

Social-cultural processes of feeding patterns and nutrition supplement use in Southwestern Nigeria

Abstract

Feeding pattern and nutrition supplement use are vital but understudied health behaviours among older persons. As such, in Nigeria, there is a paucity of data. In five culture groups in Oyo State, Nigeria, 884 interviewer-administered questionnaire and sixty (60) in depth interviews were conducted. Most (74%) elderly eat in three main-meal periods and there is a high (86.2%) consumption of starchy foods. Majority (72.5%) used supplements and 90.7% used supplements at least once daily. Eating more than four times daily ($\beta = 0.011$) and having two meals daily ($\beta = 0.019$) were associated with supplement use. The use of supplements among the elderly is mostly a result of physicians' advice for wellness purpose, while the feeding patterns of elderly persons reflects various social processes that occur based on the living arrangements of the elderly. Feeding patterns and nutrition supplement use among the elderly exists within a structure of complex interactions.

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Introduction

The elderly population is considered as being at risk of nutrition-related problems (Mudiare, 2013; UN-DESA, 2011; UN-ECA, 2007). Hitherto, the extent of nutritional vulnerability among the elderly has been connected to the unique social, physiological and psychological conditions which surround the ‘elderly’ status. In this regard, the food-related challenges that are common among elderly persons reflect a lack of attention to the basic elements of food provision, food preparation, food size/serving, and eating times. The role of culture as per food taboos are vital determinants; as well as region/location-specific availability of certain food types or food groups, which infuses the idea of staple food. In the same vein, the role of social networks, caregivers and other social factors cannot be neglected in the current discourse. Most nutrition policies have given attention to nutrition issues in children and in pregnant women. It is noteworthy that supplemental feeding among women and children lacking in Vitamins and nutrients have remained at the forefront of nutrition campaigns. Over the years, there have been extensive policy and practice initiatives to control the deficiency of micronutrients – especially Vitamin A among mothers and children (UNICEF, 2006). Not much is being done about the elderly, who by reason of their unique social and physical conditions are at risk of micronutrient deficiency. Tucker and Buranapin (2001) substantiate the fact that food among the elderly is usually lacking in dietary fiber, Vitamins B6, E and Calcium. This is because the intake of such foods or foods containing such nutrients is low among the elderly (WHO, 2002a). There is reduced energy intake because of the decline in appetite for food and reduced absorption rate among the elderly (WHO, 2002b). In a lot of cases, the food consumed by the elderly ranging from dairy products, fruits, vegetables and whole grains lacks certain nutrients. Also, skipped meals, higher consumption of animal protein, rare consumption of dairy products (Olayiwola, Olarewaju, Adelekan and Arigbede, 2013), which has been positively correlated with education are identifiable patterns that the literature establishes (Wold, Lopez, Yau, Butler, Pareo-Tubben, et. al., 2005; Wendt and Kinsey, 2007). In most cases, micro-nutrient deficiency predisposes the elderly to a lower immune system which increases the threat of other diseases (HTP, 2013).

Furthermore, while the food consumption of the elderly is an identifiable area of health concern, social conditions do not have an isolated impact on the health or food consumption of the elderly. Significantly, the physiologic and psychological demands of ageing are meaningful correlates of the nutrition challenges that the elderly face. Physical and health disabilities that characterize old age and the range of communicable and non-communicable diseases that affect the elderly, put a

strain on the feeding patterns of the group. In terms of the physiologic changes, UN-DESA (2011) notes that the ageing process itself does not constitute a disability, but that significant disease conditions like arthritis, stroke, diabetes and heart conditions are typical of ageing. The cardiovascular system, weight, bones/muscles/joints, taste and digestion, the functioning of the kidneys and the eyes of the elderly experience relative decline and health complications as people age (SeniorsBC, 2011). Being a health imperative, such physiologic conditions require medical care which constitutes dependence on pharmaceuticals/drugs. In this case, the feeding pattern of the elderly can be hampered or affected. These conditions may be a combination of or sole process of ageing or negative health/nutrition behaviours. Primarily, the physical inability of the elderly to access some form of social and medical care has an adverse effect on their eating activities. Institutionalized (old-people's homes, hospitals etc) the elderly have been found to be nutritionally disadvantaged in comparison with free-living elderly people (Gariballa, 2004).

In drawing an inference from the concept of eating pattern in Delormier *et. al.*, (2009), feeding pattern is also the context of eating. Although the differences between 'feeding' and 'eating' is extensively engaged in the literature, both concepts connote the process of food intake. Significantly, there is a unique social circumstance of 'dependence' that occasion the course of eating among the elderly. Hence, feeding pattern is applicable to the elderly based on the fact of dependency. Thus, the behavioural, cultural, social ordering and experiential conditions associated with 'eating pattern', feeding pattern, emphasizes the social production and consumption of food. In terms of the social production and consumption of food, the framework of reference is the social interactional processes like gender, family composition, structure/size, age stratification, religion/culture, social class, life course, social support, caregiving, etc.

Although the existing literature on the care of the elderly has identified health and nutrition behaviour as a significant basis for optimum health outcomes, nutrition supplement use has been largely understudied. In most developing countries, its influences and roles have not come into the mainstream of gerontology. Significantly, within the last three decades, the United States, most of Europe and parts of Asia have recorded a minimum of 50% reliance on nutrition supplement among the elderly. Thus, while there is sufficient evidence in these aforementioned parts of the world, Africa is lacking in reliable data to corroborate these claims. The extent of nutrition problems among the elderly has a strong connection with nutrition imperatives and patterns, which

include the unavailability of food, irregularity of eating, improper and unhygienic food preparation processes and culturally determined food taboos as people age. The use of nutrition supplements is one of the ways of mitigating the negative outcomes of nutrition behaviours. Since nutrition supplement use does not occur in a vacuum, it is not clear if the elderly use nutrition supplements as a response to perceived/established nutritional inadequacy, illness condition(s) or just as a health maintenance practice. Thus, over-dependence and abuse of supplements have been identified as a major health concern (WHO, 2002b). This is because it accounts for interference with food digestion, drug-interaction, side-effects and sometimes death among the elderly, especially when the use is not guided (NYSDH, 2005). However, while there is a wide acceptance, practice and disproportionate prevalence of nutrition supplementation among the elderly in developed countries (CRN, 2012), there is a paucity of literature about the adoption and intake of nutrition supplement among the elderly in Nigeria. The prevalence of food insecurity and the inability of the majority of Nigerian households to meet their food needs propel poor and inappropriate feeding patterns. This has the potential for generating feeding practices (including supplement use) which lead to poor health outcomes among the elderly. Meanwhile, the established adverse effects that arise from the use, over-use and dependence on varied forms of supplements persist. It, therefore, becomes imperative for this paper to explore the points of connection between feeding patterns and nutrition supplement use among the elderly in Oyo State.

Rozin (2005) describes food as a social vehicle with symbolic functions of moral significance and aesthetic expression. Food is a 'material' consisting of essential protein, carbohydrate and fat which are used in the body of organisms to sustain growth, repair, for vital processes and to furnish energy (*Encyclopedia Britannica*). Food derives from natural and processed components of plants and animals which are culturally defined. Deriving from Emile Durkheim's philosophical thesis on religion and the dichotomy between the sacred and profane, the cultural and historical dimensions of food have implications for the social definition of food. Thus, food is the first cultural (embedded in religion) before being social. Food taboos exist which defines nutritional limits for people across ages. This also extends to the elderly. Food substantially is anything eaten to satisfy the appetite and to meet human physiological needs. The idea of food has evolved to consist of 'functional food' which presents food as multi-nutrient entities. In most cases, the line between 'functional foods' and nutrition supplement is only subject to regulatory standards because nutrition supplements are in themselves regarded as food.

On the other hand, drugs can be described as substances that affect the function of living cells, used in medicine to diagnose, cure, prevent the occurrence of diseases and disorders, and prolong the life of patients with incurable conditions. It can also be described as substances or mixture of substances which are provided to diagnose, treat, mitigate or prevent a disease, disorder, abnormal physical state or symptoms in humans and/or animals. In this regard, drugs are capable of restoring, correcting or by reason of function, combine into some form of positive or negative modification of organic processes in living beings. The ‘modifying’ intent of drug distinguishes it from food. This, by all standards, is just one of the effects that food plays in the body. The concept of nourishing and influencing growth distinguishes the ‘modifying’ role of food from the ‘modifying’ role of drugs/medicines. In another dimension, the concept of food is not subject to strict and evidence-based regulatory standards and prescriptions like drugs which must align with the ethos of medical practice – evidence.

Although these clarifications distinguish food from drugs/medicines, they do not overturn the cultural and practical differences that exist between food and drugs. The food-medicine interface exists within a wider scope of scholarly debates in ethnographic and anthropologic endeavours, especially in the biological/medical sciences and humanities. Food plays a significant role in the concepts of illness and treatment, hence, blurring the line of purpose (therapeutic and healing) between food and medicine/drugs. Food is increasingly recognized as a core component of preventive and ameliorative health care (Centre for Health Law and Policy Innovation, 2014). Food and spices, as Eigner and Scholz (1993) note, constitute an integral part of medicine. This is because traditional and modern pharmacological practice evolved medicines from food, roots and herbs, which in themselves constitute food to the human race. Thus, it is practical to say that food eaten in whatever form is drug taken, and drug taken is food eaten. Hyman (2005), noted the difference between eating food (*chi fan* – eat rice) and eating medicine (*chi yao*).

Nutrition supplements are conceptually not to be defined as drugs. The concept of nutrition supplement consists of all the classes/categories of foods (liquid, solid, gaseous or semi-solid) which do not lie within the domain of conventional/staple foods, intended for health maintenance and promotion. Nutrition supplement includes vitamins, minerals, amino acids, concentrates, metabolites, constituents, extracts, herbs/botanical – products to be included in this list are country-specific. It must be noted that while a drug is a product used to diagnose, cure, mitigate, treat or

prevent diseases, a nutrition supplement is intended to add value diet and increase dietary intake. Thus, special attention is given to consumer perception of supplements as food and/or drugs; clinical or non-clinical supplements – without exempting African traditional forms of nutrition supplement which in actual fact are largely herbal in nature.

The herbal supplement is different from nutrition supplement. It is true that supplements originate from plants. Herbal supplements or botanicals, which also have their source from plants, stand in distinct positions. Botanicals are of natural origins, as noted by Camire and Kantor (1999). Botanicals are derived from plants. These are plants that are not usually used as food, emerging from roots, stems, leaves, flowers and fruits. As pointed out by Bellows and Moore (2013), many people consider herbs and botanicals to be natural and therefore healthier and gentler than conventional drugs. In fact, some people are guided by the perception that herb use is handed down by tradition and recommended by folk healers. This, therefore, signifies that great caution needs to be observed when discussing the use of supplements within the African context, where African medicine is still in great contention with orthodox medicine. In practice, herbals/botanicals have been identified as one of the common means of treating allergies, insomnia, and digestive disorders. Thus, a conception of herbal supplement as a form of nutrition supplement in the study relates to the basic African traditional elements of care that are not perceived as drugs. In this study, both terms will be used interchangeably.

Many studies in Europe and certain parts of the world have emphasized the increasing consumption of nutrition supplement. The drought of data in Nigeria, especially sub-Saharan Africa is not distant from the unavailability of health and nutrition data which will hitherto build knowledge while amplifying the multifactorial circumstances that surround nutrition supplement use (IITA, 2004). Mention has been made of the prevalence of supplement use/food fortification in special populations – children, and pregnant women in Nigeria and parts of Africa (Nmor et. al., 2014; Allain et. al., 1997), the use of nutrition supplement among the elderly is scarcely documented. And as Schroeter et. al. (2010) argue that there is a rising availability of the supplement to a large number of people, Greenfield and Southgate (2003), note that there is significant underreporting of the increasing consumption. As Schroeter et. al. (2010), point out that elderly persons are the highest consumers of dietary supplements across the globe. Among scholarly writings that have reported the predominant use of dietary supplements among the

elderly, Gahche et. al. (2011), posit that in the US population, 40 percent of women and men use multivitamins/multimineral.

In this case, the use of nutrition supplement has almost doubled within an eighteen year period (1988 – 2006). Studies show that from a 40% use in 1994, the status of supplement use is above 60%, based on 2006 reports and projections beyond (CRN, 2012; Gahche, et. al., 2011). Other examples from other parts of the world put Europe and Asia on an average consumption of 50% among persons who are 50 years old and above (Buurma-Rethans, 2012). In Wold et. al. (2005), dietary supplement use is 63 percent to 89 percent among elderly persons. While the extent of use and frequency of use have been discussed in other studies, Ireland, Moller, Holden, Reinvuo, Buurma et. al. (2010), had attempted a classificatory analysis of the types and forms of nutrition supplement.

Methods and materials

The study adopted an exploratory design. The unit of analysis in the study was elderly persons living in communities. The tools of enquiry are both qualitative and quantitative. The study utilized the interviewer-administered questionnaire and In-depth interviews.

Oyo State was the study location for the research. The topography is a mix of hills, arid and wet regions. Oyo state covers a distance of 27,249 square kilometers and has a common border with Ogun, Osun and Kwara State. In the Northern region, Oyo State shares border with the Benin Republic. Institutions of higher learning in Oyo State include the University of Ibadan, Ibadan; Ladoke Akintola University of Technology, Ogbomoso; College of Nursing and Midwifery, Ibadan; the Polytechnic, Ibadan, College of Agriculture, Igboora, Technical University, Ibadan among others. Health facilities exist in different contexts and are owned or co-owned by the government or private entities. The University College Hospital doubles in function, as academic and health care delivery facility. Others are - the St. Mary's Catholic Hospital, Oyo State General Hospital, Oni and Sons Memorial Hospital the teaching and research facility. Research and training institutes are also existent in Oyo State. These include - the International Institute for Tropical Agriculture (IITA), National Horticultural Research Institute (NIHORT), Cocoa Research Institute (CRIN), Forestry Research Institute of Nigeria (FRIN) and the Nigerian Institute of Social and Economic Research (NISER).

The study focuses on the elderly, who are aged 60 years. In cases where they are not fit enough, caregivers are also allowed to provide support to the respondents. This is the population of elderly persons in Ibadan South West LGA, Kajola LGA, Ibarapa Central LGA, Afijio LGA and Ogo Oluwa LGA. These LGAs are representative of the five culture areas in Oyo State.

The study adopted a multistage sampling procedure. The choice of Oyo State was based on the estimates from the priority table of the National Population Commission, 2010. Culture areas emerged as clusters based on their distinct features. The LGAs in the clusters were determined through an estimation of prevalence. The ageing population in each of the LGAs was estimated. The LGAs with a high prevalence of ageing population LGAs in the culture areas were selected. The Cochran (1977) formula was engaged to estimate the actual sample size per LGA. Using the WHO Sampling Manual, the study delineated each LGA into five parts, based on the polling wards. Two-fifth of the wards were selected for the sampling. A total of 884 elderly persons formed the sample size for the quantitative data.

The sample size for the 60 In-depth interviews was determined through a theoretical matrix which is supported by the literature. The matrix considered age cohort, gender, educational attainment, living arrangement and the standard of living – based on observation across the five LGAs of culture cluster in Oyo State.

Data were collected in a sequential form. The interviewer-administered questionnaire was first utilized so as to test the validity of the Health Belief Model and the Social Action theory. Qualitative data was also collected in-step so as to adequately engage the emerging thesis identified in the quantitative data.

Quantitative data was engaged, using univariate and multivariate tools of analysis. The univariate analysis provided the basis for understanding the parameters of each variable. This allowed for the presentation of frequencies and percentages of key socio-demographic characteristics of the respondents vis-à-vis variables captured as feeding patterns (meal periods, a frequency of eating and food groups eaten). In relation to the use of nutrition supplements among the elderly, the variable included indicators like – current use of nutrition supplement; categories of nutritional supplement being used; regularity of supplement use; and social network factors in ensuring adherence to prescriptions) This approach allows for the estimation of the measures of central

tendency/dispersion regarding each variable that was considered. These vital variables and indicators informed the basis for engaging specific tools of inferential estimations. Logistic regression, a statistical tool of multivariate analysis was utilized because the data conforms to the basic assumption/conditions for its use. This was to test the relationship between feeding patterns and use of nutrition supplements among the elderly.

Socio-demographic included age, variables engaged are – age distribution, gender distribution, religious affiliation, educational qualification, marital status and living patterns. The multivariate analysis combined variables that measure meal times across the three major time periods of the day. It also considers the frequency of eating, which refers to the number of times the elderly eat – this variable is not restricted to meals. Food grouping is the variable that measures the types of food that the elderly eat regularly. The focus of these variables is to establish a pattern of eating among the elderly. In measuring the patterns of nutritional supplement use, variables like current use of the supplement, the categories of supplements being used, the time-dimension of regular use, the reasons for supplement use as well as the monitoring of supplement use were examined.

The transcripts from the interviews were analysed based on the themes that were generated with regard to the patterns of feeding and nutrition supplement use among the elderly. The idea of ‘pattern’ was a central theme for feeding and nutrition supplement use pattern. The focus was on identifying the different meal times, the food frequency and the types of food which the elderly ate more regularly. Therefore, sub-themes regarding feeding patterns interrogated the narratives which captured each of the dimensions that were identified. In terms of nutrition supplement use, themes were developed to capture two main ideas – first, the state of current use (types, forms, and actual use of nutrition supplements) and second, relates to the accounts of discontinuation. These themes matched with the conceptual distinctions of this study. Also, following the Hawe, Degeling and Hall (1990) ideas of qualitative analysis, the themes that were pre-marked guided the classification of the data. On the basis of the emergent narratives, explanations which support the direction of the relationship between feeding patterns and use of nutrition supplement were presented.

All ethical principles guiding the administration of research among human participants was adhered to. The University of Ibadan Social Science and Humanities Research Ethics Committee provided approval for the study (UI/SSHEC/2016/0005) within the limits of procedures engaged

in the research. Vital ethical considerations in social research were identified. Through the process of the research, it was ensured that data and vital information related to the respondents were carefully preserved. No identification numbers were allotted to respondents such that responses cannot be directly tagged to respondents. Informed consent was sought from every respondent so that no respondent was coerced into the study. Respondents had the right to discontinue their participation if they were uncomfortable with the process of the research. The benefit of the research was communicated to the participants. There were no direct and/or immediate benefits. The respondents were assured that findings from the study will be made available to stakeholders through community engagement activities and policy briefs, hence the need to ensure a high level of integrity through the responses provided. Force or coercion was not introduced or implied in the course of the research. It was also ensured that respondents who perceived certain parts of the research as offensive and capable of triggering negative physical and/or emotional processes were respectfully allowed to discontinue their participation. This was also done in view of ensuring the voluntariness is ensured among the participants.

Results

Socio-demographics

Most (45.4%) respondents were between ages 65 and 74 years, about 56.3% are females and 63.6% are adherents of the Christian faith. A majority (64.6%) of the elderly had no formal education and about 61.5% of the elderly were married. Almost half (49.1%) of the elderly are unemployed, only 26% live alone and 37% live within multiple-generation households. These families are mostly (65%) nuclear families, while the elderly are largely (73%) dependent on other people in economic terms. Only 7% of the elderly have a form of health insurance enrollment.

Describing the feeding patterns and contexts of social network elements

There are three basic meal periods which is universal and common to all categories of age groups. These include the breakfast (usually taken in the morning), lunch (the afternoon food) and dinner (night meal). In between, people introduce other minor meals and drinks such as snacks and drinks of different kinds to refresh their moments. Table 1 shows that different categories exist. Before age 60, for instance, a large majority (74%) of the elderly in this study reportedly eat breakfast, lunch and dinner. In the previous day before the survey, breakfast and dinner were reportedly eaten by 4.3% respondents while 11(1.2%) respondents reportedly ate lunch and dinner. Lunch only and dinner only, as the only meal of the day was reported by 21 (2.4%) and five (0.6%) respondents respectively. In all, 17.5% of the respondents indicated that they eat more than three times daily.

Also, Table 1 shows the meal periods of the respondents after age 60. A significant percentage (70.9%) of the elderly indicated that they eat breakfast, lunch and dinner. One hundred and twenty-eight (14.5%) eat just breakfast and dinner, while very few (0.3%) eat breakfast alone. Also, 1.6% of the respondents eat lunch and dinner only; 1.2% eat dinner only; and 0.9% eat lunch only, while more elderly (10.5%) eat more than three times daily.

With regard to the reasons for the eating patterns after age 60, some respondents (39.6%) did not give their reasons, however, among the remaining respondents, reasons like: acquired lifestyle pattern (20.5%), ability to afford/economic incapacity (5.7%), age needs (15%), medical reasons (11%), lack of appetite (6.1%), and cultural reasons (2.1%).

In situations when elderly persons do not live with their children, cooking arrangements have been made with their children or son/daughters-in-law as to how and when food will be prepared. Apart from children living in very distant places – who usually send money, in some cases children/daughters/sons-in-law deliberately live in close geographical proximity with the elderly

persons/parents so that their nutritional needs can be catered for. One of the elderly respondents noted that one of her children cooks and send *soups* to her in a space of every three days – twice a week so that she can make other foods (solid and staple) which will be served with the soup her daughter cooks.

In other ways, an elderly respondent explains that –

My children live in neighbouring communities, so they usually take turns to send food to me on a daily basis. This is usually possible because the children have their own adolescent children (my grandchildren) that are usually sent on the food delivery errand. There are usually times that two foods are brought at the same time from different children. However, there were also times when food is not available from any of the quarters, especially when there is a miscommunication among the children as to who will bring the food at a specific period.

[IDI/Male/71years old /Oyo origin/No observable disability/Living alone]

Therefore, the proximity of ‘children’ to their elderly parent(s) will go a long way in shaping the food preparation pattern and how the elderly will perceive food preparation as either being done by them or by their children. This occurs bearing in mind that the concept of ‘children’ remains shrouded in the complex nature of African societies and how familial kinship determines social relations and exchanges.

In Table 1, the respondents reported that the frequency of eating after age 60. This is with regard to the number of times food was eaten in a day. The majority (60.3%) of the elderly ate between 3 – 4 times daily, about a quarter (26.8%) ate more than four times daily, and some respondents (12.9%) ate not more than twice daily.

In cases where the grandchild lives as an economically dependent individual (based on the marital problem of parents, death/illness of parents, migration situation), the burden is higher for elderly persons. An elderly respondent posits –

...this child has been living with me since he was about four months old (pointing to a boy in his early adolescence), the mother (daughter-in-law) just left him with my son and followed another man. I have been taking care of him since that time and in fact, his father too (...fighting back tears) has not been here to see him for about two years now. He only sends money once in a while; he is not doing very well financially as well, so there is a limit to what I can do. I have to leave him with neighbours when I need to go to the farms to get the things I sell (fruits and vegetables). God should just help me (finally broke down in tears...)

[IDI/Female/69years old /Ibarapa origin/ No observable disability/ Living alone]

Conversely, where the grandchild(ren) lives with the elderly as a ‘gift’, in consonance with the idea of reciprocity or providing support for the grandparent, the burden is perceivably lesser. Although the latter form of interaction is more rampant in the study area, the elderly believes that modern times have cut off the relationship that should exist between grandparents and grandchildren. One of the respondents notes that –

In the olden days, children live their own children to live with their grandparents, but these days, none of you people (gesturing to the interviewer) will allow your children to stay with your parents. You complain that ‘grandma ma n ba omo je ni’ (Literally – grandma usually spoils a child) – means that grandma pampers the child and makes such child to lack discipline.

[IDI/Female/74years old /Ibarapa origin/ Limping – Arthritis patient/sufferer/ Living alone]

Furthermore, the living arrangement of elderly persons can determine who takes up the responsibility for food preparation. This is especially possible when elderly parents live with the children. In this case, grandchildren (especially mature ones) are actively engaged in food preparation. This may not just be for the elderly person alone but also for the entire family. Therefore, living arrangement is a key variable to consider in determining the food preparation subject among elderly people. Few elderly persons (13.8%) live with a combination of their children and grandchildren

Table 1: Feeding patterns of the elderly

	Before 60		After 60	
	Frequency	Percent	Frequency	Percent
Meal periods of respondents				
Breakfast/Lunch/Dinner	654	74.0	627	70.9
Breakfast/Dinner	38	4.3	128	14.5
Lunch/Dinner	11	1.2	14	1.6
Dinner Only	5	.6	11	1.2
Breakfast Only	0	.0	3	.3
Lunch Only	21	2.4	8	.9
More than three times daily	155	17.5	93	10.5
Frequency of eating				

Once daily	44	5.0	48	5.4
Twice daily	176	19.9	291	32.9
Three times daily	639	72.3	521	58.9
Once a week	14	1.6	13	1.5
Twice a week	4	.5	5	.6
Three times a week	7	.8	6	.7
Meal times				
≤ 2times	-	-	114	12.9
3 -4 times daily	-	-	533	60.3
More than 4 times	-	-	237	26.8
Food groups				
Starchy foods Only	-	-	762	86.2
Protein Only	-	-	3	0.3
Starchy foods + Protein	-	-	108	12.2
Starchy food and/or Protein + Other food	-	-	11	1.2
Total	884	100	884	100

The social relations of supplement use among the elderly

In engaging the key elements of nutrition supplement use among the elderly and in consideration of the pattern of use before age 60, in Table 2, about half of the respondents (51.5%) reported they did not use nutrition supplement before age 60. Of the elderly who used nutrition supplement before age 60, the majority (52.4%) took multivitamins, while 27.7% took blood tonic. Few (5.2%) took herbs, others used medicinal vegetables (3.1%). In further describing the pattern of nutrition supplement use, most (58.5%) used nutrition supplement once daily, some (19.1%) twice daily,

few (11.1%) three times daily. However, irregular use (twice a week (3.5%), once a week (3.3%), twice a month (1.9%), three times a week (1.4%), and once in two weeks (1.2%) occurred.

In relation to the reason respondents provided for using nutrition supplements, the majority cited doctor's advice (87.5%) and few (4.5%) reported the advice from supplement seller. Majority of the elderly (89.2%) personally monitored their supplement use before age 60, and exactly 4% signified that their children helped them monitor.

Table 2: Description of social relations of nutrition supplement use among the elderly

	Before age 60		After age 60	
Use of Nutrition supplement				
Used nutrition supplement	424	(48%)	641	(72.5%)
Did not use nutrition supplement	456	(51.5%)	241	(27.3%)
Do not know	4	(.5%)	2	(.2%)
Total	884	(100%)	641	(100%)
General category of supplements				
Vegetables	13	((3.1%)	6	(0.9%)
Herbs	22	(5.2%)	20	(3.1%)
Blood tonic	160	(37.7%)	438	(68.3%)
Beverage	1	(.2%)	14	(2.2%)

Multivitamin	222	(52.4%)	150	(23.4%)
Tobacco	6	(1.4%)	1	(0.1%)
Moringa	-	-	12	(1.9%)
Total	424	(100%)	641	(100%)
Regularity of supplement use				
Once daily	248	(58.5%)	285	(44.5%)
Twice daily	81	(19.1%)	193	(30.1%)
Three times daily	47	(11.1%)	103	(16.1%)
Once weekly	14	(3.3%)	23	(3.6%)
Twice weekly	15	(3.5%)	19	(2.9%)
Thrice weekly	6	(1.4%)	7	(1.1%)
Once in two weeks	5	(1.2%)	3	(.5%)
Twice in a month	8	(1.9%)	8	(1.2%)
Total	424	(100%)	641	100%
Reasons for supplement use				
Doctors' advise	371	(87.5%)	557	(86.9%)
Supplement seller advise	19	(4.5%)	25	(3.9%)
Mass media advertisement	1	(.2%)	2	(0.3%)
Family/friends advise	11	(2.6%)	16	(2.5%)
Children's advise	11	(2.6%)	35	(5.5%)
Religious leaders' advise	3	(0.7%)	-	-
Body system reaction	6	(1.4%)	5	(.8%)
Supplements not readily available	1	(.2%)	-	-
Others	1	(.2%)	1	(.1%)
Total	424	(100%)	641	(100%)
Monitoring of supplement use				
Supplement seller	4	(.9%)	9	(1.4%)
Doctor	10	(2.4%)	22	(3.4%)
Children	17	(4.0%)	27	(4.2%)
Self	378	(89.2%)	517	(80.7%)
Friends	2	(.5%)	-	-
Spouse	10	(2.4%)	52	(8.1%)
Parents	3	(.7%)	-	-
Relatives	-	-	7	(1.1%)
Grandchildren	-	-	7	(.1%)
Total	424	(100%)	641	100%

As a way of describing the pattern of nutrition supplement use among the elderly after age 60, Table 2 shows the distribution of responses. Most elderly respondents (72.5%) take nutrition supplement, some (27.3%) indicated that they did not take any form of nutrition supplement, and very few (0.2%) are undecided. With regard to the category of nutrition supplement taken, majority (68.3%) took blood tonics, some (23.4%) take multivitamins, and few (3.1%) take herbs. Others include: beverages (2.2%), moringa (1.9%), vegetables (0.9%) and tobacco (0.1%).

After age 60, most elderly (80.7%) monitored their own supplement use, few (8.1%) indicated that their spouse does the monitoring, 4.2% respondents signified that their children monitor the

nutrition supplement use for them. Also, 3.4% signified that their doctor does the monitoring. Others reported the role of supplement seller (1.4%), relatives (1.1%) and grandchildren (1.1%).

Relationship between Feeding Patterns and Supplement Use

In relation to the data on Table 3, it shows that food frequency is significant ($P=0.011<0.05$; $df=1$; $\beta=1.566$) and this reflects the fact that elderly persons who eat more than four times daily have a higher likelihood (1.566) to use supplements. This claim is valid when compared with the elderly who eat less than four times daily. In like terms, at $P=0.019<0.05$; $df=1$; $\beta=0.342$, it was clear that the elderly who eat at most two times daily (a possible combination of breakfast/dinner – 101, lunch/dinner – 011, breakfast/lunch – 110) have a lower likelihood (0.342) to use supplements. This is measured vis-à-vis other groups of elderly who eat more than three times daily and the elderly persons who eat less than 2 times daily.

Table 3: Relationship between Feeding Patterns and Use of nutrition supplement

Feeding Patterns	B	S.E.	Wald	df	Sig.	Exp.(B)
Food groups (Odd: Starchy foods only)			6.198	3	0.102	1.000
Protein only	0.908	0.614	2.184	1	0.139	2.48
Starchy foods and Proteins	0.495	1.374	0.13	1	0.718	1.641
Starchy foods/Proteins/Other food groups	0.452	0.642	0.495	1	0.482	1.571
Eating times (Odd:1-2 times daily)			6.685	2	0.035	1.000
3 - 4 times daily	0.327	0.278	1.385	1	0.239	1.387
> 4 times daily	0.448	0.175	6.538	1	0.011*	1.566
Meal periods (Odd: Not regular - ≤ 2 times daily)			5.606	2	0.061	1.000
Fairly regular (2 times daily - 101,011,110)	-1.074	0.458	5.491	1	0.019*	0.342
Very regular (≥ 3 times daily)	-0.205	0.238	0.738	1	0.39	0.815

a. Dependent Variable: Regularity of Supplement use (Dichotomous variable)

Although food remains one of man’s basic and physiological needs, the availability of food (notwithstanding quality) was not in contention among most of the respondents. This idea is embedded in the fact that most elderly in the study lived in rural-agrarian areas. Hence, one of the respondents opined thus -

Food is not a problem, because as a farmer we have food on the farm. We may not have sufficient food to sell and or to make money, the good thing about the work of farming, is that food is not in short supply. One may not have all the money he needs, in fact, he may not have a house to himself, but food to eat is not going to be a challenge. And when food is removed out of the list of poverty problems, poverty

is half resolved. [IDI/Male/72years old /Oke Ogun origin/ No observable disability/ Living with spouse, children, grandchildren].

With evidence from the interviews, it was clear that regular eating is high without interest in nutritional quality – due to the problem of low education. Also, attitude towards the regular use of the supplement is low because supplements are considered overtly in response to authoritative prescription (86.9% - Table 2) when ill. In the same light, the rationale for the continuous use of supplements is to maintain health (83.9%). In the same way, whereby the interest in eating is different from the interest in food quality, the use of supplements is interpreted as an outcome of doctor’s prescription and advice – that supplements are for health maintenance. Therefore, beyond the relationship that may statistically exist between eating regularity and supplement use, there are perception-based variables that serve as intervening factors in the discourse. First is the perception and interest in food quality (interest in food quality is largely a function of education). Second, is the perception about supplement as food or as a drug. This is because if food quality is the focus, use of supplement will be regarded largely as supplementing nutritional deficiency rather than serving a curative purpose. Thus, when the HBM emphasizes cues to action, regular eating as a cue to action (to prevent illness) is one of many other behaviours that go hand-in-hand with supplement use, which is also a lifestyle adopted to further prevent illness. The elderly have, in certain cases, discontinued supplement use based on a feeling of wellness as portrayed in one of the In-depth Interviews –

I do not take supplements all the time, because I do not need to take them...after taking them when I am sick, I do not feel there is any good reason to go back to them since I now feel healthy and well...I know I am healthy because I am not feeling sick...[IDI/Female/75years old /Ogbomoso origin/ No observable disability/ Living with spouse only].

Also, because of the prevailing level of low education (64.6%) in the study population, the knowledge and practice of quality dietary intake are elusive, since they do not possess a sufficient level of formal education to be able to organize meal types and patterns. This idea was confirmed in the qualitative data when a respondent (with a good level of education and healthcare experience – a former nurse) opined thus –

I take my supplements regularly and I have a timetable for my food. I drew the timetable and that is what we follow in my house. [CS/Female/88years old /Ibadan origin/ Blindness/ Living with house help].

This claim further substantiates the theoretical argument of self-efficacy. However, based on the fact that quality nutrition is not fully understood by a large proportion of the population, regular eating is usually translated to good eating. The elderly in qualitative terms did not establish a connection between food quality, regular eating and use of the supplement. Supplements are used for health maintenance because the authoritative source advice that supplements are good for the health. Thus, as elderly persons, they continue to use them in view of maintaining health, not based on an active engagement of nutritional deficiencies.

Discussion of findings

The process of ageing is not just occasioned by physiological or psychological functionality reduction, almost all facets of live, living and livelihood are affected. In this regard, considering the feeding-related functionality of the elderly, the issues that constitute the idea of feeding pattern, are most related to the food preparation, food processing, times/regularity of eating, food types and feeding methods/modes.

However, in providing sociological explanations of the circumstances related to feeding patterns among the elderly, food preparation contextually focuses on the social networks that determine who prepares food for the elderly most of the time. In the same vein, food processing among the elderly (with no consideration for nutritional benefits) with very clear emphasis on the food preparation practices and changes are actually recorded as the elderly transverse the age below 60 years to the ages above 60 years. Timing, feeding or meal periods are captured in terms of the major time belts of the day as well as the number of time actual eating takes place. This also connects with snacking as a core of meeting nutritional needs.

Before age 60, more elderly persons cooked by themselves. First, there is an argument about gender roles and/or the cultural ethos that restrict cooking roles to the female gender. Cooking for self is captured as a life-long practice which is the elderly presumably transferred across the age 60 marker. Other factors include the role of personal discipline (Kim and Kim, 2010); work life in middle age (Pucciarelli and Thomas, 2011); training while growing up; and the consciousness that food should be prepared according to individual taste. These are key factors manifested through self-efficacy, influenced by tradition, rationality, (La Bounty, Campbell, Wilson, Galvan, Berardi et al., 2011) emotional attachment (Nyberg et. al., 2015) to certain foods and the recommendation of knowledge/authority figures in health.

In discussing the role of personal taste, in corroboration of Colby (2013), generational differences exist as to food preparation and processing. Hence the generational transition has distorted the real traditional dietary pattern of most communities. Further to this, as discovered by Nyberg et. al. (2015), elderly people are conservative and *neophobic* consumers. In relation to the preference for certain kinds of food, there is an avoidance of foods that are of foreign origin, canned/processed foods and other foods that are regarded as 'modern'.

However, in clear terms of reference to the social disconnect that characterizes ageing in a majority of developing countries, the extant literature affirms that majority of elderly persons live alone (UN-DESA, 2014), hence, the practice of cooking by themselves becomes highly inevitable. Notably, differences were identified as regards the pattern of children's involvement in the food preparation task of the elderly. The elderly, notwithstanding their economic status, crave the presence of their children as a help for cooking food and for anticipated reciprocity reasons.

The concept of children in the studied communities reflected a distended conceptual difference from the Western classifications of family relations. Because most elderly people reside in rural communities and enjoy a high level of mechanical solidarity in such social forms, children 'omo' are neither differentiated across the up-line or down-line social relationships in the families. In this case, veering into Structuralism (Ferdinand de Saussure) rather than conceptual clarity, nieces and nephews (omo-egbon or omo-aburo) and grand/second-cousins (omo-omo-egbon/aburo); daughters/sons-in-law; step-sons/daughters are rarely differentiated from biological children. Hence, the responsibility of providing food which is, in fact, an outcome of living arrangement is mostly blurred. Consanguinal and affinal social networks actively contribute to meeting the food needs of the elderly.

As a decline was visible in food preparation by spouses, it became clear that the attrition of spousal relationship based on divorce, separation or death can implicitly re-direct the source of food preparation among the elderly. Within the context of existing knowledge in ageing, ageing is usually characterized by a decline in spousal support (Nyberg et. al., 2015). The rise of the role of house-help in easing the burden of food preparation among the elderly is visible. Unlike most developed societies where social services and Old peoples' homes have continued to thrive, sub-Saharan African countries, as developing nations, still struggle and debate on the morality of such facilities (UN-DESA, 2011). Of course, an emergent structure of care for the elderly is the use of nanny/house help. Grand children of elderly persons also became a significant part of their food preparation support. This arrangement can be regarded as constituting the down-line social care from children of elderly parents. The practice is culturally founded and forms the basis of teaching younger ones about the necessity to take care of ones' parents in old age. Although the literature (Ezeh et al., 2006) from HIV/AIDS endemic societies have argued that such a relationship can constitute a social and nutritional burden to the old, the study discovers that there seems to be a

contradiction with this assertion when the purpose/intent, age of child, and regularity of support from child(ren)'s parents are put into context. However, while it is highly possible that elderly-headed households experience severe social, economic and nutritional outcomes (Ezeh et al., 2006), the circumstances may produce a different result if such grandchildren have travelling/working-abroad parents; or the child(ren) are specifically sent to the grandparents for companionship and support for elderly persons. Therefore, although mathematical explanations may identify a disadvantage, social interpretation and meanings will veritably manifest as being positive in such situations.

In discussing the relationship between feeding patterns and use of nutrition supplement, regular eating exceeds the regular use of supplements. This means that increased eating times will account for higher use of supplements. Although some respondents in the field process opined that the use of nutrition supplement makes them eat more, the test value explains that the elderly who eat a maximum of twice daily have a higher propensity towards supplement use. Thus, as a regular form of eating, it substantiates the assertion of Dickinson (2002), that regular eating is associated with supplement use. This is because regular eating in itself is a positive health behaviour emerging from paying close attention to personal health. Hence, elderly persons who are found to focus more on their nutrition are more likely to use Nutrition supplement.

Based on an application to theory, the Health Belief Model and the Social Action theory implicitly examines how the range of social and cultural factors that are external to the elderly translate into behaviour – or as the case may be their action. Thus, deriving from the discussion of types of action in Weber's thesis of social action, the role of tradition, authority/knowledge entities, emotional attachments, assessment of situation and risks as well as the capacity to connect the environment as means to wellbeing as ends are vital. Although the majority of these factors are not directly identified in human action, a culmination of considerations and influences in these corridors of externalities shape actions. Therefore, the decision to lay emphasis on choice of food, determining food timing, insistence on specific tastes and a range of social network roles are highly found instrumental in the feeding patterns of elderly persons. However, through a consideration of situations, risks and outcomes, the health belief is influenced by authority/knowledge entities that determine the cues to actions taken by elderly persons. Of course, the choice of food, time of eating, food preparation, payment for foods are in themselves health-oriented decisions which are guided by information. Health and wellbeing related information which is however, made

available through different means to the elderly in turn determines the elderly's perception of their susceptibility to disease/illness conditions; the social and economic barriers to accessing wellness; how severely their actions or inactions can affect their health; the benefits that wellness brings, which invariably shape their actions based on an aggregation of self-efficacy emergent upon the process of adherence to health-related instructions.

Conclusion and Recommendation

The complex interaction of social factors underlies the predictive relationship between feeding patterns and use of nutrition supplements. Feeding patterns are not ends in themselves but are products of unique social processes. Feeding patterns do not occur in isolation, they are outcomes of varied interactional processes. This paper identifies the role of the self as well as other kinds of relationships in the elderly persons' network. The study concludes that resulting feeding patterns have implications for supplement use among the elderly. Food types may not significantly convey the intervention of the social networks of the elderly as meal quality is a highly cultural and subjective concept. However, in terms of meal frequency and regularity of eating, it was clear that feeding patterns and use of nutrition supplements are related factors. First, it was clear that close attention to food regularity and frequency are critical factors for supplement use. Second, it was established that a commitment to eating 'well' also signifies a positive outcome in terms of supplement use. The study concludes that as much as social networks determine the feeding patterns of the elderly, the effect of social networks on feeding regularity and frequency of eating will have a positive effect on the use of supplement among the elderly.

Thus this study recommends that as more attention is given to the regularity of eating and frequency of eating among the elderly, more attention is required to ensure food quality within cultural and subjective limits. The health policy recommendation is to develop health promotion campaigns that will improve the outcome of regular eating. Regular eating needs to be combined with quality food. With this as the elderly eat well and are more favourably disposed to supplement use, better health and functionality outcomes will begin to occur among the elderly population.

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