

# Evaluation of the Level of Physical Activity among People Aged 50 and over Followed at the Abidjan Civil Servants' Hospital in 2022

Yao Eugène Konan<sup>1,2\*</sup>, Ekissi Orsot Tetchi<sup>1,2</sup>, Guillaume Okoubo<sup>1,3</sup>, Abdul Raime Yacine Diallo<sup>1</sup>, Diallo Maky<sup>1,4</sup>, Issaka Tiembre<sup>1,4</sup>

<sup>1</sup>Department of Public Health and Specialties, Training and Research Unit in Medical Sciences of Abidjan, Félix Houphouët-Boigny University, Abidjan, Côte d'Ivoire

<sup>2</sup>National Institute of Public Health, Ministry of Health and Public Hygiene, Abidjan, Côte d'Ivoire

<sup>3</sup>National Program for the Fight against Metabolic Diseases—Prevention of Non-Communicable Diseases, Ministry of Health and Public Hygiene, Abidjan, Côte d'Ivoire

<sup>4</sup>National Institute of Public Hygiene, Ministry of Health and Public Hygiene, Abidjan, Côte d'Ivoire

Email: \*ykonan798@gmail.com

**How to cite this paper:** Konan, Y.E., Tetchi, E.O., Okoubo, G., Diallo, A.R.Y., Maky, D. and Tiembre, I. (2025) Evaluation of the Level of Physical Activity among People Aged 50 and over Followed at the Abidjan Civil Servants' Hospital in 2022. *Open Journal of Epidemiology*, **15**, 389-401.

<https://doi.org/10.4236/ojepi.2025.152025>

**Received:** January 15, 2025

**Accepted:** May 12, 2025

**Published:** May 15, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

**Introduction:** The health benefits of regular physical activity are well recognized and documented. In Côte d'Ivoire, the absence of research data assessing the level of physical activity in the elderly justifies the present study. **Objective:** This paper aims to assess the level of physical activity and identify associated factors in people aged 50 and over attending the Abidjan Civil Servants' Hospital. **Methods:** This was a descriptive and analytical cross-sectional study. It took place from October 2021 to August 2022 and involved a purposive sample of 113 people aged 50 and over. It took place at the Abidjan Civil Servants' Hospital. The physical activity questionnaire (GPAQ) was used to classify physical activity levels. Associated factors were investigated by multivariate analysis using logistic regression at a significance level of 5%. **Results:** With a mean age of 60.58 years, the majority of study participants were men (72.57%). Of 113 participants, 48.67% had a borderline or low level of physical activity, 37.17% a moderate level of physical activity and 14.16% an intense level of physical activity. Factors predictive of borderline activity level were female gender ( $P = 0.042$ ,  $OR = 2.67$ ,  $95\%-CI = [1.04 - 6.87]$ ) and the existence of diabetes ( $P = 0.014$ ,  $OR = 5.81$ ,  $95\%-CI = [1.43 - 23.57]$ ). **Conclusion:** Nearly half the people aged 50 and over had a low level of physical activity. To reinforce the results of this study, further studies with more representative samples are needed to better identify the issue of physical activity practice in distinct subpopulations and patients.

---

## Keywords

Evaluation, Physical Activity Level, Elderly, Associated Factors, Abidjan

---

### 1. Introduction

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure above the resting level [1] [2]. It includes all activities of daily life, school and work, and leisure activities, whether structured or not [2]. In children and adolescents, it improves bone health, promotes healthy growth and muscle development, and improves motor and cognitive development. In pregnant and post-partum women, it reduces the risk of pre-eclampsia, gestational hypertension, gestational diabetes, excessive weight gain during pregnancy, childbirth complications, post-partum depression and neonatal complications [3]. In adults and the elderly, it reduces the risk of all-cause mortality. It improves mental health, cognitive health and sleep. More specifically, in the elderly, it helps to strengthen muscles, improve cardiac condition and promote independence and home care in optimal conditions [3]. Its promotion, extended to the whole population, has become a public health issue [4]. It is a major determinant of health status, physical condition, maintenance of independence with advancing age and quality of life for people at all ages [5]. It is promoted as a key contributor to healthy aging and to improving the functional status of frail elderly people or those in the process of becoming frail [4] [6]. It contributes to successful aging in good health (physical, mental and social), with benefits for the primary, secondary and tertiary prevention of non-communicable diseases (chronic illnesses) such as cardiovascular disease (heart disease, strokes), diabetes, and breast and colon cancer. It also helps prevent major risk factors such as high blood pressure (hypertension), excess weight (overweight and obesity) and contributes to a better quality of life and well-being [1] [7]. Given the importance of physical activity for public health, all countries are encouraged to ensure regular monitoring of physical activity and sedentary behaviour in populations to take account of the dual priority of the WHO Global Action Plan to Promote Physical Activity 2018-2030: to reduce the global level of physical inactivity, as well as disparities and levels of sedentary behaviour at national level among populations defined as the least active [1]. For this reason, epidemiological monitoring of physical activity is of crucial importance. However, given the difficulty of understanding the reality of physical activity among the elderly in Côte d'Ivoire, we have undertaken the present study, entitled "Evaluation of the level of physical activity among people aged 50 and over followed at the Hôpital des Fonctionnaires d'Abidjan in 2022", with a view to contributing to the promotion of an active lifestyle and the fight against sedentary lifestyles.

---

## 2. Methods

### 2.1. Study Framework, Type and Population

This was a descriptive and analytical cross-sectional study. It took place over a period of 11 months, including 3 months for data collection (June to August 2022) and involved a sample of 113 people aged 50 and over, selected on a purposive basis. The study was conducted at the Abidjan Civil Servants' Hospital, which opened in 1962. In 1999, it was sold by the State to the Mutuelle Générale des Fonctionnaires et Agents de l'Etat de Côte d'Ivoire (MUGEF-CI), at the request of the civil servants' trade unions. Despite this transfer, the medical centre continued to be managed by the Ministry of Health. The medical centre provides unscheduled consultations without appointment (general medicine, paediatrics, gynaecology, ear, nose and throat, dental care) and scheduled consultations with appointment (cardiology, gastroenterology, internal medicine, pneumology, ophthalmology, dermatology, diabetology, psychiatry).

### 2.2. Collection of Study Data

The data was collected using a questionnaire that had been previously tested and then adjusted to gather information on the general characteristics of the respondents (socio-demographic data, nutritional status, use of psychoactive substances, medical history) and levels of physical activity. In order to ensure confidentiality, the survey was conducted in a dedicated room before being received by the consulting physicians. Participants were made aware of the objectives and benefits of the study beforehand. However, only those who were informed and consented to take part in the study were interviewed.

### 2.3. Physical Activity Levels

We used the Global Physical Activity Questionnaire (GPAQ) to assess the level of physical activity among our respondents. The GPAQ was developed by the WHO on the basis of the International Physical Activity Questionnaire (IPAQ) to investigate physical activity (frequency, duration and intensity of activity) in three dimensions (activity at work, during travel and recreational or leisure activities) as well as sedentary behaviour [8]. Unlike the Recent International Physical Activity Questionnaire (RPAQ), it refers to a single week (rather than the last four weeks), which results in less memory bias. It provides reproducible data, has a moderate to strong positive correlation with the IPAQ and a previously validated and accepted measure of physical activity. It is an appropriate and acceptable instrument for monitoring physical activity in population health surveillance systems [9]. It has good to very good test-retest reliability. However, it has low to moderate concurrent validity when GPAQ data are compared with other methods of measuring physical activity, such as the accelerometer [10]. The GPAQ consists of 16 questions which are used to obtain a score to classify individuals into 3 levels of physical activity: low, medium and high. The criteria for these levels are as follows: high: 7 days or more of a combination of walking, moderate

or vigorous intensity activities; moderate: 5 days or more of walking, moderate or vigorous intensity activities; low: A person meeting none of the above criteria falls into this category [8].

## 2.4. Data Analysis

Epi Data software was used for data entry. SPSS software was used for data analysis. The analysis began with a description of the sociodemographic, clinical and lifestyle characteristics of the patients included in the study. A simple description of the different variables studied was carried out. Quantitative data were described by mean, standard deviation, median and mode, while qualitative variables were described by proportions. The relationship between prevalence and the various characteristics of the sample was analysed using logistic regression. To do this, the variables selected were those associated with the dependent variables at the 5% threshold ( $P < 0.05$ ) in both the bivariate and multivariate analyses. The dependent variable was the level of physical activity, with three modalities (1 = limited or low; 2 = average or moderate; 3 = high or intense). The independent variables were selected on the basis of scientific knowledge of the factors associated with physical activity. They included socio-demographic variables (age, sex, level of education), medical history of chronic pathologies, alcohol consumption and nutritional status.

## 3. Results

### 3.1. Characteristics of the Study Population

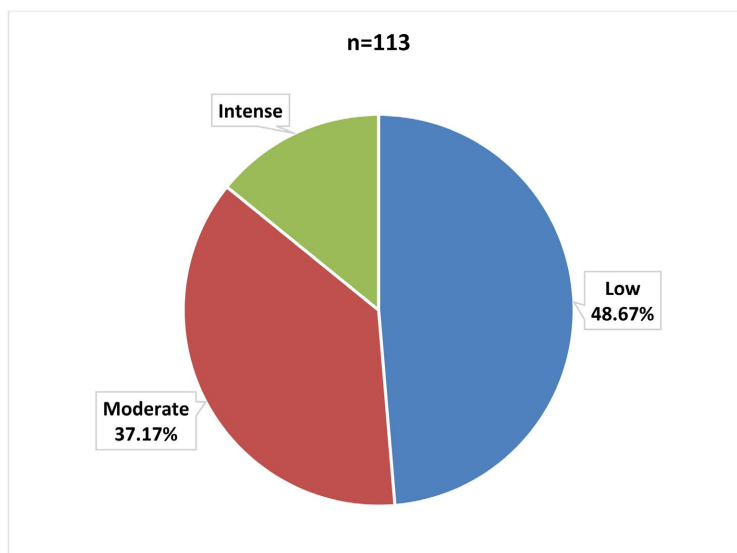
With a mean age of  $60.58 \pm 7.4$  years, the majority of study participants were male (72.57%), lived in Abidjan (84.9%) and had at least secondary education (98.23%), including 50.54% with higher education. Those who were working at the time of data collection represented 57.52%. With regard to the use of psychoactive substances, we noted that 4.42% (5/113) of respondents currently smoke regularly (active smoking) and more than half (53.10%) drink alcohol occasionally. No regular alcohol consumption was found among our respondents. With regard to tobacco, of the five respondents, only one claimed to be a regular user. The medical history of chronic pathologies was dominated by arterial hypertension (44.25%), arthritis (25.66%), diabetes (18.58%) and peptic ulcer (11.50%). In terms of nutrition, 42.48% of respondents were overweight, including 4.43% who were obese. Those with a normal nutritional status accounted for 57.52%.

### 3.2. Physical Activity Levels and Associated Factors

In this study, almost half the respondents (48.67%) had a limited or low level of physical activity (Figure 1).

Table 1 shows the bivariate analysis of the characteristics potentially associated with physical activity levels in our respondents. There was a statistically significant association ( $P < 0.05$ ) between physical activity level and the following factors: sex ( $P = 0.038$ ), alcohol ( $P = 0.001$ ) and diabetes ( $P = 0.001$ ). However, we found no

statistically significant difference between the level of physical activity and the following variables: age ( $P = 0.075$ ), level of education ( $P = 0.636$ ), participant status ( $P = 0.166$ ), nutritional status ( $P = 0.315$ ), hypertension ( $P = 0.050$ ) and osteoarthritis ( $P = 0.631$ ).



**Figure 1.** Distribution of respondents by level of physical activity.

**Table 1.** Bivariate analysis of respondent characteristics potentially associated with physical activity levels.

Variables studied		Physical activity levels				P
		Limit		Moderate and intense		
		Workforce	%	Workforce	%	
<b>Socio-demographic characteristics</b>						
Gender	Male	35	42.68	47	57.32	<b>0.038</b>
	Female	20	64.52	11	35.48	
Age (in years)	50 to 64	20	64.52	11	35.48	0.075
	65 and more	31	42.47	42	57.53	
Education level	At its most primary	24	60.00	16	40.00	0.636
	Secondary	26	46.43	30	53.57	
	Higher	28	58.88	28	49.12	
Participant status	Active	28	43.08	37	56.92	0.166
	Retired	27	56.27	21	43.75	
<b>Nutritional characteristics</b>						
Nutritional status	Overload weight	26	54.17	22	45.83	0.315
	Normal	29	44.62	36	55.38	

## Continued

		Alcohol consumption				
	Yes	25	47.17	28	52.83	<b>0.001</b>
	No	30	50.00	30	50.00	
		Medical history				
HBP	Yes	26	54.17	38	59.38	0.050
	No	29	59.18	20	40.82	
Diabetes	Yes	38	40.86	55	59.14	<b>0.001</b>
	No	17	85.00	03	15.00	
Osteoarthritis	Yes	42	50.00	42	50.00	0.631
	No	12	44.82	16	55.17	

In logistic regression, apart from the “Alcohol consumption” variable, the other two variables (sex, diabetes) which had a P-value of less than 0.05 in the bivariate analysis and were introduced into the overall model, were retained in the final model. The factors predicting the limit of physical activity in people aged 50 and over were being female ( $P = 0.042$ ,  $OR = 2.67$ ,  $95\%-CI = [1.04 - 6.87]$ ) and having diabetes ( $P = 0.014$ ,  $OR = 5.81$ ,  $95\%-CI = [1.43 - 23.57]$ ). Compared with men, the women in the study were 2.67 times more likely to have limited physical activity. Diabetics were 5.81 times more likely to have borderline physical activity than non-diabetics (**Table 2**).

**Table 2.** Multivariate analysis of factors associated with borderline physical activity levels in people aged 50 and over.

Variables studied		Adjusted Odds Ratio	P	[95% IC]
Gender	Male	1		
	<b>Female</b>	<b>2.67</b>	<b>0.042</b>	<b>[1.04 - 6.87]</b>
Alcohol consumption	No	1		
	Yes	1.22	0.37	[0.21 - 6.11]
Diabetes	No	1		
	<b>Yes</b>	<b>5.81</b>	<b>0.014</b>	<b>[1.43 - 23.57]</b>

#### 4. Discussion

The aim of this study was both to assess the level of physical activity and to identify the associated determining factors in people aged 50 or over being followed at the Abidjan Civil Servants’ Hospital in 2022. The study has a number of limitations that are worth noting. Its cross-sectional design makes it impossible to study the

cause-effect relationship, unlike a longitudinal survey [11]. In addition, it only concerned people aged 50 and over attending the Abidjan Civil Servants' Hospital. Subjects under 50 should have been included in the study in order to measure their levels of physical activity in the different populations. Another limitation is that of a quantitative study. In this respect, it would be interesting if the explanations were enriched and deepened by a qualitative component by conducting a mixed study. Finally, there are several methods of measuring physical activity (observation, diary, activity recall and actimetry). Activity recall, using the GPAQ questionnaire as the measuring instrument, is a declarative method which has its limitations, in particular memory bias, subject interpretation bias, and over- or under-estimation of energy expenditure [12]. Nevertheless, these limitations do not prevent conclusions from being drawn from the study, especially as physical activity recall is a method that can be used in epidemiological surveys and is valid for classifying subjects into physical activity categories [12] [13]. In addition, to our knowledge, this is the first study of its kind that could serve as a reference for future research in Côte d'Ivoire which will also take into account all factors, including psycho-social aspects and environmental factors.

Data from surveys are not always convergent or even consistent, particularly as regards the definition of the variables studied and the fields of study, recruitment methods, the quality of the surveys, and the randomness of the samples. In terms of physical activity, assessments generally come from a variety of sources which base their estimates on varying definitions and criteria: the reality observed (sport or physical activity), the phenomenon to be measured (level of activity), the time period considered (week or year). These differences lead to highly variable estimates [12]. In this study, we noted that almost half the respondents (48.67%) had a low level of physical activity. In Nigeria, a study by Owoeye OBA *et al.* [14] of 305 civil servants aged between 25 and 65 in Lagos State revealed a low level of physical activity in 43.3% of participants (41.7% men and 54.9% women). In South Africa, Mlangeni L *et al.* [15], in a study of a sample of 2,6339 respondents aged 15 and over, found that 57.4% were not physically active, 14.8% were moderately active and 27.8% were intensely physically active. In contrast to African countries, higher proportions of subjects were found to have an intense or moderate level of activity in Europe. For example, in Spain, the study by Parra-Rizo *et al.* [16] found that among the participants (mean age = 69.65 years), 46.1% had a high level of physical activity, 41.6% a moderate level and 12.3% a low level. In France, according to Deschamps V [17], 53% of women and 70% of men met the WHO recommendations for physical activity. According to the same source, one adult in five combined the two risk factors, i.e. a high level of physical inactivity and a low level of physical activity, below the recommendations [17]. It is important to stress that in developed countries, the promotion of physical activities is increasingly favoured among the general population and among adults and senior citizens in particular for the prevention of chronic non-transmissible diseases. On the other hand, in most sub-Saharan African countries, public authorities continue to per-

ceive physical activity and sport as activities reserved for young people and sporting competition, or as simple leisure activities for a certain privileged category of people [18].

The high proportion of subjects in our study with a limited level of activity could be linked to the poor promotion of lifestyles conducive to physical activity and the absence of a genuine policy to combat sedentary behaviour. In Côte d'Ivoire, actions to promote physical activity and sport are generally limited to the World Day for Physical Activity, celebrated each year on 6 April by the WHO. According to Ilboudo S [19], it would be desirable to develop a physical activity and sports policy that takes into account the issues of local infrastructures, the quality of physical activity and sports activities and the notion of time slots for practising physical activity and sports on a large scale and on a regular basis. However, the WHO [1] stresses that there is no single political solution. In view of the health and social costs of low levels of physical activity, it is important to identify predictive factors for preventive action. With this in mind, the results of this study found a positive correlation between gender, diabetes and level of physical activity. In fact, women (2.66 times more likely to have limited physical activity than men) and diabetics (5.81 times more likely to have limited physical activity than non-diabetics) have the lowest levels of physical activity. With regard to women, other studies have made the same observation [14] [15] [20], namely that being a woman reduced the probability of engaging in moderate or vigorous physical activity. For example, in Burundi, a study carried out on a population of 332 subjects aged 18 to 67 practising maintenance physical activities in specialised centres or in an informal setting, the authors reported that men engaged more than women (79.22% vs. 20.78%,  $P < 0.001$ ) in maintenance physical activities outside their working hours [18]. In a study carried out in Côte d'Ivoire by Méité Z and Yao NLF [21], the results revealed that the social representations of the physical activities are different according to sex, age and socio-professional status. Health, development and social benefits are the elements that explain the attachment of women to physical activities. For men, physical activities are good because they provide health and fulfillment, make it possible to make friends. For young people, Friendship, pleasure, health explain their participation in these activities. As for those over 44, these activities contribute to well-being and health. Workers find in the practice of physical [21]. As for the low level of physical activity among diabetics, it is important to stress that regular physical activity, like diet and medication, is an essential part of the diabetes treatment plan. In France, article L.1172.1 (LOI n°2022-296 du 2 mars 2022—art. 2) of the Public Health Code states that “As part of the care pathway for patients with a long-term condition, the attending physician may prescribe physical activity adapted to the patient’s pathology, physical capacities and medical risk”. At the Abidjan Civil Servants’ Hospital, the setting for our study, the creation of a “physical activity and sport” referral post has proved essential in order to implement adapted physical activity programmes for frail people or those with long-term conditions such as diabetes. The

creation of such a post or service will require the establishment of a multidisciplinary collaborative team (doctor, sports medicine educator, physiologist, nurse, dietician, physiotherapist, etc.) to ensure comprehensive care incorporating not only physical activity but also nutritional and psychological aspects.

## 5. Conclusion

Almost half the respondents had a limited or low level of physical activity. Being female or diabetic was predictive factor for physical inactivity among our respondents. Further studies with larger samples should provide a better understanding of the prevalence and factors associated with the level of physical activity among the different populations living in Côte d'Ivoire, in order to confirm or refute these results. With this in mind, it is essential to set up a national organisation or observatory made up of physical activity experts, physical activity researchers, epidemiologists, decision-makers and public health practitioners who will catalogue and analyse national data on physical activity.

## Acknowledgements

The authors thanks to the management of the Abidjan Civil Servants' Hospital (Côte d'Ivoire).

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Organisation Mondiale de la Santé (2019) Plan d'action mondial de l'OMS pour promouvoir l'activité physique 2018-2030. Organisation Mondiale de la Santé. <https://apps.who.int/iris/bitstream/handle/10665/327168/9789242514186-fre.pdf>
- [2] Rivière, D. (2017) Le concept de prescription de l'activité physique. *Bulletin de l'Académie Nationale de Médecine*, **201**, 869-878. [https://doi.org/10.1016/s0001-4079\(19\)30468-6](https://doi.org/10.1016/s0001-4079(19)30468-6)
- [3] Organisation Mondiale de la Santé (2024) Activité physique. <https://www.who.int/fr/news-room/fact-sheets/detail/physical-activity>
- [4] Génolini, J., Mathieu, C. and Cayla, F. (2021) L'activité physique en Établissement d'hébergement pour personnes âgées dépendantes (EHPAD): Alignement médical ou émancipation. *SociologieS*. <https://doi.org/10.4000/sociologies.15773>
- [5] Haute Autorité de Santé (2022) Recommander les bonnes pratiques. Guide des connaissances sur l'activité physique et la sédentarité. <https://apps.who.int/iris/bitstream/handle/10665/327168/9789242514186-fre.pdf>
- [6] Aquino, J.P., Gohet, P. and Mounier, C. (2013) Anticiper pour une autonomie préservée: Un enjeu de société. <https://beymedias.bright-spotcdn.com/4e/fa/d48e554da12f19cbb0e7429a5f6e/e3zlc5o0-rapport-aquino.pdf>
- [7] Campo, M., Louvet, B., Dosseville, F., Ferrand, C., Hagger, M., Martinent, G., *et al.* (2016) Promotion de l'activité physique chez les seniors. *Revue systématique des*

- programmes d'intervention centrés sur les barrières affectives. *Staps*, **110**, 115-127. <https://doi.org/10.3917/sta.110.0115>
- [8] Singh, A. and Purohit, B. (2011) Evaluation of Global Physical Activity Questionnaire (GPAQ) among Healthy and Obese Health Professionals in Central India. *Baltic Journal of Health and Physical Activity*, **3**, Article 4. <https://doi.org/10.2478/v10131-011-0004-6>
- [9] Bull, F.C., Maslin, T.S. and Armstrong, T. (2009) Global Physical Activity Questionnaire (GPAQ): Nine Country Reliability and Validity Study. *Journal of Physical Activity and Health*, **6**, 790-804. <https://doi.org/10.1123/jpah.6.6.790>
- [10] Keating, X.D., Zhou, K., Liu, X., Hodges, M., Liu, J., Guan, J., *et al.* (2019) Reliability and Concurrent Validity of Global Physical Activity Questionnaire (GPAQ): A Systematic Review. *International Journal of Environmental Research and Public Health*, **16**, Article 4128. <https://doi.org/10.3390/ijerph16214128>
- [11] Malambo, P., Kengne, A.P., Lambert, E.V., De Villiers, A. and Puoane, T. (2016) Prevalence and Socio-Demographic Correlates of Physical Activity Levels among South African Adults in Cape Town and Mount Frere Communities in 2008-2009. *Archives of Public Health*, **74**, Article No. 54. <https://doi.org/10.1186/s13690-016-0167-3>
- [12] Institut national de la santé et de la recherche médicale (2008) Activité physique—Contextes et effets sur la santé. Éditions Inserm. <https://apps.who.int/iris/bitstream/handle/10665/327168/9789242514186-fre.pdf>
- [13] Strath, S.J., Swartz, A.M., Bassett, D.R., O'Brien, W.L., King, G.A. and Ainsworth, B.E. (2000) Evaluation of Heart Rate as a Method for Assessing Moderate Intensity Physical Activity. *Medicine & Science in Sports & Exercise*, **32**, S465-S470. <https://doi.org/10.1097/00005768-200009001-00005>
- [14] Owoeye, O., Osho, O., Akinfeleye, A., Akinsola, O., Durowoju, O. and Akinbo, S. (2013) Physical Activity Profile of Senior Civil Servants in Lagos, Nigeria: Need for Effective Strategies for Improvement. *Nigerian Postgraduate Medical Journal*, **20**, 104-107. <https://doi.org/10.4103/1117-1936.165360>
- [15] Mlangeni, L., Makola, L., Naidoo, I., Chibi, B., Sokhela, Z., Silimfe, Z., *et al.* (2018) Factors Associated with Physical Activity in South Africa: Evidence from a National Population Based Survey. *The Open Public Health Journal*, **11**, 516-525. <https://doi.org/10.2174/1874944501811010516>
- [16] Parra-Rizo, M.A., Vásquez-Gómez, J., Álvarez, C., Diaz-Martínez, X., Troncoso, C., Leiva-Ordoñez, A.M., *et al.* (2022) Predictors of the Level of Physical Activity in Physically Active Older People. *Behavioral Sciences*, **12**, Article 331. <https://doi.org/10.3390/bs12090331>
- [17] Deschamps, V., Salanave, B., Torres, M. and Verdot, C. (2020) Étude de santé sur l'environnement, la biosurveillance, l'activité physique et la nutrition (Esteban), 2014-2016. Volet Nutr Chapitre Act Phys Sédentarité.
- [18] Bizimana, J.B. (2015) Facteurs incitatifs et caractéristiques socioprofessionnelles des pratiquants d'activités physiques d'entretien au Burundi: Etude sur 332 sujets adultes. *Revue Africaine et Malgache de Recherche Scientifiques*, **2**, 62-71. <http://publication.lecames.org/index.php/sante/article/view/156>
- [19] Ilboudo, S., Brigitte, N., Tiama, A., Ouattara, D. and Songnaba, F. (2022) Déterminants de la pratique régulière de l'activité physique et sportive dans la ville de Ouagadougou. *Réflex Sport*, **2**, 129-140. <https://revues.imist.ma/index.php/RefSport/article/view/36759>

- [20] Joubert, K. and Conus, F. (2025) Zoom santé: Vieillir en santé: Caractéristiques associées au niveau d'activité physique chez les aînés québécois. <https://statistique.quebec.ca/en/fichier/no-66-fevrier-2020-vieillir-en-sante-caracteristiques-associees-au-niveau-dactivite-physique-chez-les-aines-quebecois.pdf>
- [21] Méité, Z. and Yao, N.L.F. (2023) Représentations sociales des activités physiques chez les amateurs sportifs: Social representation of physical activities among sports enthusiasts. *ÉCHANGES, Revue de Philosophie, littérature et Sciences humaines*, **20**, 618-633. <https://www.ajol.info/index.php/echanges/article/view/255640>

## Appendix

### Global Physical Activity Questionnaire (GPAQ)



WHO STEPwise approach to NCD risk factor surveillance  
 Surveillance and Population-Based Prevention  
 Prevention of Noncommunicable Diseases Department  
 World Health Organization  
 20 Avenue Appia, 1211 Geneva 27, Switzerland

#### GPAQ

##### Physical Activity

Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person.

Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. *[Insert other examples if needed]*. In answering the following questions “vigorous-intensity activities” are activities that require hard physical effort and cause large increases in breathing or heart rate, “moderate-intensity activities” are activities that require moderate physical effort and cause small increases in breathing or heart rate.

Questions	Response	Code
<b>Activity at work</b>		
1 Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like [ <i>carrying or lifting heavy loads, digging or construction work</i> ] for at least 10 minutes continuously? <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes 1 No 2 <i>If No, go to P4</i>	P1
2 In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days <input type="text"/>	P2
3 How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours:minutes <input type="text"/> : <input type="text"/> Hrs mins	P3 (a-b)
4 Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking [ <i>or carrying light loads</i> ] for at least 10 minutes continuously? <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes 1 No 2 <i>If No, go to P7</i>	P4
5 In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days <input type="text"/>	P5
6 How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours:minutes <input type="text"/> hrs : <input type="text"/> mins	P6 (a-b)

**Continued****Travel to and from places**

The next questions exclude the physical activities at work that you have already mentioned.

Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. [insert other examples if needed]

7	Do you walk or use a bicycle ( <i>pedal cycle</i> ) for at least 10 minutes continuously to get to and from places?	Yes No	1 2 <i>If No, go to P10</i>	P7
8	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days	_____	P8
9	How much time do you spend walking or bicycling for travel on a typical day?	Hours:minutes	____ : ____ hrs mins	P9 (a-b)

**Recreational activities**

The next questions exclude the work and transport activities that you have already mentioned.

Now I would like to ask you about sports, fitness and recreational activities (leisure), [insert relevant terms].

10	Do you do any vigorous-intensity sports, fitness or recreational ( <i>leisure</i> ) activities that cause large increases in breathing or heart rate like [ <i>running or football</i> ], for at least 10 minutes continuously? <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes No	1 2 <i>If No, go to P13</i>	P10
11	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational ( <i>leisure</i> ) activities?	Number of days	_____	P11
12	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours:minutes	____ : ____ hrs mins	P12 (a-b)

**Physical Activity (recreational activities) contd.**

Questions	Response	Code		
13	Do you do any moderate-intensity sports, fitness or recreational ( <i>leisure</i> ) activities that causes a small increase in breathing or heart rate such as brisk walking, ( <i>cycling, swimming, volleyball</i> )for at least 10 minutes continuously? <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes No	1 2 <i>If No, go to P16</i>	P13
14	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational ( <i>leisure</i> ) activities?	Number of days	_____	P14
15	How much time do you spend doing moderate-intensity sports, fitness or recreational ( <i>leisure</i> ) activities on a typical day?	Hours:minutes	____ : ____ hrs mins	P15 (a-b)

**Sedentary behaviour**

The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent [sitting at a desk, sitting with friends, travelling in car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping.

*[INSERT EXAMPLES] (USE SHOWCARD)*

16	How much time do you usually spend sitting or reclining on a typical day?	Hours:minutes	____ : ____ hrs min s	P16 (a-b)
----	---------------------------------------------------------------------------	---------------	--------------------------	--------------