

Health Promoting Lifestyle Practices of Rural Women in OSUN State, Southwest, Nigeria

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Abstract

Objectives: Global attentions to health behaviour and lifestyles that place emphasis on quality of life are the focal point for health promotion research. This study assessed the health promoting lifestyle of the rural women and factors that influences it, with a view to providing guidelines for the development of programmes that support rural women's health behaviour.

Study Design: Descriptive cross sectional design was used for the study.

Methods: Multi-stage sampling technique was employed to drawn 426 women from three communities in Osun State Nigeria. Data were collected using a questionnaire and focus group discussion guide.

Results: The study revealed high level of poverty among women in rural communities in the state. The health promoting lifestyles frequently practiced by the women were Spiritual Value/Belief (Mean = 3.27 SD 0.52) followed by Nutrition (Mean = 3.16±0.37), while the least practiced were Health Responsibility (Mean = 2.08 SD 0.60) and Physical Activity (Mean = 2.12 SD 0.87). None of the subscales of Health Promoting Lifestyles were practiced adequately to a level that can drive the control of non-communicable diseases (NCDs). There is significant relationship between health promoting lifestyle and location at 0.05 significant level with Wilks Lambda value = 0.89, F = 3.24 and P = 0.00. Also all the three parameters used to assessed the socio-economic status and health promoting lifestyles are significant at 0.05 significant level with Wilks Lambda value = 0.91, F = 1.72 and P = 0.02 for educational level; Wilks Lambda value = 0.89, F = 1.61 and P = 0.02 for occupation and Wilks Lambda value for average monthly income = 0.57, F = 1.32 and P = 0.01

Conclusion: Rural women had no information, guidance and do not consciously engage in health promoting lifestyle but are willing to adopt appropriate health behaviour if they had adequate information.

Key points: health promoting lifestyle, rural community, rural women, socio-economic status.

I. Introduction

Health promoting lifestyle (HPL) continues to receive attention of researchers in the past decade due to a close association between increasing prevalence of non-communicable diseases (NCDs) and lifestyle¹. In 2008, WHO estimated that 36.1 million people died from conditions such as heart disease, stroke, chronic lung disease, cancer and diabetes, and all these diseases share the common risk factors of tobacco use, lack of exercise, and poor diet. Nearly 80% of these deaths occurred in low and middle income countries^{1,2}. The burden of NCDs in low and middle income countries, Nigeria inclusive, is high with 80% of NCD-related deaths and 60% of such death occurring below the age of 60years³. Non-Communicable Diseases (NCDs) are the major causes of death and morbidity worldwide⁴.

Aregbesola commented that the lifestyle of people in Nigeria would account for the increasing incidence of NCDs¹. In examining the challenges of NCDs as may be associated with lifestyle issues in developed and developing nations, an important tenet of health promotion is to consider people not as isolated individuals, but as part of a wider environment. This environment is the "setting" in which people live and work, which has a profound effect on their health. Therefore the "settings" approach to health promotion takes into account all the elements of an environment, and seeks to change those negative aspects which undermine health. The "setting" may be the home, school, workplace, town or city⁵. Humphreys & Wakerman observed that residents of rural and remote communities experience poorer health outcomes⁶. The high cost of medical treatments for most non-communicable diseases, high level of poverty and poor access to health care increased the mortality rate among the vulnerable populations^{1,7}

There is also the gender dimension to health behaviour, access to health information, health care and health status that provides a basis for exploring the lifestyles of men and women by place of residence. Essentially, health promotion and disease prevention from a gender perspective should address the differences between women and men, boys and girls in an equitable manner in order to be effective⁸.

A woman's health is her total well-being and this is not determined solely by biological factors and reproduction but also by effects of work load, nutrition and stress, among others⁹. There are opportunities for women that live in suburban or urban communities to access health care services and health information through Internet facilities and also to discuss with other people that have similar problems on how to cope with the condition¹⁰. On the contrary, Paulik, et al, observed that rural women generally have poor health and a majority of them are financially handicapped by virtue of their level of education, gender inequality, poor remuneration and lack of good employment opportunities⁴. Women in rural farming communities are exposed to agricultural chemicals and pesticides throughout their lives, thus increasing the risk of certain types of diseases of the skin and female organ. They are also susceptible to injury and accidents related to the use of farm machinery, which increase the risk of disability from such accidents⁹. Women who adopt health-promoting lifestyle will prevent and control both chronic and communicable diseases and will also contribute to achieving some of the health-related Millennium Development Goals, particularly among poor and marginalized groups¹¹.

Studies into health-promoting lifestyle have received attention for many decades in many developed nations. Adams, Bowden, Humphrey & McAdams reviewed the research literature from 1983 to 1991 and reported the investigation of HPL of English and Spanish-speaking Mexican Americans carried out by Kerr & Richey in 1990, showed that self-actualisation and interpersonal support received the highest scores among both groups, with the Spanish-speaking group scoring higher. Health responsibility and exercise ranked lowest¹². A similar result was obtained in a study conducted by Duffy, Rossow, & Hernandez in 1996 among Mexican American women and other minority groups. Self-actualization and interpersonal support received the highest scores among African American women. When compared with other groups in the sample, health responsibility ranked the highest. African American women received the lowest scores on self-actualisation, exercise, and nutrition when compared to other groups¹².

Meanwhile, studies exploring lifestyle of women in Nigeria are limited and there is a dearth of information on activities directed at enhancing and maintaining health of the women in rural communities. This study was conducted to determine health-promoting lifestyle practices among women in sampled rural farming and suburban communities in Osun State. The findings are to provide information to guide development of interventions targeting women in rural and farming communities.

II. Methods

The study was conducted in Osun State, Southwest, Nigeria. The State is located in coordinates: 7°30'N 4°30'E and covers an area of 9,251 km² (3,572 sq miles) with density of 240/km² (620/sq mi) with estimated population of 4,137,627 in 2005¹³. The state is documented to be 'a rural state', with 19 out the 30 local government areas (approximately 60 percent of the state population as indicated by the 1991 National Population and Housing Census) being non-urban local government councils. A rural local government area, as Sanni indicated, is a local government area with only one or two small towns as the principal settlements while the remaining settlements are rural communities¹⁴.

Descriptive cross-sectional design was adopted; qualitative and quantitative data were collected using focus group discussions and questionnaire respectively. Data were collected from 426 women living in three (3) selected communities. Samples were selected in a five stage process from 2 local government areas. This sample size was determined using sample size determination for single proportions¹⁵. The first stage of the sampling technique was the random selection of Ife zone from the six geopolitical zones in Osun state, while the second stage was the selection of local government areas. Purposive sampling technique was used to select two local government areas (Ife Central and Ife East) from the zone based on availability of rural farming communities and accessibility. The third stage of the sampling technique was the selection of the communities. Three communities were purposely selected based on type of settlement and accessibility to Ile-Ife town with two of the communities being typical rural farming communities and the third being a semi-urban community that transitioned from being a rural community to becoming a suburban part of Ile-Ife due to development. Households were systematically selected in each of the communities in the fourth stage. The first house was randomly selected after which every third house was selected. Female respondents who were not less than 19 years and had resided in the three communities for not less than five years, irrespective of their educational level, marital status and occupation were purposely selected from each selected household in the communities. Based on the population of the three communities, samples were drawn proportionately with 263 sample units drawn from Community 1 (the semi-urban community with the largest population of the three communities), 20 from Community 2 and 143 from Community 3 (the rural farming communities). A total number of 394 women participated in the survey while 32 key informants participated in three focused group discussions (FGD) sections.

Quantitative data was collected using an interviewer-administered questionnaire which was adapted from health promotion lifestyle profile II (HPLPII). The HPLPII was first developed by Walker, et al. in 1987

and it was revised by Walker & Hill-Polerecky in 1997^{16,17}. The questionnaire has been used extensively in research and reported to have sufficient validity and reliability for use among various populations.

The adapted questionnaire in two parts, collected data on socio-demographic characteristics and health-promoting lifestyles of the respondents measured with reported practices. The adapted health-promoting lifestyle profile component of the questionnaire has 40 items divided into the six subscales covering Nutrition (N - 6 items), Physical Activity (PA - 3 items), Health Responsibility (HR - 8 items), Stress Management (SM - 9 items), Interpersonal Relations (IR - 8 items) and Spiritual Value (SV - 6 items). The items were assessed on four-level likert scale of never (1); sometimes (2); often (3) and routinely (4). Ten women were drawn from a rural farming community in another local government area to assess the reliability of the instrument using test re-test method. The Cronbach's α coefficient of the subscales are: Health Responsibility (0.76); Physical Activity (0.76); Nutrition (0.76); Spiritual Belief (0.70); Interpersonal Relationships (0.80) and Stress Management (0.84). The total score of all the subscales was 0.72. The Focus Group Discussion (FGD) guide provides in-depth assessment on health-promoting lifestyle of the rural women. Ethical clearance was obtained from the Ethical Review Board of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife and consent of the community heads and respondents was also obtained. Data collected were coded and entered into statistical package for social sciences (SPSS) version 20.0 and analyzed using descriptive and inferential statistics.

III. Results

Two hundred and forty-nine (62.0%) of the respondents were from Community 1 (the semi-urban community), 3.0% from Community 2 and 34.0% from Community 3. The minimum and maximum ages of the respondents were 19 and 87 years with mean age of 40.28 ± 16.03 years. Majority (44.4 %) had secondary education, 20.1% had tertiary education, and 17.8% had primary education while 17.8% had no formal education. More than half (53.8%) of the respondents were traders in farm products, 13.2% were farmers, 11.7% were civil servants, artisans were 8.6% and students were 12.7%. The monthly income of respondents ranged from a minimum of N1000 and maximum of N80, 000 with mean income of $N14, 222 \pm 17,378.180$ (Table 1). Lifestyle was assessed by practices at four levels of never, sometimes, often and routinely and those not done often and routinely are considered inconsistent and inadequate. Table 2 showed that out of the 40 items, 25 (62.5%) indicated with one asterisk were not adequately practised by over 50% of respondents while 15 (37.5%), indicated by double asterisks, were adequately performed. Analysed by subscales, the practices of taking all the different food items were practised considering nutrition though the quantity and quality of the different items taken were not determined (Table 2). Also, the respondents rated nutrition as an important aspect of health promoting lifestyle, and this was further demonstrated by information provided during the FGD:

We eat good food at the right time with fish or meat; we consumed plenty of fruits and vegetables (60-year-old woman, Community 2).

..... Eating too many sweet things can lead to sugar diseases. It is good if someone takes sweet things she should also take something like bitter leave water to neutralise the effect of the sugar. People that take much of sweet, butter, 'five alive' always are inviting sickness. Also, people that are fat suppose not to be taking too much meat, or pounded yam because all these will make them put on more weight which will make them prone to sickness and diseases. It is good for such people to take wheat, fish like 'Hark' and not 'Titus (Alaran)' because of the fat. The person can also take vegetables like 'bitter leave (Ewuro)' (32-year-old woman, Community 1).

Practices under physical activities were grossly inadequate by over 60% of all respondents (Table 2). Respondents in one of the rural farming communities (Community 3) had a high physical activity lifestyle of 2.38 (0.93); compared to respondents in the semi-urban community (Community 1) of 2.02 (0.81) and another farming rural community (Community 2) of 2.08 (0.79) (Table 3). Majority of the women that participated in the FGD recognized the importance of exercise (physical activity) but not as 'planned exercise':

We do different hard works that keep us busy like farming, travelling around to buy and sell our farm produce. All these are our own exercise (60-year-old woman, Community 2).

We exercise for air and blood to circulate well and we rest well after hard work (61-year-old woman, Community 3). It is good for us to do exercise, this does not mean we should be walking aimlessly but we can do exercise right inside the compound. We can run, jump and stretch our body. These will help blood to circulate well. There is need for us as women also not to work round the clock but find time to rest. God will help us (58-year-old woman, Community 1).

For the sub-scale on taking health responsibility, over 70% of respondents were not practising 6 out of the 7 items adequately (Table 2). The low mean score (Table 3) indicates that the respondents practised health responsibility the least and this was well articulated during the FGD as the women raised issues like lack of health personnel, far distance to hospital that negatively influence their health-promoting lifestyle practices:

We need drugs to enhance our health because we work hard on the farm. The government should help us with blood tonic, pain reliever that can make us strong and healthy (40-year-old woman, Community 2).
... I hate going to the hospital because a doctor has given me wrong drugs before which would have made me childless, thank God I had a child before then. Some doctors make mistakes and it is better to trust in God because He is the perfect healer. And I read books that talked about health (60-year-old woman, Community 1). We need functioning health centre that has enough medical equipment, drugs and health personnel. We have a lot of health problems that need attention, we are only managing (62-year-old woman, Community 3).

Result of practices under stress management (Table 2) showed that only 3 of the 9 items were practised by over 50% of respondents. Women from Community 1 has the highest mean score 2.63 (0.70) in stress management sub-scale of health-promoting lifestyle while the women in Community 2 had the least mean score 2.42 (0.79) and Community 3 had 2.58 (0.06) of the same sub-scale (Table3). Below are some of the responses from the FGD:

We put our mind at rest to avoid stress that can cause high blood pressure and we carry our problems to God in prayer and rest our mind (38-year-old woman, Community 1). We go to church on Sundays and rest for the rest of the day because rest is very important for our body (41-year-old woman, Community 3).

For the sub-scale on interpersonal relationship, only 2 of the 8 items were practised by over 50% of respondents. However, Community 2 women had the highest mean score of 3.08 (0.67); Community 1, 2.78 (0.56) and Community 3 had 2.65 (0.07) (Table3). This was further demonstrated during the FGD:

We love each other and we are happy with each other. If one person is sick everybody is sick and if one person is happy everybody is happy (55-year-old woman, Community 2).
....How we relate with neighbours. We live in peace with everyone. It is not a good thing to be fighting with one another (42-year-old woman, Community 2).
One way of promoting our health is by having good relationships with each other. We love each other and we are happy with each other. If one person is sick everybody is sick and if one person is happy everybody is happy (33-year-old woman, Community 3)

The last sub-scale that measured spiritual values or beliefs was practiced by over 50% respondents with 3 of the 6 test items practised consistently, often and routinely. Though, spiritual belief was rated the highest health-promoting lifestyle practice by the respondents (Table 3). They considered spiritual exercise as a means of staying healthy.

We put our mind at rest to avoid stress that can cause high blood pressure and we carry our problems to God in prayer and rest our mind (38-year-old woman, Community 3). ... We go to church on Sundays and rest for the rest of the day because rest is very important for our body (61-year-old woman, Community 3).
.... Prayers is helping us to stay healthy (30-year-old, Community 2)

On a comparative basis, the location of the respondents had influence on the physical activity, interpersonal relationship and spiritual belief/value sub-scales of health-promoting lifestyle profile (Table 3). Further exploration of statistical significance in the values showed that, location had effect on physical activity of the respondents at $F=8.08$, $df=2$, $p<0.05$ (0.00) (Table 4). Tukey Post Hoc revealed that this significant difference is between respondents in Community 3 and Community 1 (Table 3). Also, there was significant difference by location considering spiritual value/beliefs of the respondents at $F=7.44$, $df=2$, $p<0.05$ (0.00) (table 4); Tukey Post Hoc revealed that this significant difference is between respondents in Community 2 and

Community 3 and respondents in Community 2 and Community 1 (Table 3). There was also significant difference by location in interpersonal relationship of the respondents at $F=3.46$, $df=2$, $p<0.05$ (0.03) (Table 4); Tukey Post Hoc further revealed that this significant difference is between respondents in Community 3 and Community 1 (Table 3). There are no significant differences with regards to health responsibility and stress management among respondents by location (Table 3).

Table 5 shows the relationship between health promoting lifestyles and socio-economic status. There is a positive and significant relationship between health responsibility and educational level of the respondent. Also occupation has negative but significant relationship with physical activity subscale of health promoting lifestyle. More so, average monthly income of the respondents has positive and significant relationship between nutrition, health responsibility and interpersonal relationship subscales of health promoting lifestyles.

Further analysis (Table 6) using MANOVA multivariate analysis demonstrated significant overall differences in location and socio-economic status scores, Wilks Lambda value= 0.89, $F = 3.24$ and $P = 0.00$ for location. Hence, physical activity value has something to do with location at $P= 0.00$. Also, interpersonal relationship at $P = 0.03$ and spiritual value or belief at $P = 0.00$. In the same vein Wilks Lambda value for educational level = 0.91, $F = 1.72$ and $P = 0.02$; Wilks Lambda value for occupation = 0.89, $F = 1.61$ and $P = 0.02$ and Wilks Lambda value for average monthly income = 0.57, $F = 1.32$ and $P = 0.01$

IV. Discussion

Majority of the respondents had secondary school as highest formal education. There is low level of women education especially in the rural communities¹⁸. Many of these women are poorer and live below desirable standard⁹. Majority of the respondents in this study were traders (engaging in petty trading) and 15.0% were farmers. Women generally work as subsistence farmers, small-scale entrepreneurs, unpaid workers on family farms or casual wage labourers but they may take on all or a number of these activities at different times¹⁹. Fewer numbers of women in the studied communities, compared to records documented globally, are farmers. One-third of the female workforce is engaged in agriculture, while in regions like sub-Saharan Africa and South Asia, more than 60 per cent of all female employment in the rural areas is in this sector¹⁹. One anecdotal observation in the two farming communities under study was the variation in gender in terms of crops planted by men and women and gender differences in the kind of jobs done in the farm. Women are more involved in processing and sale of farm products hence the context of trading as reported by 52.0% of the women especially in the rural farming communities. Women are less likely to own farms with cash crops that will fetch them more money; hence they are likely to earn less than their male counterparts in many rural communities and thus will be poorer with less access to money for health care. This position was validated by the average monthly income (between N1000 - N5000 (\$6.00-\$30.00) of majority of the respondents. Rural women are particularly vulnerable to poverty and 75% of the poor in developing countries live in rural areas^{19,9}. Study conducted in 12 villages in rural Nigeria, revealed that many people were living on less than \$2 (N300) per day⁷. Empowerment programmes need to give more attention to women in rural communities in Nigeria.

Significant proportions, (78.7%) of the respondents in this study claimed that they received care in health care facilities, though from less skilled personnel from health posts in rural communities and more from travelling out of their place of residence to the town (10 to 20 kilometres). It was gathered during the FGD that these healthcare facilities include patent medicine stores and drug hawkers. Rural women are more likely to be cared for by health care providers with less skill and are more likely to spend more money and time in any effort to seek health care from skilled health professionals in bigger towns and all these contribute to higher vulnerability in the context of access to appropriate health information, quality care and high quality of life.

Respondents engaged more on the spiritual subscale of the health-promoting lifestyle with the highest mean score across the three communities (Table 3), yet 50% of its items were not adequately practiced consistently (Table 2). There are significant differences across the communities with regard to their spiritual beliefs and values despite the observation that majority of the respondents across the three communities were Christians (Tables 1 and 2). These may be related to variations in denominations and variations in doctrinal practices even where people practice the same religion. It may not be taken for granted that people of the same religion will engage in the same health-promoting spiritual-related practices, hence health practitioners must pay attention to people by their denominational affiliations. Spiritual concerns have been seen as essential component of health¹⁸ and there is an important relationship between spirituality and health-promoting behaviours among sheltered homeless women²⁰. Nutrition⁷ had the second highest mean score across the three communities (Table 3), with all the items adequately practiced (Table 2). There is no significant difference between nutrition and the location of the respondents (Table 4 and 6). Following the trend of event, nutritional sub-scale of health-promoting lifestyle has improved over the years. Haddad found out that health-promoting behaviour of Jordanian Muslim women got high scores on 'nutrition'²¹ though Ahijevych & Bernhard reported that African American women received low scores on nutrition²². Further investigation is desirable in this aspect to explore the quality of nutrition of women in rural communities in Nigeria as such will have implications for

good health and control nutrition-related health challenges such as anaemia and obesity as two possibilities of undernutrition and malnutrition that have strong implications for the total well-being of women.

Findings from the stress management sub-scales of health-promoting lifestyle showed no significant difference with location of the respondents (Tables 3, 4 and 6). Women in the three communities engaged minimally in stress reducing activities considering the few things routinely done by them. This derives from a low consciousness of the need for deliberate actions to reduce stress and may also be due to less need for active stress reduction activities because of the simple lifestyle of people in rural communities generally. Stress and stress management also have direct link with interpersonal relationship. Though there were significant differences by location of respondents with regard to interpersonal relationships, the observation that majority were able to maintain meaningful relationships with others and found it easy to show concern, love and warmth to others would also contribute to low level of stress experienced by women.

Also, findings showed that women are very poor in taking health responsibility (Table 2 and 3) and this was further demonstrated during the FGD as the women placed more emphasis on requirement for curative services centered on hospital care and availability of health care professionals, hence perception of self-efficacy for health attainment and management is very poor. This is an important finding that has implication for prompt intervention in the light of the need for self responsibility to prevent many of the diseases accounting for increasing morbidity, debility and mortality among women in Nigeria. Non-communicable diseases, breast and cervical cancer are among some of these diseases that require Nigerian women acquire more knowledge, skills and taking individual actions for prevention and prompt management. Emphasis of lack of health personnel, far distance to hospital and less emphasis on self action to reduce the need for use of curative services during the focus group discussions pointed to the low consciousness of self-efficacy in primary and other levels of preventions among the women. This situation demands focused capacity building, through education of women to encourage preventive behaviours to drive healthy lifestyle.

This study also revealed that the physical activity subscale of the health promoting lifestyle has low mean value (Table 3), though there was significant difference with location and the differences were between the sub-urban community (Community 1) and the rural farming community (Community 2). This observation should be seen in the light of what people do in the context of doing their daily work. While the residents of the farming communities have to walk to their farms, the residents in the sub-urban community are more likely to take motorcycles and public transport to their places of work. From the perspective of how one's job influences physical activities, residents of farming communities are at a better advantage as they need to walk to their farm and back most days of the week. Planned exercises are not common practices and these need to be encouraged in all communities. It was documented that Kerr and Richey investigated the HPL of English and Spanish-speaking Mexican Americans in 1990 and 'Interpersonal support' received the highest scores among both groups while health responsibility and exercise ranked lowest¹². Similarly, result was found from the studies conducted among Spanish-speaking Hispanic adults, physical activity scored lowest while spiritual growth scored the highest value²³. Findings from this study were similar to the results of studies conducted over two decades ago in other parts of the world. This is a challenge that affirms the need for a more aggressive intervention to drive adoption of health-promoting lifestyles among women particularly in rural communities in the State of Osun and in Nigeria generally. Health promotion should be practised by everybody and carried out in every setting where people live, work, learn and play as it is a creative and effective way of improving health and quality of life¹¹. Health promotion generally needs to be given priority in Nigeria considering cost effectiveness, the context of current poor health indicators of the country, increasing prevalence of non-communicable diseases, including preventable cancers among women; the rural communities must be given all necessary support in the light of the prevalent inadequate health care facilities and equally poor human capacity for health care in the settings. Anecdotal observation from this study provides evidence on absence of public-community health nurses in the rural communities resulting in lack of health-promoting programmes and service support especially for young people and women. A comprehensive health education and health information package should be an integral part of care giving to every woman that nurses by the virtue of their training should be able to provide for every woman that they have contact with for such woman to be an agent of change in her community. In summary the findings from the study show that there are gaps in health promoting-lifestyles of rural women. Though women engaged in some activities that are health promoting, yet they could do better if they were better informed on the majority of the things either not done or done less frequently but are important for healthy lifestyle. Location and socio-economic status play a vital role in practicing health promoting lifestyle. A capacity building intervention study would also be most desirable to see how such would influence change in health promoting behaviour of women.

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Table 1: Socio-demographic Characteristics of the Respondents

SOCIO VARIABLES	DEMOGRAPHIC	COMMUNITY			TOTAL(n=394)
		Community 2(Sub- urban community) (N=249)	Community 2 (Rural-farming community) (N=12)	Community 3 (Rural- farming community) (N=133)	
AGE RANGE		19-85	29-87	19-80	19-87
MEAN AGE		38.96	55.00	41.41	40.28
STD. DEVIATION		15.642	17.607	15.982	16.032
AGE					
19-40		152 (61.0%)	3 (25.0%)	70 (52.6%)	225(57.1%)
41-64		81 (32.5%)	5 (41.7%)	47 (35.3%)	133 (33.8%)
65 and above		16(6.4%)	4 (33.3%)	16 (12.0%)	36 (9.1%)
RELIGION					
Christian		230 (92.4%)	10 (83.3%)	111 (83.5%)	351 (89.1%)
Islam		19 (7.6%)	2 (16.7%)	22 (16.5%)	43 (10.9%)
HIGHEST EDUCATIONAL LEVEL					
No formal education		27 (10.8%)	9 (75.0%)	34 (25.6%)	70 (17.8%)
Primary		35 (14.1%)	1 (8.3%)	34 (25.6%)	70 (17.8%)
Secondary		111 (44.6%)	1 (8.3%)	63 (47.4%)	175 (44.4%)
Tertiary		76 (30.5%)	1 (8.3%)	2 (1.5%)	79 (20.1%)
OCCUPATION					
Farming		10 (4.0%)	3 (25.0%)	46 (34.6%)	59 (15.0%)
Trading		129 (51.8%)	8 (66.7%)	68 (51.1%)	205 (52.0%)
Teaching		28 (11.2%)	0 (.0%)	4 (3.0%)	32 (8.1%)
Unemployed		1 (0.4%)	1 (8.3%)	0 (.0%)	2 (0.5%)
Student		39 (15.7%)	0 (.0%)	9 (6.8%)	48 (12.2%)
Civil servant		12 (4.8%)	0 (.0%)	0 (.0%)	12 (3.0%)
Tailoring		12 (4.8%)	0 (.0%)	4 (3.0%)	16 (4.1%)
Hair dresser		12 (4.8%)	0(0%)	2 (1.5%)	14(3.6%)
Nurse		3 (1.2%)	0 (.0%)	0 (.0%)	3 (0.8%)
Prophet		3 (1.2%)	0 (.0%)	0 (.0%)	3 (0.8%)
AVERAGE INCOME IN A MONTH					
1000-5000		64 (25.7%)	3 (25.0%)	74 (55.6%)	141 (35.8%)
6000-10000		85 (34.1%)	7 (58.3%)	43 (32.3%)	135 (34.3%)
11000-20000		52 (20.9%)	0 (.0%)	11 (8.3%)	24 (6.1%)
21000-40000		22 (8.8%)	2 (16.7%)	4 (3.0%)	41 (10.4%)
41000 and above		26 (10.4%)	0 (.0%)	1 (0.8%)	53 (13.5%)

Table 2: Distribution of respondents by health-promoting lifestyle practices (N=394)

	HEALTH- PROMOTING LIFESTYLE PRACTICES	NEVER	SOMETIMES	OFTEN	ROUTINE
	NUTRITION				
1	Take Carbohydrates (rice, fufu, gari, yam.)	0(0)	0(0)		394(100)**
2	Take plant protein (beans, beans pudding (moinmoin), beans cake, locust bean, soya milk)	0(0)	14 (3.6)	220 (55.8)	160(40.7)**
3	Takes animal protein (milk, meat, fish, poultry)	0(0)	37(9.4)	19(4.8)	338(85.8)**
4	Take Fat and Oil (palm oil, vegetable oil, groundnut oil, melon seed oil)	0(0)	0(0)	0(0)	394(100)**
5	Take Vitamins (fruits, vegetables)	0(0)	10(2.5)	19(4.8)	365 (92.6)**
6	Take Mineral salts (table salt)	0(0)	2 (0.5)	0(0)	392(99.5)**
	PHYSICAL ACTIVITY	-			
7	Followed a planned exercise programme such as taking a walk every morning or evening	58 (14.7)	167 (42.4)*	7 (1.8)	162 (41.1)
8	Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking).	136 (34.5)	218 (55.3)*	11 (2.8)	29 (7.4)
9	Take part in light to moderate physical activity such as sustained walking 30-40 minutes 5 or more times in a week	139 (17.5)	223 (56.6)*	13 (3.3)	19 (4.8)
	HEALTH RESPONSIBILITY				
10	Report any unusual signs or symptoms to a physician or other health professional	69 (17.5)	245 (62.2)*	15 (3.8)	65 (16.5)
11	Limit use of sugars and food containing sugar (sweets)	34 (8.6)	106 (26.9)	24 (6.1)	230 (58.4)**
12	Question health professionals in order to understand their instructions.	82 (20.8)	272 (69.0)*	15 (3.8)	25(6.3)
13	Get a second opinion when I question my health care provider's advice.	79 (20.1)	284 (72.1)*	13 (3.3)	18(4.6)
14	Discuss my health concerns with health professionals	82 (20.8)	284 (72.1)*	13 (3.3)	15(3.8)
15	Inspect my body at least monthly for physical changes/danger signs.	141 (35.8)	199 (50.5)*	21 (5.3)	33(8.4)
16	Ask for information from health professionals about how to take good care of myself	90 (22.8)	274 (69.5)*	13 (3.3)	17(4.3)
17	Attend educational programmes on personal health care.	110 (27.9)	253 (64.2)*	11(2.8)	20 (5.1)
	STRESS MANAGEMENT				
18	Get enough sleep (6-8 hours a day)	1 (0.3)	58 (14.7)	37(9.4)	298 (75.6)**
19	Take time to relax each day.	7 (1.8)	307 (77.9)*	32(8.1)	48 (12.2)
20	Take part in leisure-time (recreational) physical activities (e.g. strolling).	31 (7.9)	273 (69.3)*	55(14.0)	35 (8.9)
21	Concentrate on pleasant thoughts at bedtime.	4 (1.0)	92(23.4)	32(8.1)	266 (67.5)**
22	Practise relaxation or meditation for 15-20 minutes daily	5 (1.3)	298(75.6)*	32(8.1)	59 (15.0)
23	Balance time between work and play	13 (3.3)	308(78.2)*	33(8.4)	40 (10.2)
24	Pace myself to prevent tiredness	5 (1.3)	98(24.9)	27(6.9)	264 (67.0)**
25	Settle conflicts with others through discussion and compromise	63 (16.0)	247(62.7)*	23(5.8)	61 (15.5)
26	Seek guidance or counselling when necessary	34 (8.6)	292(74.1)*	20 (5.1)	48 (12.2)
	INTERPERSONAL RELATIONSHIP				
27	Discuss my problems and concerns with people close to me	73 (18.5)	150 (38.1)*	40 (10.2)	131 (33.2)
28	Praise other people easily for their achievements	12 (3.0)	232 (58.9)*	22 (5.6)	128 (32.5)
29	Maintain meaningful and fulfilling relationships with others	13 (3.3)	95 (24.1)	61 (15.5)	225 (57.1)**
30	Spend time with close friends	50 (12.7)	244 (61.9)*	36 (9.1)	64 (16.2)
31	Find it easy to show concern, love and warmth to others	10 (2.5)	77 (19.5)	64 (16.2)	243 (61.7)**
32	Touch and be touched by people I care about	13 (3.3)	261 (66.2)*	39 (9.9)	81 (20.6)
33	Find ways to meet my needs for intimacy	12 (3.0)	291 (73.9)*	27 (6.9)	64 (16.2)
34	Get support from a network of caring people	40 (10.2)	22 (74.1)*	17 (4.3)	45 (11.4)
	SPIRITUAL VALUES OR BELIEF				
35	Believe that my life has purpose.	4 (1.0)	30 (7.6)	21 (5.3)	339 (86.0)**
36	Accept those things in my life which I cannot change	9(1.3)	217 (55.1)*	38 (9.6)	130 (33.0)
37	Look forward to the future	4(1.0)	21 (5.3)	33 (8.4)	336 (85.3)**
38	Feel content and at peace with myself	7(1.8)	34 (8.6)	34 (8.6)	319 (81.0)**
39	Feel connected with some force greater than me	16(4.1)	240 (60.9)*	29 (7.4)	109 (27.7)
40	Be aware of what is important to me in life	8(2.0)	239 (60.7)*	27 (6.9)	120 (30.5)

Table 3: Descriptive analysis of health-promoting lifestyle and location of the respondents

Health-promoting lifestyle	Community 1			Community 2			Community 3		
	Mean	± (std. error)	SD	Mean	± (std. error)	SD	Mean	± (std. error)	SD
Nutrition	3.18	0.02	0.38	3.08	0.08	0.29	3.14	0.03	0.35
Physical Activity	2.02*	0.05	0.81	2.08	0.23	0.79	2.38*	0.08	0.93
Health Responsibility	2.11	0.04	0.65	1.83	0.11	0.39	2.02	0.05	0.53
Stress Management	2.63	0.04	0.70	2.42	0.23	0.79	2.58	0.06	0.68
Interpersonal Relationship	2.78	0.04	0.56	3.08	0.19	0.67	2.65	0.07	0.75
Spiritual Value/Belief	3.27*	0.03	0.53	3.75**	0.13	0.45	3.14*	0.05	0.61

* The mean difference is significant for one variable at the 0.05 level while ** the mean difference is significant for two variables at the 0.05 level

Table 4: ANOVA analysis of health-promoting lifestyle and location of the respondents

		Sum of Squares	Df	Mean Square	F	Sig.
Nutrition	Between Groups	0.177	2	0.088	.647	0.524
	Within Groups	53.427	391	0.137		
Physical activity	Between Groups	11.745	2	5.872	8.076	0.000
	Within Groups	284.296	391	0.727		
Spiritual belief	Between Groups	4.532	2	2.266	7.443	0.001
	Within Groups	119.042	391	0.304		
Stress management	Between Groups	0.677	2	0.339	0.707	0.494
	Within Groups	187.346	391	0.479		
Health responsibility	Between Groups	1.339	2	0.669	1.835	0.161
	Within Groups	142.671	391	0.365		
Interpersonal relationship	Between Groups	2.761	2	1.380	3.463	0.032
	Within Groups	155.858	391	0.399		

* Health-promoting lifestyle in relation to location is significant at 0.05

Table 5: Health Promoting Lifestyle and Socio-Economic Status of the Respondents

	HEL	OCC	AMI	NUT	PA	SB	STMGT	HR	IPRS
HEL	1.000								
OCC	.406	1.000							
AMI	.184	-.125	1.000						
NUT	-.051	-.022	.101*	1.000					
PA	-.072	-.103*	-.009	-.021	1.000				
SV	-.076	-.031	.062	.049	-.055	1.000			
SM	.085	.027	.008	.054	.105	-.014	1.000		
HR	.214*	-.029	.132*	-.070	.131	.078	.142	1.000	
IRS	.091	.065	.110*	.034	.021	.224	.092	.108	1.000

Note: *.Correlation is significant at the 0.05 level

KEY: HEL= Highest Formal Educational Level; PA= Physical Activity; OCC= occupation; HR= Health Responsibility; SV= Spiritual Value/belief; AMI= Average Monthly Income, SM= Stress Management; NUT= Nutrition; HR= Health Responsibility; IRS= Interpersonal Relationship

Table 6: Multivariate analysis of health-promoting lifestyle, Location and Socio-economic status of the respondents

Variables		Value	F	Hypothesis df	Error df	Sig.
Location	Pillai's Trace	.111	3.246	14.000	772.000	.000
	Wilks' Lambda	.892	3.243	14.000	770.000	.000
	Hotelling's Trace	.118	3.240	14.000	768.000	.000
	Roy's Largest Root	.074	4.061	7.000	386.000	.000
Education	Pillai's Trace	.089	1.694	21.000	1158.000	.026
	Wilks' Lambda	.911	1.724	21.000	1103.191	.022
	Hotelling's Trace	.096	1.752	21.000	1148.000	.019
	Roy's Largest Root	.085	4.68	7.000	386.000	.000
Occupation	Pillai's Trace	.113	1.598	28.000	1544.000	.025
	Wilks' Lambda	.891	1.607	28.000	1382.348	.024
	Hotelling's Trace	.118	1.614	28.000	1526.000	.023
	Roy's Largest Root	.074	4.073	7.000	386.000	.000
Average monthly income	Pillai's Trace	.529	1.315	161.000	2590.000	.006
	Wilks' Lambda	.572	1.322	161.000	2459.321	.005
	Hotelling's Trace	.590	1.328	161.000	2536.000	.005
	Roy's Largest Root	.170	2.733 ^c	23.000	370.000	.000

* Health-promoting lifestyle in relation to location and socio-economic status is significant at 0.05