Original Research Article

Relationship between knowledge and practice of physical activity and development of chronic diseases among adults in Port Harcourt, Rivers State

ABSTRACT

Background: A chronic disease is an illness that is not contagious, usually of long duration, progresses slowly, and is typically as a result of genetics, environment, or poor lifestyle. The aim study is to assess the relationship between knowledge and practice of physical activity and development of chronic diseases among adults in Port Harcourt, Rivers State.

Materials and Methods: The study was conducted among residents in Port Harcourt metropolis, Rivers State**.** A descriptive cross-sectional study design was used for this study. A multi-stage sampling method was used to recruit 333 participants into the study. The study included adults who were 45yrs and above at time of the data collection, and who must have lived in Port Harcourt for at least 1 year. All adults who were critically ill at the time of this study were excluded. A semi-structured questionnaire was used to collect responses from the participants. Information collected were entered into the Statistical Package for Social Science (SPSS) version 21 software as numeric codes and analyzed. Ethical clearance for the study was gotten from the Ethics Committee of Rivers State University and informed consent was obtained from all participants.

Result: This study found that majority of the participants, (64.9%) had good knowledge of physical activity while (35.1%) had poor knowledge physical activity. Few (25.2%) of the participants engage in physical activity, more than half of them regularly do physical activity. The result showed that a statistically significant association was observed between tobacco consumption at (p=0.0001), alcohol consumption at (p=0.0001) and chronic diseases. Also a statistically significant relationship between knowledge of physical activity and chronic disease.

Conclusion: This study concludes that there is a significant relationship between lack of exercise and development of chronic diseases. Also, socio-demographic characteristics and social lifestyle of the respondents have a great influence on physical activity, development and progression of chronic diseases among adults. The study recommends that health workers

should organize regular health education and promotion on physical activity among adults in Port Harcourt and other parts of the state.

Key words: Knowledge, Practice, Physical Activity (PA), Chronic Diseases, Adults, Rivers State.

INTRODUCTION

Chronic disease is an illness that is not contagious, usually of long duration, progresses slowly, and is typically a result of genetics, environment, or poor lifestyle. In 1990, more than 28 million (57%) of all global deaths were caused by chronic disease (Murray and Lopez, 1997). This number increased to 36 million (63%) of all global deaths in 2008 (Alwan et al., 2010) and 39 million (72%) of all global deaths in 2016 (Naghavi et al., 2017). Even though life expectancy estimates have consistently risen for the last two centuries (Olshansky et al., 2005), current estimations support a potential decline in life expectancy for future generations due to an increase in various chronic diseases such as lower respiratory dis-ease, obesity, cancer, cardiovascular disease (CVD), diabetes, and stroke (Murphy et al., 2017). Studies report that the incorporation of daily physical activity (PA) and exercise into one's lifestyle will reduce risk for chronic diseases and mortality while providing a means for primary disease prevention. Furthermore, once a chronic illness is diagnosed, treatment is better managed when PA and exercise are part of the disease medical management plan. In either case of disease prevention or treatment, PA and regular exercise provide a higher quality of life and perhaps increased longevity (Elizabeth,and Larry, 2019).

The negative health effects of physical inactivity are well documented, the economic consequences are often neglected (Huber et al., 2011). As the population ages, chronic illnesses have become a common occurrence, putting pressure on the sustainability of healthcare systems as chronic diseases account for most of global healthcare expense (Huber et al., 2011). Physical inactivity was directly responsible for 3% of disability adjusted life years lost in the United Kingdom in 2002, with estimated direct costs to the National Health Service of £1.06 billion (Allender, et al., 2007). In America, the annual cost directly attributable to inactivity is an estimated $24 billion–$76 billion (2.4%– 5.0% of national healthcare expenditures) (Roux et al., 2008).

Over the past few decades, extensive knowledge has been accumulated relating to the significant contribution of PA in the prevention and treatment of a number of diseases (Chakravarthy et al., 2002; Leijon et al., 2008), especially non-communicable chronic diseases.

A linear relationship exists between PA levels and overall health status (Sallis, 2009), evidenced by the strong links between increased levels of PA and aerobic fitness with a reduction in the risk for developing various chronic diseases, as well as the morbidity and mortality resulting from these chronic diseases (Oberg, 2007; Pedersen and Saltin, 2006).

Increasing PA is now considered to be as important as tobacco control in lessening the burden of non-communicable diseases (Bauman et al., 2006; WHO, 2014). Conditions such as cardiovascular disease, type 2 diabetes, obesity, and cancer are drastically improved when PA and exercise are part of a medical management plan. Exercise provides many primary prevention health benefits, exercise also provides similar benefits in secondary disease prevention. When PA and exercise are initiated after a chronic disease is diagnosed, many of the harmful disease effects are ameliorated and in some cases (e.g., type 2 diabetes) the disease progression is slowed or halted (Durstine, 2000) exercise when used as part of the medical management plan for secondary disease prevention will almost always improve the quality of life and potentially extend the life of a disease individual (Durstine, 2000). In this regard, the benefits of PA and exercise depend on the type, severity, and comorbidities of the disease.

Although altering disease risk factors reduces overall chronic disease risk, modifiable risk factors such as sedentary behavior are associated with an increased risk for chronic disease (Katzmarzyk and Lear, 2012). Non-modifiable risk factors are traits that cannot be changed such as age, ethnicity, and genetics. However even though not altered directly, genes are strongly influenced by the environment and lifestyle affecting gene expression (Booth and Lees, 2007). Modifiable risk factors are positively influenced by lifestyle such as daily PA, regular exercise, healthy diet, social engagement, spirituality, and stress management (Danaei et al., 2009). However, other modifiable risk factors exist that are not directly related to lifestyle but negatively influence chronic disease risk such as education level, socioeconomic status, and employment. PA and regularly practiced exercise positively influence risk factors for chronic diseases such as CVD, type 2 diabetes, obesity, and cancer (Fogelholm, 2010; Tingting et al., 2016; Anderson et al., 2016).

An underappreciated primary cause of most chronic conditions is the lack of sufficient daily physical activity (physical inactivity). Overwhelming evidence proves the notion that reductions in daily physical activity are primary causes of chronic diseases/conditions and that physical activity/exercise is rehabilitative treatment (therapy) from the inactivity-caused dysfunctions. Moreover, there is scarcity of empirical data on the relationship between the lack of physical

activity and the development of chronic diseases in many parts of Nigeria especially in Port Harcourt Rivers State. Hence, this study therefore sought to fill this gap.

2. MATERIALS AND METHOD

2.1 Study Area

This study was carried out in Port Harcourt metropolis, Rivers State. Rivers State is one of the 36 states of Nigeria. In the year 2016, the projected population for the state is 7,303,900, making it the sixth-most populous state in the country. About 2.7 million people reside in the urban part of the state. Port Harcourt is the capital and largest city of Rivers State, Nigeria. In the year 2016, the Port Harcourt metropolis was as an estimated population of 1,865,000 inhabitants up from 1,382,592 as of 2006.

Port Harcourt City is the main city of River State. It is located in the Port Harcourt local government area, consisting of the former European quarters now called Old GRA and New Layout areas. The urban area (Port Harcourt metropolis) is made up of the local government area itself and Obio-Akpor. Port Harcourt is the leading hub for economic activities, social and medical services in Rivers State. Port Harcourt has several crude oil processing industries. Port Harcourt is known as the major industrial centre, because it accommodates many number of multinational firms and other industries, especially petroleum related industries. It is the one of the major crude oil producing and oil-refining city in Nigeria with two main oil refineries located at Eleme. These refineries produces environmental pollutants which are linked to chronic diseases particularly in adults.

2.2 Study Design

This is descriptive cross-sectional study conducted among adults residing in Port Harcourt, Rivers State. The study included adults who are 45yrs and above and who must have lived in Port Harcourt for at least 1 year and excluded those who were critically ill at the time of this research. Port Harcourt has 3,171,000 population.

2.3 Sample Size Determination

Sample and Sampling Techniques

Sample size was gotten using the descriptive studies sample size determination formula, as given below;

$n = \frac{Z^2\, pq}{e^2}$(Smith, 2013).

n = Sample size to be obtained; Z = 1.96 at 95% Confidence Interval; e = margin of precision (5%); p = 28.4% of children who had acute bronchiolitis with respiratory syncytial virus 1. The 344 participants was employed for this study. p = 73% of people who do most exercise are less likely to die early (NIHR, 2019). q=100-p

Sample size (n) $= \frac{1.96^2\ (73(100-73)}{5^2}$ n = 302.8 = 303 approximate.

After addition of the 10% non-response; a total sample size (n) = 333 was obtained. Thus, 333 adults were recruited into this study.

2.4 Sampling Method

Multi-stage sampling method was used in this study.

2.5 Study tool and Validation

A structured questionnaire was used to collect data. The questionnaire was used to collect data from participants. It elicited information on the relationship between lack of exercise and the development of chronic diseases among adults in Port Harcourt. The secondary source of data collections were textbooks, journals and scholarly materials. The questionnaire subjected to face validation tests and test-retest. The internal consistency of the tool was considered substantial as the alpha scores and the measurements above 0.50 considered desirable.

2.6 Data collection/Analysis

Data collection performed over a period of 5weeks. The purpose of the study was explained to the eligible participants. The study questionnaires were administered to all eligible participants who were present on the days of the field work was carried out. Data collected was entered into Statistical Package for Social Sciences (SPSS) software version 21 and analyzed. Descriptive statistics was conducted to describe the socio-demographics and inferential statistics (logistic regression) was performed. Continuous variables was expressed as means ± standard deviation while categorical variables was expressed as absolute frequencies. The p-value of ≤ 0.05 was considered statistically significant.

2.7 Ethical Considerations

Ethical clearance for the study was sought and obtained from the Research and Ethics Committee of the Rivers State University, Port Harcourt. Written and informed consent was obtained from the representatives where the study was carried out. Consent was gotten from

each the participants and ensured that their responses would be kept confidential and only be used for academic purpose.

RESULT

Table1: Socio-Demographic Characteristics of the Respondents

Variables	Frequency (n=333)	Percentage (%)
Gender		
Male	208	62.5
Female	125	37.5
Age		
45-54years	110	33.0
55-64years	83	24.9
65-74years	75	22.5
≥75years	65	19.5
Mean ±SD= 56**±**1.122years		
Educational Background		
FSLC	73	21.9
WASSCE/GCE/NECO	82	24.6
OND/HND/BSc	113	33.9
MSc/PGD/PHD	50	15.0
Others	15	4.5
Marital Status		
Single	15	4.5
Married	182	54.7
Divorced	98	29.4
Widowed	38	11.4
Occupation		
Civil Servant	88	26.4
Self-employed	48	14.4
Students	92	27.6
Unemployed	105	31.5
Income		
≤#20,000	34	10.2
#20,001 - #40,000	71	21.3
#40,001 - #80,000	143	42.9
#80,001 - #100,000	80	24.0
≥#100,000	5	1.5
Religion		
Christianity	305	91.6
Islamic	8	2.4
Others	20	6.0

The table 1 shows that majority 208(62.5%) of the respondents are male, most 110(33.0%) of the participants were in the age range of 45-54years with Mean ±SD of 56±1.122years and more 113(33.9%) of the respondents have attained tertiary school. Among the respondents

182(54.7%) are married, 105(31.5%) are unemployed, less than 143(42.9%) of the respondents earn #40,001- #80,000 as income and most 305(91.6%) are Christians.

Table 2: Social Life of the Respondents

Variables	Frequency (n=333)	Percentage (%)
Taken tobacco		
Yes	66	19.8
No	267	80.2
If yes, do you currently consume		
Yes	38	57.6
No	28	42.4
Have you ever taken alcohol		
Yes	226	67.9
No	107	32.1
Do you currently consume alcohol		
Yes	188	83.2
No	38	16.8
BMI		
Underweight (<18.5)	61	18.3
Normal weight (18.5–24.99)	92	27.6
Overweight (25–29.99)	123	36.9
Obese (≥30)	57	17.1

Table 2 presented that most (19.8%) of the participants do take tobacco, among those who take tobacco (57.6%) currently consumes tobacco. The table also revealed that most (67.9%) of the respondents have taken alcohol before and majority (83.2%) currently consumes alcohol. The study showed that (18.3%) of the respondents was underweight (<18.5), (18.5–24.99), (27.6%) had a normal weight, (36.9%) was overweight (25–29.99) and (17.1%) was obese (≥30).

Table 3: Knowledge of the Physical Activity

Variables	Frequency (n=333)	Percentage (%)
I have heard or read about physical activity		
Yes	267	80.1
No	21	6.31

I don't know	45	13.5
Types of physical activity		
Running/Jogging	101	30.3
Long jump	34	10.2
Sit-ups	81	24.3
Push-ups	51	15.3
Maximal strength in bench press	23	7.9
Maximal strength in leg extension	43	12.9
Moderate aerobic physical activity		
1 h 30 min	19	5.7
2 h 30 min	11	3.3
3 h	8	2.4
20 min per day 3 days per week	14	4.2
30 min per day 5 days per week	6	1.8
30 min per day 7 days per week	4	1.2
60 min per day 7 days per week	17	5.1
At least 150 minutes per week	23	6.9
I don't know	231	69.4
Muscular fitness		
Once per week	67	20.1
2 times per week	24	7.2
3 times per week	14	4.20
4 times per week	28	8.4
2 days per week	33	9.9
I don't know	167	50.2
Regular exercise helps improve overall health		
Strongly Agree	90	27.0
Agree	139	41.7
Undecided	40	12.0
Disagree	40	12.0
Strongly Disagree	24	7.2
There is no relationship between exercise and disease		
Strongly Agree	40	12.0
Agree	45	13.5
Undecided	15	4.5
Disagree	133	39.9
Strongly Disagree	100	30.0
Exercise help reduce risk of chronic conditions		
Strongly Agree	200	60.1
Agree	75	22.5
Undecided	38	11.4
Disagree	20	6.0

Table 3 showed that majority 267 (80.1%) of the participants have heard or read about physical activity. More (30.3%) of the respondents were aware of running/jogging as a physical activity. Very few 23(6.9%) of the respondents knew how long the moderate aerobic physical activity

should take and few 33(9.9%) of the participants knew how many times a muscular fitness should take place in a week. Also, the table shows that less than half (41.7%) respondents agreed that regular exercise helps to improve overall health, fitness, and quality of life, some 133(39.9%) respondents disagreed that there is no relationship between exercise and diseases among adults in Port Harcourt, and many 200(60.1%) strongly agreed that exercise help reduce risk of chronic conditions.

Table 4: Knowledge of the Physical Activity

Variables	Frequency (n=333)	Percentage (%)
Exercise strengthens your heart		
Strongly Agree	88	26.4
Agree	116	34.8
Undecided	39	11.7
Disagree	45	13.5
Strongly Disagree	45	13.5
Regular exercise can help insulin more effectively		

Strongly Agree	228	68.5
Agree	90	27.0
Disagree	6	1.8
Strongly Disagree	9	2.7
Exercise help control weight and boost energy		
Strongly Agree	90	27.0
Agree	139	41.7
Undecided	37	11.1
Disagree	40	12.0
Strongly Disagree	27	8.1
Small amount of weekly exercise helps the body prevent diseases		
Strongly Agree	213	64.0
Agree	75	22.5
Undecided	30	9.0
Strongly Disagree	15	4.5
Age has an effect on the type of exercise		
Strongly Agree	88	26.4
Agree	96	28.8
Undecided	39	11.7
Disagree	50	15.0
Strongly Disagree	60	18.0
Regular moderate exercise may help to slow aging		
Strongly Agree	223	67.0
Agree	90	27.0
Disagree	12	3.6
Strongly Disagree	8	2.4
General knowledge of effect exercise on chronic disease		
Good	216	64.9
Poor	117	35.1

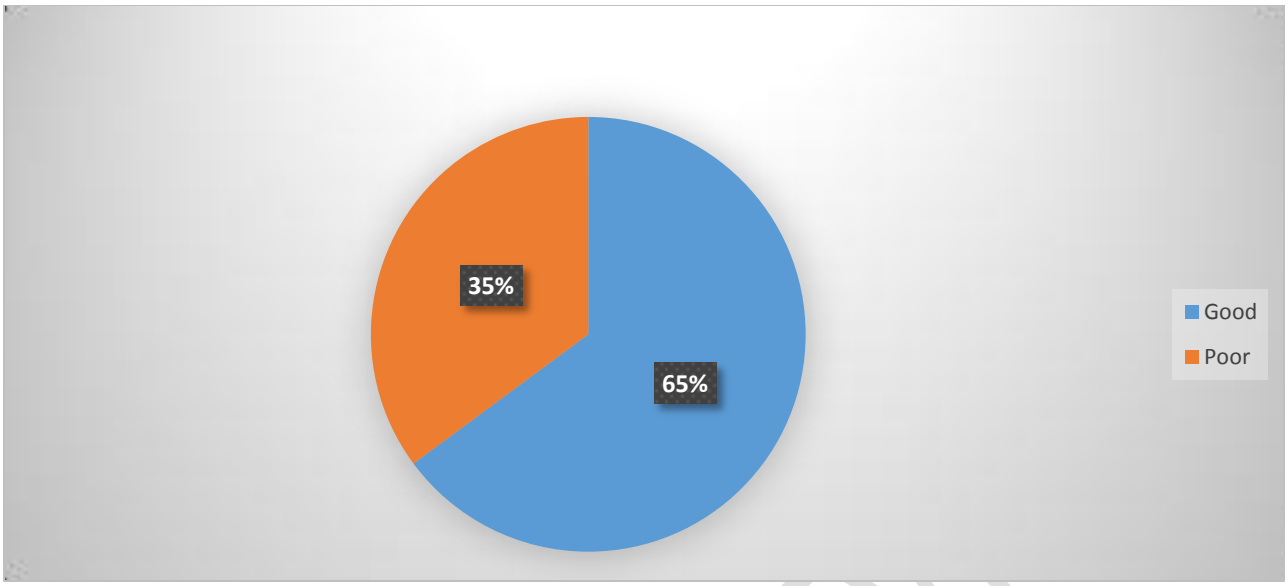

Fig 1: General knowledge of effect exercise on chronic disease.

Table 4 indicates that some number 116(34.8%) of respondents agreed that exercise strengthens the heart and improves circulation, many 228(68.5%) participants strongly agreed that regular exercise can help insulin more effectively lower blood sugar level, and a few 139(41.7%) agreed that exercise can also help control weight and boost energy. The table further stated that more than half of the participants 213(64.0%) agreed that small amounts of weekly exercise seem to decrease the risk of chronic diseases, a few of study participants 96(28.8%) agreed that age has influences the type of exercises performed by adults. Majority 223(67.0%) of the respondents agreed that regular moderate exercise helps people live healthier and reduces rate of aging, Finally, assessment of the general knowledge of the participants showed 216(64.%) had good knowledge of effect of physical activity on development of chronic while 117 (35.1%) had poor knowledge of effect of physical activity on development of chronic.

Table 5: Practice of Physical Activity

Variables	Frequency (n=333)	Percentage (%)
Do you do Exercise		
Yes	84	25.2
No	249	74.8
If Yes, how often (n=84)		
Regularly	45	53.6
Seldom	39	46.4
Which physical activity (n=84)		
Low	51	15.3

Moderate	23	6.9
High	10	3.0
Have you been diagnosed of chronic disease		
Yes	228	68.5
No	105	31.5
If Yes, which disease		
Diabetes	47	20.6
Chronic Kidney Disease	37	16.2
COPD	40	17.5
Hypertension	57	25.0
Cancer	18	7.9
Blood disorders	10	4.4
Others	19	8.3

Table 5 reveals that few (25.2%) of the participants do exercise, among those who do physical activity, 45(53.6%) of them regularly do physical activity. More than 228(68.5%) of the respondents have been diagnosed of chronic diseases, amongst those diagnosed of chronic diseases, more 57(25.0%) of them suffer from hypertension.

Table 6: Association between Socio-Demographic Characteristics and Exercise

Variables	**Physical activity (Exercise)**					
Socio-Demographic Characteristics	**Yes (n(%)**	**No (n(%)**	**Total**	**df**	**X^2**	**P-Value**
Gender						
Male	69 (33.2)	139 (66.8)	208 (100.0)			
Female	15 (12.0)	110 (88.0)	125 (100.0)	1	18.557	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Age						
≤50	68 (69.6)	90 (30.4)	158 (100.0)			
≥50	16 (9.1)	159 (90.9)	175 (100.0)	1	50.575	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Education						
≤BSc	77 (28.7)	191 (71.3)	268 (100.0)			
≥MSc	7 (10.8)	58 (89.2)	65 (100.0)	1	8.948	0. 003*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Marital Status						
Single	11 (7.3)	140 (92.7)	151 (100.0)			
Married	73 (40.1)	109 (59.9)	182 (100.0)	1	47.144	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Occupation						
Employed	11 (8.1)	125 (91.9)	136 (100.0)			

Unemployed	73 (37.1)	124 (24.9)	197 (100.0)	1	35.793	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Income						
≤ #80,000	81 (32.7)	167 (67.3)	248 (100.0)			
≥ #81,000	3 (3.5)	82 (96.5)	85 (100.0)	1	1.058	0. 0001
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Religion						
Christian	84 (27.5)	221 (26.2)	305 (100.0)			
Others	0 (0.00)	28 (72.5)	28 (100.0)	1	10.313	0. 001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			

Statistically Significant (p=0.05)

The table 6 show a statistically significant association exists between gender, age and exercise at (p=0.0001). Also, there was statically significant association between education (p=0.003), marital status (p=0.0001), occupation (p=0.0001), income (p=0.0001), religion (p=0.001) and exercise.

Table 7: Association between socio-Demographic Data and Chronic Diseases

Variables	**Chronic Diseases**					
	Yes (n(%)	**No (n(%)**	**Total**	**df**	**X^2**	**P-Value**
Gender						
Male	135 (64.9)	73 (35.1)	208 (100.0)			
Female	93 (74.4)	32 (25.6)	125 (100.0)	1	3.261	0. 071
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
Age						
≤50	110 (69.6)	48 (30.4)	158 (100.0)			
≥50	118 (67.4)	57 (32.6)	175 (100.0)	1	0. 185	0. 667
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
Education						
≤BSc	197 (73.5)	71 (26.5)	268 (100.0)			
≥MSc	31 (47.7)	34 (52.3)	65 (100.0)	1	16.148	0. 000*
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
Marital Status						
Single	85 (56.3)	66 (43.7)	151 (100.0)			
Married	143 (78.6)	39 (21.4)	182 (100.0)	1	18.976	0. 000*
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
Occupation						
Employed	80 (58.8)	56 (41.2)	136 (100.0)			
Unemployed	148 (75.1)	49 (24.9)	197 (100.0)	1	9.906	0. 002*
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
Income						
≤ #80,000	166 (66.9)	82 (33.1)	248 (100.0)			
≥ #81,000	62 (72.9)	23 (27.1)	85 (100.0)	1	1.058	0. 304
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
Religion						
Christian	225 (73.8)	80 (26.2)	305 (100.0)			

Others	3 (10.7)	25 (89.3)	28 (100.0)	1	47.232	0. 000*
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			

Statistically Significant (p=0.05)

The table 7 indicates that a statically significant association exists between chronic disease and education, marital status, occupation, relation at (p=0.000), (p=0.000), (p=0.002) and (p=0.000) respectively. However, there is no statistically significance relationship between gender, age, income and chronic disease.

Table 8: Association between Social life and Exercise

Variables	Exercise					
	Yes (n(%)	**No (n(%)**	**Total**	**df**	**X^2**	**P-Value**
Taken Tobacco						
Yes	66 (100.0)	0 (0.00)	66 (100.0)			
No	18 (6.7)	249 (93.3)	267 (100.0)	1	244.004	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
If yes, do you currently consume						
Yes	38 (100.0)	0 (0.00)	38 (100.0)			
No	28 (100.0)	0 (0.00)	28 (100.0)	1	-	-
Total	**66 (100.0)**	0 (0.00)	**66(100%)**			
Taken Alcohol						
Yes	84 (37.2)	142 (62.8)	226 (100.0)			
No	0 (0.00)	107 (100.0)	107 (100.0)	1	53.186	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Do you currently consume alcohol						
Yes	75 (39.9)	113 (60.1)	188 (100.0)			
No	9 (23.7)	29 (76.3)	38 (100.0)	1	3.556	0. 059
Total	**84 (37.2)**	**142 (62.8)**	**226 (100%)**			

Statistically Significant (p=0.05)

The table 8 reveals that a statistically significant association between tobacco consumption at (p=0.000), alcohol consumption (p=0.000) and exercise, while current consumption of alcohol was not significantly associated with exercise at (p ≥0.05).

Table 9: Association between Social life and Chronic Disease

Variables	Chronic Diseases					
	Yes (n(%)	**No (n(%)**	**Total**	**df**	**X^2**	**P-Value**
Taken Tobacco						
Yes	66 (100.0)	0 (0.00)	66 (100.0)			
No	162 (60.7)	105 (39.3)	267 (100.0)	1	37.908	0. 0001*
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			
If yes, do you currently consume						
Yes	38 (100.0)	0 (0.0)	38 (100.0)			
No	28 (100.0)	0 (0.0)	28 (100.0)	1	-	-
Total	**66 (100.0)**	**0 (0.0)**	**66(100%)**			
Taken Alcohol						
Yes	226 (100.0)	0 (0.0)	226 (100.0)			
No	2 (1.9)	105 (98.1)	107 (100.0)	1	323.909	0. 0001*
Total	**84 (25.2)**	**249 (74.8)**	**333 (100%)**			
Do you currently consume alcohol						
Yes	188 (100.0)	0 (0.0)	188 (100.0)			
No	38 (100.0)	0 (0.0)	38 (100.0)	1	-	-
Total	**226 (100.0)**	**0 (0.0)**	**226 (100%)**			

Statistically Significant (p=0.05)

Table 9 showed that a statistically significant association was observed between tobacco consumption at (p=0.0001), alcohol consumption at (p=0.0001) and chronic diseases.

Table 10: Association between Knowledge of Physical Activity and Chronic Disease

Variables	Chronic Diseases					
	Yes (n(%)	**No (n(%)**	**Total**	**df**	**X^2**	**P-Value**
Knowledge of physical activity						
Yes	216(100.0)	0 (0.00)	216 (100.0)			
No	12 (10.3)	105 (89.7)	117 (100.0)	1	283.117	0. 0001*
Total	**228 (68.5)**	**105 (31.5)**	**333 (100%)**			

Table 10 shows a statistically significant relationship between knowledge of physical activity and chronic disease.

4. DISCUSSION

The findings revealed that majority (62.5%) of the respondents are male, more (33.0%) of the participants were in the age range of 45-54years with Mean ±SD of 56±1.122 years and more (33.9%) of the respondents have attained tertiary institution. Most (54.7%) of the participants

were married. More of the respondents earn #40,001- #80,000 as monthly income and most (91.6%) of the respondents were Christians. Majority of the participants do not take tobacco, among those who take tobacco, more than half currently consumes. About two-third (67.9%) of the participants had taken alcohol before now and majority (83.2%) of them currently consumes alcohol. The findings showed that (18.3%) of the respondents was underweight (<18.5), (18.5–24.99), (27.6%) had a normal weight, (36.9%) was overweight (25–29.99) and (17.1%) was obese (≥30).

Findings in this study revealed that majority (80.1%) of the participants have heard or read about physical activity. This study revealed that very few (6.9%) of the respondents knew how long the moderate aerobic physical activity should take and only (9.9%) of the participants knew how many times a muscular fitness should take place in a week. This study found that less than two-quarter of the respondents agreed that regular exercise helps to improve overall health, fitness, and quality of life, about (39.9%) of the participants disagreed to no relationship between exercise and diseases among adults. Also, more than half strongly agreed that exercise help reduce risk of chronic conditions. This findings is line with findings by Li, et al., (2017), who found that vast majority (99.6%) of participants strongly agreed that physical activity is good for health.

This study revealed that less than half of participants reported that exercise strengthens the heart and improves circulation, majority (68.5%) of the participants asserted that regular exercise can help insulin more effectively lower blood sugar level. Also, more than one- quarter (41.7%) stated that exercise can also help control weight and boost energy, while more than half of the participants (64.0%) affirmed that small amounts of weekly exercise seem to decrease the risk of chronic diseases. This study showed that few of study participants (28.8%) reported that age has influences the type of exercises performed by adults. Majority (67.0%) of the respondents agreed that regular moderate exercise helps people live healthier and reduces rate of aging. Finally, assessment of the general knowledge of the participants showed (64.9%) had good knowledge physical activity while (35.1%) had poor knowledge of physical activity.

Findings in this study is in keeping with the findings by Pathare et al., (2020), who documented that (61%) of the participants had correct knowledge of PA guidelines and agreed/strongly agreed to the 7 questions (56%–86%) about the role of physical therapists in promoting PA. There is similarity between findings in this study and findings by Vaara et al., (2019), who found

that 40% of the participants reported being aware of the physical activity. The present findings is in keeping with the findings by Vaara et al., (2019) who reported that few (7%) of the participants correctly identified the recommendations for moderate aerobic physical activity and 25% for muscular type of activity and about 4% correctly identified both aerobic and muscular activity. The result of this study is similar to the study by Leah et al., (2021), who found that most (60.2%) of the respondents were aware of Irish PA recommendations and correctly identified the guidelines (83.7%). Also, Leah et al., (2021) reported that most of the participants had a positive attitude towards PA in practice however reported a lack of confidence to give advice to patients.

This study found that less than half (25.2%) of the participants do exercise, among those who do physical activity, of them regularly do physical activity. The result showed that (68.5%) of the respondents have been diagnosed of chronic diseases, amongst those diagnosed of chronic diseases, (25.0%) of them suffer from hypertension. This study support the findings by Pathare et al., (2020), who found that less than half (40%) of the participants reported a moderate level of physical activity. A similar is finding was observed in a study conducted by Marques, et al., (2017), who documented that men and women who practiced physical activity more often had lower odds of having heart problems, high blood pressure, breathing problems, type 2 diabetes, cancer, and obesity than those who were less physically active. Similarly, Adilson, et al., (2018) found that socio-demographic variables and smoking habits affected the level of physical activity and type of chronic diseases developed by an individual. They reported that gender, women who engaged in VPA once a week are less likely to develop certain chronic diseases than those who do not engage in PA.

This study found a statistically significant association between gender, age and exercise at ($p=0.0001$). Also, there was statically significant association between education ($p=0.003$), marital status ($p=0.0001$), occupation ($p=0.0001$), income ($p=0.0001$), religion ($p=0.001$) and exercise. A statistically significant relationship was observed between tobacco consumption at ($p=0.000$), alcohol consumption ($p=0.000$) and exercise, while no statistically significant relationship was established between current consumption of alcohol and exercise at ($p \geq 0.05$). Based on this findings it can be implied that age, gender, education, marital status, occupation, income, religion have a significant influence on the type of physical activity performed by the individual. Finding in this study is affirmed by finding by Hickey, & Mason (2017), who reported that there is a significant difference in the hours of exercise ($p=0.014$) performed by different gender. This means that gender influences the type and level of PA carried out by the individual.

Another study conducted by Li, et al., (2017) on revealed that men had higher frequencies of any physical activity and moderate-to-vigorous physical activity than women. Also, Hickey, & Mason (2017), reported that age of the participants was a significant barriers ($p< 0.001$) to the type of exercise. They added individuals in the younger were more likely to exercise than the older.

The findings revealed that there was statistically significant association exists between chronic disease and education, marital status, occupation at ($p=0.000$), ($p=0.000$), ($p=0.002$) and ($p=0.000$) respectively. However, there is no statistically significance relationship between gender, age, income and chronic disease. There is a statistically significant association between tobacco consumption at ($p=0.0001$), alcohol consumption at ($p=0.0001$) and chronic diseases. This means that socio-demographic characteristics and social lifestyle of the respondents such as education, marital status, occupation, tobacco consumption, alcohol consumption have a major influence on development and progression of chronic diseases among adults. Also, knowledge of physical activity greatly influenced the development of chronic disease at ($p=0.0001$). This is similar to the findings by Vaara et al., (2019), who stated that participants those who are aware of the PA recommendations were married or partnered, have higher education level and more physically active during leisure-time ($p < 0.05$). Also, those who are not aware of the PA recommendations had lower results in cardiorespiratory and muscular fitness compared to those being aware ($p < 0.05$). In addition, they found that those were married or partnered had a positive relationship with the knowledge of the muscular activity recommendations ($p < 0.05$). Furthermore, participants who have correct knowledge of the PA recommendations had higher levels of muscular fitness ($p < 0.05$).

4.4 Conclusion

Based on the findings in this study, we can conclude that majority of the participants had good knowledge of physical activity. However, very few of the participants engaged in physical activity. This can be linked to the high prevalence of chronic disease among the study participants. Also, socio-demographic characteristics and social lifestyle of the respondents greatly limited the physical activity and contributed to the exposure to chronic diseases among adults.

4.5 Recommendations

The government should provide exercise centres for adults in different part of the country. The health workers should carry out regular health education and promotion on importance physical activity on the health of the adults, as this will improve their engagement in physical activities.

References

Adilson, M., Miguel, P., Hugo, S., João, M., and Miguel, G.V. 2018. Associations between vigorous physical activity and chronic diseases in older adults: a study in 13 European countries, European Journal of Public Health, Vol. 28, Pg 950–955.

Allender, S., Foster, C., Scarborough, P., and Rayner, M. 2007. The burden of physical activity-related ill health in the UK. Journal of Epidemiology and Community Health, 61(4):344–8.

Alwan, A., 2011. Global status report on non-communicable diseases. World Health Organization. World Health Organization.

Anderson, L., Oldridge, N., Thompson, D.R., Zwisler, A.D., Rees, K., Martin, N., Taylor, R.S. 2016. Exercise-Based Cardiac Rehabilitation for Coronary Heart Disease: Cochrane Systematic Review and Meta-Analysis. J Am Coll Cardiol. 5;67 (1):1-12.

Bauman, A., Phongsavan, P., Schoeppe, S., Owen, N. 2006. Physical activity measurement--a primer for health promotion. Promotion & Education, 13:92– 103.

Booth, F.W., and Lees, S.J. 2007. Fundamental questions about genes, inactivity, and chronic diseases. Physiol Genom. 2007;28 (2):146¯157.

Chakravarthy, M., Joyner, M., and Booth, F., 2002. Sedentary Patients to Reduce the Risk of Chronic Health Conditions. Mayo clinic proceedings, 77 (2):165–173.

Danaei, G., Ding, E.L., Mozaffarian, D., Taylor, B., Rehm, J., Murray, C.J., Ezzati, M. 2009. The preventable causes of death in the United States: comparative risk assessment of dietary, lifestyle, and metabolic risk factors. PLoS Med. 28; 6(4).

Durstine, L.J., Gordon, B., Wang, Z., and Luo, Z., 2013. Chronic disease and the link to physical activity, Journal of Sport and Health Science, Volume 2, Issue 1, Pages 3-11,

Elizabeth, A.J. and Larry, D., 2019. Physical activity, exercise, and chronic diseases: A brief review, Sports Medicine and Health Science, Volume 1, Issue 1.

Fogelholm, M., (2010). Physical activity, fitness and fatness: relations to mortality, morbidity and disease risk factors. A systematic review. Obes Rev. 2010;11 (3):202¯221.

Hickey, M.E. and Mason, S.E., 2017. Age and gender differences in particpation rates, motivators for, and barriers to exercise," Modern Psychological Studies: Vol. 22, pg 10-19.

Huber, M., Knottnerus, J.A., Green L, Horst H.V.D, Jadad, A.R., Kromhout, D., Leonard, B., Lorig, K., Loureiro, M.I., van der Meer, J.W.M., Schnabel, P., Smith, R., van Weel, C, and Smid, H., 2011. How should we define health? British medical journal, 343(2):d4163–d4163.

Katzmarzyk, P.T., and Lear, S.A. 2012. Physical activity for obese individuals: a systematic review of effects on chronic disease risk factors. Obes Rev. 2012; 13(2):95–105.

and behaviours among Irish nursing students, International Journal of Health Promotion and Education, 59:3, 145-155.

Leijon, M. E., Bendtsen, P., Nilsen, P., Ekberg, K., and Ståhle, A., 2008. Physical activity referrals in Swedish primary health care - prescriber and patient characteristics, reasons for prescriptions, and prescribed activities. BMC health services research,8 (1), p.201.

Tingting, Li., Shaozhong, Wei., Yun, Shi., Shuo, Pang., Qin, Q., Jieyun, Yin., Yunte, Deng., Qiongrong, C., Sheng, W., Shaofa, Nie., Li L., 2016. The dose-response effect of physical activity on cancer mortality: findings from 71 prospective cohort studies. Br J Sports Med. 2016;50(6): 339–345.

Li, W., Procter-Gray, E., Churchill, L., Crouter, S. E., Kane, K., Tian, J., Franklin, P. D., Ockene, J. K., & Gurwitz, J. 2017. Gender and Age Differences in Levels, Types and Locations of Physical Activity among Older Adults Living in Car-Dependent Neighborhoods. The Journal of frailty & aging, 6(3), 129–135.

Murphy,S.L., Xu, J., Kochanek, K.D., Curtin, S.C., Arias, E., 2017. Deaths: Final Data for 2015. Natl Vital Stat Rep;66(6):1-75.

Murray, C.J., Lopez, A.D. 1997. Alternative projections of mortality and disability by cause1990-2020: global burden of disease study. Lancet. 1997;349 (9064):1498–1504

Oberg, E., 2007. Physical activity prescription: our best medicine. Integrative Medicine, 6, pp.18–22.

Olshansky, S.J., Passaro, D.J., Hershow, R.C., Layden, J., Carnes, B.A., Brody, J., Hayflick, L., Butler, R.N., Allison, D.B., Ludwig, D.S., 2005. A potential decline in life expectancy in the United States in the 21st century. N Engl J Med. 17;352 (11):1138-45.

Pathare, Neeti, P.T., Conroy, J.D.P.T., Gillard, A.D.P.T., and Hansen, M.D.P.T. (2020). Physical Activity: Levels, Knowledge, and Attitudes of Physical Therapy Students in the United States.Cardiopulmonary Physical Therapy Journal, Volume 31 - Issue 2 - p 57-65.

Pedersen, B.K., and Saltin, B., 2006. Evidence for prescribing exercise as therapy in chronic disease. Scandinavian journal of medicine & science in sports, 16 (S1), pp.3–63.

Roux, L., Pratt, M., Tengs, T. O., Yore, M. M., Yanagawa, T. L., Van Den Bos, J., Rutt, C., Brownson, R. C., Powell, K. E., Heath, G., Kohl III, H. W., Teutsch, S., Cawley, J., Lee, I., West, L., and Buchner, D. M., 2008. Cost effectiveness of community-based physical activity interventions. American Journal of Preventive Medicine, 35, pp. 578–588.

Sallis, R.E., 2009. Exercise is medicine and physicians need to prescribe it! British journal of sports medicine. 43(1), pp. 3–4.

Smith, S. 2013. Determining Sample Size How to Ensure You Get the Correct Sample Size

Vaara, J.P., Vasankari, T., Koski, H.J., and Kyröläinen, H. 2019. Awareness and Knowledge of Physical Activity Recommendations in Young Adult Men. Front. Public Health 7:310.