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Socio-demographic Factors, Household Social Capital and Nutritional Status among Under-five Children in Ibadan South-east Local Government, Oyo State

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Abstract

The study investigated the effect of socio-demographic factors on nutritional status of under-five children; ascertained the relationship between household social capital and nutritional status of under-five children; examined the joint effect of socio-demographic factors and household social capital on nutritional status of under-five children in Ibadan South East Local Government, Oyo State. These were to understand the determinants of nutritional status among under-five children in the study area. The study adopted a descriptive survey research design and employed primary data through the administration of a set of structured questionnaires. Measurement of weight and height was done to determine the nutritional status of children aged 0 to 59 months. The questionnaire was administered on women aged 15-49years. The estimated number of women within reproductive ages was 66, 421 based on 2006 population census. Slovin's formula (1999) was adopted to determine the sample size. Thus, 400 copies of the questionnaire were administered in the study area. Data were analysed using descriptive statistics which involved the use of frequencies and percentages. Cross tabulation, chi-square and binary logistic regression were employed for the inferential aspect of the analysis. The results showed that about 67% of under-five children were malnourished. In the bivariate analysis, birth order had a strong association with nutritional status of under-five children with $\chi^2 = 13.90$, $p = 0.031$. In the multivariate analysis, women who were not working were 0.5 times ($p>0.05$) less likely to have children with normal nutrition compared to those who were currently working. The study concluded that there were higher proportions of malnourished children of under-five in Ibadan South-east Local Government, Oyo State.

Keywords: Social Capital, Nutritional status, Stunting, Wasting, and Underweight.

Introduction

Child mortality is a major public health issue and is influenced by nutritional status (Ricci et al., 2018). Worldwide, more than 10 million under-five children die from preventable and treatable illnesses every year despite effective health interventions (World Health Organisation, 2018). Undernutrition leads to about half of the world's reported 10 million annual childhood deaths. Malnourished children, particularly those with severe acute malnutrition, have a higher risk of death from common childhood illnesses such as diarrhoea, pneumonia, and malaria (WHO, 2018). According to UNICEF (2017), with a global prevalence rate of 43 per cent of children

under the age of five, which translates to 16.5 million children, Nigeria is the second-ranked nation in the world for stunted and wasted children. Nigeria is not on pace to reach the SDGs of a 40 per cent reduction in stunting by 2025, for which the rate of fall must climb to 5.5 per cent, with hunger rates now dropping at an annual rate of 3.1 per cent. Severe acute malnutrition (SAM) affects an estimated 2.5 million children in Nigeria, however, only 2 out of every 10 of these children are receiving treatment. (UNICEF, 2015). World Food Programme and UNICEF (2006) identified four initiatives to end child hunger and undernutrition globally. These include: (i) raising public awareness of hunger and malnutrition and looking for remedies (ii) enhancing national policies and initiatives on nutrition and hunger (iii) greater ability to take immediate, local steps to address child hunger and undernutrition; (iv) greater effectiveness and accountability of international initiatives to address child hunger and undernutrition. Efforts have been put in place also to prevent children from becoming malnourished in Nigeria. These efforts include: (i) supporting and enticing mothers to breastfeed their children exclusively for the first six months of life; (ii) educating families about the best feeding habits for older infants and children; and (iii) providing micronutrient supplements, vitamins, and fortified food for expectant mothers and young children are all examples of programs that support and encourage breastfeeding. Despite these efforts, malnutrition remains a key health issue in Nigeria and other parts of developing countries. Omotosho and Abdulazeez (2010), Khan et al., (2018) have made substantial efforts to carry out nutritional studies on socio-demographic factors, optimal child complementary feeding practices, maternal undernutrition and anaemia factors, gender and household structure, household wealth, maternal age, education and household food insecurity.

Social capital was a sociological term that had been introduced into economics. According to Portes and Vickstrom (2011), social capital is one of the most important exports from sociology to economics and considers social capital as an advantage to children with family ties and traders ' networks, explaining why some cities can easily be controlled by economic progress and others are not. Similarly, Zadeh, et al., (2010) argue that people of the same group must have the capacity to interrelate and communicate with each other to have common norms, values and interests; this ability is called social capital. The community will benefit when a person meets a group and the group meets other groups, and social capital is generated. Therefore, this description defines social capital as people's ability to come together and share common values and interests as a group. They also claim that community development unites the efforts of every community member to enhance society's well-being. Similarly, Putnam (2000) views social capital as a connection between individuals, a social network, and a culture of reciprocity and associated trust. This description describes social capital as interpersonal relationships that enable them to develop social virtues through gestural reciprocation. As such, it is not inherently important to organize social capital but to accumulate it through certain societal norms. Based on this claim, the social capital scholarship distinguished between bonding and bridging social capital types (Szreter & Woolcock, 2004). Bonding social capital refers to relations or organizations that connect individuals with similar socio-demographic characteristics (e.g., a religious or ethnic group), create loyalty within a group, and provide support to group members (Putnam, 2000). Bridging social capital involves relations or organizations that link individuals that vary by their socio-demographic characteristics (e.g., different age groups or religious and ethnic backgrounds) and are better suited to providing access to external assets and information dissemination compared to bonding social capital (Putnam, 2000). In light of the foregoing, there are few studies that have used household social capital in examining the nutritional status of under-five children in Nigeria. Therefore, this study examined the link among the three forms of social capital (Bonding, Bridging and linking). It is important to examine household social capital on nutritional status of under-five children because social capital has gained attention for poverty reduction efforts in low and middle-income countries, but questions remain about people’s unequal access to and benefit from social capital especially for

addressing child health inequalities (Carpiano, 2008). Hence, the objectives of this study are to (i) investigate the effect of socio-demographic factors on nutritional status of under-five children; (ii) ascertain the relationship between household social capital and nutritional status of under-five children and (iii) examine the joint effects of socio-demographic factors and household social capital on nutritional status of under-five children in Ibadan South-East Local Government of Oyo State, Nigeria.

Theoretical Framework

Many theories had been used to conceptualize social capital but the most popular are the Weak Tie Theory (Granovetter, 1973), Social Resources Theory (Lin, et al., 2001) and Structural Hole Theory (Burt, 1992). Then, Ecosystem Approach Theory was used for Nutritional Status.

The Weak Tie Theory

Granovetter (1973) suggested the Weak-Tie Theory. It illustrates that job opportunities are likely to arise from weak and strong relations within an individual's network. Strong ties are close relationships, mates, etc., providing information that becomes widely available within a group and generally shared. However, Granovetter (1973) describes poor relations as the cluster of knit networks outside the direct contact of a person that could provide good information. Granovetter found that weak links are more likely to provide knowledge regarding job opportunities to individuals than strong ties. So, the weak tie theory focuses more on the characteristics of the relationship between actors.

The Structural Hole Theory

Structural Hole Theory is the second theory, propounded by Burt, (1992), which describes holes that occur within a network between two groups of people. Such openings are termed structural gaps. “The theory reflects on the pattern of relationships among contacts within an individual’s network”. Unlike Weak Tie Theory, which focuses mostly on the features of the ties between actors, structural hole theory postulates that actors with more structural holes are in an advantageous role of control, place and mobility upwards. Structural Hole Theory focuses on social capital and its ability to connect group members who, through a third party, have a complementary type of information or resources; potentially an entrepreneur; Burt (1992) is therefore of the view that Structural Hole Theory tackles social capital more firmly than the principle of poor contact. Structural Hole Theory describes how an individual inside a group would be able to expand his relation to everyone in the group, irrespective of the degree of association. Therefore, such an actor tends to benefit more in the community as he closes the gap between himself and other actors gradually, thereby expanding the reach of his relations.

The Social Resource Theory

The third theory is the theory of social resources proposed by Lin et al. (2001), which postulates that it is the resources embedded in a network, not the characteristics of the actors that contribute to the mobility of a person (from a lower to a higher position, or from a state of poverty to that of affluence). Within his group, the contacts a person uses (regardless of the strength of the tie) provide him with the necessary resources to achieve his goals. The key features of Social Resources Theory explain how an actor can capture some of the resources owned by other actors in the group, whether they are material or knowledge, through his group connections, for his betterment. Of the three theories, Lin et al.'s Social Resource Theory (1981a, 1981b) may serve as a theoretical basis for this study as it describes how an individual may benefit from the pool of resources within his community to achieve his particular goals.

An Ecosystem Approach

It is understood that nutrient intake is just one of several environmental factors that interact with a young child's genetic potential to affect his physical growth. The malnutrition syndrome does not develop in a vacuum, but rather within the context of a vast array of environmental elements, all of which work in concert to cause the final manifestation of the issue. The current model takes an ecological tack since nutrient intake may be related to many environmental traits. Pre-schoolers nutritional condition is thought to need to be assessed in connection to elements of their

immediate surroundings, especially their families. According to the theoretical model created to investigate nutritional status, the family serves as the developing child's close environment and is crucial in creating the right circumstances for interaction between him and the elements of the more distant environment. The interplay of matter, energy, and information fluxes within the family system is seen as the source of nutrient intake. The child, acting as a separate ecosystem, modifies the nutrient supply in such a manner that his physical growth and nutritional status are produced as system outputs.

Methods

Study Design

This study employed the cross-sectional descriptive design. This is because it gives room for the collection of large amounts of quantitative data to describe and interpret the variables considered for the study.

Sampling technique and Sample size

A multistage sampling technique was adopted in this study. This consists of three stages. The first stage involved the purposive selection of Oyo State. In the second stage, Ibadan South East Local Government Area (LGA) was randomly selected among the local government areas in Oyo State as a sampling frame. Participants in the study were then selected systematically from a list of households using a sampling interval of five. Then, two hundred and forty-two households were randomly selected where at most two participants were selected from a household. In this study, children aged 0-59 months were selected. The information about these children was obtained from their mothers. Population of women aged 15-49 years in Ibadan South-east Ibadan Local Government Area was extracted from National Population Census, (2006).

Table 1: Extract from 2006 National Population Census for the population of women aged 15-49years in Ibadan South-east Ibadan Local Government Area (Population Census, 2006)

Age Group	Female Population
15-19	12, 155
20-24	12, 842
25-29	14, 266
30-34	11, 161
35-39	5, 199
40-44	6, 319
45-49	4, 479
Total	**66, 421**

Source: National Population Commission, 2006.

Total population = 66,421

Using Slovin's (1999) Formula to obtain the Total Sample Size (n)

$$n = \frac{N}{1 + N(e)^2}$$

N = Total Population

$$N = \frac{66421}{1 + 66421\ (0.05)^2}$$

$$N = \frac{66421}{66422(0.0025)}$$

$$N = \frac{66421}{166.055}$$

N = 400.11

N = 400

N = Sample Size = approximately 400
e = error tolerance level (5%)

Therefore, the Sample size drawn from Ibadan Southeast LGA = 400 participants

Data Collection
The questionnaires were used to collect quantitative data from the study area. The questionnaire was translated into the Yoruba language to suit the study area and divided into sections in line with the objectives of the study. Section A comprises questions on the socio-demographic characteristics of the respondents. In section B, questions on the proximate determinants of the respondents were asked. Also, questions were asked on the three forms of household social capital which are bonding, bridging and linking in section C and lastly on question D, respondents were asked questions on nutritional status of their under-five children.

Outcome Variable
The nutritional status of children under five is the study's outcome variable. Children under the age of two were measured using a tape rule for length, while children two and older were measured for height using a stadiometer. The children had to stand on the stadiometer's level surface with their feet parallel, their buttocks, shoulders, and backs of their heads touching the scale, and their hands hanging loosely at their sides. Once in touch with the top of the head, the height board's headpiece was lowered to take the measurement, which was done to the closest 0.1 centimetres (cm). With a maximum load-bearing capacity of 150 kg, a minimum measurable weight of 6 kg, and a tolerance range of 0.3 kg for weights less than 50 kg, a digital infant weighing scale with a maximum capacity of 20 kg and graduation of 5g was used to measure the weight of children under the age of two. A digital child weighing scale was used to measure the weight of older children. The formula BMI (kg/m2) was used to calculate the Body Mass Index (BMI). The WHO standard population was used to create Z scores for anthropometric characteristics using WHO Anthro software version 3.2.2. Wasted (weight for height), stunted (height for age), and underweight were terms used to describe individuals who fell below -2 standard deviations of the NCHS median reference (weight-for-age). The BMI of the children was calculated, and a BMI value less than the fifth percentile of the reference data was considered thinness (an indicator of malnutrition), while BMI values between the fifth and the eighty-fifth percentile were considered to have normal nutrition, and children with BMI values greater than the eighty-fifth percentile were defined as overweight. The questionnaire was divided into sections in accordance with the objectives of the study.

Independent variables
The independent variables are subdivided into bonding social capital, linking social capital and bridging social capital and socio-demographic variables. The variables are defined below in Table 2 and Table 3.

Table 2: Definition of the independent variables

S/N	Variables	Definition	Coding
	Household Social Capital		
1	**Bonding**	Bonding were grouped in any religious organisation, festival organization (member of NASFAT, MSSN, catholic, protestants, Seven Day Adventists etc)	Members of these organisations were coded as 1 and 0 if not
2	**Bridging**	bridging were grouped “as membership in development organisation such as women's groups, self-help groups, credit or savings groups, development groups or non-governmental organizations”	Members of these organisations were coded as 1 and 0 if not

3	**Linking**	Household's links with people working in health care centres, education, and government institutions: doctors or nurses, teachers or principals, and government officers.	1 for those who have relationship with such a person and 0 if not
	Socio-Demographic factors		
4	**Mother's education**	Highest level of education attained by mothers.	No Education=0; Primary=1 Secondary=2; Higher=3
5	**Mother's Occupation**	Type of job engaged in by mother	Artisan = 0; Civil servant =1 Trader = 2; Full housewife = 3; Private sector employment = 4
7	**Ethnic group**	Geographical background where the mothers belong.	Yoruba 0; Hausa 1; Igbo 2, Others 3
8	**Mother's age**	Mother's age as at the time of the survey	15-24 = 0, 25-34 = 1, 35-49 = 2
9	**Marital Status**	Mother's marital position	Currently married =0: Not currently married =1
10	**Religious Affiliation**	Respondent's religion	Catholic=0; Other Christian=1; Islam=2, Others=3

Table 3: Definition of the Proximate Determinants

S/N	Variable	Definition	Coding
1	**Birth order**	Ranking of child according to order of birth	First birth = 0, 2-4 = 1, 5above =2
2	**Breastfeeding duration**	Months of breastfeeding the baby	Less than 6 months =1, 6 months and above = 1
3	**Birth size**	Size of child at birth	Very small = 0, small = 1, average or large = 2
4	**Mother's BMI control**	Body Mass Index of the mothers	Thin (BMI < 18.5) = 0, Normal (BMI 18.5 - 24.9) = 1, Overweight (BMI ≥ 25) = 2

Ethical Consideration

Ethical approval was sought from the Department of Planning, Research and Statistics, the Ministry of Health, Secretariat Ibadan, Oyo State (Reference No: AD 13/479/1761^{B}) to conduct the research in Ibadan South East Local Government. A consent form was used to obtain informed consent from respondents. Also, the respondents were assured that all data would be treated anonymously and confidentially.

Statistical Analysis

The data obtained from the structured questions were processed by using STATA 14.0 statistical software. Three levels of data analysis were employed in order to achieve the objectives of this study. The first level is descriptive statistics which involved the use of frequencies and percentages. The bivariate and multivariate analyses were employed for the inferential aspect of the study. The bivariate analysis involved the use of cross-tabulation tables to show the relationship between two variables. This also involved the use of the chi-square test. Binary logistic regression was employed for the multivariate analysis. Logistic regression is a multiple regression but with an outcome variable that is dichotomous and predictor variables that are continuous or categorical. Thus, one can predict which of two categories a person is likely to belong to given certain other information. Logistic regression is a nonlinear model, which estimates the probability of an event occurring using an iterative algorithm. The logit model which expresses the relationship between

dependent and independent variables is specified as:

$L_n (P/1-P) = b_0 + b_1X_1 \ldots$ equation 1

Where:

P/1-P = is the ratio of probability of the event occurring to the probability of the event not occurring.

b_0 = is a constant

b_1 = is a series of unknown coefficients to be estimated via the maximum likelihood

X_1 = is an array of independent variables

$L_n (P/1-P) = b_0 + b_1X_1 + \ldots + b_nX_n$

b_0 is the constant, $b_1 \ldots b_n$ are regression coefficients, and $X_1 \ldots X_n$ are factors.

The outcome variable of the study is the nutritional status (normal nutrition and malnutrition) of under-five children. The key explanatory variables which are also known as independent variables are household social capital (bonding, linking and bridging) and socio-demographic variables. Other sets of proximate determinants that were employed include birth order, breastfeeding duration, birth size, source of drinking water and Mother's BMI control. These variables were controlled for in the analysis.

Results

Socio-demographic Characteristics of Respondents

Table 4 shows the results of women's socio-demographic characteristics.

Table 4: Percentage Distribution of respondents by Socio-Demographic Characteristics

Variable (n=400)	Frequency (%)
Age group	
15-24	108 (27.0)
25-34	244 (61.0)
35+	48 (12.0)
Marital Status	
Currently married	396 (99.0)
Not currently married	4 (1.0)
Ethnic group	
Yoruba	350 (87.5)
Hausa	16 (4.0)
Igbo	34 (8.5)
Religion	
Catholic	34 (8.5)
Other Christians	104 (26.0)
Islam	259 (64.8)
Others	3 (0.8)
Level of Education	
No formal Education	5 (1.3)
Primary	63 (15.8)

Secondary	257 (64.3)
Tertiary	75 (18.8)
Currently working	
Yes	369 (92.3)
No	31 (7.8)
Occupation	
Artisan	158 (41.6)
Trader	142 (37.4)
Full housewife	22 (5.8)
Public & Private employment	58 (15.3)

Source: ***Author's computation, 2019***

Relationship between Household Social Capital and Nutritional Status of under-five children

Table 5 shows the cross-tabulation analysis between the household social capital and nutritional status of under-five children. Household social capital was grouped into three which are bonding, bridging and linking. The results showed the respondents who did not belong to any youth club and sports group and those who belonged to the group had equal percentage of children who were malnourished i.e., 67.0% and children with normal nutrition were 33.0%. About 67.0% of children of mothers who did not belong to developmental groups or Non-Governmental Organisations were malnourished and 33% had normal nutrition. Those who belonged to this group had about 62.0% of their children being malnourished and 35.0% of them had normal nutrition. Therefore, there is no significant relationship between the membership of mothers in developmental groups or NGOs and nutritional status of under-five children.

Table 5 also shows the relationship between self-help groups, credit, savings and cooperative societies, religious or social or festival societies, trade unions and nutritional status of under-five children. The respondents who did not belong to self-help groups had about 67.0% of their children being malnourished and 33.0% of their children had normal nutrition while those who belonged to the group had 65.0% of their children malnourished and 35.0% of their children had normal nutrition. Women who did not belong to credit, saving and cooperative society had 68.0% of their children being malnourished and 32.0% of their children had normal nutrition while those who belonged to the group had 63.0% of their children malnourished and 37.0% of their children had normal nutrition. Women who did not belong to religious, social or festival societies had 69.0% of their children being malnourished and 31.0% of their children had normal nutrition while those who belonged to the group had 66.0% of their children malnourished and 34.0% of their children had normal nutrition. Lastly, women who did not belong to a trade union, business or professional group had 61.0% of their children being malnourished and 39.0% of their children had normal nutrition while those who belonged to the group had 69.0% of their children malnourished and 31.0% their children had normal nutrition. Hence, there is no significant relationship among self-help groups, credit, savings and cooperative society, religious or social or festival society, trade unions and nutritional status of under-five children with their p-values > 0.05.

The respondents also reported their relationship with medical personnel, teachers, officers and others and the report showed that there is no significant relationship between linking questions and nutritional status of under-five children. The women who have no relationship with doctors had about 69.0% of their children being malnourished and 31.0% of their children had normal nutrition. Then, those who were related to doctors had about 65.0% malnourished children and 33.0% of their children had normal nutrition. The women who have no link with nurses had about 66.0% of their children being malnourished and 34.0% of their children had normal nutrition. Then, those who were related to nurses had about 67.0% malnourished children and 33.0% of their children had normal nutrition. Lastly, the women

who have no relationship with laboratory attendances had about 68.0% of their children being malnourished and 32.0% of their children had normal nutrition. Then, those who were related to laboratories attendances had about 63.0% malnourished children and 37.0% of their children had normal nutrition. The vast majority of the children of respondents (67.0%) who did not have any link with teachers/principals were malnourished and only 33.0% of their children had normal nutrition while respondents who also had a link with teachers/principals had about 67.0% malnourished children and 33.0% of their children had normal nutrition. The respondents who did not have any link with government officials, clerks, officers and others had more than 60.0% of their children being malnourished and about 30.0% of their children had normal nutrition respectively. Then, those who had link with government officials, clerks, officers and others had about 67.0% of their children being malnourished while about 30.0% of their children had normal nutrition respectively. There is no significant relationship between any linking questions and nutritional status of under-five children with p-values > 0.05.

Table 5: Relationship between household social capital and nutritional status of under-five children

Variables	Nutritional Status (N=400)			χ^2	P-value
	Malnutrition	Normal Nutrition	Total		
Bonding and Bridging					
Youth club, sport group				0.02	0.990
No	235 (66.8)	117 (33.2)	352(100)		
Yes	32 (66. 7)	16 (33.3)	48(100)		
Developmental group or NGO				0.50	0.481
No	241 (67.3)	117 (32.7)	358(100)		
Yes	26 (61.9)	16 (38.1)	42(100)		
Self-help groups				0.25	0.620
No	195 (67.5)	94 (32.5)	289(100)		
Yes	72 (64. 9)	39 (35.1)	111(100)		
Credit, savings group, Agricultural or other cooperative society				1.11	0.293
No	198 (68.3)	92 (31.7)	290(100)		
Yes	69 (62.7)	41 (37.3)	110(100)		
Religious or social or festival society				0.52	0.471
No	94 (69.1)	42 (30.9)	136(100)		
Yes	173 (65.5)	91 (34.5)	264(100)		
Trade union, business or professional group				2.78	0.095
No	69 (60.5)	45 (39.5)	114(100)		
Yes	198 (69.2)	88 (30.8)	286(100)		
Linking Questions					
Doctor				0.91	0.339
No	136 (69.0)	61 (31.0)	197(100)		
Yes	131 (64.5)	72 (35.5)	203(100)		
Nurses				0.03	0.860
No	128 (66.3)	65 (33.7)			

Yes	139 (67.2)	68 (32.8)	193(100)		
			207(100)		
Laboratories attendances				0.56	0.454
No	221 (67.6)	106 (32.4)			
Yes	46 (63.0)	27 (37.0)	327(100)		
			73(100)		
Teachers/Principal				0.01	0.961
No	91 (66.9)	45 (33.1)			
Yes	176 (66.7)	88 (33.3)	136(100)		
			264(100)		
Government Officials				1.25	0.262
No	44 (61.1)	28 (38.9)			
Yes	223 (68.0)	105 (32.0)	72(100)		
			328(100)		
Clerk				0.19	0.659
No	32 (64.0)	18 (36.0)			
Yes	235 (67.1)	115 32.9)	50(100)		
			350(100)		
Officer (Military, Force				0.60	0.437
and Paramilitary)	103 (69.1)	46 (30.9)			
No	164 (65.3)	87 (34.7)	149(100)		
Yes			251(100)		
Others				0.1356	0.713
No	10 (62.5)	6 (37.5)			
Yes	257 (66.9)	127 (33.1)	16(100)		
			384(100)		

Model One: Binary Logistics Regression on Nutritional Status and Socio-demographic Factors

With respect to age of respondents, women aged 25-34 years are 0.5 times (p>0.05) less likely to have children with normal nutrition compared to those who are in age group 15-24. Also, those aged 35 years and above were 0.7 times (p>0.05) less likely to have children with normal nutrition compared to those who are in age group 15-19.

According to the ethnic group of the respondents, respondents who were Hausa were 2.1 times (p>0.05) more likely to have children with normal nutrition compared of those Yoruba extraction.

The religion of the respondents, respondents who are other Christian were 2.1 times (p>0.05) more likely to have children with normal nutrition compared to those who are Catholic. Those who are Muslim were 1.6 times (p>0.05) more likely to have children with normal nutrition compared to those who are Catholic. Also, those who belonged to other religions were 1.42 times (p=0.05) more likely to have children with normal nutrition compared to those who are Catholic. The findings of the study depict that women who are not working were 0.5 times (p>0.05) less likely to have children with normal nutrition compared to those who are currently working. Similarly, respondents who are civil servants were 2.3 times (p>0.05) more likely to have children with normal nutrition compared to those who are Artisans. Also, Traders were 0.9 times (p>0.05) less likely to have children with normal nutrition compared to the Artisans. Likewise, full housewives were 0.8 times (p>0.05) less likely to have children with normal nutrition compared to the Artisans.

Table 6: Binary Logistic Regression of Nutritional status and Socio-Demographic characteristics

Variables	Nutritional Status		95%Confidence Interval	
	Odds Ratio	P-value	Lower	Upper
AGE GROUP				
15-24 (RC)	**1.00**			
25-34	.48	0.22	0.15	1.56
35+	.71	0.55	0.23	2.21
ETHNIC GROUP				
Yoruba (RC)	**1.00**			
Hausa	2.11	0.21	0.65	6.90
Igbo	1.00	1.00	0.33	3.04
RELIGION				
Catholic (RC)	**1.00**			
Other Christian	2.15	0.19	0.69	6.68
Islam	1.62	0.41	0.52	5.08
Others	1.42	0.82	0.06	30.11
CURRENTLY WORKING				
Yes (RC)	**1.00**			
No	0.53	0.44	0.10	2.64
OCCUPATIONAL STATUS				
Artisan (RC)	**1.00**			
Trader	0.90	0.68	0.53	1.51
Public/Private employment	1.75	0.74	0.35	2.56

Model 2: Binary Logistic Regression on Nutritional status, Socio-Demographic characteristics and Household Social Capital

Table 7 showed the joint effect of socio-demographic factors and household social capital on nutritional status of under-five children. Findings of the study show that ethnic group of the respondents, Hausa were 2.0 times (p>0.05) more likely to have children with normal nutrition compared to those who were Yoruba.

With respect to religion, women who belong to other Christian groups were 2.2 times (p>0.05) more likely to have children with normal nutrition compared to those who were Catholic. Those who were Muslim were 1.7 times (p>0.05) more likely to have children with normal nutrition compared to those who were Catholic. Also, those who belonged to other religion were 1.6 times (p=0.05) more likely to have children with normal nutrition compared to those who were Catholic. Women who are in middle class were 1.9 times (p>0.05) more likely to have children with normal nutrition compared to poor women. Also, rich women were 2.0 times (p>0.05) more likely to have children with normal nutrition compared to poor women. The result showed that women who belonged to developmental groups or NGO were 1.4 times (p>0.05) more likely to have children with normal nutrition compared to those who were not members. Concerning self-help groups, women who were members were 1.1 times (p>0.05) more likely to have children with normal nutrition compared to those who were not members. Women who were members of credit or saving group were 0.98 times (p>0.05) less likely to have children with normal nutrition compared to those who were not members. Women who were members of religious or social or festival society were 1.7 times (p>0.05) more likely to have children with normal nutrition compared to those who were not members. According to linking

questions on household social capital, respondents who have relationship with medical Doctor were 1.1 times (p>0.05) more likely to have children with normal nutrition compared to those who do not have any link with them. Also, women who have relationship with Nurses were 1.1 times (p>0.05) more likely to have children with normal nutrition compared to those who do not have any link with them. Respondents who have relationship with Officers were 1.1 times (P>0.05) more likely to have children with normal nutrition compared to those who do not have any link with them.

Table 7: Binary Logistic Regression on Socio-Demographic factors, Household Social Capital and Nutritional Status

Variables	Nutritional Status		[95% confidence Interval]	
	Odds Ratio	P-value	Lower	Upper
AGE GROUP				
15-24 (RC)	**1.00**			
25-44	.46	0.20	0.14	1.53
35+	.57	0.35	0.17	1.83
EHTNIC GROUP				
Yoruba (RC)	**1.00**			
Hausa	1.97	0.28	0.58	6.69
Igbo	0.98	0.97	0.29	3.28
RELIGION				
Catholic (RC)	**1.00**			
Other Christian	2.17	0.21	0.65	7.23
Islam	1.68	0.40	0.50	5.66
Others	1.56	0.79	0.07	37.29
CURRENTLY WORKING				
Yes (RC)	**1.00**			
No	0.53	0.46	0.99	2.86
OCCUPATIONAL STATUS				
Artisan (RC)	**1.00**			
Trader	0.94	0.83	0.54	1.64
Public & Private employment	1.35	0.67	0.45	2.70
DEVELOPMENT GROUPS OR NGO				
No (RC)	**1.00**			
Yes	1.37	0.52	0.52	3.72
SELF-HELP GROUPS				
No (RC)	**1.00**			
Yes	1.06	0.85	0.57	1.99
CREDIT OR SAVING GROUP				
No (RC)	**1.00**			
Yes	0.99	0.96	0.53	1.84
RELIGIOUS OR SOCIAL OR FESTIVAL SOCIETY				
No (RC)	**1.00**			
Yes	1.68	0.11	0.90	3.15
TRADE UNION, BUSINESS OR PROFESSIONAL GROUP				
No (RC)	**1.00**			
Yes	0.64	0.18	0.33	1.22
DOCTORS				
No (RC)	**1.00**			
Yes	1.06	0.85	0.60	1.86
NURSES				
No (RC)	**1.00**			
Yes	1.05	0.87	0.60	1.84

LABORATORY ATTENDANTS				
No (RC)	**1.00**			
Yes	0.69	0.34	0.33	1.46
TEACHERS/PRINCIPAL				
No (RC)	**1.00**			
Yes	0.99	0.97	0.55	1.77
GOVERNMENT OFFICIALS				
No (RC)	**1.00**			
Yes	0.44	0.03	0.21	0.90
CLERKS				
No (RC)	**1.00**			
Yes	1.03	0.95	0.42	2.54
OFFICERS (MILITARY, FORCE AND PARAMILITARY)				
No (RC)	**1.00**			
Yes	1.11	0.72	0.63	1.94
OTHERS				
No (RC)	**1.00**			
Yes	0.38	0.16	0.99	1.48

Discussion

This study ascertains the relationship between household social capital and nutritional status of under-five children; examines the effects of socio-demographic factors on nutritional status of under-five children and also examines the joint effects of socio-demographic factors and household social capital on nutritional status of under-five children in Ibadan South-East Local Government Area, Oyo State. Results revealed that about 67% of under-five children were malnourished. The result of the univariate analysis showed that many of the respondents were within age group 25-34. This may be linked to the fact that the majority did not further their education once they have completed the Senior Secondary Certificate Examination (SSCE). This is also found in the study of Taiwo, Veronica, and Subuola, (2012) that most women discontinued their studies once they finished secondary school. Almost all the respondents were currently working and an increasing number of them were artisans and traders. Since majority of the respondents do not have required certificates to get white collar jobs, many engaged in craftsmanship and petty businesses. Analysis at the multivariable level indicated that while adjusting for the effects of socio-demographic characteristics of the respondents, wealth quintile was significantly associated to nutritional status of under-five children. Findings show that children of rich women were more likely to have normal nutrition than children of poor and middle-class women. This may be attributed to the fact that rich woman has access to nutritious food and also have access to improve health facility. Results further show that children of women who are in age groups 35-39 and 40-44 have a higher likelihood of having normal nutrition than women in other age groups. This may be linked to the notion that older women are more experienced in child care practices than young women. Adedokun and Yaya, (2020). Additionally, children of women who are currently working have possibility of having normal nutrition than those who are not working. This has been reported in other studies. Carpiano, (2017). This implies that working class women have financial capacity to cater for correct feeding pattern of their children. After adjusting for the effects of socio-demographic factors and household social capital variables, results show that children of women who are in age groups 35-39 and 40-44 have a higher likelihood of having normal nutrition than women in other age groups. Also, children of women who were Hausa have a higher likelihood of having normal nutrition than women in other ethnic groups. This indicates that Hausa women gave their children food with more nutrients and also engaged in correct feeding pattern. This may be as a result that majority of them are full housewives, so they have enough time to cater for their children. Women who belonged to developmental groups or NGO, self-help groups, religious or social or festival

societies are more likely to have children with normal nutrition compared to those who are not a member. This has been reported in the studies. Moxley, Jicha, Thompson, (2011). Bonding social capital provides immediate and required materials (e.g., food) and information services (e.g., organisational advice). Engaging in bonding and bridging social capital also promote financial and educational opportunities including opportunities to improve the household's own economic situation. The study also revealed that respondents who have relationship with medical Doctor, Nurses, Clerks, Officers were more likely to have children with normal nutrition compared to those who do not have any linking ties with the group. This implies that having linking social capital with medical doctors, nurses etc. helped the women to have information and orientation on the child care. This study is in support of findings by Carpiano (2006).

Policy Implication

Efforts at reducing stunting, wasting and undernutrition among under-five children in the study area may be jeopardized without a considerable improvement in their nutritional status. Nigeria is the second ranked country with stunted and wasted children globally, with a global prevalence rate of 43 percent of children under-five translating into 16.5 million children. Although it is on record that hunger rates presently declining at a yearly rate of 3.1 percent, Nigeria is not on target to accomplish the SDG target of a 40 percent decrease of stunting by 2025, for which the rate of decline must increase to 5.5 percent. More measures need to be put in place in order to overcome this challenge. In the first instance, the programmes introduced and sponsored by international organisation with the aim of improving nutritional status of under-five children should be sustained. It is evident that such programmes have helped in increasing awareness on correct feeding practices among mothers. In addition to this, efforts should be made at national and local levels to strengthen national policies and programmes affecting hunger and nutrition among under-five children. It is shown that older women breastfed their children more than younger women, there should be more awareness for younger women to breastfeed their babies exclusively for the first six months of life; educate them about the correct feeding practices for older babies and children; and provision of micronutrient supplements and vitamins and fortified food for pregnant women and young children. At the community level, older women may be invited to sensitize younger women on correct feeding pattern and how to care for their children.

Strength and weaknesses

The main limitation of this study was due to cross-sectional data which limit the study ability to make causal inferences. The sensitive nature of the study restrained some respondents to give accurate information but after several persuasions they were eager to provide information even more than what was being required from them. Also, the sample size determination was not based on population projection to 2021 using 1991 and 2006 censuses. Lastly, questions were asked on forms of social capital which are bonding, bridging and linking social capital of the respondents without extending the questions to the benefits respondents will derive from being the members and the contribution of these groups to the respondents.

Conclusion

The study has revealed that there are higher proportions of malnourished under-five children in Ibadan South-east Local Government. Respondent's socio-demographic factors including age group, marital status and educational level of the respondents had significant influence on nutritional status of under-five children, while ethnicity, religious affiliation, respondents' occupation and wealth quintile had no significant effect on nutritional status of under-five children. Birth order was significantly related with nutritional status of under-five children. Lastly, among household social capital variables only membership with youth club, sport group and linking ties to teachers/principals were significantly interacted with nutritional status of under-five children. Therefore, action needs to be taken quickly to address the children's dietary demands. This can be accomplished by educating mothers and

women's groups on the use and processing methods of readily available and less expensive sources of protein; the standard of living should be raised as this is the only way to address the root causes of malnutrition; reform policies and create an enabling environment, including promoting an integrated policy approach to hunger reduction; empower women and girls; and boost the efficacy of donor agencies' hunger relief efforts and establishing dynamic relationships to guarantee efficient policy execution and connect dietary and agricultural interventions

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