

## Multi-Morbidity and Lifestyle in Western Nigeria: A Qualitative Study

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### Abstract

*The relationship between multimorbidity and lifestyle has been well documented in literature. Most of what we know about this issue was based on quantitative studies. We believed this qualitative study might allow the exploration of the understanding, beliefs and experiences of the multimorbid persons on this relationship.*

*In a period of three months in 2016, three focus group discussions were conducted in the family practice clinics of a hospital in western Nigeria. The discussions lasted 60 – 75 minutes and involved 22 adults participants aged between 25 and 73 years. We made use of a discussion guide of open ended questions with relevant probes. Constant comparison method was used for data analysis.*

*This study showed that multimorbid persons perceived their illness as part of normal aging process, sometimes running in families and associated with lifelong treatment and premature death. These perceptions informed adaptive behavior in relation to lifestyle modification, optimism and self-care tendencies focused on creating a harmony between their identity and the illness experience.*

*We therefore recommend the adoption of the patient centered approach in the management of multimorbidity to improve quality of care. We advocate further studies on these issues to contribute to the development of evidence based management framework tailored to the realities of people with multimorbidity.*

**Keywords:** Multimorbidity, lifestyle, Qualitative study, Focus group discussion, Constant comparison method.

### Introduction

The emerging burden of multimorbidity on socioeconomic indicators and healthcare systems worldwide calls for concern [1, 2]. The literature in the past two decades reported multimorbidity as a significant problem in terms of high healthcare utilization, reduced quality of life, high cost of care and high burden of illness and treatment [3].

Multimorbidity occurs when there are at least two chronic conditions in the same person [3]. Multimorbidity is different from comorbidity. Comorbidity refers to a situation when an index disease coexist with other conditions. These conditions may not complications of the index disease [4, 5]. In multimorbidity, there is no index disease among these conditions.

Clinical management of multimorbidity constitutes a challenge to both health care providers and patients. Currently best practice guidelines utilized for the in the management of individual chronic diseases are not suitable for the management of multimorbidity [6]. The use of these guidelines in the context of multimorbidity is associated with high cost of care, complexity of care and conflict in clinical decision making.

Current medical knowledge offers no cure for multimorbidity but provides avenue for prevention of complications, enhances functional capabilities and improves quality of life. [7, 8, 9].

In the search for the aetiology of multimorbidity, reports of several studies show significant relationships between lifestyle factors and multimorbid chronic conditions [10, 11]. This relationship was established

with physical inactivity, obesity, smoking, alcohol consumption, chronic stress and unhealthy nutrition [12-15]. In the prevention of multimorbidity, it is important to consider the role of lifestyle factors [16].

This qualitative study formed a part of a mixed method study to examine the relationship between multimorbidity and lifestyle. We aimed to explore the understanding, beliefs and experiences of multimorbid participants and integrate this with the results obtained from analysis of quantitative data obtained from the same study population on the relationship between in multimorbidity and lifestyle in our environment.

## **Materials and methods**

We made use of the constant comparison analysis approach to analyze data transcribed from three focus group discussions (FGD) involving a total of twenty two eligible participants attending the family practice clinic of Federal Medical Centre, Abeokuta. The constant comparison analysis emanated from the grounded theory of qualitative methodology [17]. Grounded theory is a type of qualitative data analysis involving the identification of categories and concepts within research memos linked together to become theories. Constant comparison analysis produces explanations for human behaviours and experiences in their peculiar context [18].

Practically pieces of data was compared with all others. Similarities and differences are found out. Linkages between these data leads to the generation of common theories and categories. These theories and categories form the output of the analysed data from the qualitative enquiry. .

## **Participant recruitment**

The study took place from July to September 2016. Qualitatively data was obtained from three focus group discussions (FGD). A focus group discussion provides a structured premise for acquiring in depth information from a group of participants on a subject matter [19]. The aim of a focus group discussion is to gather information about people's opinions, beliefs, attitudes, perceptions and experiences and not for consensus building or decision making [20].

All the twenty adults study participants provided written informed consent. They were recruited with the support of two trained research assistants. Doctors attending to patients in the clinics were requested to send patients with diagnosis of multimorbidity to the research assistants. Exclusion criteria included people with above moderate mental handicap, psychosis disorder and deafness. The research received ethical approval from the institutional ethical committee.

Eligible participants were divided into three groups based on agreement on the date chosen out of the three days designated for the focus group discussions. They were reminded by phone calls and text messages two days and a day before the scheduled dates. This communication was also used to confirm their availability for the FGD or voluntary withdrawal from the study.

The sampling method ensured that the groupings are heterogeneous enough to provide a diversity of knowledge, beliefs and experiences on multimorbidity. We ensured the three age groups (young, middle and old) were represented although not in equal proportions. Eight participants participated in the first and second discussions while six attended the third discussion.

Each of the FGDs was held at the departmental seminal room. We ensured no interruptions during the discussions which lasted between 60 to 75 minutes. Participants and the researchers were seated comfortably in a circular fashion. One research assistant took notes while the other one ensured adequate function of the battery operated voice recorder throughout the period. All the participants agreed to manual recording and audiotaping of the discussions. The research team was properly introduced to the participants. Ground rules were discussed and agreed upon by all present. These include confidentiality (the content of the discussions would only be known by those present), one person speaking at a time (to enable the identification of the speaker for the purpose of transcription and analysis) and the maximum time of 90 minutes available for the discussions. A prepared discussion schedule guided the commencement and exploratory nature of the proceedings. Open ended questions and probes were used as appropriate to generate responses from the participants.

We made use of focus group discussion schedule as follows.

Theme 1. Understanding of multimorbidity

- *Can you explain your understanding of the occurrence of multiple chronic diseases in one person?*
- *Can you explain what you associate with this health problem?*

Theme 2. Multimorbidity experience

- *From your experience what importance do you attach to these several chronic diseases affecting you in particular?*
- *What is your experience living with several chronic diseases? Probing done for illness experience, medications, opinion on care givers and personal relationships as appropriate.*

Theme 3. Link between lifestyle and multimorbidity

- *What do you understand by the link between this health problem and your lifestyle? Probing done for specific lifestyle factors – diet, heavy alcohol consumption, cigarette smoking, exercise, excess weight and stress.*
- *Describe your lifestyle before and after diagnosis of several chronic diseases.*

## Data analysis

Following each focus group meeting, the audiotapes were transcribed verbatim. These documents in addition to recorded memos of the meetings were read by the author. Twenty three themes were selected. These themes were discussed with the research assistants regularly during and after the three FGDs.

We applied the constant comparative method of data analysis. The three steps of coding and categorizing were used: open coding, axial coding and selective coding. Open coding was used to label data theme by theme. Thereafter, the themes were combined into categories. We used axial coding to make connections between categories. Axial coding allowed for making connections between categories [21].

Finally, selective coding was done to produce core categories around which the other developed categories can be grouped. Selective coding is the process of selecting the core category, systematically relating it to the other categories, validating those relationships, and filling in categories that need further refinement and development. The core category is the central phenomenon around which all the other categories are integrated [9, 22].

After categorization, the major categories that emerged are presented in the next section.

## Results

### Sample description (Table 1)

The mean age of the participants was 49 years (range 25 - 73). Of the participants involved, 15 were females and 7 males. Majority of the participants were in middle age group (63.6%). Over 95% had secondary education and above. Most of the participants were married (72.7%). About seventy seven percent were living with a partner at the time of the study. The chronic diseases documented in this sample included *hypertension, diabetes mellitus, musculoskeletal disorders, cardiovascular disorders, gastrointestinal disorders, bronchial asthma and mental health problems*. They have been receiving medical care for these chronic diseases from between 6 months and 16 years.

**Table 1.** Characteristics of the 22 multimorbid patients who participated in the three focus group discussions

Gender
Male 7
Female 15
Age group
25 – 45 5
46 – 65 14
>65 3
Income

≤ 18,500	2
18,501 – 85,000	16
≥85,501	4
Education	
None	0
Primary	1
Secondary	7
Tertiary	14
Staying with partner	
No	5
Yes	17
Duration of treatment at clinic	
0 – 5 years	6
6 – 10 years	11
11 – 15 years	4
More than 15 years	1

### Participants understanding of multimorbidity

#### *Multimorbidity as part of aging process.*

The relationship between aging and occurrence of multimorbidity emanated from this interaction. Participants were of the opinion that developing multiple chronic diseases is part of the normal process of growing old. According to them *‘aging is a normal process involving necessarily body weakness and ill health’*. They saw the multimorbidity experience as a normal living process if one must get old.

### Genetic predisposition

A middle aged female participants said *‘my mother had hypertension, arthritis and obesity, I was not particularly surprised when I developed this these conditions’*. She believed that some of these conditions run in families as one of her siblings was also obese and hypertensive.

### No cure belief

Although some of the participants initially looked towards a permanent cure for these conditions, they later found out that they had to live with these illnesses for life. The initial belief led some of them to make use of complementary and alternative medicines that offered no remedy. The experience of living with several chronic diseases for life in these participants was derived from effects of multiple treatment regimens, declining physical functioning, mental state, and changes in family dynamics and available of community resources to support their daily life. They believed their body and psyche was changed by this experience. They accepted these adjustments in lifestyle experience as necessary for coping with the emerging state of health associated with growing old.

### Treatment for life

While accepting the lifelong treatment required to maintain health, they all agreed that this process made them became more aware of how their body functions and some of the things to do or not to do to maintain good health. *‘I am a more disciplined man as far as my body and health is concerned. I no longer treat myself anyhow’* (middle aged man). They are aware they needed to take many medications that may have adverse effect on their body in addition to the therapeutic indications. They appreciated the fact that the various medications helped them to maintain or improve on their health conditions.

### Multimorbidity as a cause of premature death

The participants appreciated the level of seriousness or severity of their chronic conditions. They have come to terms with the fact that with or without treatment, they are at risk of premature death. *‘As I go*

*along, the fear of death is appearing real'* (middle aged woman). The premature death may either result from the adverse effect of multiple treatments they receive or from the diseases destroying their body.

### **Health care seeking behavior**

The participants appreciated the need to see their health care providers regularly. The downside to this was the challenge of consulting with various specialists for the many medical conditions they suffer from. A middle aged male explained as follows *'I saw cardiologist for heart disease, dietitian for weight problem and orthopaedic surgeon for arthritis. All the three care givers recommended weight reduction but gave me conflicting and unclear and at times impractical guidelines. At the end other my weight problem remained'*. From this experience, they suggested that it would be productive to limit the care to one doctor to coordinate.

Another aspect of the health seeking behavior is the effect of various health care suggestions from friends, neighbors and relatives. One young adult female participants said *'my friend introduced me to Chinese herbal products with a claim of cure for diabetes mellitus. After a few weeks I had to stop because my blood sugar kept rising'*. Having this problem made them prone or gullible to non-beneficial advice from people around them. The participants were at one time or the other exposed to the use of complementary and alternative medicine (CAM).

### **Lifestyle and multimorbidity**

The burden of multimorbidity is complex. It was evident that the participants experienced both illness and treatment burden. These had profound effect on many aspects of day to day living. The participants presented the picture of a changed lifestyle involving physical, social and mental components. They have internalized the fact that their way of life would not be the same again. They also expressed the unpredictability of their state of health as they move on in life. One of them said *'during a consultation with my doctor on some new laboratory tests, the new findings introduced some new medications I had to take and some new adjustments I had to make in my life from then on...living with these conditions can be alarmingly unpredictable'* (middle aged female). This uncertainty and disruptions in lifestyle is not limited to medical decisions. It had to do with living as a whole; managing many medications, follow up visits, managing diets, following weight reduction exercises, avoiding stress and self-management.

### **Weight problem**

The participants took personal responsibility for their weight problems. *'As I was making progress in my career and growing up, I ate more and became less active. I felt I needed more as I was getting older. I heard of the need to do exercise but I thought that is for younger people. When these conditions developed I became aware of the benefits of exercise but then I need a lot of motivation to carry on'* (elderly female). The participants were aware of the beneficial effect of weight loss. The main challenge to the participants was how to follow doctor's recommendation on weight loss. *'My doctor advised me to lose weight by reducing food intake and engaging in physical exercise, but I do not eat much. I did not know how to exercise. Jogging was suggested, but this is socially impractical in my environment'* (middle aged female). Another participants talked about the time and the motivation to carry out the exercise recommendation taking into consideration other various time demanding factors. They all felt the need for adequate motivation and self-discipline this demands.

### **Nutrition changes**

The intake of unhealthy diet out of ignorance constituted a major part of the eating habit of the participants. *'A number of fast food facilities are available around us. Out of convenience and also importantly because it was trendy to eat fast foods, we all engaged in this habit'* (middle aged female). They liken the practice of eating processed foods and snacks in eateries to a status symbol. *'Everybody including children indulge in this practice. We were made to recognize the health risks involved when we were educated by our doctor'* (young adult male). To abide with diet recommendations provided by care

givers was challenging to the participants. According to a middle aged man '*there was some difficulty in arriving at a diet that goes along with my condition. After getting it worked out, I realized that changing to the new arrangement require substantial amount of discipline and motivation. I was not alone in this dilemma. My wife had to restructure her kitchen activities to meet the new demand. She made the matter manageable by sometimes taking these diets with me because of the health benefits*'.

### **Alcohol and cigarette smoking**

Some of the participants were occasional drinkers of alcohol. Only two of them smoked cigarette before. With the awareness of the deleterious effect of cigarette smoking and heavy alcohol consumption, these habits are at the time of the discussions things of the past.

### **Chronic stress**

The participants are varied in their opinion as to what constitutes stress. One person reasoned stress out to be work related. '*I think the stress of work I did for several years weakened my body*' (elderly female). Another person related it to the economic challenges people face. It was also thought to be from marital disharmony and separation or divorce. A middle aged female said '*I had problems with my spouse. We separated at the end of the day. This resulted in poor sleep for a long time and high blood pressure for me*'. A young adult female said she had stopped attending social functions as this constituted stress for her in addition unhealthy diet she was exposed to at such social functions. It was clear from the discussions that patients need adequate education on stress and its relationship with multiple chronic conditions.

### **Physical exercise**

The participants with hypertension and diabetes mellitus appreciated the importance of heeding the advice of the care givers on the need for regular physical exercise. They felt the illnesses and the old age makes they feel fragile and afraid to abide by this advice. They were afraid physical exercise might cause more damage to their body. '*I tried sometime to take short distance works. The back and knee pains got worse that day*' (middle aged female). They opined that the social setting was not very conducive to exercises like jogging and running on the streets. These issues reduced the motivation to engage in physical exercise despite the awareness of the benefits.

### **Self-care**

Most participants have become active in their health care over time. Important areas of self-care include attending medical follow – up, contacting the doctor on phone resolve pressing issues or unexpected developments, involving family members particularly the spouse in the care and support, managing unpleasant feelings and emotions about state of health relating physical impairment, trying as much as possible to take control of life and living related to various health challenges. The participants appreciated the advantages derivable from self-care. Exercise and healthy nutrition helps people with weight problems, hypertension and diabetes. '*When my weight reduced, my blood sugar was better controlled and also my blood pressure. I needed less number of medications*' (middle aged man). The participants also made of electronic sphygmomanometers and glucometers for home monitoring.

### **Discussion**

In this study we explored patients understanding of multimorbidity, examined the illness experience of multimorbid persons and the lifestyle adjustments these participants had to make in response to the demands of their illness experience. The FGDs revealed the impression supported by a large number of findings that there is a strong link between multimorbidity and aging [23, 24].

A study by Fortin et al in 2012 found a higher prevalence of multimorbidity among people over 75 years when compared with the general population ( 3.5% - 98.5% versus 13.1% - 71.8%) [25]. Multimorbidity also occur in specific young or middle – age groups with endocrine disorders [26]. In some populations, more young than elderly people were found to have multimorbidity [27].

The knowledge of the familial predisposition to multimorbidity in the discussions reinforced scientific fact of the modification of genetic makeup by environmental and lifestyle factors [28, 29]. In cardiovascular disease, people of African ancestry have the tendency to have cerebrovascular complications while Caucasians tend to have coronary heart disease.

In their understanding of multimorbid chronic conditions, the participants appreciated the long – term and lifelong nature of their illness. Closely related to this is the seriousness or rather the severity of these conditions and the tendency to lead to premature death. As a cause of premature death, most studies agree that multimorbidity reduces life expectancy [30]. However there is evidence that the mortality is related to disability for multimorbidity rather than from multimorbidity itself [31].

From what the participants experienced with the clinical management of their conditions, they found it beneficial to be managed by one care giver to engender better quality of care. For instance a patient with hypertension and diabetes mellitus requires follow up by the cardiologist and the endocrinologist. This involves clinic visits for laboratory tests, prescriptions and counseling by each specialist. The quality of care associated with this multiplicity of care is related to the relief of illness and treatment burden experienced by the multimorbid patient. It is evident for the discussions that the participants needed a better approach to care. In addition, this current care model that emanates from single disease management paradigm has not taking into consideration psychosocial component of multimorbidity [32]. It becomes important therefore to consider psychological and social issues in the management of multimorbidity [33].

It is important to note that focusing only on physical aspect of multimorbidity in health care is associated with higher healthcare costs resulting from more frequent contact with healthcare system for each separate condition [34].

Use of complementary and alternative medicine (CAM) was common practice among the participants. Several studies show increased global trend in the use of CAM among patients with chronic diseases [35, 36]. As far back as 2002, prevalence rates of use of CAM in developed world had risen to about 60% [37]. The high prevalence made attention to be focused on the use, safety profile and effectiveness of CAM among patients and clinicians. Generally speaking, people perceive the use of CAM as a means of health maintenance and promotion [38, 39], symptom relieve in chronic/terminal illnesses and relief from the side effects of conventional treatments for chronic and terminal diseases [40, 41]. It has not yet been ascertained if these products are veritable adjuncts to convention medicine.

### **Lifestyle and multimorbidit**

Current practice offers to the multimorbid patient a fragmented medical care not at tandem with expectations and experiences associated with the illness [42]. The care of the patient is a series of specialty consultations that fails to resolve many physical and psychosocial challenges [43].

The goal of care for these patients has many dimensions. These are improving quality of life, managing polypharmacy, reduction in number of consultations, enhancement of self – care capability, increasing life expectancy, disability management and improvement in mental health [44]. It is difficult to achieve these goals. The proposal of an acceptable standard of care taking into consideration a constellation of biopsychosocial issues in multimorbidity remains a challenge [44].

In the light of the above therefore, attention has been given to the enhancement of self-care capability through lifestyle modification. The importance of lifestyle factors in the health prevention and promotion for the multimorbid patient had been the subject of several studies [45, 46, 47].

The participants appreciated the need for weight reduction for the overweight and obese patient. A study in the United Kingdom in 2014 found out that 32% of multimorbidity was attributable to overweight and obesity [48]. Although recommendations abound in literature on how to reduce weight, it remains a challenge for most patients how to put theory into practice.

As with weight reduction, the participants were aware of the beneficial effect of dietary adjustments on their health. Evidences supporting the relationship between greater intake of fruits and vegetables are conflicting. Ruel at al [2013] reported that greater consumption of fruits and vegetables appear to lower the

risk of multimorbidity [49]. This report is at variance with the findings of Fortin et al (2014) that not eating a recommended amount of fruit and vegetables was not associated with a higher likelihood of multimorbidity [50].

All the participants were neither smoking cigarette nor consuming alcohol at the time of this study. They were aware of the deleterious effect of these habits on their health. Cigarette smokers have a higher risk of developing several severe chronic physical and metabolic disorders like lung cancer, chronic bronchitis, COPD, stroke, hypertension, decrease HDL cholesterol and arteriosclerosis [51].

Although mild to moderate alcohol consumption has positive health benefits [52], heavy alcohol consumption have deleterious effect on the human body. There is increased risk of multiple organ damage resulting in multimorbidity and death.

The phenomenon of stress is poorly understood by many of the participants. According to Baun 1990 [53], Stress is an emotional experience accompanied by predictable biochemical, physiological and behavioral changes. Chronic stress is associated with mental, cardiovascular, musculoskeletal and neoplastic diseases [54].

While the participants were conscious of the fact that physical exercise promotes well-being as evidenced in literature [55], the social setting most of them live makes this practically challenging. According to them, they need substantial drive and motivation to engage in physical exercise. Health workers consoling multimorbid persons on physical exercise need to go beyond the theoretical prescriptions. Patients centered approach taking into consideration individual patient's physical fitness, home and community peculiarities would yield desired results.

The participants developed over time the attitude of taking responsibility for their health. Their health seeking behavior was initially directed at what was obtainable for their care givers. The realization of lifelong nature of their illness led to social, behavioral, physical and attitudinal adjustments required for taking ownership of their diseases. [12, 33, 56, 57]. The benefit derivable from this paradigm include giving meaning to the multimorbidity experience and using this as an opportunity to make significant change in one's lifestyle and one's relationship with others. Furthermore, there emerges an establishment of harmony between the multimorbid person's identity and the identity associated with the disease leading to an optimistic view of their situation [58] as manifested in the participants.

## **Conclusions**

This study showed that multimorbid persons perceived their illness as part of normal aging process, may run in families, require lifelong treatment and associated with risk of premature death. These perceptions informed adaptive behavior in relation to lifestyle modification, optimism and self-care tendencies focused on creating a harmony between their identity and the illness experience.

The findings of this study should inform a shift in paradigm in policy and guidelines relating to the care of multimorbid persons. We recommend the adoption of the patient centered approach in the management of multimorbidity. Enquiry about the patient's illness experience and coping mechanism and utilizing these in the design of individual patient management processes will positively impact on the quality of care for the multimorbid persons. We advocate further studies on this premise to engender the development of evidence based management framework tailored to the realities of people with multimorbidity.

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