JOURNAL OF BIOMEDICAL INVESTIGATION (JBI) VOLUME 12 NUMBER 2: JULY-AUGUST 2024

RELATIONSHIP BETWEEN HEALTH-RELATED QUALITY OF LIFE AND PHYSICAL ACTIVITY LEVEL OF RETIRED PERSONS IN ONDO, NIGERIA

Authors:
Madume A. K.[1*]; Williams, B. A.[2]; Afolabi, T. O.[2]; Ogundunmade, G. B.[3]; Ogunleye, I. E.[4]; Oladejo, K. S.[5]; Olaseinde, P.[6]; Odusanya, F. O.[6]

Author Affiliations:
[1]Depertment of Physiotherapy, Faculty of Basic Medical Sciences, College of Medical Sciences, Rivers State University, Port Harcourt, Rivers State.
[2]Department of Physiotherapy, Faculty of Medical Rehabilitation, University of Medical Sciences, Ondo State
[3]Department of Physiotherapy, Jos University Teaching Hospital, Jos, Plateau State
[4]Department of Physiotherapy, Unimed Teaching Hospital, Ondo town, Ondo State
[5]Department of Physiotherapy, General Hospital, Ikorodu, Lagos State
[6]Department of Physiotherapy, University College Hospital, Ibadan, Oyo State

*__Corresponding Author:__
Anelechi Kenneth Madume,
kenneth.madume@ust.edu.ng

Received: 29/7/2024; accepted for publication 31/8/2024

ABSTRACT

Introduction: Despite the advancing age of the individual, physical activity plays a vital role in leading a healthy life as it lowers the risk of cardiovascular disease, metabolic syndrome and improves mental wellbeing.

Aim: This study aimed to examine the relationship between the health-related quality of life and physical activity levels of retired persons in Ondo Town, Nigeria.

Materials and Methods: This cross-sectional study involved 204 retired persons. Health-related quality of life and Physical Activity Level was assessed using SF-12 questionnaire and The International Physical Activity questionnaire (IPAQ)-Short Form. Data was summarized using mean, standard deviation, frequency and percentages. Chi-square and Pearson's correlation coefficient was used. Alpha level was set as $p<0.05$.

Results: Majority of the respondents were within the age group 61 - 70 years (55.4%), male gender (54.4%) and married (73.5%). The mean age, Health-related quality of life (HRQOL) (physical), Health-related quality of life (HRQOL) (mental) and physical activity of the respondents were 69.7 ± 7.23, 399.92 ± 115.8, 254.09 ± 48.62, 4012.7 ± 10985 MET respectively. There was a significant relationship between physical activity level and HRQOL (physical) ($r = 1.00$, $p = 0.010$), also there was significant relationship between physical activity level and HRQOL (mental) ($r = 0.179$, $p = 0.001$).

Conclusion: The findings of this study indicated that a significant proportion of retired individuals residing in Ondo town participated in moderate physical activity. Moreover, the study revealed a positive correlation between the level of physical activity and the health-related quality of life among retired persons in Ondo town.

Keywords: *Health-Related Quality of life, Physical Activity Level, retired Persons*

INTRODUCTION

Physical inactivity ranks fourth among risk factors for death worldwide, behind smoking, high blood pressure, and high blood sugar. Globally, the population of elderly people is increasing, and clinical studies have linked a number of chronic non-communicable disease (CNCD), the most prevalent of which are cardiovascular disease, diabetes, hypertension and obesity, to quality of life[1]. Furthermore, it covers daily family activities such as grocery shopping, household chores, and trash collection. Exercise is a component of physical activity, defined as a section of spare time related to physical activity that is structured, designed, and repeated on a daily or otherwise to improve physical condition and body fitness[2]. The World Health Organization has issued a series of detailed guidelines and recommendations on its appropriateness in all age groups[3]. Despite this, less than one-third of adults (18 years and above) follow these recommendations[4]. Physical inactivity is gradually being identified as a global pandemic[5], as physical inactivity is responsible for 7.2% and 7.6%,

respectively, of deaths from all causes and cardiovascular disease globally[6].

Physical inactivity ranks fourth among risk factors for death worldwide, behind smoking, high blood pressure, and high blood sugar. Due to urbanization and modernization, physical activity levels have been steadily declining in many nations. This loss has significant ramifications for the population's overall health as well as the rising prevalence of noncommunicable diseases[7]. Physical activity is important in leading a healthy life because it lowers the risk of cardiovascular disease, metabolic syndrome, and improves mental wellbeing by reducing anxiety and stress[8]. Active living can help reduce the risk of chronic diseases, improve an individual's overall health and well-being, reduce stress, reduce health-related medical costs, help maintain a healthy weight, assist in proper balance and posture, and help maintain healthy bones and strong muscles. It can also improve sleeping patterns and help prevent risk factors for heart disease like high cholesterol, diabetes, and hypertension[9].

From the perspective of public health, physical activity is crucial for health-related quality of life (HRQoL), which is defined as the personal sense of well-being in the physical, mental, and social domains of life. Health-related quality of life is increasingly being used as a measure of individual physical and mental health over time, including physical, emotional, social, and school functioning[10]. Health-Related Quality Of Life (HRQoL) is a subset of quality of life that is used to assess a person's perception of health. For clinicians, researchers, and patients, this is an important factor in determining the health benefits of various interventions. Physical activity and health-related quality of life research has primarily focused on elderly populations suffering from chronic diseases such as cardiovascular disease, arthritis, and cancer[11, 12], as well as on general adult populations with no health problems[13]. These studies revealed that people who engage in less physical activity have a lower quality of life.

Despite the positive effects of physical activity and the negative effects of physical inactivity, the majority of older adults do not meet the recommended levels of physical activity (150 minutes of moderate-intensity physical activity per week, 75 minutes of vigorous-intensity physical activity per week, or an equivalent combination of moderate-and vigorous-intensity physical activity)[14].

People who are considered to be pensioners are those who entirely quit working and are dependent on lesser pay checks[15]. When they are eligible for private or public pension benefits, many people choose to retire. This may coincide with significant life changes; for example, a retired worker may relocate to a new location, having less frequent contact with their previous social context and adopting a new lifestyle[16]. Pension and gratuity plan for public servants in Nigeria states that public officer on completion of 35 years of unbroken service or 60/65 years of age for public servants and professors respectively whichever comes first, shall receive the maximum pension and gratuity for their respective grades and ranks[17].

Globally, the population of elderly people is increasing, and clinical studies have linked a number of chronic non-communicable disease, the most prevalent of which are cardiovascular disease, diabetes, hypertension and obesity, to quality of life[1] especially in the elderly population. It is estimated that physical inactivity contributes to a significant portion of the burden of major non-communicable diseases. Non-communicable diseases cause 74% of global deaths and have caused significant disabilities, lowering health-related quality of life (HRQoL)[18]. Few studies have shown the relationship between health-related quality of life and physical activity level among retired persons, especially in this environment. Hence, this study determined the relationship between health-related quality of life and physical activity level among retired persons in Ondo town, Ondo state.

MATERIALS AND METHODS:

Inclusion Criteria

The respondents of this study were;

i. Retired persons in Ondo town.
ii. Those who were literate.
iii. Those who were willing to participate in this study

Exclusion Criteria

i. Older adults who were not retired
ii. Retired persons who were too ill.
iii. Retired persons who were mentally unstable.

Research Design

This was a cross sectional study

Sampling Technique

A simple randomized sampling technique was used.

Determination of Sample Size

$N= Z^2 (P)(Q)/D^2$

Where N: the desired sample size

Z: the standard normal deviate usually set at 1.58

P*:* the proportion in the target population, 0.5

Q: 1.0 - P

D: degree of accuracy required, 0.05.

$N = (1.58)^2(0.50)\ (0.50)/\ (0.05)^2$

$N = 250$

Therefore, the sample size [19] for this study = 250

Instruments

A proforma questionnaire was structured to collect information on social demographic variables, SF-12 questionnaire was used to measure quality of life of the retired persons and IPAQ was adopted to measure health-related physical activity behaviours.

Scoring Of IPAQ

Results will be reported in categories; low activity levels, moderate activity levels or high activity levels or as a continuous variable (MET minutes a week). MET minutes represent the amount of energy expended carrying out physical activity. Scoring a high level of physical activity on the IPAQ means your physical activity levels equate to approximately one hour of activity per day or more at least a moderate intensity activity level. A moderate score on the IPAQ indicates that, on most days, you engage in activity that is probably equivalent to 30

minutes of at least moderate intensity physical exercise. A low score on the IPAQ means that you are not meeting any of the criteria for either MODERATE or HIGH levels of physical activity.

Procedure

Ethical approval for this study was obtained from the Ethics and Research Committee of University of Medical Sciences, Ondo Town, Ondo State. Permission to address retired persons at their general meeting was gotten from the head of the pensioners association in Ondo Town, after the nature and purpose of the study had been explained. Respondents were purposely recruited from these meetings following the inclusion criteria. Informed consent in written form was given after the purpose of the study had been explained to the respondents. SF-12 and (IPAQ) international physical activity questionnaire were administered to assess their health- related quality of life and physical activity level. After filling of the questionnaires by respondents, the questionnaires were retrieved and data collected was analyzed.

RESULTS

Majority of the respondents were male (54.4%) and married (73.5%). Majority of the respondents retired between 2001 - 2020 (84.3%) and are within the age group 61 - 70 (55.4%) (Table 1a). Eighty-two percent of the target population were used in this study. The mean age, Health-related quality of life (physical), Health-related quality of life (mental) and physical activity of the respondents were 69.7 ± 7.23, 399.92 ± 115.8, 254.09 ± 48.62, 4012.7 ± 10985 metabolic equivalent of tasks (MET) respectively (Table 1b).

The result in table 2 shows that there is significant difference between the mean physical activity level and Health-related quality of life (HRQOL) (physical) ($t = 4.706$, $p = 0.000$). The result shows that there is significant difference between the mean of physical activity level and Health-related quality of life (HRQOL) (mental) ($t = 4.888$, $p = 0.000$).

Result on table 3 shows that there is no significant association between the age group and physical activity level ($X^2 = 2.520$, $p = 0.641$) (Table 3).

Result on the table 4 shows that there is no significant association between the year of retirement and physical activity level ($X^2 = 6.811$, $p = 0.146$) (Table 4). Table 5 shows that there is significant correlation between physical activity level and HRQOL (physical) ($r = 1.00$, $p = 0.010$), also there is significant relationship between physical activity level and HRQOL (mental) ($r = 0.179$, $p = 0.001$).

Table 1a: Socio-demographic characteristics of the respondents

Variables	Frequency	Percentage (%)
Gender		
Male	111	54.4
Female	93	45.6
Marital status		
Divorced	2	1.0
Married	150	73.5
Single	3	1.5
Widowed	49	24
Year of retirement		
1996 – 2000	14	6.9
2001 – 2020	172	84.3
2021 – 2030	18	8.8
Age group range		
51 – 60	13	64
61 – 70	113	55.4
> 70	78	38.2

Table 1b: Descriptive statistics of the respondents

Variables	X ± S.D
Age	69.7 ± 7.23
HRQol (Physical)	399.92 ± 115.8
HRQol (Mental)	254.09 ± 48.62
IPAQ score	4012.7 ± 10985

Table 2: Comparison of the Mean Health-related quality of life (HRQOL) and mean physical activity level using paired t test

IPAQ	HRQol		
X ± S.D	X ± S.D	T	P
Physical domain			
4012.7 ± 10985.73	399.9 ± 115.8	4.706	0.000
Mental domain			
4012.7 ± 10985. 73	254.09 ± 49.61	4.888	0.000

Table 3: Association between the age group and physical activity level of respondents using Chi square

	Age group				
	51-60	**61-70**	**>71**		
PA level	**N(%)**	**N(%)**	**N(%)**	**X^2**	**p**
High	6 (7.9)	45(59.2)	25(32.9)	2.520	0.641
Moderate	4(4.7)	48(55.8)	34(39.5)		
Low	3 (7.1)	20(47.6)	19(45.2)		

PA level: Physical activity level

Table 4: Association between the retirement year range and physical activity level using Chi square

	Year of retirement range			
PA level	**1980 – 2000**	**2001 -2020**	**2021 -2030**	**X^2**	**p**
High	6 (7.9)	68(89.5)	2(2.6)	6.811	0.146
Moderate	6(7.1)	67(78.8)	12(14.1)		
Low	2(4.8)	36(85.7)	14(9.5)		

Table 5: Relationship between Health-related quality of life (HRQOL) and Physical activity level using Pearson Correlation Coefficient

Physical activity level	**HRQol (Physical domain)**	
	Rho(r)	**p**
	1.00	0.010
	HRQol (Mental domain)	
	0.179	0.001

DISCUSSION

This study was designed to determine the health-related quality of life and level of physical activity among retired persons in Ondo Town and to determine their relationship. In this study, it was observed that a majority of retired individuals engaged in moderate physical activity. This

finding is consistent with another study focusing on the impact of life events on physical activity, which also reported a preference for light and moderate intensity physical activity among retired persons[20]. Being elderly and retired, it is expected that the participants activity level would be limited. Even when they had hitherto been very active, age is a factor in lowering and reducing the intensity of exercise of exercise.

This study did not find a significant relationship between age group and physical activity level among retired individuals. In other words, the age of the retired participants did not appear to influence their level of physical activity. The study found a significant relationship between the domains of health-related quality of life and the level of physical activity among retired individuals. Specifically, the study found a positive and significant correlation between the physical domain of health-related quality of life and the level of physical activity. This suggests that retired individuals who engaged in higher levels of physical activity had better physical health status, indicating a positive impact of physical activity on the physical domain of health-related quality of life. These findings align with another study, which demonstrated a dose-response relationship between total physical activity and improved health-related quality of life (HRQOL) in both middle-aged individuals (below 65 years) and elderly adults (above 65 years)[21].

The study also revealed a significant positive relationship between the mental domain of health-related quality of life and the level of physical activity among retired individuals. This suggests that retired individuals who engaged in higher levels of physical activity had better mental health status, demonstrating a beneficial impact of physical activity on the mental domain of health-related quality of life. These findings align with a separate study where an active group demonstrated higher scores in both physical activity and quality of life measures, while the sedentary group exhibited higher scores in anxiety and depression measures. Also, this study found a correlation between lower levels of physical activity and symptoms of anxiety and depression among elderly individuals living in the community.

CONCLUSION

The outcome of this study shows that there is a positive correlation between health-related quality of life and physical activity level among the retired persons in Ondo town. Thus, indicating the need for raising awareness among retired individuals about the influence of physical activity on their quality of life, in order to encourage their participation in exercise and prevent a decline in their health-related well-being.

Competing Interests

The author(s) declare that they have no competing interests.

REFERENCES

1. Maclennan, B., Wyeth, E., Samaranayaka, A., & Derrett, S. (2022). Predictors of EQ-5D-3L outcomes amongst injured Māori: 1-year post-injury findings from a New Zealand

cohort study. *Quality of Life Research*, *31*(6), 1689-1701.

2. Rahman, M. M., Liang, C. Y., Gu, D., Ding, Y., & Akter, M. Understanding levels and motivation of physical activity for health promotion among chinese middle-aged and older adults: a cross-sectional investigation. *J. Healthcare Engineering*, *2019*.
3. Bull FC, Al-Ansari SS, Biddle S, *et al* World Health Organization 2020 guidelines on physical activity and sedentary behaviour *British Journal of Sports Medicine* 2020;**54:**1451-1462
4. Hallal, P. C., Andersen, L. B., Bull, F. C., Guthold, R., Haskell, W., Ekelund, U., *et al*. Physical Activity Series Working Group. Global physical activity levels: surveillance progress, pitfalls, and prospects. *The lancet*, 2012, *380*(9838), 247-257. *J. Epidemiol*, 12(1), 1–8.
5. Kohl HW 3rd, Craig CL, Lambert EV, Inoue S, Alkandari JR, Leetongin G, et al.; Lancet Physical Activity Series Working Group. The pandemic of physical inactivity: global action for public health. *Lancet*. 2012 Jul 21; 380(9838):294-305.doi:10.1016/S0140-6736(12)60898-8.PMID: 22818941.
6. Katzmarzyk, P. T., Friedenreich, C., Shiroma, E. J., & Lee, I. M. Physical inactivity and non-communicable disease burden in low-income, middle-income and high-income countries. *British Journal of Sports Medicine*, 2022, *56*(2), 101-106.
7. World Health Organization, *Global Recommendations on Physical Activity for Health*, World Health Organization, Geneva, Switzerland, 2010.
8. Asousi, M. A. l. Physical activity among preclinical medical students at The University of Malay, Malaysia. *J Nutr Heal Food Sci* 2016;4(2):1–8. doi: http://dx.doi.org/10.15226/jnhfs.2016.00159
9. Bowling, A. "Which model of successful aging should be used? Baseline findings from a British Longitudinal Survey of Aging". *Age and Ageing*. 2006, Vol.35, 607-614.
10. Aschalew, A. Y., Yitayal, M., & Minyihun, A. Health-related quality of life and associated factors among patients with diabetes mellitus at the University of Gondar referral hospital. *Health and quality of life outcomes*, 2020, *18*(1), 1-8
11. Chyun, D.A., Melkus, G.D., Katten, D.M., Price, W.J., Davey, J.A., Grey, N., *et al*. The association of psychological factors, physical activity, neuropathy, and quality of life in type 2 diabetes. *Biol. Res. for Nurs.*, 2006, 7(4), 279–288. doi:10.1177/1099800405285748
12. Smith, D. W. & McFall, S. L. The relationship of diet and exercise for weight control and the quality of life gap associated with diabetes, *J. Psychosomatic Research*, 2005, 59(6), 385-392. Doi:10.1016/j.jpsychores.2005.06.062.
13. Bize, R., Johnson, J.A., & Plotnikoff, R.C. Physical activity level and health-related quality of life in general adult population: A systematic review.

Preventive Medicine, 2007, 45(6), 401–415. doi:10.1016/j.ypmed.

14. Notthoff, N., Reisch, P., & Gerstorf, D. Individual characteristics and physical activity in older adults: a systematic review. *Gerontology*, 2017, *63*(5), 443-459.
15. Olaleye, Y. L., & Ageh, I. M. Journey towards active lifestyle and successful ageing among pensioners in Ibadan Metropolis. *Afri. J. of Social Work*, 2017, *7*(1), 17-26.
16. Cox, H. 2012. Work/retirement choices and lifestyle patterns of older Americans. In L. Loeppke (Ed.), Annual editions: Aging (24th ed., pp. 74-83). New York, NY: McGraw-Hill. Stuart-Hamilton, I. 2006. The Psychology of Ageing: An introduction, London Jessica Kinsley Publishers
17. Eme, O. I., & Ugwu, S. C. The laws and administration of retirement in Nigeria: A historical approach. Kuwait Chapter Of Arabian Journal Of Business And Management Review, 2011, vol 1, pg 2.
18. Al-Noumani, H., Al-Harrasi, M., Al Zaabi, O., & Natarajan, J. Predictors of health-related quality of life in patients with non-communicable diseases: A national cross-section study. Applied Nursing Research, 2022 (64) 151566.
19. Cochran, W. G. (1965). The Planning of Observational Studies of Human Populations. *Journal of The Royal Statistical Society, Series A (General)*, 128,234-266. https://doi.org/10.2307/2344179.
20. Gropper, H., John, J. M., Sudeck, G., & Thiel, A. The impact of life events and transitions on physical activity: A scoping review. *PloS one*, 2020, *15*(6), e0234794.
21. Koolhaas, C. M., Dhana, K., Van Rooij, F. J. A., Schoufour, J. D., Hofman, A., & Franco, O. H. Physical activity types and health-related quality of life among middle-aged and elderly adults: The Rotterdam study. *The J. of nutrition, health & aging*, 2018, (22) 246-253.