

# Evaluation of Physical Activity Characteristics for Patients Consulting in Outpatients Department at Kibagabaga Hospital, Rwanda

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**Abstract:** *Physical activity is the factor associated to the reduction of most of non-communicable diseases including cardiovascular diseases. a study has been done at Kibagabaga hospital to determine the physical activity characteristics of patients consulting outpatients department. This is a cross sectional study performed on 384 patients, using a convenience sampling technics. Data were collected using a questionnaire created into SPSS and presented in tables in forms of frequencies and percentages generated through SPSS programme. It has been observed that 60.2% of respondents were females, 27.1% of respondents were aged between 28-37 years, 33.6% of respondents practiced regular moderate physical work related activity, 53.6% of respondents are walking regularly, only 10.2% of respondents did high intensity sportive physical activities and 70.1% of respondents did housework moderate intensity physical activity. In total physical activity was done adequately by 93.2% of respondents. Based on the results, the physical activity is well performed by the most of the respondents and it is recommended to other researchers to run a study among patients suffering from non-communicable disease.*

**Keywords:** evaluation, physical activity, outpatients, Kibagabaga hospital, Rwanda

## 1. Introduction

There has been established an association between physical activity and fitness and it has been remarked that physical inactivity is closely linked to coronary heart disease. [1]. According to the world health organization, physical inactivity is estimated to be respectively responsible for 30% and 27% of ischemic heart disease and diabetes, though the physical activity contributes to the decrease of diabetes and cardiovascular disease. [2]. To understand physical activity evaluation, it has been classified into four dimensions including the type, the frequency, the duration and the intensity of physical activity and it has been classified into four domains including occupational, transportation, leisure time and domestic physical activity. [1]. This study determined the characteristics of physical activity among patients seen in outpatients department at Kibagabaga Hospital, Rwanda considering the domains and dimensions of physical activity.

## 2. Literature Survey

Studies showed that higher physical activity was associated with lower risk of cardiovascular disease and mortality in high-income, middle-income, and low-income countries [3]. A study done in United States of America showed that physical activity was inversely related to cardiovascular disease especially contributing to increase in prevalence of coronary heart disease and stroke in African Americans [4]. Physical inactivity has been identified as the second leading risk factor for stroke following hypertension in a multinational case-control study, finding a population-attributable risk of 28.5% [5]. Patients with stroke met less weekly physical activity guidelines as outlined in the 2008 Physical Activity Guidelines for Americans, according to self-reported data, participants with stroke reported less moderate (46.1%) and vigorous (9.1%) leisure activity [6].

A study done in Kenya showed that the surveyed population was physically active. Prevalence of physical activity was distributed as 4.1 % low physical activity, 76.4 % moderate physical activity and 19.6 % high physical activity. It was found that more females 4.6 % (95 % CI 3.4–6.2) reported a higher prevalence of low physical activity compared to males 3.2 % (95 % CI 2.1–4.9). [7].

In Rwanda, according to the report of the Ministry of Health, physical activity has been predominant in the population especially work related physical activity. [8].

## 3. Methods

This study used a descriptive, cross-sectional design using quantitative approach methods performed from September 2017 to April 2019. Target population for this study was adult population aged of 18 years and above estimated to 40,000 patients aged of 18 years and above, from Kibagabaga catchment area attending outpatients department. In this study, sample size was calculated using the Fisher's formula as it has been used by Naing *et al.* [9]. stated as  $N = Z_{1-\alpha/2}^2 \cdot P \cdot (1-P) / d^2$ .

$Z_{1-\alpha/2}$ : Standard normal variate at 5% type I error  $P < 0.05$ , it is 1.96.

P: 50 % as no studies showing the prevalence of cardiometabolic diseases in hospital settings in Rwanda to use as reference.

D: absolute error or precision 5%

N: sample size

From this formula, the sample size for our population is 384 patients in total.

A convenience sampling techniques was used from patients seeking care in outpatients department and patients have been selected because of their convenient accessibility.

Data collection was performed using a pre-tested questionnaire. The data collection form was established based on validated and standardized questionnaires that include International Physical Activity Questionnaire [10]. The questionnaire has been adapted so that it could contain questions related to the current study objectives.

Data are presented as frequencies and percentages in tables. They have been generated using the Statistical Package for the Social Sciences 21<sup>st</sup> version (SPSS).

Upon an approval from Mount Kenya University Ethical Review Board as it has been authorized to review research protocols by Rwanda National Ethics Committee, permission has been requested to Kibagabaga Hospital to collect data on outpatients from Kibagabaga District hospital to get data from patients seeking care in Outpatients Department. Detailed information about the study was given to the patients and an informed consent form was used and patients participating in this study explained all about the study including the right to participate or to withdraw from the study at any time. Patients who were fulfilling the standards for physical activity were advised to change the behavior. All information collected on the patients was handled in total secrecy for confidentiality issues.

## 4. Results

### 4.1. Socio-demographic characteristics of respondents

Table 4.1. below shows characteristics of socio-demographic data from respondents and these data include the gender of respondents, age group of respondents, level of education of respondents, marital status of respondents and employment status of respondents.

**Table 4. 1:** Socio-demographic characteristics of respondents

Variables	Frequency (N=384)	Percentage (%)
<b>Gender of respondents</b>		
Male	153	39.8
Female	231	60.2
<b>Age group of respondents</b>		
18-27	89	23.2
28-37	104	27.1
38-47	75	19.5
48-57	51	13.3
58 and above	65	16.9
<b>Level of education of respondents</b>		
No formal education	45	11.7
Primary school	153	39.8
Secondary	130	33.9
University	56	14.6
<b>Marital status of respondents</b>		
Not married	102	26.6
Married	225	58.6
Separated	9	2.3
Widowed	48	12.5
<b>Employment status of respondents</b>		
Employed	174	45.3
Unemployed	210	54.7

As indicated in Table 4.1 above, the most predominant sex of respondents is female having the frequency of 231

(60.2%). Concerning the age group of respondents, the most frequent is 28-37 years age group with 104 (27.1%) respondents followed by the group of 18-27 years with 89(23.2%) respondents. Most of respondents have done primary and secondary school which corresponds to the respective frequency of 153 (39.8 %) and 130 (33.9 %) respondents. Married and single respondents are predominant among respondents having respectively frequencies of 225 (58.6 %) and 102 (26.6 %). Lastly, unemployed respondents are more frequent among respondents representing 210 (54.7%).

### 4.2 Physical activity status of respondents

Physical activity has been assessed considering four sectors of activities that is job-related physical activity, transportation physical activity, recreational, sport and leisure time physical activity and house work, maintenance and home caring physical activity. For each sector, the rates of regular vigorous physical activity, number of weekly days of vigorous physical intensity, average duration of vigorous intensity physical activity according to the world health organization recommendations have been determined. Then the rates of moderate intensity physical activity, number of days per week for moderate intensity physical activity and average duration of moderate intensity physical activity per week according to the WHO recommendations have been determined. For transportation physical activity, three elements have been considered bicycling, walking and motor/cycle/vehicle traveling. At the end the physical activity has been classified as adequate physical activity for the respondents having totalized the recommended duration of physical activity per week.

**Table 4.2:** Job related physical activity of respondents

Variable	Frequency (N)	Percentage (%)
<b>Regular vigorous physical activity work by respondents(N=384)</b>		
Yes	57	14.8
No	327	85.2
<b>Number of days of vigorous physical activity work per week(N=57)</b>		
Two days	1	1.8
Three days	4	7
Four days	2	3.5
Five days	9	15.8
Six days	25	43.9
Seven days	16	28.1
<b>Average duration of vigorous physical activity work per week(N=384)</b>		
75 minutes and above	57	14.8
No vigorous intensity work	327	85.2
<b>Regular Moderate physical activity work by respondents(N=384)</b>		
Yes	129	33.6
No	255	66.4
<b>Number of days of moderate physical activity work per week(N=129)</b>		
One day	2	1.6
Two days	6	4.7
Three days	11	8.5
Four days	4	3.1
Five days	34	26.4
Six days	41	31.8
Seven days	31	24
<b>Average duration of moderate physical activity work per</b>		

week(N=384)		
Less than 150 minutes	23	6
150 minutes and above	106	27.6
No moderate activity at work	255	66.4

Table 4.2 above shows that most of respondents do not perform job related vigorous intensity physical activity at the rate of 327(85.2%) and only 57(14.8%) perform vigorous intensity job related physical activity. Among the latter, most of them (25) perform vigorous intensity job related activity at least six days of the week and 57(14.8%) perform more than 75 minutes of vigorous intensity job related physical activity per week. It indicates also that 129(33.6%) of respondents perform moderate intensity job related physical activity and 31 of them for seven days of the week and 41 for six days of the week. Most of respondents do not perform moderate intensity job related physical activity at the rate of 255(64.4%) and only 106(27.6%) perform the recommended 150 minutes per week of moderate intensity job related physical activity.

**Table 4.3:** Transportation physical activity of respondents

Variable	Frequency (N)	Percentage (%)
<b>Bicycle usage by respondents(N=384)</b>		
Yes	19	4.9
No	365	95.1
<b>Number of days of bicycle usage per week(N=20)</b>		
One day	6	30
Two days	2	10
Three days	1	5
Five days	2	10
Six days	1	5
Seven days	8	40
<b>Average duration of bicycle use per week(N=384)</b>		
Less than 75 minutes	5	1.3
75 minutes and above	15	3.9
No bicycle use	364	94.8
<b>Regular walking of respondents as physical activity(N=384)</b>		
Yes	206	53.6
No	178	46.4
<b>Number walking days per week(N=206)</b>		
One day	1	0.5
Two days	2	1
Three days	4	1.9
Four days	4	1.9
Five days	12	5.8
Six days	20	9.7
Seven days	163	79.1
<b>Average duration of walking time per week(N=384)</b>		
Less than 150 minutes	18	4.7
150 minutes and above	188	49
No walking as transport means	178	46.4
<b>Traveling by motor vehicle(N=384)</b>		
Yes	118	30.7
No	266	69.3
<b>Number of days of travelling by motor/vehicle per week(N=118)</b>		
One day	8	6.8
Two days	15	12.7
Three days	13	11
Four days	7	5.9
Five days	27	22.9
Six days	9	7.6
Seven days	39	33.1

Table 4.3 above shows transportation physical activity of respondents and it has been found that most of respondents (95.1%) do not use bicycle as mean of transportation, 8 respondents bicycle on daily basis, and 15 respondents bicycle more than 75 minutes per week. Most of respondents (206) regularly walk, 163 walk on daily basis and 188 respondents walk at least more than 150 minutes per week. Concerning travelling, only 118(30.7%) respondents travel by motor vehicle or motor cycle and 39 of them do it daily.

**Table 4.4:** Recreation, sport and leisure time physical activity of respondents

Variable	Frequency	Percentage
<b>Regular vigorous intensity sportive physical activity(N=384)</b>		
Yes	39	10.2
No	345	89.8
<b>Number of days of vigorous intensity sportive physical activity per week(N=39)</b>		
One day	12	30.8
Two days	11	28.2
Three days	8	20.5
Four days	2	5.1
Five days	4	10.3
Seven days	2	5.1
<b>Average duration of vigorous intensity sportive physical activity per week(N=384)</b>		
Less than 75 minutes	11	2.9
75 minutes and above	28	7.3
No vigorous sportive activity	345	89.8
<b>Regular moderate intensity sportive physical activity(N=384)</b>		
Yes	104	27.1
No	280	72.9
<b>Number of days of moderate intensity sportive physical activity per week(N=104)</b>		
One day	27	26
Two days	27	26
Three days	15	14.4
Four days	1	1
Five days	12	11.5
Six days	5	4.8
Seven days	17	16.3
<b>Average duration of moderate intensity sportive physical activity per week(N=384)</b>		
Less than 150 minutes	46	12
150 minutes and above	43	11.2
No moderate sportive activity	295	76.8

Table 4.4. above shows sport, recreational and leisure time physical activity and small percentage (10.2%) of respondents perform regularly vigorous intensity sportive physical activity, only 2 of them on daily basis and 28 performing more than 75 minutes per week of vigorous intensity sportive physical activity. Only 27.1% of respondents perform moderate intensity sportive physical activity and most of them (27) perform at least one day per week and only 17 respondents perform moderate intensity sportive physical activity daily. Estimated 43(11.2%) respondents perform more than 150 minutes of moderate intensity sportive physical activity per week.

**Table 4.5:** Housework, house maintenance and caring for family physical activity of respondents

Variable	Frequency	Percentage
<b>Regular vigorous intensity physical activity work at home (N=384)</b>		
Yes	13	3.4
No	371	96.6
<b>Number of days of vigorous intensity physical activity work at home per week (N=13)</b>		
One day	1	7.7
Two days	1	7.7
Three days	2	15.4
Six days	1	7.7
Seven days	8	61.5
<b>Average duration of vigorous intensity work at home per week (N=384)</b>		
75 minutes and above	13	3.4
No vigorous intensity work at home	371	96.6
<b>Regular moderate intensity physical activity work at home (N=384)</b>		
Yes	269	70.1
No	115	29.9
<b>Number of days of moderate intensity physical activity work at home per week (N=269)</b>		
One day	19	7
Two days	23	8.5
Three days	28	10.4
Four days	8	3
Five days	16	5.9
Six days	9	3.3
Seven days	167	61.9
<b>Average duration of moderate intensity physical activity work at home per week (N=384)</b>		
Less than 150 minutes	22	5.7
150 minutes and above	248	64.6
No moderate activity at home	114	29.7

Table 4.5 on previous page shows physical activity at home and only 13(3.4%) respondents perform vigorous intensity physical activity at home among them 8 respondents on daily basis and 13 respondents performing more than 75 minutes per week. Most of respondents estimated to 269(70.1%) perform moderate intensity physical activity at home and most of them (167) on daily basis and predominantly 248 respondents perform moderate intensity physical activity at home daily.

**Table 4.6:** Total regular physical activity adequacy

Variable	Frequency(N)	Percentage (%)
<b>Total regular physical activity adequacy per week(N=384)</b>		
Yes	358	93.2
No	26	6.8

Table 4.6 above totalizes the physical activity among respondents and indicates that most of respondents 358(93.2%) have performed adequately regular physical activity as recommended by WHO that is to say more than 75 minutes per week for vigorous intensity physical activity and more than 150 minutes per week for moderate intensity physical activity. Small number of 26 (6.8%) respondents were not compliant with recommendations.

**Table 4.7:** Time spent sitting of respondents

Variable	Frequency(N)	Percentage (%)
<b>Average duration of regular sitting time per day(N=384)</b>		
One hour	120	31.3
Two hours	103	26.8
Three hours	66	17.2
Four hours	35	9.1
Five hours	26	6.8
Six hours	12	3.1
Seven hours	4	1
Eight hours	17	4.4
Nine hours	1	0.3

Table 4.7 on previous page shows sedentary behavior of respondents, it includes the daytime spent at home in sitting position and most of respondents (120) pass at least 1 hour per day in sitting position and 12 respondents at least pass 6 hours per day in sitting position.

## 5. Discussions

Based on the findings of this current study, the physical activity among our population of study is comparable to the results found by the Ministry of Health in Rwanda [8 ] and it is also comparable to the results found by the Ministry of Health in Zambia [11] where less than 10% of population were not coping with World Health Organization recommendations in terms of physical activity practices and the work related physical activity has been observed as the most predominant physical activity in both studies and comparable to this current study findings. Our study is also closely comparable to the research done by Gichu *et al* [12] in Kenya where 7.7% of participants were found to be physically inactive. In conclusion, the physical activity is performed in high percentage among Rwandan population in general as figures showed it. In addition to this study, it is recommended to extend the research by an assessment of physical activity among patients suffering from non-communicable diseases and how they are connected to physical inactivity.

### Declaration of interest conflict

None

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