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## **Enhancing Female Status by Improving Nutrition: the Role of Corporate Social Responsibility in Nigeria's Oil Region**

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Research Department

**Enhancing Female Status by Improving Nutrition: the Role of Corporate Social Responsibility in Nigeria's Oil Region****Joseph I. Uduji & Elda N. Okolo-Obasi****Abstract**

The purpose of this paper is to critically examine the multinational oil companies' (MOCs) corporate social responsibility (CSR) initiatives in Nigeria. Its special focus is to investigate the impact of the global memorandum of understanding (GMOU) on improving female status by improving nutrition in the Niger Delta region of Nigeria. This paper adopts a survey research technique, aimed at gathering information from a representative sample of the population, as it is essentially cross-sectional, describing and interpreting the current situation. A total of 768 women respondents were sampled across the rural areas of the Niger Delta region. The results from the use of a combine propensity score matching and logit model indicate that GMOU model has made significant impact in the key areas of assessment - gender-sensitive nutrition education, food security at household level, reduction on food taboos and female access to education. This suggests that CSR interventions targeting to improve the nutrition status of girls and adolescents will help to ensure that female's status improves throughout the life circle in the region. This implies that MOCs' investment in the nutrition of female is an important short-term barometer in assessing expected returns to improving household nutrition and overall human development capacity for sub-Saharan Africa. This research contributes to the inequality debate in the women's nutrition and inclusive growth literature from the CSR perspective. It concludes that business has an obligation to help in solving problems of public concern.

**Keywords** Female status, female nutrition, corporate social responsibility, multinational oil companies, sub-Saharan Africa

## 1. Introduction

The role of women in the production of food, its preparation, and their taking care of children are critical foundations for the social and economic progress of communities; yet, efforts in this direction are hindered by malnutrition (Herforth and Ballard, 2016). For example, malnourishment in women significantly adds to increasing rates of maternal deaths and is directly connected to wavering dietary status and growth impedance in children (Leroy *et al*, 2016). Maternal malnutrition has been associated to low birth weight, which in turn causes high infant ill health and mortality rates, adding to the cost of healthcare and deflating the human resource prospective for an economy (Maestre *et al*, 2017; Asongu *et al*, 2019). It is now very obvious that fetal malnourishment is harmful to health in later life, and in fact inclines one towards increased occurrence of non-communicable diseases (Olney *et al*, 2015). Adding to that, malnutrition in mothers endangers the quality of care they can provide for their children by bringing down the important mother-child interaction that is essential for proper development (Noack and Pouw, 2014; Uduji *et al*, 2020a). The economic, social and dietetic status of women is critical for guarding themselves, their children as well as the entire society from HIV/AIDS and other contagious diseases (Kadiyala *et al*, 2014; Asongu *et al*, 2020). The position of women is a key factor in maternal and practices connected to the feeding of children as well as resolutions about how food is circulated and consumed within the family (household). The result ends up being higher levels of malnourishment among women and girls than among their male counterparts. Gender roles and disparities are a critical concern in planning and executing programmes to enhance nutrition among expectant and lactating women as well as children below two years (Reul and Alderman, 2013; Okolo-Obasi *et al*, 2021). Getting over the impediments created by gender-based disparities, uneven access to resources and the problem of exclusion remains the best bet for healthier food security and nourishment results (Malapit and Quisumbing, 2016; Okolo-Obasi and Uduji, 2022). Africa is indebted to her women and girls in providing a better deal of targeted interventions that will improve economic status of women and discourage violence.

In the meantime, Nigeria is the largest producer of oil in the continent of Africa and is among the top ten worldwide. The recoverable reserves of Nigeria were estimated at 32.6 billion barrels in January 2007 (African Economic Outlook, 2017). Despite Nigeria's obvious relative oil wealth, gross domestic product (GDP) per capita is 2,400 USD, and impoverishment is prevalent; about half the population live poor – on less than \$1.25 per day (African Development Report, 2015). Oil and gas reserves in Nigeria are mostly located in the Niger

Delta which is the southern part of the country. By tradition, the people of the Niger Delta are known to be farmers and fishermen. Decades of oil spillage and gas flaring, as well as the fast rising population, has meant this usual means of support are either no longer feasible or have experienced substantial drop (African Competitiveness Report, 2017). As a result, the region's dietetic susceptibility of women and teenage girls are higher than the national average (UNDP, 2006). Nevertheless, multinational oil companies (MOCs) take part in a plethora of corporate social responsibility (CSR) activities in not only the Niger Delta but also other parts of Nigeria. In 2006, MOCs brought into function a new way of relating with communities called the global memorandum of understanding (GMoU). The GMoUs represents a vital shift in CSR method, placing emphasis on being more open and accountable, having steady communication with the common people, sustainability and prevention of conflict (SPDC, 2013; Uduji *et al*, 2019). The GMoUs were signed among clusters of communities, MOCs as well as the state governments, generating an exclusive public - private model to encourage economic and social firmness (Chevron, 2014). Through the GMoUs, the communities in due course took up charge and accountability on how to use finance provided by the MOCs to execute the projects chosen (SPDC, 2018). MOCs stay functional by playing a part on local communities and boards that evaluate as well as approve projects in addition to making available annual finance for project (Chevron, 2017). This public - private style towards community engagement takes in participatory development processes that assist in resolving conflict and addressing necessities of communities in the Niger Delta.

Nonetheless, the advent of GMoU has largely been seen as a tactic employed by MOCs to swerve public criticism of their behaviour, and a way of dodging government regulation (Uduji and Okolo-Obasi, 2022a; Francis *et al*, 2011). As a model, GMoU has been greatly complained against, and there is now stern debate over its effectiveness and practical implications in the Niger Delta. While promoters view GMoU as a vehicle for hypothetically bolstering an old dynamic in MOC - community relationships, detractors see it as a policy for new tasks to be required of old organisations. This variance in perception unvaryingly sets the background for the GMoU debate, setting in opposition those in favour of conserving an already deep-rooted MOC - community relationship against those who maintain that MOC - community relationships must embrace altering community values (Ekhator, 2014; Lompo and Trani, 2013; Eweje, 2006; Idemudia, 2014; Ite, 2007; Renouard and Lado, 2012). Following the previous opposing points of view of the CSR inventiveness in the Niger Delta, this paper is a plus to gender discourse in healthcare and wide-ranging growth literature from the CSR

standpoint, by scrutinising pragmatic facts in five areas that have been able to draw attention in the literature. The paper seeks establishing the level of CSR venture that MOCs have given themselves to in the area of nourishment and health as well as ascertain the level of gain from such involvement that accrue to the rural women as well as the effect it has on their trade. These five areas of concern similarly stand for four main questions notably:

- i. To what extent are the genders involved in the GMoU activities of the MOCs in the Niger Delta region of Nigeria?
- ii. What is the strength of MOCs' CSR activities in bettering dietetic status of female in the Niger Delta region of Nigeria?
- iii. Do MOCs' GMoU intervention prompt positive changes on gender-sensitive nutrition enlightenment, food security at family (household) level, and the ability of females to access academic training in the Niger Delta region of Nigeria?
- iv. Do MOCs' GMoU activities to enhance nutrition status of female have bearing on female status in the Niger Delta region of Nigeria?
- v. What are the implications of aggregating the gender-sensitive nutrition contents of public course of action that seeks progressing the status of women in the Niger Delta region of Nigeria?

### **1.1 Study hypothesis**

As a nup shot of the cultural norms, gender discrepancy remains a hindrance to efforts towards bringing down impoverishment in Nigeria's Niger Delta region (NNDC, 2001). For the rural communities existing within the region having high rates of food shortage and malnourishment, the low status of women is obviously a major cause (PIND, 2011). In this region rich with oil, women often are less exposed intellectually, operate in lower economic status, and are restricted when it comes to making decision in the family (household) and community - all of which worsens the negative nutritional state. Thus, we postulate the following:

- CSR of MOCs putting to use GMoU has failed to make a considerable contribution to enhancing dietetic status of females in the Niger Delta region of Nigeria.
- CSR of MOCs making use of GMoU has not pointedly made an impact on female status by bettering nutrition in the region of Niger Delta in Nigeria.

In line with the afore-mentioned, the main aim of this research is to ascertain the level of CSR interventions of MOCs towards the improvement of nutrition status of females, and how such

actions influence female status in oil host communities. The paper adds to the disparity debate in the nourishment of women and inclusive growth literature from the CSR standpoint. The study made use of a quantitative and applied survey research method. The line of approach of this research departs from existing nutrition and gender literature, which has concentrated on, *inter alia*: gendered pathways to better nutrition (Malapit and Quisumbing, 2016); a blind spot in food and nutrition security: where culture and social change shape the local food plate (Noack and Pouw, 2014); a 2-year integrated agriculture and nutrition program targeted to mothers of young children in Burkina Faso reduces underweight among mothers and increases their empowerment: A cluster-randomized controlled trial (Olney *et al*, 2015); nutrition indicators in agriculture projects: current measurement, priorities, and gaps (Herforth and Ballard, 2016); agriculture and nutrition in India: mapping evidence to pathways (Kadiyala *et al*, 2014); gender difference in nutrition in Nigeria's agricultural households: the role of corporate social responsibility in oil producing communities (Uduji and Okolo-Obasi, 2022a). evaluating nutrition-sensitive programs: challenges, methods, and opportunities (Leroy *et al*, 2016); assessing food value chain pathways, linkages and impacts for better nutrition for vulnerable groups (Maestre *et al*, 2017), nutrition-sensitive interventions cum programmes, as well as how they can help to accelerate progress in improving maternal and child nutrition (Reul and Alderman, 2013); fighting African capital flight: trajectories, dynamics and tendencies (Asongu, *et al*, 2020); transfer pricing and corporate social responsibility: Arguments, views and agenda (Asongu *et al*, 2019); the impact of national home grown school feeding programme (NHGSFP) on rural communities in Nigeria (Okolo-Obasi and Uduji, 2022); and strengthening women's participation in the traditional enterprises of sub-Saharan Africa: The role of corporate social responsibility initiatives in Niger Delta, Nigeria (Okolo-Obasi *et al*, 2021).

The succeeding parts of the paper are organised thus: section 2 (the theoretical underpinnings of the study); section 3(Description of Materials and methods); section 4 (presentation of the results and corresponding discussion, and section 5 (concluding remarks, caveat and discussion of future research directions).

## **2. Theoretical underpinnings**

### **2.1 Theorizing female status**

Enhancing female status has been a conspicuous topic recently and has risen up the advancement agenda, as there is a growing concern globally about their recurring loss of iron and their bearing of child. Their dietetic status is particularly susceptible to shortages in diet, maintenance, and health or sanitation services (Reul and Alderman, 2013). In addition, the dietetic status of new-borns and infants has been closely linked with the status of the diet of their mother before, during, and after gestation (Maestre *et al*, 2017). However, no agreement has been reached on a single definition of the extensively utilized term “female status”. Nevertheless, it has been connected to female’s self-government, power, enablement, authority, estimation, and position in society, and also simply with female’s welfare (Herforth and Ballard, 2016; Leroy *et al*, 2016). Sometimes this constituent is well thought-out in an absolute sense and comparative to men. Female’s status is sometimes denoted as gender disparities or gender parity. Scholars of women’s status classify the idea as being non-unitary, multilevel, and multidimensional, thus, making it impossible to attain an agreement on its definition (IFPRI, 2003; FAO, 2017; European Commission, 2017). This inability to define female status may not be a hindrance to comprehending the impacts of female status, but it makes it principally essential to plainly stipulate what it means each time it is used. According to UNICEF (2019), female status is the power of females relative to males in the family (household), communities, and nations in which they dwell. Three aspect of this definition are necessary to note and utilize in this study. First, female status is seen as being relative to that of men rather than being absolute or seen as being relative to other females. This definition, thus, covertly integrates the idea of gender disparity argued by Kadiyala *et al* (2014) to be so damaging to children’s dietetic status. Second, it is instituted on the concept of power, which is the ability to choose, give definitions to goals and effectively pursue them, even in the face of resistance from others. Power is applied through the making of decisions and can be in the form of actual decisions taken or on personal basis or a joint decision with another via the acts of negotiation and bargaining (Ajala, 2017; Olusegun and Oyelade, 2021). Third, the definition has an intrahousehold facet and that of extrahousehold. Women experience variances in their power in comparison to men not only within families (household) but also in the communities and countries in which they reside (Okongwu, 2020). Customs and norms founded on intensely held beliefs, attitudes, and values often dictate distinctive roles, suitable behaviours, rights, privileges, and life options for both men and women (Ekhator, 2019). Hence, in the background of this study, which flows with UNICEF (2009) on consolidating public policy on female’s status by improved attention to diet (gender-sensitive education on nutrition, food

security at family level, and the ability of women to access education), we look at the effect of MOCs' CSR venture using CSR in these communities that produce oil.

## 2.2 Conceptualization of CSR in Africa

The problem facing CSR in emerging nations is framed by a vision that was distilled in 2000 into the Millennium Development Goals of a world with reduced penury, less hunger and disease, greater room of survival for mothers and their infants, better polished children via education, equal openings for women, and an environment that is healthy (UN, 2006). Unfortunately, these global objectives remain far from being met in many emerging countries at present. The question addressed by this study, thus, is: what is the role of business in confronting the grave issues of female status by bettering nutrition? Nonetheless, despite the plethora of CSR models, Carroll (1991) CSR pyramid is likely the most recognised model of CSR, with its four levels showing the relative significance of economic, lawful (legal), moral (ethical) and philanthropic tasks respectively. However, the assessment of CSR in Africa is used to question the correctness and relevance of Carroll's CSR pyramid. According to Visser (2006), if Carroll's basic four-part model is putative, it then means that the relative priorities of CSR in Africa are likely to vary from the classic, American ordering. It is also projected that Carroll's CSR pyramid may not be the best model for having a grasp of CSR in general, and CSR particularly in Africa. Muthuri (2012), depending on the extant literature on CSR in Africa, postulated that the CSR issues predominant in Africa includes human rights, corruption, governance and accountability, poverty reduction, community development, education and training, economic and enterprise development, health and HIV/AIDS, environments, and sports. According to Frynas (2009), charitable initiatives as CSR by accomplice are widespread in emerging countries, as the inability of government to make provisions for amenities for its citizens heightens the role of multinationals in CSR cum philanthropy, which is not considered as CSR in the western world. Amaeshi *et al* (2006) have maintained that CSR in Nigeria is specifically targeted at addressing the socio-economic advancement problems of the country which includes poverty assuagement, provision of health-care, infrastructural development, and education. This, they maintain, stands in glaring contrast to many Western CSR precedence such as protection of consumer, fair trade, green marketing, social responsible investments, and concerns over climate change. Hence, this study adopts quantitative methodology but sees the result from the UNICEF (2009) consolidating public



policy on women's status by improved attention to diet, in line with African CSR interventions outlook to better nutrition status of female.

### 3. Methods and materials

Carrying out research concerning CSR in Niger Delta is still relatively small and tend to be adhoc with a heavy dependence on convenience-based case studies or accounts that are descriptive (Uduji and Okolo-Obasi, 2022b; Uduji *et al*, 2020a, 2020b). The emphasis is usually on high profile occurrence or branded companies, with a general deficiency of comparable benchmarking data. Therefore, there is a pressing need for further and thorough research on CSR in the Niger Delta and extending such to theoretical constructs. There is a shortage of quantitative work which examines the nature and extent of CSR in this region in comparison to other technologically advanced regions of the world. What is obvious from this study, thus, is that CSR in Niger Delta is a rich and enthralling area of enquiry, which is continually gaining grounds in CSR theory and practice. And since it is intensely under-researched, it also embodies a fantastic opportunity for bettering our awareness of and understanding about CSR. This study utilized a survey research technique aimed at gaining information from a representative sample of rural women. It is in actual fact cross-sectional and describes cum construes what exists at present. Figure 1 makes out the constituents' administrative states of the Niger Delta of Nigeria.



**Figure 1:** Constituent administrative states of the Niger Delta, Nigeria  
**Source:** NDDC, 2004

### 3.1 Sample size

This study embraced the Topman *et al*(2011) formula for sample size determination. We put this formula to use because it has been ascertained to be very apt in circumstances with large populations. Mathematically, the formula is expressed as shown below:

$$n = \frac{(z^2)(p*q)}{(e^2)}$$

Where there is a 95% confidence level,  $\pm 5\%$  precision, the size of sample to be utilized was calculated thus:

$$n = \frac{(1.96)^2(0.5)(0.5)}{0.05^2} = 384.16 = 384. (p = 0.5 \text{ and hence } q = 1-0.5 = 0.5; e = 0.05; z = 1.96)$$

To reduce sampling error, we multiplied size by 2 to account for the two streams of women which are those in CDB communities (Treatment) and those outside the CDB communities (the Control). The sample is offered below:

**Table1:** Sample size distribution

States	Population	Population of Women	% of Total Population	Sample Per State	CDB Women	Non-CDB Women
Imo	5,408,756	2,758,466	23%	177	88	88
<u>AkwaIbom</u>	5,482,177	2,795,910	23%	179	90	90
Delta	5,663,362	2,888,315	24%	185	93	93
Bayelsa	2,277,961	1,161,760	10%	74	37	37
Ondo	4,671,695	2,382,564	20%	153	76	76
<b>Total</b>	<b>23,503,951</b>	<b>11,987,015</b>	<b>100%</b>	<b>768</b>	<b>384</b>	<b>384</b>

*Source:* NDDC, 2004/ Authors' computation

### 3.2 Sampling procedure

The multi-stage sampling procedure was put to use in choosing respondents used in the survey. We engaged stratified, quota and simple random samplings in the assortment. Stage one embraced stratified sampling where the nine states were stratified into five strata with Rivers and Bayelsa States in the first stratum; Abia and Imo States in the second; Edo and Delta States in the third. Other are Akwa Ibom and Cross River States in stratum 4, with only Ondo State making up stratum 5. From strata 1 -5, we chose one state each as follows: Bayelsa , Imo,Delta, Akwa Ibom, and Ondo. In continuation, we utilized purposive sampling in the second stage to choose two local government Areas (LGAs) from each of the selected States. We made sure the LGA is holding at least one MOC facilities. As a result, ten (10) LGAs were designated for the study. In stage three, we purposefully selected 3 communities from each of the chosen

LGAs on a similar ground of hosting MOC facilities. To wrap it up, we made sure of proper representation in the assortments by using the community gate keepers to help us in picking 384 respondents each from both the CDB and the non-CDB communities.

### 3.3 Data collection

We made use of participatory research technique in the data collection as it recognised that handling of the views and opinion of those being studied is very crucial. Thus, written semi-structured questionnaire was used to collect cross sectional data utilized in the study.

### 3.4 Analytical framework

The data collected as well as collated from the field were treated prudently and analysed rigorously with both descriptive and inferential statistics in order to answer the research questions. Results from the descriptive statistics were made available in tables, figures and charts. On the other hand, inferential statistic based on a logit model of receipt and non-receipt of MOCs' CSR using GMoUs was evaluated as functions of carefully chosen socio-economic variables. In assessing the model, we adapted —with some modification— Uduji and Okolobasi (2020). Here, we state that for binominal response variables, the logistic link is the natural logarithm of the odds ratios generally represented thus:

$$\text{Log} \left( \frac{P_i}{1-P_i} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n \quad (1)$$

With this, we evaluated the effect of MOCs' CSR investments utilizing GMOU on gender equity in biodiversity conservation, migration pattern, climate change and health in Niger Delta region thus:

$$\text{Logit (BHM)} = \beta_0 + \beta_1 \text{Gmou} + \beta_2 C_{1\dots n} + \beta_3 M + \mu \quad (2)$$

Where:

BHM = stands for the dependent variable which include biodiversity conservation, migration pattern and health.

*GMoU* = the MOCs' CSR using GMOU

*C* = other socio economic variables (Age, income, occupation, household size etc.)

*M* = other moderating variables and

$\mu$  = stochastic error term.

\*In this model, the main parameter of interest is  $\beta_1$  in terms of sign and significance.

### **3.5 SCOTDI**

The extensive adoption of CSR policies by MOCs in emerging countries have led to calls for a concentrated effort to capture CSR effects better. Unfortunately, capturing the effect of CSR is not as direct as it might seem. In fact, MOCs functioning in the Niger Delta continue to face the problem of how to ascertain the success or failure of their CSR activities either in terms of its effect on community development or how it influences on corporate - community relations (Idemudia, 2014; Uduji *et al*, 2019a, 2019b). To address this issue MOCs in 2013 launched the Shell Community Transformation and Development Index (SCOTDI), which stands for a novel framework that mixes and adapts a number of international principles into a composite index in a way that is receptive to local index (SPDC, 2013). The framework is put to use in this study to examine and rank the performance of the various GMoU clusters within the host communities of MOCs.

## **4. Results and Discussion**

### **4.1 Descriptive characteristics**

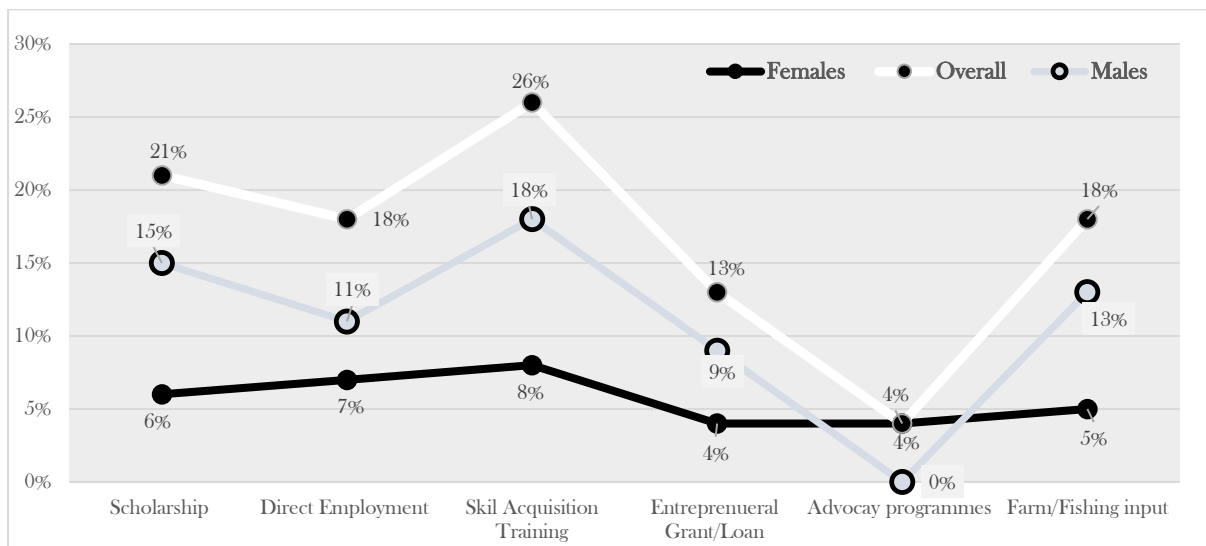
In the valuation (Table 2), the study took a look at the description of some of the women's economic (land ownership, ability to access money etc.); social (gender, acquisition of knowledge, ability to access health care and such), and demographic (phase of life/age, experience) features. These qualities are essential in finding out the variance in the socio-economic status of the women who take part in the cluster development boards in comparison to their counterparts. Analysis (Table 2) reveals the 768 women that were put to study, about 384 are from communities belonging to a cluster development board (CDB Communities) while the other 384 are from communities that have nothing to do with the cluster development board (the non CDB communities). Result show that about 13% and 18% of the women in treatment and control respectively are not exposed to any formal education. This suggests that formal education is not really a serious issue among the women. Also, the result shows that only 33% of the women in the treatment group are involved in traditional industries (Farming and Fishing) while the control has as much as 61% in same category.

**Table 2:** Socio-economic characteristics of the respondents in the Niger Delta

Variables	Treatment Group			Control Group		
	Freq	%	Cum	Freq	%	Cum
<b>Age of Respondents</b>						
Less than 20 years	15	4	4	20	5	5
21 - 30 years	195	51	55	172	45	50
31 - 40 years	105	27	82	115	30	80
41 - 50 years	52	14	96	59	15	95
Above 50 years	16	4	100	18	5	100
	<b>384</b>	100		<b>384</b>	100	
<b>Annual Income</b>						
1000 - 50,000	12	3	3	44	11	11
51,000 - 100,000	39	10	13	93	24	35
101,000 - 150,000	65	17	30	102	26	62
151,000 - 200,000	61	16	46	74	19	81
201,000 - 250,000	81	21	67	43	11	92
251,000 - 300,000	82	21	89	13	4	96
Above 300,000	42	11	100	15	4	100
	<b>384</b>	100	200	<b>384</b>	100	199
<b>Level of Education</b>						
None	51	13	13	71	18	18
FSLC	138	36	49	158	41	59
WAEC/WASSCE	112	29	78	103	27	86
Degree and above	83	22	100	52	14	100
	<b>384</b>	100		<b>384</b>	100	
<b>Primary Occupation</b>						
Fishing	92	24	24	66	17	17
Trading	72	27	51	48	12	30
Farming	103	19	69	169	44	73
Paid Employment	32	8	78	24	6	80
Handicraft	67	17	95	42	11	91
Others	18	5	100	35	9	100
	<b>384</b>	100		<b>384</b>	100	
<b>Marital Status</b>						
Single	47	12	12	70	18	18
Married	207	54	66	274	71	89
Widow	58	15	81	13	3	93
Divorced/Separated	72	19	100	27	7	100
	<b>384</b>	100		<b>385</b>	100	
<b>Household Size</b>						
1-4 Person	179	46	46	149	39	39
5-9 Person	153	40	86	140	37	75
10-14 Person	40	10	97	65	17	92
15 Person and above	12	3	100	30	8	100
	<b>384</b>	100		<b>384</b>	100	

**Source:** Computed from the field data by authors.

This finding suggests that most of the women take part in agriculture or fishing value chains as helpers to their husbands, unfortunately bulk of their labour are not paid for. Because of the improvement of human capital rooted in CSR, the variance has revealed that more women partake in paid labour among the CDB communities. About 27% of the women in the treatment group are into trading. 8% partake in other paid employment (private or public) while about 17% are into artisanal set ups. For the control group, it is 12%, 6%, and 11% in that order. In terms of incomes, about 30% of the women in treatment group have a turnover in the range of ₦1000 to ₦150, 000 (\$1.8 - 272.7) every year. For the control group, it is 62%. By implication, only about 38% of the women in control group make more than ₦150, 000 (\$272.7) yearly, while as much as 70% of the women in treatment groups enjoy similar earning. It is worthy to note that while about 11% of the treatment earn above ₦300, 000(\$545.5), only as low as about 4% could earn such among the control. This may be attributed to human capital development that have equipped women in the treatment group to pursue careers with reduced multiple trade-offs, accessibility of public works programme and secure right cum voices. Even though there is a momentous variance between the women from the CDB communities and their colleagues, the average incomes of all (both the treatment and the control groups) is still in the low. Imppecuniousness still abounds among the women in Nigeria’s Niger Delta region.

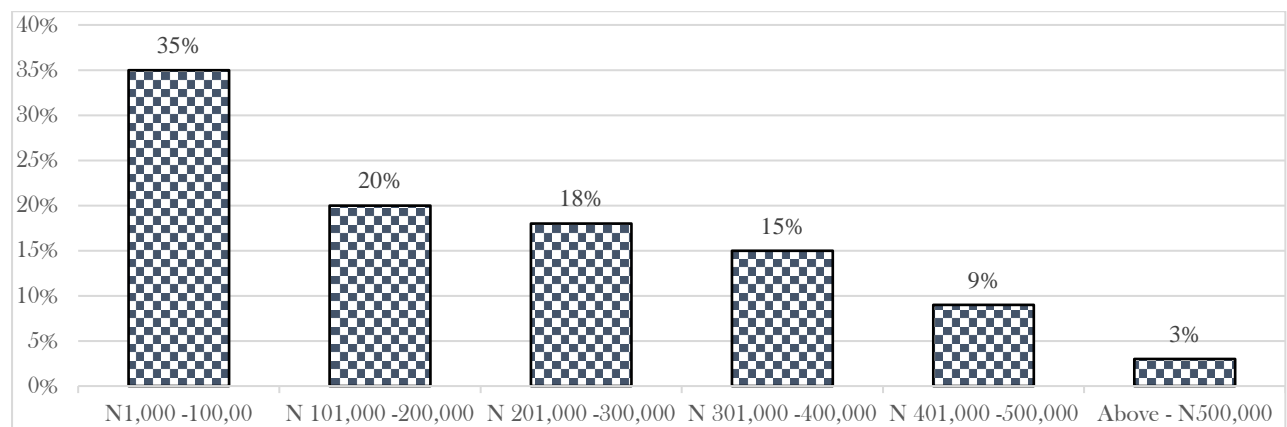


**Figure 2.** Percentage distribution by empowerment nature of CSR received by households in the Niger Delta

**Source:** Computed from the field data by authors

Analysis (Figure 2) reveals the natures of empowerment received by women in treatment group in comparison to men. Looking at scholarship that got as much as 21% of the empowerment intervention, women enjoyed 6%, with men enjoying as much as 15%. Others are 18% as total

for direct employment, men getting 11%, thus, leaving 7% for women. For the 26% that went into skill procurement and training, 18% was enjoyed by men while the remaining 8% went to women. For the 13% which went into soft loan and grant for entrepreneurship development, men got 9% while women got a lesser 4%. 18% was set aside for farmers and fishers input subsidy, men got 13% while women were left with 5%. Finally, about 4% of the CSR intervention went into advocacy and only women accounted for all of them. This shows that notable inputs are being made and any increase in them will go a long way in influencing the involvement of women in the working population of the host communities.



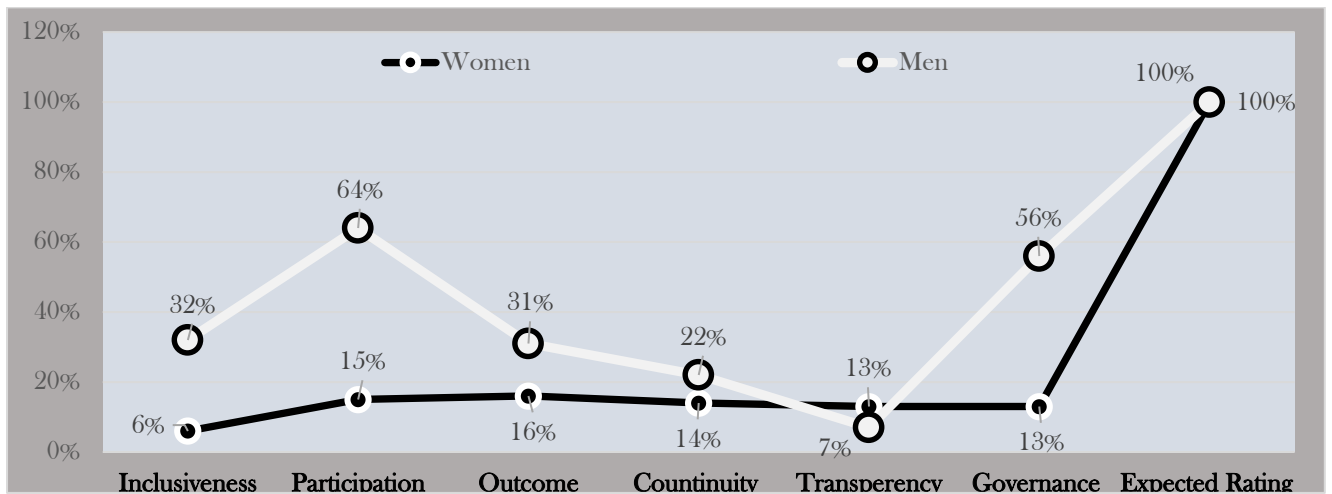
**Figure 3.** Average value of CSR receipts from the GMoUs by respondents in the Niger Delta.

**Source:** Computed from the field data by authors.

The analysis (Figure 3) shows the level of CSR that the women have experienced among the treatment group. While about 55% of women in the treatment group have enjoyed CSR financial interventions of as much as N1,000 to 200,000 (\$1.8 - 364), only about 3% of them have received above N500,000 (\$ 1,000). Furthermore, while about 18% have received between N201,000 to NGN 300,000 (\$ 401 - 600), only about 15% have got between N 301,000 to N 400,00 (\$ 601 - 800). Moreover, only about 9% have been given between N401,000to 500,000 (\$ 801 - 1000). This indicates that there may be a significant effect of CSR intervention on women's access to credit, yet, it is still very poor. The finding concedes to Chevron (2017) in that GMoUs have got very popular with communities, with greater ownerships resulting in better projects, sustainability and enhanced trust.

#### 4.2 Level of Gender Participation in the CSR Interventions of the MOCs

To establish the level of women’s contribution in the CSR activities, the views of the women were crucial to confirm or refute the claims of the MOCs on gender sensitivity of the GMoU model.



**Figure 4:** Gender involvement in CSR interventions in the communities of Niger Delta

**Source:** Computed from the field data by authors.

Using SCOTDI framework, the views of the women were sought on the issue of participation of females in the CDBs as body managing the CSR via the use of GMoUs governance of the cluster development boards, honesty (openness) in the management, inclusiveness in the making of decision, as well as the continuity of the CDBs after MOCs’ CSR intervention. Analysis (Figure 4) reveals how the women rated the CDBs as it relates to women’s participation in the GMoUs. For inclusiveness in CDBs, the respondents rated women as low as 6% with the men gaining a rating of as much as 32%. In terms of participation, women rated themselves an average of 15% while the men got a high 64%. Apparently, the implication is that men dominate the governance and will always go for decisions that are gender biased. Also, in the governance of CDBs, women were rated 13%, while men were rated 56%. This further confirms the view of the women which tends towards gender exclusion. When it comes to transparency, the respondents rated women an average of 13% which is above their rating of men(7%). This generally shows that in the control of CDB, transparency is rated poorly, suggesting that there is serious lack of openness in the activities of CSR of the MOCs. Further examination shows that women are willing to participate in CSR activities that will improve on their avenues of playing a part in enhancing their nutrition to as well as better their status.



**Table 3.** Percentage rating of MOCs' CSR interventions to improve nutrition status of females in the Niger Delta.

Activities	Agip	Shell	Chevron	Total E&P	Exxon Mobil	Others	Average
Provision of Primary Health Facilities	28%	25%	27%	29%	27%	23%	27%
Provision of gender-sensitive nutrition education	10%	14%	14%	16%	17%	14%	14%
Provision of subsidised high yielding inputs	15%	17%	16%	15%	19%	18%	17%
Gender-sensitive Educational Empowerment	22%	21%	23%	21%	14%	22%	21%
Provision of family upkeep grant	15%	14%	11%	12%	13%	11%	13%
Advocacy for changes in food and nutritional taboos	10%	9%	9%	7%	10%	12%	10%
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Source:** Computed from the field data by authors.

Analysis (Table 3) reveals the percentage circulation of CSR intervention of MOCs in bettering women's nutrition to improve their status. The study indicates the percentages of investments made by the MOCs in making available primary healthcare facilities, setting up of gender-sensitive nutrition education, making available subsidised high yielding inputs, gender-sensitive educational enablement, provision of family maintenance grant and advocacy for changes in food and dietetic taboos. In the enquiry, while investment in setting up of primary healthcare facilities is average of 27%, making available gender-sensitive nutrition training accounted for 14% and setting up of subsidised high yielding inputs (17%). Others include gender-sensitive educational enablement 17%, provision of family maintenance grant 13% and, to wrap it up, advocacy for changes in food and dietetic taboos 10%. These interventions, though low, reveals that the MOCs are making cautious and noteworthy efforts in ensuring that the nutrition of women are enhanced to better the status of women. This is to say that, strengthening the interventions of the MOCs that aim at bettering the nutrition of women will go a long way in improving the status of women. This finding agree with Malapit and Quisumbing (2016) in that it is important to make sure the voices of young and adolescent girls resound, advocate for and fashion systematic mechanisms for their leadership and contribution to programme design, execution, monitoring and assessment, budgeting and watching of health as well as nutrition policies cum plans. They should also be empowered to become powerful agents of change.

#### 4.4 Econometric estimations for participating in CSR of MOCs using GMoU

We evaluated the average variances in the basic propensity scores and independent observable features between women in the CDB communities and those not in it (on-CDB communities).

In all, the variance in means indicates that the score on the side of the CDB women and scores on the side of the non-CDB women are considerably dissimilar at 5% significant level.

**Table 4 Comparison of mean score and observable characteristics (N = 768)**

Score in Percentage of maximum score	Treatment	Control	Difference
Score on gender-sensitive nutrition education	42.57	22.37	20.2**
Score on food security at household level	38.39	21.22	17.17**
Score on female access to education	35.65	27.82	7.83**
Scores on reduction of nutrition taboo	35.28	21.13	14.15**
Score on access to health care services	41.52	35.84	5.68**
Score on access to food production inputs	36.72	27.31	9.41**
<b>Observation</b>	<b>384</b>	<b>384</b>	

**Source:** Computed from the field data by authors.

The dissimilarities in scores are as follows: on gender-sensitive nutrition education (20.2%); on food security at family/household level (17.17%); on ability of females to access education (7.83%); on lessening of nutrition taboo (14.15%); on ability to access health care services (5.68%), and on access to food production inputs (9.41%). These variances in scores are signals that the CSR of the MOCs make impact in the communities that are a part of cluster development boards privileged to assess the CSR interventions of the MOCs. This result share common view with Noack and Pouw (2014) in those integrating gender-sensitive nourishment components into policies and programmes can side-step unintentional gender impacts that weaken the effectiveness of these initiatives.

#### **4.5 Effects of MOCs' CSR investment using GMOU on Gender-sensitive nutrition education**

Analysis (Table 5) reveals that the corporate social responsibility investment of the multinational oil companies has weighty impact on gender-sensitive nutrition awareness (education) which is a big driver in bettering female nutrition. This enhancement in nutrition, in turn helps to better women's status. We evaluated a logistic regression to predict the CSR effect of the MOCs on gender-sensitive nutrition education utilizing the variables in equation below as the predictors.

**Table 5: Projected effects of multinational oil firms' CSR investment using GMOU on gender-sensitive nutrition education in the Niger Delta region**

		B		S.E.		Wald		df		Sig.		Exp(B)		95.0% C.I. for EXP(B)	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper		
Step 1(a)	<i>Age</i>	.124	.009	3.205	1	.073	.913	.968	1.013						
	<i>Pri_Occ</i>	.143	.212	.033	1	.856	.922	.735	1.421						
	<i>M_S</i>	.038	.135	.291	1	.038	1.921	.813	1.223						
	<i>HH_com</i>	-.325	.312	.033	1	.456	.562	.634	1.592						
	<i>AY</i>	.071	.114	.715	1	.398	.707	.829	1.154						
	<i>HH_Size</i>	.321	.021	.492	1	.483	.936	.913	1.106						
	<i>Edu</i>	.062	.021	.652	1	.419	1.017	.9747	1.052						
	<i>EXP</i>	.038	.115	.171	1	.679	.954	.722	1.114						
	<i>Y_child</i>	-.425	.115	.171	1	.679	.981	.718	1.132						
	<i>CSR</i>	1.521	.061	5.137	1	2.003	8.143	1.405	1.434						
	Constant	5.617	.567	1.140	1	.064	3.331								

a Variable(s) entered on step 1: *Pri\_Occ, M\_S, Age, Edu, AY, HH\_Com, Ychild, CSR, HH\_Size, EXP.*

**Source:** Computed from the field data by authors.

$$\text{Logit (GNE)} = 5.617 + 038M\_S + 1.521CSR + .124 \text{ Age} + .143 \text{ Pri\_Occ} + .321 \text{ HH\_Size} + .026\text{Edu} + .071\text{AY} + (.425) \text{ Ychild} + .325\text{HH\_Com} + 038\text{Exp}$$

Testing the full model against a constant only model was statistically significant, revealing that the predictors as a set reliably differentiated between the “Yes” and “No” impact of CSR (chi square = 42.223,  $p < .001$  with  $df = 8$ ). Nagelkerke’s  $R^2$  of .856 showed a strong relationship between prediction and grouping. The success overall of prediction was 89%. (90% for “Yes” and 88% for the “No”). The Z- value for CSR is 4.413, with an associated p-value of 0.003. Because we set 5% significant level, the study settled that CSRs of the MOCs under GMOU have had notable impact on *gender-sensitive nutrition education* in Niger Delta. On the other hand, the EXP (B) value of the Predictor - CSR is 8.143, this means that if the MOCs raise their CSR Program directed at safeguarding the biodiversity in the Niger Delta by one unit, equivalent of 1USD, the odds ratio is 8.0 times as large. Thus, the women status is 7 times expected to be improved by enhancing their nutrition. This finding work together with Olney *et al* (2015) in that gender-sensitive nutrition education is necessary to uphold good dietetic practices, and it is within the directive of the nutrition community to advance a better nutrition facilitation toolkit to address the distinct needs of girls, teenage females, and expectant women; as these programmes need not be costly. Iron supplementation programmes for pregnant women and iodine strengthening of salt have both produced the desired result in a number of situation.

#### 4.6 Effects of MOCs' CSR investment using GMOU on food security at household level

Analysis (Table 6) evaluates the effects of MOCs' CSR activities using GMoU on food security at family (household) level in the Niger Delta region. This result endorses that the MOCs' CSR have made some impacts on family (household) food security in the region. A logistic regression analysis was carried out to predict the effect of CSR of MOCs intervention utilizing GMOU food security at family (household) level in the rural communities in Niger Delta making use of the variables in the equation above as predictors.

$$\text{Logit (HFS)} = 1.826 + .982\text{CSR} + .021\text{Age} + (.119) \text{Pri\_Occ} + .321\text{HH\_Size} + .313\text{Edu} + .057 \text{AY} + 0.07\text{HH\_Com} + (.428)\text{Ychild} + .413\text{Exp} + (.393)\text{M\_S}$$

**Table 6: Projected effects of MOCs' CSR investment using GMOU on food security at household level in the Niger Delta region**

		B		Wald	df	Sig.	Exp(B)		95.0% C.I. for EXP(B)	
		Lower	Upper				Lower	Upper	Lower	Upper
Step 1(a)	<i>Age</i>	.021	.114	.715	1	.398	.808	.727	1.135	
	<i>Pri_Occ</i>	-.119	.212	.033	1	.856	.762	.635	1.459	
	<i>M_S</i>	-.393	.312	.033	1	.456	.562	.435	1.459	
	<i>HH_com</i>	.007	.021	.652	1	.419	1.017	.977	1.059	
	<i>AY</i>	.057	.009	3.205	1	.073	.983	.966	1.002	
	<i>HH_Size</i>	.321	.124	2.895	1	.029	1.810	.635	1.033	
	<i>Edu</i>	.313	.135	.291	1	.038	1.930	.713	1.212	
	<i>EXP</i>	.413	.021	.492	1	.483	.986	.947	1.026	
	<i>Y_child</i>	-.428	.115	.171	1	.679	.954	.761	1.194	
	<i>CSR</i>	.982	.061	5.724	1	.003	9.321	1.045	1.443	
	Constant	1.826	.667	1.940	1	.164	5.131			

a Variable(s) entered on step 1: *Pri\_Occ, M\_S, Age, Edu, AY, HH\_Com, Ychild, CSR, HH\_Size, EXP.*

**Source:** Computed from the field data by authors.

Testing of the full model against a constant only model was statistically substantial, showing that the predictors as a set unfailingly distinguished between the “yes” and “no” impact of CSR (chi square = 46.102,  $p < .001$  with  $df = 8$ ). Nagelkerke's  $R^2$  of .816 revealed a strong relationship between prediction and grouping. Prediction success overall was 90%. (91% for “Yes” and 89% for the “No”). The Z- value for CSR is 6.274, with a related p-value of .007. Based on the set 5% significant level, the study came to the conclusion that CSRs of the MOCs under GMOU have made a notable impact on food security at family (household) level in Niger Delta. Nonetheless, the EXP (B) value of the Predictor - GMOU is 9.321, this means that if the MOCs step up their CSR Program aimed at bettering food security at family (household) level by one unit, the odds ratio is 9 times as large and thus women's diet will be 9 times more in the offing to be improved thereby bettering their status. This outcome coincides with Reul and Alderman (2013) in that among additional indirect efforts to better the nutrition status of

females, working towards achieving food security at family (household) level is a vital step. Having access to food of good dietetic quality at all times should be the primary focus in programming; then, measures to guarantee equal access to food for males and females – particularly for those struggling with chronic or transitory food insecurity – should centre on the more sustainable options as well. Such options should take account of the improvement and promotion of crop species that are fast at maturing and varieties that are more drought-resistant.

#### 4.7 Effects of MOCs’ CSR investment using GMOU on reduction of nutrition taboo

Analysis of (Table 7) shows that the CSR activities of the MOCs has a substantial effect on lessening of nutrition taboo which in turn helps in bettering women’s ability to access nutrition towards enhancing their status. The finding reveals that the MOCs have made sound investment in lessening the taboo placed on some kinds of food as taboo to women in Niger Delta. This removal of taboos around food/nutrition has helped in bettering the nutrition of women particularly the pregnant mothers, thereby enhancing their status. A logistic regression examination was carried out to predict the effect of the CSR of MOCs using GMOU on lessening of nutrition taboo utilizing the variables in equation below as the predictors. This result flows together with Meastre *et al* (2017) in that food security intervention that is community-based in advocating for policy on some gender insensitive traditions and customs, particularly on food taboo would produce positive nutrition outcomes for women and heighten food availability as well as improve nutritional status. It will essentially impact on micronutrient status of women and girls in families that participate.

**Table 7: Projected effects of multinational oil firms’ CSR investment using GMOU on reduction of nutrition taboo in the Niger Delta region**

	B	S.E.		Wald		df	Sig.	Exp(B)		95.0% C.I. for EXP(B)	
		Lower	Upper	Lower	Upper			Lower	Upper	Lower	Upper
Step 1(a) <i>Age</i>	.413	.016		6.317	1	.003	9.431	1.045		1.459	
<i>Pri_Occ</i>	.312	.221		.023	1	.456	1.017	.635		1.135	
<i>M_S</i>	-.114	.321		.0313	1	.398	.562	.435		1.194	
<i>HH_com</i>	.137	.012		.652	1	.419	.954	.761		1.059	
<i>AY</i>	.295	.141		.715	1	.856	.908	.977		1.459	
<i>HH_Size</i>	.318	.012		.492	1	.483	.986	.761		1.026	
<i>Edu</i>	.264	.090		.205	1	.769	.983	.966		1.194	
<i>EXP</i>	.123	.115		.171	1	.679	.962	.727		1.443	
<i>Y_child</i>	-.316	.151		.171	1	.073	.954	.947		1.002	
<i>CSR</i>	1.051	.153		4.291	1	.038	5.390	.713		1.212	
Constant	2.035	.617		1.140	1	.064	1.121				

a Variable(s) entered on step 1: *CSR, M\_S, Age, Edu, Pri\_Occ, AY, HH\_Com, Ychild, EXP, HH\_Size*.

**Source:** Computed from the field data by authors.

$$\text{Logit (RNT)} = 2.035 + 1.051\text{CSR} + .413\text{Age} + .213 \text{ Pri\_Occ} +.312\text{HH\_Size} + 007 \text{ Edu} +.295\text{AY} + 137\text{HH\_Com} + (316)\text{Ychild} + .123\text{Exp} + (114)\text{M\_S}$$

Testing of the full model against a constant only model was statistically important, signifying that the predictors as a set unfailingly differentiated between the “Yes” and “No” impact of CSR (chi square = 42.221,  $p < .000$  with  $df = 8$ ). Nagelkerke’s  $R^2$  of .812 showed a strong relationship between prediction and grouping. Prediction success overall was 85%. (90% for “Yes” and 80% for “No”). The Z- value for CSR is 4.291, with an associated p-value of .002. Based on the set 5% significant level, the study settled that CSRs of the MOCs under GMOU made a notable impact on *lessening migration tendency of rural women in Niger Delta*. Nonetheless, the EXP (B) value of the Predictor - CSR is 5.390 this entails that if the MOCs raise their CSR Program aimed at lessening nutrition taboo in Niger Delta by just one unit, the odds ratio is 5.4 times as large. Thus, the women are 9 times expected to benefit from improved nutrition which will equally lead to enhancement in status. This finding tally with Herforth and Ballard (2016) in that another essential indirect investment to better the nutrition status of girls and boys is enhancing female’s ability to access education (acquisition of knowledge). Not only does education better literacy rates, it also lowers fertility rates and improves on the chances of girls partaking in the economy at a higher level; it also makes sure that girls have good care giving skills in addition to helping them realise better nutrition for themselves and their prospective children.

Holistically, this study has established that the efforts to better female’s nutrition status will be most powerful if embarked on in conjunction with GMoU policies and CDBs programmes that targets at bettering the status of female and addressing disparities. The discoveries concur with UNICEF (2009) in that policies and programmes that are targeted at bettering female’s status can promote gender neutrality either by generating a level playing field in hopes that female will catch- up or by actively seeking to encourage catch-up via the closeness of the intervention for nutrition status. The results also show that gender inequality in accessing and controlling resources not only is discriminating on women and their children, but also institute bad economies; which results in poor allocation of scarce resources, increased cost of healthcare, lower productivities, and poor human enhancement trainings. In addition, the results show that venture in nutrition of female is a vital short-term barometer in accessing expected returns to bettering family nutrition and overall human advancement capacity for the Niger Delta region.

These results suggest that the relative priorities of MOCs' CSR activities in the Niger Delta should vary from the classic, American ordering, as projected by Carroll (1991). Placing significance on a cultural context in the determination of suitable CSR priorities and programmes, as suggested by Visser (2006), is essential in the background of the rural Niger Delta. There is also the need for plasticity, as suggested by Amaeshi *et al* (2006), in addressing the distinctiveness of the socio-economic problems in the region, which includes closing the gender gap in nutrition and status. Muthuri (2012) also assented in that it is vital for CSR intervention in Africa to include closing the gender gaps and reduction of impoverishment. But in addition and contribution, if we are to have a say on how CSR activities can improve gender equality in nutrition and status in the Niger Delta, we would maintain that MOCs' CSR can play a vital role in evolving gender equality when investment in nutrition and status is schemed out for the intricacies of real life. Aiming to improve the nutrition status of girls and adolescents will create room for female's status to become better throughout the life circle. Given the already weak situation of women and girls in the region, attempts to better the overall status of female should run together with efforts to better the nutritional status of girls, adolescents and even adults in the Niger Delta. Integrating gender-sensitive constituents into the GMoU policies and programmes that are directed at improving female status will better both the expected short-term and long-term outcomes of the MOCs' CSR efforts. Therefore, enhancement in nutrition status of female infants and children will transform into a better human capital of their adolescence, enablement of their adulthood, and the improvement of their communities specifically and sub-Saharan Africa overall.

## **5. Conclusion and policy implications**

Due to the cultural norms, gender discrepancy remains a limitation to efforts towards reducing penury in Nigeria's Niger Delta region (NNDC, 2001). For the communities considered rural in this region having high rates of food shortage and undernourishment, the terrible condition of women is a major cause (PIND, 2011). In this region rich with oil, women are academically left behind, function in lower economic status, and barely contribute in making decisions in the family (household) and community - which all aggravates the poor dietetic state. This led us into postulating that corporate social responsibility of multinational oil companies putting to use global memorandum of understanding has failed to make a considerable contribution to enhancing dietetic status of females in the Niger Delta region of Nigeria; and also that corporate social responsibility of multinational oil companies making use of global

memorandum of understanding has not pointedly made an impact on female status by bettering nutrition in the region of Niger Delta in Nigeria.

This paper put into use a survey research method, directed at assembling information from an explanatory sample of the population, as it is in essence cross-sectional, outlining and interpreting the existing state of things. The respondents (768 women) were sampled across the rural areas of the region of Niger Delta. The results from the use of a combine propensity score matching and logit model show that GMoU model has had notable impact in the main areas of valuation which are gender-sensitive awareness (education) as it relates to nutrition, food security at family level, bringing down of food taboos and the ability of females to obtain training (education). This puts forward that CSR activities directed at bettering the nutrition status of girls and youngsters will assist in guaranteeing that female's status become better all through their life circle in the region. Consequently, MOCs' venture in the sustenance of female is an essential short-term gauge in assessing expected returns to refining nutrition in families and overall human advancement capacity in sub-Saharan Africa. This research is a plus to the debate on imbalance in the sustenance (nourishment) of women and inclusive growth literature from the CSR stance. It concludes that business has a duty to assist in resolving complications faced by the public. The key limitation of the study is that it is constrained to the range of Nigeria's Niger Delta region. Thus, the discoveries are not directly applicable to other existing oil host communities in sub-Saharan Africa with a similar policy issue. Based on this drawback, replicating the analysis in other oil producing regions is worthwhile in order to find out if the acknowledged nexuses endure empirical scrutiny in separate rural settings of Africa.

### **Declaration of conflict of interest**

The authors declared no potential conflicts of interest with respect to the research, authorship and/ or publication of this article.



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