment will help to assist children settle down in their classes. For example, the Lagos State Government under Babajide Sanwolu had just launched in June 2022, the hybrid digital caravan classrooms in Lagos state. In the school, both the teachers and students are provided with computers and other accessories. Replicating such infrastructure will help to promote learning and knowledge at a faster rate in this 21st century technology driven school system. Government attempts in recent times to introduce school feeding programmes is in the right direction. However, this school feeding programme should not be selective or only for a particular section of the country rather provision should be made for all children in primary and secondary schools.
3. Government should assist in improving the living standard of the average Nigerian family. Presently, the average family could barely afford three square meals. To be at pace with the current realities in terms of the economy, the government can provide soft loans for farmers, give grants to cooperative agricultural societies, consider workers welfare as a priority and improve on the health facilities/services for the ordinary citizens. Once these measures are taken, food security can be ensured and the family will be better for it. Provide strategies for poverty alleviation to uplift the standard of living of the average family.
4. The first obligation and responsibility of any responsive government is to provide adequate security for the lives and properties of her citizens. The level of violence and obnoxious activities taking place in the country had created fear among the citizens of the country. Schools have become soft targets for terrorists and bandits in the society. Government, the communities and other Non-Governmental Organizations (NGOs) including religious bodies should collectively consider security as the responsibility of all. Reducing violence in the school environments includes stopping the violation of the girl-child by even some school authorities, bullying, sexual harassment among others. A situation where some state governors are instructing their subjects to acquire arms for self-defense speaks volumes about the terrible security situation in Nigeria.



5. As already being demonstrated by some state governments such as Delta, Oyo and Sokoto, stringent laws should be passed and parents who dare object to sending their children to school for their selfish reasons should be punished. Education is a child's right and any parent who refuses to perform that right should be seen as an enemy of the future of the child. This way, parents will take their responsibilities to their children much more seriously. It will also be an avenue for parents to understand that given birth to children entails accepting some fundamental responsibilities as well. Parents who neglect their children's education should be made to understand that not given the child education is a form of negligence and child abuse.
6. The role of the school counselor should be strengthened in the school system. Presently, the counseling units in the schools are not adequately equipped to perform their obligations. Most schools do not have functional counseling units and qualified trained counselors to man the units. More students should therefore be encouraged/trained as counselors in the institutions of higher learning. Trained personnel should be allowed to carry out the assignment they are trained for without interference from their school headmasters and principals. Furthermore, the pupils/students of the schools should be taught to be assertive and ready to open up their personal and emotional challenges to the school counselors.
7. Training and re-training is important to teachers in service to enable them to be abreast with contemporary trends in teaching and learning. Employing seasoned and qualified professional teachers that will encourage/motivate the pupils to learn and remain focused in schools is imperative. A teacher can make or mar the future of the child. The level of his understanding of the child is important in the teaching and learning process. A teachers' understanding of his pupils' emotional state is essential in the keeping of the children at school. A teachers' character and teaching strategies can instigate the pupils to become truants and eventually drop out of school if it is not efficient and effective enough.
8. Knowing that education is the right of the child, the government should ensure compulsory basic and free education at the primary and secondary school levels. At the level of the higher institutions, the government should subsidize the cost of educational fees. With reduced school fees, every child will have equal opportunities to attend schools.
9. Nigeria must put in place effective policies that enforce laws against early child marriages. A situation in which underaged (teenage) girls between ages 10-11 years old are forcefully given out into marriages either because of religious or cultural factors is condemnable. Parents who mastermind such child marriages should be severely sanctioned and punished by law. Every child irrespective of gender or status should aspire to fully annex their potentials instead of getting them disorganized through unpleasant circumstances that results in letting them end up as street children.
10. Sensitizing parents on the importance of education and the opportunities their children stand to miss for dropping out of school should be carried out by the Federal and State Ministries of Education. During such enlightenment campaigns, parents should be intimated about the opportunities awaiting their children and wards concerning governments desire and implementation of free education; they should be further exposed to various scholarship as well as support schemes within and outside their vicinities that could come to their aid.



11. According to Yusuff (2011), government alone cannot execute all the desires of the growing child in view of the population of children in need of education. Subsequently, Non-Governmental Organizations (NGOs), the communities themselves, faith-based groups, and public-spirited individuals are all enjoined to save children from darkness and ignorance. They could support the less privileged children by establishing educational foundations and scholarships schemes. Opportunities to empower the youth will serve as social security and help to galvanize those families living in poverty to improve their standard of living. Through such kind gestures and goodwill, the society can make education accessible to the children that are most vulnerable.
12. Out-of-school children should be encouraged to attend evening study programmes to make up for the deficiencies they may have suffered from. These “second chance programmes” should help to provide not only literacy but also skills such as tailoring, welding, photography, arts and craft development, film making, etc. Upon completion of these courses, the youth trained could indeed become self-reliant and employers of labor. Emphasis for education going by this principle equips learners with the agency, the competencies and the sense of purpose to shape their own lives and contribute to the lives of others within and outside their immediate environment. This implies that these children can indeed become the change agents for tomorrow as envisioned.
13. For the children in the North, there is a need to acquire both Quranic (religious) education and Western (secular) education. In that manner, the pupils will get a more balanced judgement when it comes to very topical issues that affects the security and need for an indivisible Nigeria.

CONCLUSION

The entire essence of this expository paper was to examine the consequences that could emanate in society as a result of keeping children that are supposed to stay at school out of school by the individuals and the society at large. To imagine that in spite of the wealth of Nigeria, over 18 million children are not staying at school to learn is indeed a source of concern to any meaningful citizen. The central focus of education is to develop the minds of the younger generations to become productive and contribute their quota in nation building. The child is like a crop planted by the farmer. The farmer can only yearn for a bumper harvest if he or she nurtures its seedlings or crops with diligence. No nation can grow above the inputs which in real terms are the children that are abandoned or left uncared for today; Nigeria can only make meaningful development when its educational sector is adequately annexed. The reasons for children dropping out of school were enumerated in this work to include poverty, ignorance, religious and cultural barriers, lack of planning, corruption especially among the political class and above all, insecurity in most parts of the country. Beyond the wanton damage done on property, insecurity has also led to the death of over thousands of Nigerians including children and teachers. This is minus the number of school children that have been captured and taken as hostages by bandits and unknown gunmen. The fear of the unknown has made most parents scared of sending their children to school. This is in addition to the Almajiri system in the Northern parts of the country. In other to make ends meet, parents in some agricultural settlements like Asimabiri and Osekineke in Sagbama Local Government area of Bayelsa state, Nigeria, could make their children to stay out of school for weeks or more to help their parents



harvest either pepper or okro from the farms. They may as well be in the bush packing Ogbolo (bush mango) normally used for preparing “draw soup” (which is a local delicacy) and a major cash plant/money yielder for family sustenance. Others are school related reasons for children academic marginality. Out-of-school children has been part of the challenge to nation building in Nigeria as some of these teenagers will grow up to become endemic liabilities to the society. Apart from being unemployable or underemployed, they appear to constitute the bulk of ready tools for political thugs, criminals, hoodlums, sex workers (prostitutes) and many other vices that are anti-progress to nationhood. Some meaningful suggestions are equally proffered so that when applied will help to check attrition in schools and keep these vulnerable children in school. As Okorosaye-Orubite (2017) suggests: “Access to education should not only cover the formal setting, but also in the non-formal setting. This means that education facilities and services should be expanded to cover not only children of school age in formal schools, but also out-of-school children, youth and adults who missed education when they were of school age. Those who by virtue of their traditional occupations are not sedentary-nomads, migrant fisherfolks and itinerant farmers (farm labourers), as well as physically, economically, socially and psychologically vulnerable groups who should be provided for in the non-formal setting”.

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PREDICTORS OF GIRLS' PERFORMANCE IN MATHEMATICS AMONG SENIOR HIGH SCHOOL STUDENTS

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ABSTRACT: *The study employed the Explanatory Sequential design of the Mixed-Methods approach to investigate the factors that affect female students' performance in mathematics. Stratified and Simple Random Sampling techniques were used to sample three hundred and fifty-six (356) participants from four different Senior High Schools within the Northern Region to participate in the survey while 12 key informants were selected using the Expert Purposive Sampling technique for key informant interviews. Questionnaires and interview guides were the main instruments used for data collection. Inferential statistics were used to analyse the quantitative data while inductive thematic analysis was used in analysing the qualitative data. The results of the analyses showed that gender stereotypes, the socio-economic status of parents, self-motivation by the female students, the social environment in which the female students find themselves and teacher efficacy were the main factors affecting female students' performance in mathematics.*

KEYWORDS: Expectancy-Value Theory, Gender, Gender Stratification Theory, Gender Stereotype, Gender Studies, Girls' Performance, Female Students, Mathematics, Parents, Performance, Self-Motivation, Social Environment



INTRODUCTION

Over the past 20 years, numerous studies have been conducted on gender differences in mathematics achievement. In their study of gender differences, the researchers focused on a variety of factors ranging from gender differences in visuospatial skills (Chan & Cheung, 2018), the influence of environmental factors such as parental support (van Mier et al., 2019), student-teacher interactions (Bieg et al., 2015), stereotypical role patterns (Xie et al., 2019), to different enrolments in courses (Van Mier et al., 2019). Giberti (2019) finds that research on gender differences and cognitive complexity in Asia suggests that as the complexity of cognitive processes required to successfully complete a task increases, gender differences in mathematics topics and other science-related topics tend to become more favourable to boys.

In Africa, Ashcraft (2019) identified mathematics and other science-related subjects as the critical filters that prevent women from entering many prestigious and lucrative professions. They concluded that one of the fairly well-documented sex differences is that boys are superior in mathematical ability, although there are few sex differences until the early teenage years when boys' mathematical skills increase more rapidly than girls. Picho and Schmader (2018) came to a similar conclusion in their review, stating that there are no significant differences between girls' and boys' mathematical performance until the early years of primary school or the early years of secondary school. Picho and Schmader (2018), however, went a step further in their analysis by taking into account the cognitive level of the measures used. More specifically, they pointed out that when differences occur, they are in favour of boys when higher-level cognitive tasks are used, but in favour of girls when lower-level cognitive tasks are used. A year earlier, Hornburg et al. (2017) made the same findings regarding gender differences in mathematics performance among secondary school students.

In Ghana, Letsoalo (2017) reviewed the literature on gender and mathematics achievement in WASSCE up to and including 2017 and came to three conclusions: (1) boys in secondary schools perform slightly better than girls in secondary schools on tests of mathematical reasoning (mainly solving word problems); (2) boys and girls perform similarly on tests of algebra and basic mathematical knowledge; (3) girls occasionally outperform boys on tests of numeracy. In Kenya, Moreno-García et al. (2017) conclude that the findings that boys outperform girls on tests of quantitative or mathematical ability are robust. According to her, differences also appear at the beginning of bridging grades or in secondary school. This study aims to assess the factors that affect female students' performance in mathematics in the northern region of Ghana using mixed methods. This paper examined the extent to which gender stereotypes, socio-economic background of parents, teacher efficacy, the social environment in which female students find themselves and self-motivation by female students to learn and pursue mathematics and its related courses predict the mathematics achievement in Senior High School female students in the Northern Region of Ghana using a mixed methods approach. The study raises several questions: What is the effect of gender stereotypes on the mathematics performance of female students in the Northern Region of Ghana? What is the effect of the social environment on the mathematics performance of female students in the Northern Region of Ghana? How does the socio-economic status of parents affect the performance of female students in mathematics in the Northern Region of Ghana? How does teacher efficacy affect the mathematics performance of female students in the Northern Region of Ghana? How does self-motivation impact the performance of female students in mathematics in the Northern Region of Ghana? Answers to these questions will inform policy formulation in addressing the causative factors of poor female students' performance in



mathematics in the Northern Region of Ghana. The objective of the study was to determine whether there is a relationship between:

- a. the social environment and the performance of female students in mathematics among Senior High Schools in the Northern Region of Ghana.
- b. self-motivation and the mathematics performance of female students among Senior High Schools in the Northern Region of Ghana.
- c. Gender stereotypes and the performance of girls in mathematics among Senior High Schools in the Northern Region of Ghana.
- d. The socio-economic background of parents and the performance of their female wards in mathematics among Senior High Schools in the Northern Region of Ghana.
- e. Teacher efficacy and the mathematics achievement of female students in the Northern Region of Ghana.

LITERATURE/THEORETICAL UNDERPINNING

The theoretical frameworks backing this study are the Expectancy-Value Theory and Gender Stratification Theory. These theories provide viewpoints, ideas and other propositions that may better explain the performance of girls in general. The relevance of these theories to the study is discussed as follows:

Eccles and Wigfield (2020) proposed and tested an expectancy-value theoretical model to explain the gender gap in mathematics achievement and the underrepresentation of women in science and engineering careers. According to this model, people do not take up a challenge unless they value it and have some expectation of success. Perceptions of the value of a task, such as taking a challenging mathematics course, are shaped by the cultural environment (for example, the gender segregation of professions, cultural stereotypes about the subject) and the person's short-term and long-term goals (for example, becoming a primary school teacher and thinking that one does not need a lot of pure mathematics or becoming a civil engineer and knowing that one needs more of pure mathematics). Sociocultural forces such as parental and teacher attitudes and expectations, including stereotypes, also shape self-concept and attitudes towards the subject (Prieto, 2018).

According to the expectancy-value theory, a girl who believes that the career opportunities available or suitable for women do not require a lot of mathematics is less likely to invest more time and energy in excelling or even taking mathematics courses. In fact, she may view pure mathematics as less useful or valuable and therefore places less value on it. The theory has received abundant empirical support (Eccles & Wigfield, 2020) and provides a clear model for why cultural inequalities in educational or career opportunities adversely affect girls and women considering STEM careers. According to Selvarajan et al. (2018), individuals do not engage in tasks that are perceived to be of little value.

The gender stratification hypothesis (Bussey & Bandura, 1999) on the other hand states that, in patriarchal cultures, male students associate their performance with future opportunities and results. Due to the reduced opportunities for women, girls do not see such a link and therefore



do not perform well as boys in domains that they consider less useful. (Bussey & Bandura, 1999) argued that female students who are given fewer opportunities may consider pure mathematics to be less important for their future and hear this in various ways from teachers, parents and friends. In short, opportunity structures can shape numerous socialisation processes that determine performance. In general, the gender stratification hypothesis states that where there is more social stratification based on gender, and thus more inequality of opportunities, girls will report fewer positive attitudes and more negative attitudes and therefore will perform less well on mathematics tests than their male peers. But where there is more gender equality of opportunities, gender similarities in mathematics will be evident.

The Social Environment and Girls' Performance in Mathematics

The social environment as used in this context refers to students' social interaction with teachers and peers and the availability of teaching and learning resources in mathematics. Both social and physical environments have been found to have an impact on student performance in general. In a study of student performance in mathematics among Senior High School students in the Western region, Marginson and Dang (2017) employed an exploratory design involving 68 students and 12 teachers to assess the factors that accounted for the poor performance of students in Mathematics. Performance in Mathematics was measured by students' scores in Mathematics in their last two terms and their scores in the Basic Education Certificate Examination (BECE). They found that student performance in mathematics was affected by factors such as teacher-student relationships, students' relationships with their peers, students' family background, students' gender and students' perception of Mathematics. They concluded that most of the factors that predicted students' performance was from the school environment and could be addressed by the school management. While their study investigated the factors affecting students' performance in Mathematics, they did not pay specific attention to the specific factors that affect female students in their mathematics performance. This study considers the factors that affect female students' performance in Mathematics in the Northern Region of Ghana.

Self-Motivation and Female Students' Performance in Mathematics

Mathematics education requires highly motivated learners because it requires reasoning, making interpretations and solving problems, mathematical issues and concepts. The challenge of mathematics education for today's schools is that it requires discipline, concentration and motivation. To meet these challenges, students need to be focused and motivated to make progress. Anghel et al. (2019) investigated the relationship between classroom motivation and academic achievement among elementary school-aged children which involved 122 first-grade participants and 129 third-grade participants. Consistent with previous studies, they found that for higher levels of mastery, motivation was related to higher mathematics scores. The teacher's role in motivating students to learn should not be underestimated. To help students become motivated learners and producers of mathematical knowledge, the teacher's most important task is to create a learning environment in which students can engage in mathematical thinking activities and conceive of mathematics as something that requires "exploration, conjecture, representation, generalisation, verification and reflection (Davadas & Lay, 2017). The study collected data and determined whether the girls' attitudes towards Mathematics in Westlands District were attributable to demographic factors, gender factors, parental influences and learning facilities. Conclusions were drawn on this basis.



Socio-Economic Status of Parents and Performance in Mathematics

Socio-economic status has been found to be a predictor of mathematics achievement. Studies have repeatedly shown that parents' annual income is correlated with pupils' mathematics achievement (Letsoalo, 2017). Socioeconomic status was found to be significant in mathematics and science scores (Hornburg et al., 2017). Another study found that the poor academic performance of Canadian students was due to the low socio-economic status of their parents (Jiang et al., 2018). Socio-economic status was examined and found to be one of the four main predictors of differences in academic performance of South African students aged 15 in reading, mathematics and science by the Program for International Students Assessment (Letsoalo, 2017). Several studies show that parents with higher socioeconomic status are more involved in their children's education than parents with lower socioeconomic status. This greater involvement results in the development of positive attitudes of children towards school, classes, and improvement in academic performance (Migosi & Muola, 2013). Low socioeconomic status is believed to have a negative impact on academic achievement, in part because it denies students access to various educational materials and resources and creates a troubling atmosphere at homes such as possible disruptions to parenting or an increased likelihood of family conflict (Migosi & Muola, 2013). For these reasons, the socio-economic status of the parents of a pupil is a common factor determining school performance including performance in mathematics.

Gender Stereotypes and Female Students' Performance in Mathematics

Many variables have long been studied as predictors of academic performance. However, gender aspects of academic achievement have been the most studied by researchers. For example, a meta-analysis shows that males perform better on mathematics tests that require problem-solving (Anghel et al., 2019). Another study shows that women achieve better grades in mathematics than men (Matteucci & Mignani, 2021). Some recent studies have shown that gender differences in mathematics education seem to be narrowing in many countries. However, studies show that as students reach higher grades, gender differences favour male performance in mathematics (Matteucci & Mignani, 2021). For example, the results of the Third International Mathematics and Science Study (2018) showed that the mathematics performance of each gender group was close in primary and secondary schools. However, evidence of gender differences in mathematics performance was found in the final year of secondary school. Another study, conducted to analyse the factors influencing the mathematics performance of 11th graders in mathematics classes with an identified gender gap, also showed that males scored higher than females on the 11th-grade mathematics test, but that this difference narrowed from the 10th grade onwards (Breda & Napp, 2019). Moreover, gender differences in perceptions and attitudes about the usefulness of mathematics for secondary school students were found to be statistically significant (Matteucci & Mignani, 2021). It is also reported that girls tend to learn mathematical concepts through rules or cooperative activities, whereas boys tend to be in competition to master mathematical concepts. The literature on gender differences provides evidence that gender issues affect performance in mathematics.



Teacher Efficacy and Female Students' Performance in Mathematics

Many studies report that what teachers know and believe about mathematics is directly linked to their instructional choices and procedures. Also, it seems undisputed that the teacher's philosophy about mathematics has a significant impact on the structure of mathematics lessons. Teachers must have the skills and knowledge to apply their philosophy of teaching and instructional decisions. In the 21st century, there is a shifting paradigm in education about teachers' roles and competencies. Findings from research on teacher competencies suggest that if teachers are to prepare an increasingly diverse group of learners for much more challenging work - for formulating problems; finding, integrating and summarising information; creating new solutions; independent learning; and collaborating - they will need significantly more knowledge and radically different skills than most now have and most education schools are now developing (Luttenberger et al., 2018). Teachers must not only have knowledge of a particular subject, but also pedagogical knowledge and knowledge of their students (Moreno-García et al., 2017).

Teacher competence in these areas is closely linked to pupils' thinking, understanding and learning in mathematics education. There is no doubt that student achievement in mathematics education requires that teachers have a rigorous understanding of the subject matter and epistemology that guides mathematics education (Jiang et al., 2018) as well as an equally rigorous understanding of the different types of instructional activities that promote mathematics education. Skilled mathematics teachers provide a roadmap to lead students to an organised understanding of mathematical concepts, to reflective learning, to critical thinking, and ultimately to mathematical achievement (Jiang et al., 2018).

Trends of Female Students' Performance in Mathematics

Many studies have found small but consistent gender differences in students' attribution patterns for their performance in mathematics. Boys attribute their success in mathematics more to stable factors, for example, task difficulty or ability, in contrast to girls who attribute more to unstable factors such as effort, luck, and a good teacher (Breda & Napp, 2019). Law (2018) examined the differences in attributions between high-achieving boys and girls for success and failure in general academic subjects, language skills, science, and mathematics. Highly gifted children were found to attribute failure to effort rather than to giftedness. Significant gender differences were found in the performance pattern of boys and girls. For 62 fourth-grade and 99 fifth-grade pupils, the findings of a study by Xie et al. (2019) indicated that girls' performance in mathematics was similar to or better than that of boys and that girls' attribution patterns were more self-enhancing than those of other studies reviewed for the study. However, girls were found to lack self-confidence in relation to their actual mathematics performance while boys were more likely to attribute failure in mathematics to a lack of help from teachers. In the West African Secondary School Certificate Examinations (WASSCE), which are held at the end of secondary school to gain entry to tertiary education, the results again show a significant gap between the performance of boys and girls. The 2018 WASSCE exam results show that, out of those who sat for the exam, 55 per cent were boys and 45 per cent were girls. 30 per cent of boys taking the WASSCE exam achieved an average grade of C+ or higher, while only 23 per cent of girls taking the exam achieved an average grade of C+ or higher (Prieto, 2018). In mathematics, the gap was even more evident in the 2020 WASSCE examinations, where female students achieved an average score of 17.8 per cent in mathematics, compared to 37.8 per cent for their male counterparts. This study collected



statistics on girls' performance in mathematics over the years and used the information to analyse the variables that influence girls' perceptions and attitudes, and by extension, their performance in mathematics.

METHODOLOGY

This study was conducted using a mixed-methods approach so that it could make use of any research tool or technique as needed without being constrained by one particular methodology. The study made use of the explanatory sequential mixed methods design. This methodology was chosen because it allowed the researcher to gather and analysed the quantitative data first, after which the qualitative data was then collected and also analysed. The results of both the quantitative and qualitative data were then merged in the interpretation of the results. Cross-validating the data was made possible by this method. There were no notable discrepancies between the outcomes of the quantitative and qualitative data. The quantitative data were collected via a questionnaire. This offered the study more statistical power and enabled the researcher to collect data from a broader group of female students and mathematics teachers. To collect the qualitative data, key informant interviews with management employees were done. This made it possible to get thorough data regarding the predictive factors of girls' performance in mathematics among the Senior High Schools in the Northern Region of Ghana.

Target Population

The target population for the study was all female students, mathematics teachers and school management staff of all the twenty-three (23) public senior high schools in the Northern Region of Ghana. This group was targeted due to their in-depth knowledge about the predictive factors of girls' performance in mathematics among the Senior High schools in the Northern Region of Ghana. It was not possible to conduct the study in all the Senior High Schools in the Northern Region of Ghana. There are twenty-three (23) public Senior High Schools in the Northern Region. As a result, a simple random sampling technique was used to select four (4) public Senior High Schools out of the twenty-three (23) public Senior High Schools. The sampled schools were; Tamale Senior High School (TAMASCO), Gushegu Senior High School (GUSEC), Zabzugu Senior High School (ZABSEC), and Tolon Senior High School (TOSS). The sample frame was constructed by obtaining the nominal roll of students, a list of mathematics teachers and a list of school management staff. The total of all the female students and all mathematics teachers in the four (4) sampled schools stood at four thousand, eight hundred and seventy-one (4,871), constituting 94% female students and 6% mathematics teachers.

Sample and Sampling Procedure

Cochran's formula for sample size determination was used to determine a sample size of 356 respondents out of the 4,871 female students and mathematics teachers in the four sampled schools. Furthermore, all female students from the four schools were kept in one cluster and treated as a homogenous population and all the mathematics teachers from the four schools were also kept in another cluster and treated as a homogenous population. The female student population constituted 94% of the target population and hence they were equally given 94% representation in the final sample while the mathematics teachers were given 6% representation in the final sample based on their percentage contribution to the target population. A simple



random sampling technique was again used to select respective respondents from the two clusters. Table 1 below shows the distribution of the selected respondents:

Table 1: Selected Respondents

S/N	District	Name of school	Number Selected		Total
			Female Students	Math Teachers	
1	Sagnarigu	Tamale Senior High School	92	4	96
2	Gushegu	Gushegu Senior High School	81	2	83
3	Zabzugu	Zabzugu Senior High School	89	6	95
4	Tolon	Tolon Senior High School	74	8	82
Total			336	20	356

Source: Field Data, 2022

In all, three hundred and thirty-six (336) female students and twenty (20) mathematics teachers were selected to take part in the quantitative study; giving a total of three hundred and fifty-six (356) respondents. In addition to these, the Counselling coordinators, Assistant Headmasters in charge of Academics and the Heads of Departments for mathematics of each school were purposively selected for Key Informant Interviews due to their deep experiences with female students' performance in mathematics.

Instruments for Data Collection

Two main instruments were used to gather data for the study: questionnaires and interview guides. The questionnaires which were built based on the indicators identified during the literature review were used to gather data from the respondents who were selected using non-purposive sampling techniques. The questionnaires were divided into two categories: the female students' questionnaire and the mathematics teachers' questionnaire. An average of the end-of-semester results of the female students was used to measure their performance in mathematics. The collected data was analysed using inferential statistics. The credibility and relevance of the test items on the questionnaires were considered by developing them based on the indicators that were identified during the literature review. The Cronbach Alpha reliability measure was used to check the reliability of the test items from the scores of a pilot test. This gives an alpha level of 0.84 and 0.88 for the female students' questionnaire and mathematics teachers' questionnaire respectively.

An ordinary Least Square regression model was used to determine the association between the Social Environment, Gender Stereotype, Socio-economic Status of parents, Self-Motivation, Teacher Efficacy and female students' performance in mathematics in the Northern Region of Ghana, after correlation and reliability statistics were run to determine the suitability of the items and the model adopted for the analysis.

The interview guides were used to interview the key informants. There were 12 key informants purposively selected for interviews. An interview with each key informant lasted for at least



45 minutes. The interview questions were centred on the factors that determine female students' performance in Mathematics. The qualitative data were analysed using inductive thematic analysis. The qualitative data were coded and categorised into themes based on the responses of the key management staff from the interviews. Also, the data was presented in a narrative form where the voices of the interviewees were captured in the analysis.

The research tools were made available to other researchers for peer evaluation to ensure the study's dependability, credibility, and reliability. The final development of the instruments considered the reviewers' comments. The eligibility of the questionnaire items for analysis was further determined by running a reliability statistic on them. According to Creswell (2015), questions in a survey are regarded as appropriate for analysis if the Cronbach Alpha value in a reliability statistic is not less than 0.5. This means that elements with a Cronbach Alpha value of less than 0.5 do not accurately measure a construct, hence those items would need to be eliminated in order to raise the Cronbach Alpha number. The results of the reliability statistics for this investigation are displayed in Table 2.

Table 2: Reliability Statistics

Construct	Number of Test Items	Number of Items Retained	Scale of Cronbach Alpha
Social Environment	10	7	0.94
Gender Stereotype	10	6	0.89
Parents' Socio-economic Status	11	8	0.92
Self-Motivation by the female students	9	7	0.98
Teacher Efficacy	11	6	0.96

Source: Field Data, 2022

As shown in table 2, the test items whose removal would have raised the Cronbach Alpha scale for the latent constructs were eliminated. To determine the Cronbach Alpha scale, only tests that accurately evaluated the latent construct were used. Ten elements made up the construct "Social Environment," however only seven were employed in the analysis because the other three had scales that impacted the Cronbach Alpha's score. Ten test items were included in the construct "Gender Stereotype," but only six of them were used. Only eight of the eleven test items for "Parents' Socio-economic Status" were kept following the reliability investigation. Nine components made up the construct of "Self-Motivation," of which seven were kept following reliability calculations, and eleven test items made up the construct of "Teacher Efficacy," of which only six were kept. The Cronbach Alpha scale for each construct was more than 0.8, indicating that the test items accurately captured the objectives of each construct.

RESULTS/FINDINGS

The quantitative data was analysed using inferential statistics. SPSS was used to compile and input the respondents' replies. To ensure that the correct model was used for the analysis, correlational statistics were conducted to find out whether there were multicollinearity issues.

Correlational Statistics

A correlational statistic of all variables was run to see if there were multi-collinearity issues. The results revealed strong correlations between the variables as shown in table 5. This means that the collinearity matrix was high between the variables. The least correlation was between the Social Environment (SE) and the Socio-economic Status of Parents (SSP) ($r = 0.433$). The highest was between the Socio-economic Status of Parents (SSP) and Female Students' Performance in Mathematics (FSPM) ($r = 0.84$). These values as shown in table 5 below were high enough to affect the fitness of the model (Altmann et al., 2019). The study, therefore, adopted an Ordinary Least Square Regression model as recommended for use by Durmaz et al. (2018) in cases of multicollinearity issues. Table 3 summarises the correlational matrix of the study variables.

Table 3: Correlational Statistics

Variables	SE	GS	SSP	TE	SM	FSPM	MD	STD
SE	1	0.47	0.58**	0.71**	0.55**	0.51**	2.27	0.78
GS	0.64**	1	0.71**	0.65**	0.54**	0.61**	2.86	1.12
SSP	0.433	0.81**	1	0.52**	0.72**	0.84**	3.11	1.21
TE	0.63**	0.74**	0.82**	1	0.55**	0.67**	2.66	0.93
SM	0.57**	0.66**	0.54**	0.51**	1	0.62**	2.72	0.95
FSPM	0.59**	0.60**	0.73**	0.48	0.58**	1	3.12	1.31

Source: Field Data, 2022

KEY: SE = Social Environment, GS = Gender Stereotype, SSP = Socio-economic Status of Parents, TE = Teacher Efficacy, SM = Self-Motivation, FSPM = Female Students' Performance in Mathematics, MD = Mean Deviation, STD = Standard Deviation

The correlational matrix necessitated the choice of an Ordinary Least Square Regression model. This was used to test the dependability of Female Students' Performance in Mathematics (FSPM) on the Social Environment (SE), Gender Stereotype (GS), Socio-economic Status of Parents (SSP), Self-Motivation (SM) and Teacher Efficacy in the Northern Region of Ghana.

The results were as shown in table 4 below:



Table 4: The Standardised Beta Test on the Factors Influencing Female Students' Performance in Mathematics

Variable	Standardised Coefficients	Standard Error	Stand. Error	T	>t	F	[95% Conf. Interval	
							Lower	Upper
SE	2.45	0.12	.283	0	.02	0	1.89	3.23
TE	-4.12	0.99	3.21	-	.000	6	1.56	2.347
SSP	3.03	0.97	.87	9	.000	0	2.22	3.011
SM	5.21	0.61	.11	7	.01	0	1.31	2.44
GS	4.91	0.22	.84	1	.000	0	2.34	3.25

F=0.00, R²=0.91, Significance level $p < 0.05$ Source: Field Data 2022

** Dependent Variable is Female Students' Performance in Mathematics (FSPM)

KEY: SE = Social Environment, GS = Gender Stereotype, SSP = Socio-economic Status of Parents, TE = Teacher Efficacy, SM = Self-Motivation

Thematic analysis was used to examine the qualitative information obtained from interviews about how factors such as the social environment, gender stereotype, socio-economic background of parents, self-motivation and teacher efficacy affect female students' performance in mathematics in the northern region of Ghana. The researcher repeatedly reviewed the transcripts of the data to become comfortable with the material. By underlining, colouring, and creating shorthand labels to explain the contents of text passages, the researcher coded the transcribed data. By using these codes, the researcher was able to quickly summarise the key ideas and recurring meanings in the data. Then, by mixing the codes, themes were created by finding patterns in the resulting codes. Reviewing and mapping these themes against the complete data set was done. A few of the themes were divided into subthemes, and others were blended to provide the themes with more depth and use. The concepts were then given names before being ultimately interpreted. Table 5 displays this information.



Table 5: Qualitative Analysis of Factors Affecting Female Students' Performance in Mathematics in Northern Region of Ghana

Initial Coding	Axial Coding	Main themes
Gender roles Women are different Men are hard Simple tasks Women can do better Men do difficult task Women must not suffer Women cannot do House keeping No need to suffer Poor Very poor Struggling family Pay for extra lessons Attend good basic schools Poor communities Little value for education Academic engagement Need to succeed Future career Desire to compete with the men Career women Perceive need for mathematics Peer motivation Peer pressure Competition Value of education Support for the girl child Encouragement for the girl child Sexual harassment Sexual promiscuity Coercive sex Adolescence anxiety Familiar with it Knows what he or she is doing Master of the subject Confidence levels Ability to break complex problems to simpler ones Extremely good	Women do not need mathematics to perform their roles Men have better arithmetic abilities than women Men are better positioned to carry out complex task Women do not need to suffer Female students from poor homes attend poor quality schools Poor parents are unable to get their wards extra mathematics tuition at home Poor parents do not send their wards to early education programmes Motivated students put more efforts in learning mathematics Female students who are career oriented would put more energies in studying mathematics Female students who perceive they will need mathematics in their future careers will be more motivated to study and pass mathematics very well Female students who find themselves among other girls who are career oriented will perform better in mathematics Female students who are not sexually exploited will perform better in mathematics Female students who receive support from teachers and peers will perform better in mathematics Female students who receive social support from their teachers and parents during the adolescent crises will be more focus and perform better in mathematics Female students understand better when teachers demonstrate a good understanding and mastery of content of the subject mathematics Female students develop interest in mathematics when the teacher appears to be good at the subject Female students understand better when the teacher delivers with self-confidence and much efficacy	Females are stereotyped as weak and not fit for complex tasks like mathematics and its related courses Socio-economic status of parents affects the quality of education they give to their female children and their subsequent performance at higher levels Self-motivation affects female students' performance in mathematics The social environment of female students affects their performance in mathematics Teacher efficacy affects female students' performance in mathematics

Source: Field Data, 2022

As indicated in table 5, the F statistic was statistically significant at 0.000 which means that the model was fit for the analysis. R^2 was 0.91 indicating that the variables combined to explain 91% of the total variability in the performance of female students in mathematics. At a confidence level of 95%, gender stereotypes, teacher efficacy, socio-economic status of parents, self-motivation, and social environment were found to be closely associated with



female students' performance in mathematics. Gender Stereotype (GS) had a standardised coefficient of 4.91 and was significant at 0.000 (Coe = 4.91, $p = 0.000$) indicating that any change in gender stereotypes on female students' performance in mathematics will lead to a 49.1% change in the performance of female students in the subject. The Social Environment (SE) female students find themselves had a standardized coefficient of 2.45 and was significant at 0.02 (Coe = 2.45, $p = 0.000$). This means that a single variation in the social environment of female students among the Senior High Schools in the Northern Region of Ghana will lead to a 24.5% change in the performance of female students in mathematics. Teacher Efficacy (TE) was significant at 0.000 and had a negative standardised coefficient of the value of 4.12 (Coe = -4.12, $p = 0.000$) indicating that for any single decrease in the efficacy of mathematics teachers at Senior High Schools in Northern Ghana, there will be a 41.2% decrease in female students' performance in mathematics. The socio-economic Status of Parents (SSP) was found to be significant in affecting female students' performance in mathematics at 0.000 and with a standardised coefficient value of 3.03 (Coe = 3.03, $p = 0.000$). This also means that, should there be a single variation in the socio-economic status of parents, there will be a corresponding 30.3% change in the performance of the female student in mathematics. Female students' self-motivation to study mathematics was equally found to be statistically significant in predicting female students' performance in mathematics as it had a standardised coefficient value of 5.21 and a p -value of 0.01 (Coe = 5.21, $p = 0.01$) indicating that at any single variation in the self-motivation of female students to study mathematics, there will be a 52.1% change in the performance of female students in mathematics.

The qualitative data that was collected around these constructs indicated similar findings as contained in table 7, where the thematic analysis identified factors affecting female students' performance in mathematics to be Gender Stereotypes, Teacher Efficacy, Self-Motivation by the female students to study mathematics, Socio-economic Status of the Parents and the Social Environment in which the female students find themselves. One of the key informants explained the phenomenon as this:

“In a setting where culture prescribes roles for men and women and women are supposed to be doing less herculean tasks, mathematics which many students perceive as a difficult subject is seen by many female students as a male affair and so they remain apathetic to the teaching and learning of mathematics”

Another also explained:

“From my experience, several factors combine to affect students' mathematics performance and in terms of the girl child, it is even more complicated. Apart from the teacher efficacy, gender stereotypes, and parents' socio-economic backgrounds that generally affect students' performance in mathematics, female students are further affected by the cultural practices and beliefs held about women in their localities. Many still believe that a woman is supposed to be married and be taken care of by a man, give birth and take care of the house when the husband leaves for work. These tasks do not need complex mathematics and so female students from such cultures and with such beliefs may express little interest in mathematics”

One of the key informants further explained the phenomenon as this:

“when students perceive that they may need to pass a particular subject to transition to the next level, they will be more motivated than when they perceive they may not need the subject to



transition or even to be successful in their chosen careers. Motivation, is a key determinant of performance levels”

According to the findings of both qualitative and quantitative evaluations, the social environment, gender stereotype, teacher efficacy, self-motivation, and socio-economic status of parents all have an impact on students' mathematical performance. Below are the detailed discussions.

DISCUSSION

Discussions for the various objectives were done after the analysis.

The Social Environment and Female Students' Performance in Mathematics

The study found that the social environment of female students was significant in determining their performance in mathematics. This means that the people that female students interact with affect their levels of performance in mathematics. This is because when female students do not see women engineers, constructors, technicians, masons, architects or even sound technicians among the people they interact with, they are less motivated to venture into those areas. They pick interest in what the people they interact with value most. This will mean that the female students in a society where marriage and childbearing are prioritised over higher education will also be keener on getting married and giving birth than they will be in taking up courses that will earn them professions such as astronauts, engineers, medical doctors or industrial technicians. These are the professions that require that one acquires arithmetic or mathematical skills. Female students who find themselves in societies where other women are in these professions will be motivated to study and also be like them but those who find themselves in societies where such careers are not valued among women and are not also common among women, will be less motivated to study mathematics and this will translate into low performance in mathematics. This is consistent with the findings of Tesfa (2017) when they investigated the factors that inform female students' decisions to choose certain courses at the University. Silomba (2015) also found that female students who came from villages where education was less valued performed poorer in mathematics than those who came from urban and peri-urban areas where more women were educated and educated women were highly valued.

Self-Motivation and Female Students' Performance in Mathematics

The study found that self-motivation was a strong determining factor in the performance levels of female students in mathematics. This is consistent with the Expectancy Value Theory. Students will be self-motivated and put in more effort if they feel the results of their efforts will be positive and valuable. When students are self-motivated, they become more academically engaged and their performances keep improving over time. Despite the cultural inhibitions and gender stereotypes that have contributed to creating the impression that women do not need higher education or do not need to venture into certain professions, some women are beginning to realise that they can fit everywhere provided the structures that inhibit their progress and competencies are removed. This translates into self-motivation to put in efforts in learning subjects that they will need to gain admission into those courses that were, hitherto, viewed as male professions. This motivation is making women improve their performances in



science and maths-related courses. This finding is consistent with the finding of Zakharov et al. (2016) when they investigated the factors of poor female performance in science subjects and found that self-motivation was closely associated with female students' performance in science. Obi and Obi (2019) also found in Zambia that females who were self-motivated performed better in quantitative courses than those who were not self-motivated.

Gender Stereotypes and Female students' Performance in Mathematics

The study found that gender stereotype was one of the main factors affecting female students' performance in mathematics in Northern Ghana. This means that the conception of womanhood, what a woman should do, what tasks or professions are fit or not fit for women and the nature of tasks women are to perform inform female students about where and in what course to channel their energies. Northern Region is still largely patriarchal and gender role differentiation is still very pronounced even now. Female students are made to believe that higher education and especially complex courses like the physical sciences and technical courses should be left for men. Women just need a little formal education that may be just enough to get them a less demanding job so that they can have time to cater for their children, and their husbands and do housekeeping. This means that they do not need to bother themselves much with subjects that may be exclusive requirements for the physical sciences. This makes them reluctant about choosing mathematics-related courses and even when they do, they are negligent about their performances. These translate into poor female performance in mathematics. This finding corroborates that of Thakare et al. (2016) when they found that female students in North-Western Nigeria cared less about their academic performance because they were made to believe that higher education was not necessary for women. Silomba (2015) also made similar findings in Congo when they investigated differentiated performances of male and female students and found that gender stereotypes intersected with high youth unemployment to inform apathy in educational attainment by female students. This also resonates with the Expectancy Value Theory which was adopted as an analytical framework for this study as it explains that people will put more effort into performing tasks only when they perceive that the efforts will bring positive results at the end of the day. If girls believe that mathematics will yield value for them at end of their studies, they will put more effort into passing the subject.

The Socio-economic Status of Parents and their Female Wards' Performance in Mathematics

The study further identified the socio-economic status of parents of female students as a determining factor of female students' performance in mathematics. This means that female students who come from poor families are less likely to perform better in mathematics than those who come from well-to-do families. This is because those who are economically well off may hire a mathematics teacher for their girl child, send them to early childhood education programmes, afford to pay for extra tuition, buy all the needed reference materials and provide the girl child with all her basic needs thereby making her concentrate on her academic work leading to improved performance. The girl from a poor home, however, apart from not getting an opportunity to have a private teacher or attend extra tuition, may be distracted because her basic needs are not met. In some cases, she may be forced by economic conditions to fall into the hands of sex predators which can only further distract her attention from learning subjects that are attention demanding like mathematics. This will mean low performance in such subjects. This is consistent with the findings of Oviawe (2016) when they investigated the



factors that intersect to affect students' academic performance in Austria. Robert and Owan (2019) also investigated the causes of poor academic performance by Senior High School female students in Columbus and found that the socioeconomic background of students was statistically significant in explaining their performances.

Teacher Efficacy and the Mathematics Performance of Female Students

Teacher Efficacy was also found by this study to be a significant determinant of female students' performance in mathematics. This means that the extent to which the teacher demonstrates content mastery with confidence and precision and the extent to which the teacher is able to explain the methods and steps involved in solving mathematical equations affect female students' performance in the subject. This may affect students of all genders equally but because society has always discriminated against women, they have come to see themselves as inferior to men and the extent to which they may ask questions in class for further classification should the teacher sound vague is limited compared to the boys. The culture also makes it difficult for female students to engage mathematics teachers who are mostly men outside the formal lesson period. These combine to affect female students' performance in mathematics. This is consistent with the findings of Mazana et al. (2020) and Ndalichako (2014) who found in Nairobi and Lagos respectively that teacher efficacy is crucial in determining students' academic performance. Musili (2015) also found that teachers' competence translates into students' academic performance

Implication to Research and Practice

While researchers have adequately investigated the factors that affect students' performance in mathematics, the extent to which these factors specifically affect the female gender in a unique way within a patriarchal system like the Northern Region, to the best knowledge of the researchers, has received less academic attention. This study contributed to the existing literature on gender studies by assessing the specific factors that affect female students' performance in mathematics.

CONCLUSION

Female students' performances in mathematics in the Northern Region as indicated in their terminal and WASSCE examinations have been consistently poor. While in some schools the performances were poor across gender groups, at each instance, men performed better than girls. This study found that such discrepancies are informed by gender stereotypes where women are assigned fixed roles in societies and so do not see the need to put much effort into subjects that may not be relevant to their assigned roles.

The male-dominated classroom is sometimes not a positive environment for the girl child. There are few female mathematics teachers; the number of boys in the classroom is also more than that of girls. This male dominance could be intimidating and also could prevent the females from sharing their personal women-related difficulties which could be preventing them from engaging actively in academic activities.

Apart from these, there are other factors that place the girl child at a disadvantage; girls are expected to get married before their eighteenth birthday as prescribed by their religion and



culture, and girls are supposed to be more concerned about childbirth and home keeping than they should be about their academic performances. Girls would have to make the dishes, sweep the compound, and prepare their younger ones for school before setting out for school while their male counterparts are excluded from doing any of these. After school hours, the girls are expected to assist in cooking the evening meals. If they are lucky to be exempted, they may be sent to do shopping or to make some sales before they retire for the evening. These housekeeping activities impede their time to engage in academic activities. This translates to low performances, particularly in subjects that require absolute attention and concentration like mathematics.

FUTURE RESEARCH

The study found that gender stereotypes strongly affect female students' performance in mathematics, it is therefore recommended that the Ministry of Culture and Tourism will work closely with the Northern Regional House of Chiefs to modernise and streamline certain practices and beliefs that tend to hamper the academic engagement and general development of the girl child in Northern Region.

The study also found that the social environment in which the female students find themselves has low numbers of female mathematics teachers, which affects the performance of female students in the subject in the Northern Region. It is therefore recommended that the Ministry of Education, through the Ghana Education Service may identify, train and deploy female mathematics teachers across schools in the Northern Region so as to increase the presence of female teachers who teach the subject. This will address the male dominance in the classroom and also enable female students to freely express themselves on personal women-related issues that tend to affect their levels of academic engagement.

The study further found that teacher efficacy affects female students' performance in mathematics because the extent to which the teacher demonstrates content mastery with confidence and precision and the extent to which the teacher is able to explain the methods and steps involved in solving mathematical equations affect female students' performance in the subject. This may affect students of all genders equally but because society has always discriminated against women, they have come to see themselves as inferior to men and the extent to which they may ask questions in class for further classification should the teacher sound vague is limited compared to the boys. It is recommended that the Ministry of Education and the Ghana Education Service will work together to ensure that qualified and trained mathematics teachers, that are needed for the teaching and learning of mathematics are provided in adequate numbers to all Senior High Schools in the Northern Region.

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NUTRITIONAL COUNSELLING AND REST/ RECREATION COUNSELLING METHODS AMONG MOTHERS IN CROSS RIVER STATE, NIGERIA

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ABSTRACT: *This study was undertaken to investigate Nutritional counselling and family planning counselling methods among mothers in Cross River State, Nigeria. Two research questions and two null hypotheses were drawn to direct the variables under study, also relevant literature was reviewed in line with the research objectives with most of the reviewed study supporting the theoretical framework. Ex post facto design was adopted for the study. The selection was done through the sampling and purposive sampling techniques. The reliability estimate was established through sampling and the purposive sampling technique. The reliability estimate of the instrument was established through the Cronbach Alpha reliability method. One-way analysis of variance (ANOVA) was the statistic analysis technique adopted to test the hypotheses under study. All hypotheses were tested using a .05 level of significance. From the data analysis, the researcher investigated the research and offered in agreement with the study that nutritional and rest and recreational counselling afford mothers the opportunity to survive the precarious time of pregnancy and delivery. The researcher admitted in the study that motherhood is the reproductive period for women whose age ranges from 18 years to 49 years old. The researcher admitted that there is a vulnerable age for most mothers and reproductive-aged women. The researcher in consonance with Wilkinson (2010) that poor infant outcomes have been linked with poor maternal nutrition these include inadequate developmental trajectories, low birth weight, and an increased risk of developing chronic disease later in life. Gaston and Cramp (2011) as proffered by the researcher admitted that women who are unaccustomed to exercising prior to pregnancy would not likely engage in an active lifestyle or start exercising during pregnancy.*

KEYWORDS: Counselling, Recreation, Venerable, Pregnancy, Maternal, Reproductive Age



INTRODUCTION

Guaranteeing that ladies get gifted care at convenience is a fundamental piece of the protected parenthood programs (Khalid, 2006). Skilled care, however, can only be effective in the context of health systems that make obstetric care available to all women including surgical and technical interventions required for life-threatening conditions during pregnancy, delivery and after childbirth (Carmacho, 2006). Ante-natal counselling, among other services, can play a role in reducing the maternal mortality rate (WHO, 2000). World Health Organisation (2012) opines that a review of the Millenium Development Goals suggests that limited progress is being made to reduce maternal mortality, especially across developing nations including Nigeria. Hogan (2008) avers that developing countries account for about 99% of an estimated half a million maternal deaths that occur each year. Nigeria is Africa's most populous country with a population of over 140 million people (NPC, 2009). Abimbola (2012) states that within the country, there are about 31 million women of childbearing age. Regional variations abound in maternal mortality figures across Nigeria. Evidence suggests that maternal mortality rates (MMR) are significantly higher in the northern part of Nigeria compared to the Southern part of the country.

Motherhood is the reproductive period for women, whose ages range from 18 years to 49 years. The researcher observed that there is a vulnerable age for most mothers and reproductive-aged women. Fikirte (2014) opines that in a lifetime, an individual mother encounters the greatest risk of maternal mortality and morbidity. This is also high at birth and in the immediate postnatal period. Safe motherhood is practised to ensure that mothers are safe during the reproductive age which includes; ante-natal counselling, hygiene counselling, nutrition counselling, rest and recreation counselling, drug intake counselling and family planning counselling (WHO 2010). Therefore, unsafe motherhood practices include the use of untrained birth attendants, ignoring signs of complications, poor nutrition, poor hygiene practices, non-ante-natal visits, lack of rest and recreation, use of non-prescriptive drugs, lack of family planning methods and low educational standard of young rural women (WHO, 2012).

The World Health Organisation (2006) defines health as a state of complete physical, mental and social well-being of an individual and not merely the absence of disease or infirmity. Health counselling as defined by WHO (2012) is the procedure by which nurses, teachers, physicians, guidance and counselling personnel and other safe motherhood vendors explain to students and parents the nature of health problems and aid in formulating a plan of action to solve the problem. Health counselling provides supportive measures to help orientate the perception of women towards health counselling which influences the outcome of their pregnancy (WHO, 2005).

Nutritional Counselling and Rest/ Recreation Counselling

Doer (2009) observed that pregnancy is one of the most critical and unique periods in a woman's life cycle. It is regarded as a "welcome event", the woman's body changes dramatically, hence there is a strong need to balance these changes with an adequate nutritional diet. However, in another study, Harding (2001) posited that dietary practices play a significant role in determining the long-term health status of both expectant mothers and the growing fetus.

Similarly, Ramakrishan (2004) observed that spontaneous abortion, impaired fetal growth, poor pregnancy weight gain, learning impairment and behavioural problems of the offspring



are caused by inadequate nutrition during pregnancy. Inadequate nutritional intake of pregnant women has apparently led to an increased rate of stillbirths. About 95 per cent of Low Birth Weight (LBW) birth or 20 out of 21 million per year occur in developing countries. As stated in Ramakrishan (2004), this problem is particularly important in Southern Asia where 20-30 per cent of newborn babies have a birth weight below 2500gms. Any setting with an LBW incidence above 7.8 per cent is at risk of a high mortality rate (Gary, 2006; Urah, 2009).

Onayade, Fatusi, Ojofeitimi, Esimal and Ijadunola (2009) evidenced in a study in the South Western part of Nigeria showed the impact of nutritional counselling on the nutritional status of under-five children in two rural communities of south-west Nigeria by Onayade, Fatusi, Ojofeitimi, Esimal and Ijadunola (2009) in a community intervention study in two semi-urban communities of south-west Nigeria, recruited 150 mothers of children aged 0-18 month independently from the intervention and control communities through a multi-stage sampling technique. They collected data with the aid of an interviewer-administered questionnaire at baseline and at six months after intervention from both communities to obtain information on feeding infants and young children. Heights and weights of recruited children were measured, and intervention involved group counselling of mothers and food demonstrations at designated health facilities. Data analysis for quantitative data was done using Epi-Info software, and for qualitative data, content analysis of major themes was used.

The results showed that before the intervention, recruited mothers and their children from the two communities were comparable in terms of all the parameters assessed ($P < 0.05$ in all cases). After six months of intervention, mothers who had nutritional education demonstrated better knowledge and perceptions of key infant and young children feeding recommendations. There were also limited improvements in feeding practices. Mothers from the intervention community exclusively breastfeed their infants longer with a mean age at introduction of complementary foods at 5.2 months compared to 4.5 months in the control community ($P < 0.05$), who breastfed their children longer ($P < 0.05$). However, there was no statistically significant improvement in the weight of their children.

The result also showed that nutritional counselling of mothers only had a positive impact on their level of knowledge attitude and practice of nutrition (KAP) on infant and young children feeding. Healthy children are the foundation of a healthy population for children to enjoy this good health, healthy practices and care should start during or before pregnancy, Pasinlioglu (2004) adjoins that the good nutrition of mothers during pregnancy is one of the most significant components of both the health of the mother and the health and development of the fetus.

Saravanan (2010) observed that poor quality diets during pregnancy have been found to be associated with maternal excess weight gain, pre-eclampsia, preterm birth or even miscarriage. Williamson 2006 in addition, added that excess weight gain and an imbalanced diet, particularly among obese women during pregnancy have been identified as risk factors for abnormal glucose tolerance (Tovar, 2009). To further buttress this assertion, Wilkinson (2010) opined that poor infant outcomes have also been linked with poor maternal nutrition these include inadequate development, low birth weight and an increased risk of developing chronic disease later in life. Wilkinson, 2010 stresses that some adult diseases which have a total original link with nutrition during pregnancy include cardiovascular diseases such as diabetes associated with bone formation.



According to Mcmillen (2008); Calkins (2011); Leach (2011); Yajinik (2011) in a more recent study, observed that pregnant women show an increased awareness of nutrition status during pregnancy. This has been attributed to their perception of the importance of nutrition as a change they can make in their everyday lives to protect the health of their babies.

Szwajcer (2005), in a study conducted in Australia, found that pregnant women were interested in receiving nutrition counselling during their pregnancy, especially information about healthy eating, weight management, vegetarian diet, breastfeeding, morning sickness and heartburn. WHO (2009) added that fruits and vegetable consumption is one element of a healthy diet and that insufficient intake of fruits and vegetables is estimated to cause around 14% of gastrointestinal cancer deaths, about 11% of ischemic heart disease deaths and about 9% of stroke worldwide. Most of the benefits for mothers in consuming fruits and vegetables come from a reduction in cardiovascular disease, but fruits and vegetables also prevent cancer and maternal mortality. Szwajcer (2005), opined that the pregnancy period represents a life experience for women that can impact their current health and that of their fetus and can also generate nutrition awareness but may affect nutritional behaviour in the longer term. He further opines that pregnant women might not be receiving sufficient nutrition counselling from their health care professionals during pregnancy and posits that nutritional counselling during pregnancy is associated with positive pregnancy outcomes.

WHO (2010), observed that improved nutrition status can help to attain the millennium developmental goals now the Sustainable Development Goals. Nutritional counselling seeks to improve nutrition practices before and during pregnancy and reduce the risk of poor health outcomes in both mothers and their children.

Caplan (2006) opined that unsatisfactory maternal nutrition has been reported to have been attributed to ignorance and superstition. Poor knowledge of nutrition plays a vital role in the multi-sector factors involved in the development of malnutrition which is prevalent in developing countries (Gary, 2006; Urah, 2009). Inadequate food intake and unhygienic dietary practices are often related to poor knowledge of sound nutritional practices. Reasons for malnutrition is a decrease in food production, inadequate food intake, limited resources, deficiency in knowledge of sound budgeting, food purchasing and food preparation methods leading to poor nutrition and problem arising from that. WHO (2004), asserted that insufficient breast milk puts infants at an increased risk of disease and death, that breast milk is the healthiest source of nutrition, adjoined that breastfeeding reduces the risk of many perinatal infections such as acute lower respiratory infections and diarrhoea in infants below 23 months.

Measures of the three dietary behaviours were measured using food frequency questionnaires (FFQ) asking “how often do you consume the listed products in the past week” (ranging from not consumed to the past seven days). And on the day you took the listed product how much did you take on the average on that day you consumed the listed products how much did you consume on that day? (in pieces in bowls or in serving spoons). For fruit consumption, seven separate groups of fruits were listed reflecting the most common fruits in the Netherlands that are Citrus fruit (oranges, lemon, grapefruits and other citrus fruits), apples, pears, bananas, freshly squeezed or unsweetened fruit juice, tangerines, applesauce, and other fruits. Vegetable consumption was assessed with two separate questions for raw (for example lettuce, cucumber, tomato) and prepared vegetables). For fish, fish products and other seafood in the Netherlands; therefore readymade fish (example fish sticks, fried haddock fillets, cod parings), crustacean and shellfish (example shrimps, crabs, mussels) tinned fish (example tuna, salmon, sardines,



steamed, grilled, or baked fish with the main course (example cod, Pollack, plaice, sole, perch, including fresh fish as well as frozen fish), mackerel or eel, and herring.

The food frequency questionnaire used to assess fruit and vegetable consumption has been validated as compared to 7-day dietary records and biomarkers for fruits and vegetables consumption levels, and the FFQ for fish consumption has been validated against 3-day - 24-hour dietary records. Stages of change and changes in fruit, vegetables and fish intake were only weekly associated; decisional balance and self-efficacy were more strongly associated. Some presumed predictors of stage transitions were similar for fruit, vegetable and fish intake.

Brug, Oenema, and Ferreira (2005) stated that consumption levels of fruit, fish and vegetables are below recommended intake levels in many countries. These scholars further stated that to develop effective interventions to increase intake levels, determinants of fruits, vegetables and fish consumption should be identified. Health Council of the Netherlands recommended that the recommended amount of intake of fatty acid is set at 250 grams a day and vegetables at 200 grams each day. The amount of adequate intake for n-3 fatty acids is set at 0.2 grams per day, to achieve this intake fish is recommended once or twice a week in the Netherlands.

Simkknada (2008) argued in one of his studies that inequality in the health and well-being of pre-natal mothers is a growing concern in developing countries. However, Dutta (2001) observed that the risk of maternal death in developing countries is estimated to be 1 in 61 and that poor weight gain in pregnancy due to inadequate feeding is often associated with a higher incidence of prematurity, mortality and morbidity. Healthy children are the foundation of a healthy population for children to enjoy this good health, healthy practices and care should start during or before pregnancy.

Mothers' Perception of Rest, Recreation Counselling and Safe Motherhood Practices

Studies carried out by Haakstad, Voldner and Bo (2007), Gaston and Cramp (2011) and Gjestland, Bo, Owe, and Eberhard-Gran (2013), showed that being sedentary before the onset of pregnancy is a risk factor of not starting to exercise when pregnant. Haakstad, Volder, and Bo (2007), Gaston and Cramp (2011) and Leijon, Bensten, Stahle, Ekberg, Festin and Nilsen (2010) averred that it is confirmed that women who are accustomed to exercising prior to pregnancy such women are more likely to maintain this habit more than those not physically active are not likely to start exercising during pregnancy. The studies further stated that to achieve higher rates of exercise during pregnancy, health promotion programmes should target the general female population during their childbearing years. This implies that taking part in regular physical activity is good for the mother and her baby and that women should be physically active during and after pregnancy.

The woman would need to be counselled to ask her doctor to provide a physical activity readiness medical examination (Parmed-X) for pregnancy to determine her readiness for physical activity. Regular physical activity during pregnancy can help a woman to strengthen the muscle needed for labour and delivery, control mood swings, improve circulation and body posture and also reduces some of the discomforts of pregnancy such as leg cramps, shortness of breath, backache, varicose veins, constipation, fatigue, Wikipedia (2014). To achieve healthy weight gain and decrease the risk of developing diabetes and heart complications during pregnancy. Rest is essential for a pregnant woman she needs more rest than she does when she is not pregnant



Mbada, Adebayo, Adeyemi, Arije, Dada, Akinwade Ayotidele and Alonge (2014) conducted a cross-sectional survey at the Obafemi Awolowo University Health centre (OAU), Teaching Hospitals complex and seventh Day Adventure Hospital in Ile-Ife, Osun state South-West Nigeria. One hundred and eighty-nine pregnant women were consecutively recruited into this cross-sectional survey. The correspondents were recruited from six selected hospitals, namely urban comprehensive health centre Aderemi, Obafemi Awolowo Umori (OAU) Teaching Hospitals, complex and Seventh Day Adventist Hospital in Ile-Ife, Osun state, South West Nigeria. The self-administered questionnaire sought information on socio-demographics, knowledge and attitude toward exercise during pregnancy. The summation of all the checked items was compared. The questionnaires are items that yielded an agreement percentage that ranged from 87.4 to 99.6%, the intra-class coefficient was 0.985 and the confidence interval ranged from 0.94 to 0.99%. Pregnant women who were not literate in either English or Yoruba were excluded from the study.

The result showed that one hundred and eighty-nine respondents participated in this study. The mean age of the respondents was 28.9 ± 4.63 years. The result shows that the respondents were preponderant of the Christian religion (76.7%) and were traders of businesswomen (54.5%). A majority of the respondents had tertiary education (69.4%) and were within the level of income of \$100 per month (27.0%).

The respondents had knowledge of pelvic floor exercise (37.0%) belly strengthening exercise (51.3%), back care exercise (51.3%) and relaxation and breathing exercise (59.8%), respectively as types of antenatal exercise. However, swimming (21.7%) and cycling (20.6%) were the least known types of exercises during pregnancy. Most of the respondents agreed that exercise during pregnancy would lead to a reduced risk of back pain (75.9%), prevention of excess weight gain (65.1%), and increased ability with labour and delivery (69.6). The summative perception score revealed that 47.6% of the respondents had below-average knowledge and 5.84% had average perception, while 46.6% had a good perception of antenatal exercises.

Muzigaba, Kolbe-Alexander and Wong (2012) carried out a qualitative exploratory research study, which was conducted during the first wave of facility-based implementation research, called the expectant parent project (EPP). The study was conducted in a maternal and obstetric Unit (Mou) at vanguard community health centre, located in the Western Cape Province in the study were pregnant women attending antenatal service at the MOU at Vanguard community health centre 35 pregnant women were invited to participate in the study and the 35 completed the interviews. The interviewer asked participants to indicate which types of physical activities they were involved in during pregnancy and the frequency with which the exercises, relaxation and rest were done. Based on their information, the interviewer subjectively estimated the intensity of physical activities as light, moderate or vigorous. The information on the intensity and frequency was recorded in the questionnaire.

The mean ages of participants were 25.6 years ($SD \pm 5.2$) and the ages ranged from 17 years old to 36 years old. Participants in the study presented a made range of demographic and maternal characteristics approximately, 60% and 39% of them were of black and of mixed ancestry respectively. Very few participants were in their first trimester (17%) and about half were in their second trimesters. About 44% reported that they were not currently physically active of the 56% who reported doing some physical activities, 44% reported participating in light physical activities and 12% moderate physical activities about 88% reported that they were not



diagnosed with diabetes, hypertension, asthma depression and musculoskeletal pain. This participant in this study presented a multifaceted behavioural context whose impact is on their control over physical activity during pregnancy.

Haakstad, Voldner and Bo (2013) carried out an empirical study in the department of Sports Medicine, Norwegian School of Sports Sciences, Norway, the Transtheoretical model was used as a part of a larger prospective study of determinants of macrosomic infants in Norway, the research question were conducted using a self-administered questionnaire (PAPQ). Healthy pregnant women were allocated to the study form for birth at the Oslo University hospital between 2002 and 2005. Inclusion criteria were enrolment to the project before week 14 -16 of gestation, having a singleton fetus, and ability to answer the participation in physical activities during pregnancy questionnaire (PAPQ) in gestation week 32 – 36. The exclusion criterion was pre-gestational diabetics or other serious diseases due to the primary aim of the study. Of the 2145 women invited to participate, 678 accepted the invitation, 90 withdrew, and 14 women were excluded after a routine ultrasound at gestation week 17 -18 weeks due to congenital disorders (n=8) and twin births (n=6). The further exclusion was recorded in two stillbirths, eleven relocations, and births at another hospital and eight participants chose to withdraw. Consequently, 553 women were invited to participate in the present study, of these 467 (84.4%) filled with the PAPQ at home and returned the surveys at the last consultations with the midwives (NV) at the mean pregnancy week 36.4% (SD=1.7). Not all the participants who answered every question had varying response rates.

Maternal pre-pregnancy weight was self-reported in the study. Maternal weight gain was calculated as the difference between self-reported pre-pregnancy weight and the weight measured at the last clinical visit prior to delivery (pregnancy week 40.2, SD 1.3). All statistical analyses were conducted with SPSS statistical software. The responsible midwife used the digital beam scale to measure the participant's body weight (kg). Classification of body weight gain and pre-pregnancy body mass index (BMI) was according to the recommendation from the IOM: 12.7 – 18.2kg weight gain for the underweight women (prepregnancy BMI<18.5%), 11.4 – 15.9kg weight gain for normal weight women (prepregnancy of 18.5-24.9).

6.8 -11.4kg weight gain for overweight women (prepregnancy of 25.0-29.9) and 5.0-9.1 kg weight gain for obese women (prepregnant BMI>30). These women were classified as normal weight or overweight and corresponding weight gain recommendations were used in the statistical analysis. It was presumed that more women in the pre-contemplation, contemplation and preparatory groups would have less favourable weight gain compared to the action and maintenance groups.

The results revealed that the mean age of the participant was 31.6 years (range 20-49), mean prepregnancy BMI 23.6 (SD 3.7), and mean parity 1.3 (SD 0.5). Then women were generally well educated and 83% had education from college or university >4 years. Conclusion: receiving counsel from health professionals to exercise during pregnancy increased the likeliness of being in the action and maintenance stages. Higher age, multiparity, pregravid, overweight, pelvic girdle pain and urinary incontinence were more prevalent with lower readiness to change exercise habits. There is a need for more research to evaluate whether a TTM-based intervention is useful in promoting physical activity during pregnancy.

American Council of Gynecologists (ACGO) (2002); Barakat (2011); Wang and Apgar Robeiro (2011) in various scientific studies indicate that empirical data on the impact of



exercise on the mother, the fetus and the course of pregnancy are still limited and the results of the few studies in humans are often equivocal or contradictory. However, the ACOG (2002), recommends that pregnant women can exercise moderately for 30 minutes on most days of the week as shown in figure 7. In accordance with these recommendations, irrespective of the pregnant women's physical fitness level, exercise should be low-impact, moderate-intensity and regular (Roberto, 2011). WHO (2004), stated that physical activity reduces the risk of cardiovascular disease, some cancers and type 2 diabetics, furthermore, it can also improve musculoskeletal health, control body weight and symptoms of depression. Physical inactivity is estimated to cause around 21-25% of breast and colon cancers burden, 27% of diabetics and about 30% of ischaemic heart disease burden.

Research Question

1. What is the influence of mothers' perception of nutritional counselling on safe motherhood practices?
2. To what extent do mothers' perceptions of rest and recreation influence safe motherhood practices?

Hypotheses

1. A mother's perception of nutritional counselling does not significantly influence safe motherhood practices.
2. Mothers' perception of rest and recreation counselling does not significantly influence safe motherhood practices.

DATA PRESENTATION AND ANALYSIS

TABLE 1: Summary of Independent t-test for the Influence of Mothers' Perception of Nutritional Counselling on safe Motherhood Practices

S/No	Safe Motherhood Practice	Perception of Nutritional Counselling	N	X	SD	T	P
1	Drug Intake Habit	Positive	26	16.00	0.00	3.99*	.000
		Negative	279	13.77	2.84		
2	Food Consumption Pattern	Positive	26	8.88	2.60	2.49*	.013
		Negative	279	9.93	1.98		
3	Rest Pattern	Positive	26	9.88	3.46	2.15*	.033
		Negative	279	10.91	2.20		
4	Exercise Routine	Positive	26	11.12	3.09	2.58*	.010
		Negative	279	12.21	1.96		
5.	Overall Safe motherhood practice	Positive	26	45.88	7.12	0.91	.361
		Negative	279	46.82	4.78		

P<.05 level of significance; df = 309; critical t = 1.96



Results of data analysis in Table 1 showed that the calculated t-values for mothers' perception of nutritional counselling and safe motherhood practices in terms of drug intake habit (3.99), food consumption pattern (2.49), rest pattern (2.15), exercise routine (2.58) were each greater than the critical t-value of 1.96 at .05 level of significance using 309 degrees of freedom. These results mean that mothers' perception of nutritional counselling significantly influences safe motherhood practices in terms of the sub-variables. The results, however, showed that the comparison between mothers' perception of nutritional counselling and overall safe motherhood practice yielded no significant influence. Based on this overall result, the null hypothesis is accepted.

TABLE 2: Summary of Independent t-test for the Influence of Mothers' Perception of Rest and Recreation Counselling on Safe Motherhood Practices

S/No	Safe Motherhood Practice	Perception of Rest & Recreation Counselling	N	X	SD	T	P
1	Drug Intake Habit	Negative	44	13.19	2.09	0.24	.529
		Positive	267	14.02	2.88		
2	Food Consumption Pattern	Negative	44	9.07	2.02	2.59	.001
		Positive	267	9.93	2.04	*	
3	Rest Pattern	Negative	44	9.84	2.71	2.85	.043
		Positive	267	10.92	2.61	*	
4	Exercise Routine	Negative	44	9.91	2.07	7.34	.000
		Positive	267	12.37	2.01	*	
5.	Overall Safe motherhood practice	Negative	44	42.73	5.78	5.73	.000
		Positive	267	47.23	4.66	*	

P<.05 level of significance; df = 309; critical t = 1.96.

Results of data analysis showed that the calculated t-values for mothers' perception of rest and recreation counselling and safe motherhood practices in terms of food consumption pattern (2.59), rest pattern (2.85), exercise routine (7.34), and in terms of overall safe motherhood practices (5.73) were each greater than the critical t-value of 1.96 at .05 level of significance using 309 degrees of freedom. These results mean that mothers' perception of drug intake counselling significantly influences safe motherhood practices in terms of the sub-variables and in terms of overall practices. Results of mean values revealed that it was mothers with positive perceptions toward rest and recreational counselling ($\bar{X}=47.23$) that exhibited better safe motherhood practices than their counterparts with negative perceptions ($\bar{X}=42.73$). The results, however, showed that the comparison between mothers' perception of rest and recreation counselling and drug intake habits yielded no significant influence. Since the result on overall safe motherhood practice was significant, the null hypothesis is rejected.



DISCUSSION OF FINDINGS

Mother's Perception of Nutritional Counselling Significantly Influences their Safe Motherhood Practices

Findings of this segment of the study showed that mothers' perceptions of nutrition counselling significantly influence safe motherhood practices, in terms of drug intake habits (3.99), routine exercise pattern (2.58), food consumption pattern (2.49), rest and recreation pattern (2.15), drug intake habit (5.39) greater than the critical value of (1.96) at a 0.05 level of significance using 3.09 degrees of freedom.

In support of this result Onayade, Fatusi, Ojofieitimi, Esimal and Ijadunola (2009) found that mothers showed a positive perception of nutritional counselling, these mothers demonstrated better knowledge and perception of key infants and young children's feeding. Mothers who received nutritional counselling from their health care professionals during pregnancy were associated with better pregnancy outcomes. Mothers who breastfed longer and were counselled on which foods and what qualities they need to consume in order to achieve optimal dietary intake, while mothers with negative impact showed limited improvement in feeding practice, they also breastfed shorter.

Also in agreement with this result Famoush, Ahmad, Alli, Youssef and Mahdi (2013), stated that maternal nutritional health before and during pregnancy influences the health status of herself and her developing fetus. In a cross quasi-experimental intervention undertaken on a random sample of a representative group of pregnant women (n =100) in Western Iran, attending urban health centres in Ilam city, (western Iran) during the year 2011 for prenatal care. A nutritional counselling programme containing two to four sessions was undertaken for small groups of six to ten women. The nutritional perception was assessed before intervention (pretest) and followed by two posttests within three-week intervals. The awareness level of pregnant women about healthy nutrition was significantly increased from 31% after the nutritional awareness intervention ($p < 0.001$). This significant difference was independent of maternal characteristics of age and levels of literacy and in obese mothers in particular. The result shows that nutrition education intervention will have a positive effect on the nutritional awareness of pregnant women.

To further buttress this finding, mothers with positive perception had a nutritional impact, and pregnant women with positive perception also breastfed longer after delivery. However, mothers with poor perception of nutritional counselling showed limited improvement in feeding practice, they also breastfed for a shorter period as well as increased risk of developing chronic diseases later on in life. Good nutrition during pregnancy is one of the most significant components which addresses both the mother and child's health needs.

Mother's Perception of Rest and Recreation Counselling Significantly Influence their Safe Motherhood Practice

The result in respect of hypothesis four showed that mothers; perception of rest and recreational counselling significantly influence safe motherhood practices, in terms of food consumption pattern (2.59), exercise routine pattern (7.34), rest and recreation pattern (2.85) and overall safe motherhood practices (5.73) each were greater than the critical value of (1.96) at a 0.05 level of significance using 3.09 degrees of freedom.



Furthermore, Hedderson (2010) further supported, that physical activities during pregnancy may reduce the risk of pre-natal complications and prevent excessive weight gain. However, mothers with negative perceptions of rest and recreation activities were reported to have been diagnosed with diabetes, hypertension, asthma, depression and musculoskeletal pain. Women with positive perceptions did not exceed pre-pregnancy weight gain, and overweight and obsessed women had better weight control and heart rate.

The Guidance counsellor counselled that the rest mothers take also known as nap should be a continuous exercise throughout pregnancy. Rest as recommended by the World Health Organisation means complete rest or abstinence from tasks both physical and mental during the day and also time should be given to recreational activities such as card games, puzzle play and several other stimulating activities good for mothers.

The researcher noted that mothers who engaged in rest and recreational activities are happier, refreshed and are better able to make the right decisions when necessary. They also responded better to counsellors and also to their spouses. The counsellor also adduced from the findings that mothers who engage in recreational activities are stronger and have better psychological readiness at the time of delivery.

Educational Implication:

The implication to education cannot be underpinned however, maternal safe motherhood ensures that all children have an equal start in early education and cognitive ability, nutrition and rest also influence the health status of the mother and the mental and emotional wellbeing of their children.

CONCLUSION

Maternal health vendors, researchers and educational institutions should ensure that pregnant mothers are enlightened on nutrition and rest and the implication of not being adequately and properly fed during pregnancy.

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