Original Article

# Physical Activity Profile of Medical Practitioners: A Preliminary Cross-sectional Study in Kano, Northwest Nigeria

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## Abstract

**Background:** Insufficient physical activity (PA) is a recognized risk factor for noncommunicable diseases. Evaluating health-care workers' PA is crucial because PA impacts their health, and they are important health promotion agents. Hence, this study assessed the PA profile of medical practitioners in Kano, Nigeria. **Materials and Methods:** This was a cross-sectional study involving 178 medical practitioners selected from attendees of a 1-day continuing-medical-education lecture, using a modified physical activity assessment tool. It assessed the moderate- and vigorous-intensity PAs performed, PAs' sufficiency, their plan and confidence of increasing PA, and factors associated with performing sufficient PA. Chi-square test and logistic regression analysis were employed in determining the association between variables and sufficient PA and predictors of sufficient PA, respectively. **Results:** Respondents' mean age was 37.5 ± 9.5 years; they were predominantly males (133, 74.7%). They spent a median (interquartile range [IQR]) of 65.0 (22.5–165.0) minutes per week on moderate-intensity activities and median metabolic equivalent-minutes/week (IQR) of 400.0 (120.0–1140.0). Most respondents (119, 66.8%) had engaged in PA in the past 5–6 months or intended to become more physically active in the next six months. Most (155, 87.1%) had some level of confidence in increasing their PA levels. The association between respondents' sociodemographic variables and sufficient PA was statistically insignificant. However, engagement in moderate-intensity housework (odds ratio [OR] = 2.39, 95% confidence interval [CI] = 1.15–4.96, $P = 0.02$) and aerobic exercises (OR = 11.57, 95% CI = 1.29–103.63, $P = 0.03$) increased the odds of attaining sufficient PA. **Conclusion:** Sufficient PA prevalence among respondents was low. Engagement in moderate-intensity housework and aerobic exercises were predictors of sufficient PA. Most respondents were motivated to become physically active in the future. Appropriate interventions are required to improve their PA levels.

**Keywords:** Aerobics, housework, medical practitioners, physical activity, physical activity assessment tool

## Introduction

Insufficient physical activity (PA) is a recognized risk factor for noncommunicable diseases such as cardiovascular diseases, diabetes and cancers.[1] It is now identified as the fourth leading risk factor for death globally.[2] The World Health Organization (WHO) recommends that every adult engages in at least 150 mins of moderate-intensity or 75 mins of vigorous-intensity PA every week.[2,3] Global estimates suggest that 27.5% of adults were insufficiently physically active in 2016. Insufficient PAs were more prevalent in high-income countries compared to low-income countries.[3,4] Insufficient PA is also linked with environmental factors such as fear of crime and violence outdoors, high-density traffics, lack of parks, sidewalks and PA facilities.[3] To curtail this problem, the WHO member nations set a target of reducing the global prevalence of physical inactivity by 10% by 2025, requiring stakeholders to act at global, regional, and local levels.[3] Aligning with the 2010 Global Recommendation on PA for Health, member nations were to develop and implement national guidelines for health-enhancing PA.[2] They were also to integrate PA within other related policy sectors and secure coherent and complementary policies and action plans. They were to use the mass media to increase awareness of the benefits of being physically active. Finally, they were to provide surveillance and monitoring of actions to promote PA.[2]

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However, in Nigeria, there is a dysfunctional national PA plan and an ineffective PA surveillance system.[5] Eighty percent of urban adult government workers and 41% of young adults from a Nigerian University did not meet the WHO requirement for sufficient PA.[6,7] Interestingly, most Nigerian health-care workers who are important agents of health promotion are insufficiently physically active.[8-10] However, studies on PA among medical practitioners in Nigeria's northwest region are scarce. Thus, we assessed the PA profile of a cohort of medical practitioners in Kano, Northwest Nigeria. It is hoped that the study findings would form the basis for further research and increased advocacy for workplace and leisure time programs that will raise medical practitioners' PA levels in this and similar settings.

## Materials and Methods

### Study design and setting

The study was a descriptive cross-sectional study. It was conducted at the venue of the 1-day 2019 second quarter continuous medical education (CME) lectures organized by the Kano State Chapter of the Nigerian Medical Association (NMA). The chapter had 989 medical practitioners in its 2018 register.[11] The attendees of the current lecture constituted our target population.

### Eligibility criteria

All consenting members of the chapter who attended the CME lectures were included in the study. Those with confirmed heart disease, pregnancy, or who declined consent to participate were excluded from the study.

### Sample size estimation

The attendance rate at the 2018 second quarter CME lectures (≈20%) was used to estimate the sample size. This was multiplied by 989 (number of practitioners in 2018); 10% was added for potential nonresponses to give a sample size of 218.

### Sampling method and study procedure

A convenience sampling method was used to select participants for the study. At registration for the lectures, a copy of the consent form and questionnaire was included in the writing materials given to the attendees. The signed consent forms and completed questionnaires were returned at the end of the lectures.

### Data collection tool

Data were collected using a pretested, self-administered, modified PA Assessment Tool (PAAT), a validated tool used in primary care to assess PA quickly and have time for counseling.[12] We chose this questionnaire because of its simplicity in administration and universal applicability. The questionnaire's internal validity was determined using Cronbach's alpha and a value of 0.81 was obtained. The questionnaire assessed the participants' sociodemographics (e.g., age, sex, religion, tribe, place of work, cadre, specialty, and number of years postgraduation) and their PA (including the type of PA, days spent on PA, minutes spent each day on the type of PA, and minutes spent per week on the kind of PA). It also assessed the participants' PA plans and self-efficacy (confidence) to increase their PA levels should they choose to do so.

### Definition and measurement of variables

The primary outcome variable was sufficient or insufficient PA. Sufficient PA was defined as spending an average of ≥150 min or ≥600 metabolic equivalent (MET)-minutes per week on moderate-intensity activity, or spending ≥75 min on vigorous-intensity activity (which is also equivalent to ≥600 MET-minutes/week), or spending an equivalent combination of moderate- and vigorous-intensity activities that gives a total of ≥600 MET-minutes/week.[2,3,8,13]

To assess sufficient PA, moderate- and or vigorous-intensity activities were defined with examples. The participants were asked to tick from the examples or include any other activity they believed fell into one of the PA intensity categories that they have performed for at least 10 min in the preceding week.[12] They were then asked, "how many days in the preceding week, did you perform the selected activity or activities on the average?". Finally, they were asked, "On the days they performed the selected moderate "and/or" vigorous activities, how much time did they spend on the average?" Therefore, the number of days spent on each moderate or vigorous activity multiplied by the number of minutes spent per day on such activity = the total number of minutes spent per week for the activity.

Furthermore, each activity category (moderate or vigorous intensity) was multiplied by their estimated intensity in METs and summed to give an overall estimate of PA in a week.[14] One MET represents the energy expended while sitting quietly at rest and equivalent to 3.5 ml/kg/min of oxygen (VO2). For this study, the MET value used to score moderate and vigorous-intensity activities were 4 and 8 METs, respectively. For instance, brisk walk, a moderate-intensity activity performed for a total of 60 min in the preceding week, had a MET-minute per week of 240 (60 × 4 = 240).

To measure their PA plan for the next six months, they were asked to choose any of the following responses: "I do not plan to become physically active in the next six months;" "I am thinking about becoming more physically active;" "I intend to become more physically active in the next six months;" "I have been regularly physically active for the last 1–5 months," and "I have been regularly physically active for the past 6 months and more."[12]

To measure their self-efficacy or confidence to improve their PA, they were asked, "How confident are you that you could increase your PA if you decided to do so?" The following responses were given: "very confident," "fairly confident," "a little confident," and "not at all confident."[12]

### Ethical concerns

Ethical approval was obtained from the Research Ethics Committee of Aminu Kano Teaching Hospital (NHREC/21/08/2008/AKTH/EC/2460). Permission was also obtained from the Ethics committee of the state Chapter of the NMA. Written informed consent was obtained from each study participant.

### Data analysis

Data were entered and analyzed using Epi Info version 7.1.1.14 (2013; CDC, Atlanta, Georgia). They were summarized using frequency tables and measures of central tendencies (e.g., mean and standard deviations, median, and interquartile range).The Student's *t*-test was used to compare the means of continuous variables with a normal distribution (e.g., age). Mann–Whiney/ Wilcoxon test was used to compare continuous variables with skewed distribution (e.g., number of years postgraduation and MET-minutes per week). The Chi-square test was used to determine the association between respondents' categorical variables and sufficient PA. A multivariate logistic regression analysis was done to find independent predictors of sufficient PA (using odds ratios and 95% confidence interval). $P < 0.05$ was considered statistically significant.

## Results

### Respondents' sociodemographic characteristics

Of the 218 questionnaires distributed, 178 were returned (representing an 81.7% response rate) and were used for analysis. The respondents' mean age was 37.5 ± 9.5 years (range: 24.0–68.8 years); most respondents (42.7%) were in the 30–39-year age group [Table 1]. They were predominantly males (133, 74.7%), of the Islamic faith (155, 87.1%), and from the Hausa ethnic group (122, 68.6%). Most respondents worked with public hospitals (159, 89.3%), were medical officers (86, 48.3%), uninvolved with residency training (129, 72.5%), and had <10-year postgraduation experience (101, 56.7%).

**Table 1: Respondents' sociodemographic characteristics**

| Variable | *n* (%) |
|---|---|
| Age (years) | |
| ≤29 | 40 (22.5) |
| 30-39 | 76 (42.7) |
| 40-49 | 33 (18.5) |
| 50-59 | 26 (14.6) |
| ≥60 | 3 (1.7) |
| Sex | |
| Male | 133 (74.7) |
| Female | 45 (25.3) |
| Religion | |
| Islam | 155 (87.1) |
| Christianity | 22 (12.4) |
| Hinduism | 1 (0.5) |
| Ethnicity | |
| Hausa | 122 (68.6) |
| Fulani | 20 (11.3) |
| Ebira | 4 (2.2) |
| Bini (edo) | 4 (2.2) |
| Igbo | 3 (1.7) |
| Nupe | 3 (1.7) |
| Yoruba | 15 (8.4) |
| Others* | 11 (6.1) |
| Place of practice | |
| Private hospital | 16 (9.0) |
| Public hospital | 159 (89.3) |
| Faith-based hospital | 1 (0.6) |
| University (lecturer) | 2 (1.1) |
| Cadre of doctors | |
| Medical officer | 86 (48.3) |
| Senior medical officer | 16 (9.0) |
| Principal medical officer | 14 (7.9) |
| Chief medical officer | 9 (5.1) |
| Register | 10 (5.6) |
| Senior register | 2 (1.1) |
| Consultant | 37 (20.8) |
| University lecturer | 2 (1.1) |
| Medical director | 2 (1.1) |
| Involved in residency training | |
| No | 129 (72.5) |
| Yes | 49 (27.5) |
| Postgraduation experience (years) | |
| 1-9 | 101 (56.7) |
| ≥10 | 77 (43.3) |

*Afemai, Ebu, Esan, Idoma, Kanuri, Kilbu, and Sindhi (1 each)

### Types and sufficiency of physical activity performed by respondents

Seventeen (9.6%) respondents did not engage in any PA lasting ≥10 min in the week preceding the study, whereas 161 (90.4%) did [Table 2]. One hundred and fifty-six (87.6%) respondents engaged in at least one moderate-intensity activity, mainly brisk walks (97, 54.5%), housework (56, 31.5%), walking downstairs (46, 25.8%), carrying weights <20 kg (30, 16.9%), standing (17, 9.6%), dancing (16, 9.0%), washing car (16, 9.0%), and aerobic exercises (14, 7.9%). Eighty-two (46.1%) respondents engaged in at least one vigorous-intensity activity, mainly jogging (35, 19.7%), walking upstairs (33, 18.6%), running (16, 9.0%), and rope skipping (6, 3.4%). The median (interquartile range [IQR]) MET-minutes per week of the respondents was 400.0 (120.0–1140.0), with most of them expending <600 MET-minutes per week (106, 59.6%). Only 72 (40.4%) respondents had sufficient PA, whereas 106 (59.6%) had insufficient PA.

### Frequency and duration of physical activity among respondents

The median (IQR) of the number of minutes spent per day, the number of minutes spent per week, and the number of days spent per week on moderate-intensity activities was 20.0 (10.0–32.5) minutes, 65.0 (22.5–165.0) minutes, and 3.0 (2.5–5.5) days, respectively [Table 3]. For vigorous-intensity activities, the median (IQR) number of minutes per day, minutes per week, and days per week were 0.0 (0.0–17.5) minutes, 0.0 (0.0–2.0) minutes, and 0.0 (0.0–32.5) days, respectively.

### Respondents' physical activity plans and the confidence of increasing physical activity

Table 4 shows the PA plans and the confidence of increasing their PA among the respondents. Most respondents (60, 33.7%) intended to become physically active in the next six months,

**Table 2: Types and sufficiency of physical activities performed by respondents**

| PA | *n* (%) |
|---|---|
| Engagement in PA | |
| No | 17 (9.6) |
| Yes | 161 (90.4) |
| PA intensity* | |
| Moderate | 156 (87.6) |
| Vigorous | 82 (46.1) |
| Moderate intensity | |
| Brisk walks | 97 (54.5) |
| Walking downstairs | 46 (25.8) |
| Housework | 56 (31.5) |
| Carrying moderate weights (<20 kg) | 30 (16.9) |
| Standing | 17 (9.6) |
| Dancing | 16 (9.0) |
| Washing car | 16 (9.0) |
| Aerobics | 14 (7.9) |
| Others** | 29 (16.5) |
| None | 22 (12.4) |
| Vigorous intensity | |
| Jogging | 35 (19.7) |
| Walking upstairs | 33 (18.6) |
| Running | 16 (9.0) |
| Rope skipping | 6 (3.4) |
| Others*** | 17 (10.2) |
| None | 96 (53.9) |
| PA levels (MET-min per week) | |
| <600 | 106 (59.6) |
| 600-3000 | 68 (38.2) |
| ≥3000 | 4 (2.2) |
| Median (IQR)=400 (120.0-1140.0) | - |
| Sufficiency of PA | |
| Insufficient | 106 (59.6) |
| Sufficient | 72 (40.4) |

*More than one intensity PA may have been performed, **Bicycling (<200 km/h) (6), horse-riding (5) vigorous stretching (4), gardening (4), weightlifting (3), gymnastics (2), yoga (2), and horseback riding, carpentry, farming (1 each), ***Bicycling at≥200 kph (5), football (4), aerobics (3), carrying heavy load (2), swimming (2), and lawn tennis, badminton (1 each). PA: Physical activity, IQR: Interquartile range, MET: Metabolic equivalent

**Table 3: Time spent on physical activity among respondents**

| PA | Median (IQR) |
|---|---|
| Moderate | |
| Number of minutes per day | 20.0 (10.0-32.5) |
| Number of minutes per week | 65.0 (22.5-165.0) |
| Number of days per week | 3.0 (2.5-5.5) |
| Vigorous | |
| Number of minutes per day | 1.0 (0.0-17.5) |
| Number of minutes per week | 1.0 (0.0-2.0) |
| Number of days per week | 0.0 (0.0-32.5) |

PA: Physical activity, IQR: Interquartile range

whereas 10 (5.6%) respondents had no PA plans in the next six months. Furthermore, 155 (87.1%) respondents had some level of confidence of increasing their PA levels, whereas only four (2.2%) respondents were not confident at all.

### Relationship between sociodemographic variables and sufficient physical activity

Table 5 shows the relationship between sociodemographic variables and sufficient PA among respondents. Age ($\chi^2 = 0.88$, $P = 0.35$), sex ($\chi^2 = 0.60$, $P = 0.44$), religion ($\chi^2 = 0.02$, $P = 0.89$), place of practice (Fisher's exact, $P = 0.09$), involvement in residency training ($\chi^2 = 1.18$, $P = 0.28$), and postgraduation experience ($\chi^2 = 1.41$, $P = 0.23$) were not significantly associated with sufficient PA.

### Relationship between physical activity variables and sufficient physical activity

Brisk walk ($\chi^2 = 6.21$, $P = 0.01$), housework ($\chi^2 = 4.36$, $P = 0.04$), car washing ($\chi^2 = 5.84$, $P = 0.02$), and aerobic exercises (Fisher's exact test [FET], $P = 0.00009$) were moderate-intensive activities significantly associated with sufficient PA [Table 6]. On the other hand, jogging ($\chi^2 = 11.54$, $P = 0.0007$), walking upstairs ($\chi^2 = 6.83$, $P = 0.009$), running (FET, $P = 0.0005$), and rope skipping (FET, $P = 0.03$) were vigorous-intensity activities associated with sufficient PA. Expectedly, median MET-minutes per week was higher among those with sufficient PA than those with insufficient PA (1360 min vs 150 min, Mann–Whitney/Wilcoxon test = 128.3, $P \leq 0.001$). Furthermore, there were more respondents with sufficient PA among those who had some plans for PA in the next six months than in those without (77.8% vs. 22.2%, $\chi^2 = 6.51$, $P = 0.01$). However, walking downstairs, carrying weight, standing, dancing, bicycling, horse riding, and confidence of increasing PA were not significantly associated with sufficient PA.

### Predictors of sufficient physical activity among respondents

Following multivariate logistic regression, engagement in moderate-intensity housework and aerobic exercises were independent predictors of sufficient PA among the respondents [Table 7]. Respondents were two times more likely to attain sufficient PA when they engaged in moderate-intensity housework than when they were not (OR = 2.39, 95% CI = 1.15–4.96, $P = 0.02$). Similarly, respondents were eleven times more likely to attain sufficient PA when they engaged in moderate-intensity aerobic exercises than when they were not (OR = 11.57, 95% CI = 1.29–103.63, $P = 0.03$).

## Discussion

This preliminary study assessed the PA profile of a cohort of medical practitioners in Kano, Northwest Nigeria. Only 40.4% of respondents performed sufficient PA. There were significant associations between performing in brisk walks, housework, car washing, aerobic exercise, jogging, walking upstairs, running, and rope skipping and attaining sufficient PA; the median time spent on moderate-intensity PA was 65 min in a week and 0 min on vigorous-intensity PA. No significant

statistical association was observed between respondents' sociodemographic variables and sufficient PA. Engagement in moderate-intensity housework and aerobic exercises were predictors of sufficient PA.

We found, that despite evidence that moderate- and vigorous-intensity PA has health benefits and contributes to the prevention of noncommunicable diseases,[3] only 40.4% of respondents in this study met the WHO recommendation for sufficient PA and fell short of WHO target of ≥85%.[3] However, this finding is higher than the reported prevalence in Southern Nigeria. For instance, studies have reported prevalences of 20.8%, 38.1%, and 25.4% among health-care workers in Lagos (Southwest Nigeria), doctors in Enugu (Southeast Nigeria), and Yenegoa (South-south Nigeria), respectively.[8-10] However, our finding is lower than the global adult prevalence (75%),[3] the prevalence among general practitioners in Northern Ireland (56.6%) and Saudi Arabia (63%),[15,16] and dentists in India (60.7%).[17] The differing prevalence rates may be due to differences in study assessment tools (e.g., PAAT, IPAQ-SF, GPAQ and WHO-STEP Instrument), populations, and subjects' behaviors toward PA. Our study respondents spent only a median of 65 min on moderate-intensity PAs against the WHO recommended 150 min/week.[3] This finding has significant implications. About 60% of the respondents are at risk of noncommunicable diseases (such as obesity and hypertension). Similarly, about 60% of respondents are unlikely to be confident about promoting PA or becoming effective PA role models to their patients.[18,19] Interestingly, physicians are supposed to play important roles in the WHO multisectoral approach to reducing global physical inactivity by 10% by 2025.[20]

**Table 4: Respondents' physical activity plans and confidence of increasing physical activity**

| Variable | *n* (%) |
|---|---|
| Physical activity plans | |
| No plan for PA in the next 6 months | 10 (5.6) |
| Thinking of becoming physically active | 49 (27.6) |
| Intend to become physically active in 6 months | 60 (33.7) |
| I have been physically active in the past 1-5 months | 23 (12.9) |
| I have been regularly physically active for≥6 months | 36 (20.2) |
| Confidence of increasing physical activity | |
| Very confident | 78 (43.8) |
| Fairly confident | 77 (43.3) |
| A little confident | 19 (10.7) |
| Not at all confident | 4 (2.2) |

PA: Physical activity

We also found that the most common PAs the respondents performed were brisk walk, housework, aerobic exercises, car washing, walking upstairs, jogging, and running. This finding differed from the running, carrying a heavy load, football, and brisk walks reported in Saudi Arabia,[16] and the swimming, gardening, jogging, golfing, and cycling observed in Ireland as they were more of vigorous-intensity than the moderate-intensity activities that we found.[15] The difference in PA preferences may be due to inadequate access to PA facilities in many low- and middle-income countries like Nigeria.

Furthermore, we found no significant association between the studied sociodemographic variables and sufficient PA. This

**Table 5: Relationship between sociodemographic characteristics and sufficient physical activity among respondents**

| Variable | Insufficient PA, *n* (%) | Sufficient PA, *n* (%) | $\chi^2$ | *P* |
|---|---|---|---|---|
| Age | | | | |
| <40 | 72 (67.9) | 44 (61.1) | 0.88 | 0.35 |
| ≥40 | 34 (32.1) | 28 (38.9) | | |
| Mean | 37.5±10.0 | 37.4±8.9 | 0.07* | 0.95 |
| Sex | | | | |
| Male | 77 (72.6) | 56 (77.8) | 0.60 | 0.44 |
| Female | 29 (27.4) | 16 (22.2) | | |
| Religion | | | | |
| Islam | 92 (86.8) | 63 (87.5) | 0.02 | 0.89 |
| Others** | 14 (13.2) | 9 (13.5) | | |
| Place of practice | | | | |
| Public hospital | 91 (85.8) | 68 (94.4) | FET | 0.09 |
| Others† | 15 (14.2) | 4 (5.6) | | |
| Residency involvement | | | | |
| Yes | 80 (75.5) | 49 (68.1) | 1.18 | 0.28 |
| No | 26 (24.5) | 23 (31.9) | | |
| Number of years after graduation | | | | |
| 1-9 | 64 (60.4) | 37 (51.4) | 1.41 | 0.23 |
| ≥10 | 42 (39.6) | 35 (48.6) | | |
| Median (IQR) | 5.0 (3.0-17.5) | 8.0 (3.5-15.5) | 0.18‡ | 0.67 |

**t*-test, **Christianity, Hinduism, †Private, faith-based hospital, university lecturer, ‡Mann-Whitney/Wilcoxon test. FET: Fisher's exact test, IQR: Interquartile range, PA: Physical activity

**Table 6: Relationship between physical activity variables and sufficient physical activity**

| Variable | Insufficient PA, *n* (%) | Sufficient PA, *n* (%) | $\chi^2$ | *P* |
|---|---|---|---|---|
| Brisk walk | | | | |
| No | 57 (53.8) | 25 (34.7) | 6.26 | 0.01* |
| Yes | 49 (46.2) | 47 (65.3) | | |
| Walking downstairs | | | | |
| No | 82 (77.4) | 50 (69.4) | 1.40 | 0.24 |
| Yes | 24 (22.6) | 22 (30.6) | | |
| Housework | | | | |
| No | 79 (74.5) | 43 (59.7) | 4.36 | 0.04* |
| Yes | 27 (25.5) | 29 (40.3) | | |
| Carrying weights<7 kg | | | | |
| No | 105 (99.1) | 70 (97.2) | FET | 0.35 |
| Yes | 1 (0.9) | 2 (2.8) | | |
| Standing | | | | |
| No | 96 (90.6) | 65 (90.3) | 0.004 | 0.95 |
| Yes | 10 (9.4) | 7 (2.8) | | |
| Dancing | | | | |
| No | 98 (92.4) | 64 (88.9) | 0.67 | 0.41 |
| Yes | 8 (7.6) | 8 (11.1) | | |
| Washing car | | | | |
| No | 101 (95.3) | 61 (84.7) | 5.84 | 0.02* |
| Yes | 5 (4.7) | 11 (15.3) | | |
| Moderate intensity aerobic exercises | | | | |
| No | 105 (99.1) | 60 (83.3) | FET | 0.00009* |
| Yes | 1 (0.9) | 12 (16.7) | | |
| Jogging | | | | |
| No | 94 (88.7) | 49 (68.1) | 11.54 | 0.0007* |
| Yes | 12 (11.3) | 23 (31.9) | | |
| Walking upstairs | | | | |
| No | 93 (87.7) | 52 (72.2) | 6.83 | 0.009* |
| Yes | 13 (12.3) | 20 (27.8) | | |
| Running | | | | |
| No | 103 (97.2) | 59 (81.9) | FET | 0.0005* |
| Yes | 3 (2.8) | 13 (18.1) | | |
| Rope skipping | | | | |
| No | 105 (99.1) | 67 (93.1) | FET | 0.03* |
| Yes | 1 (0.9) | 5 (6.9) | | |
| MET-minutes/week (IQR) | 150.0 (42.0-310.0) | 1360.0 (875.0-1870.0) | 128.3‡ | <0.001* |
| PA plans | | | | |
| No plans | 43 (40.6) | 16 (22.2) | 6.51 | 0.01* |
| Some plans | 63 (59.4) | 56 (77.8) | | |
| Confidence of increasing PA | | | | |
| Less confident (little/no confidence) | 15 (14.2) | 8 (11.1) | 0.35 | 0.55 |
| More confident (very/fairly confident) | 91 (85.8) | 64 (88.9) | | |

*Significant, ‡Mann-Whitney/Wilcoxon test. IQR: Interquartile range, PA: Physical activity, FET: Fisher's exact test, MET: Metabolic equivalent

is in contrast with other studies where associations between sociodemographic factors such as age,[8,9,17] ethnicity,[8] gender,[16] marital status, and place of practice[17] and PA were observed. This difference may also be due to the study population differences. However, we found that engagement in moderate-intensity aerobic exercises and housework were predictors of sufficient PA. This finding is remarkable because whereas structured moderate-intensity PAs (obtainable in gyms and personal workouts) are well-known PAs in Nigeria, moderate-intensity housework (including scrubbing floor/bathtubs, sweeping outdoor, and hanging laundry on a clothing line) is seldomly recognized as an important PA.[21,22]

## Recommendation

The high prevalence of insufficient PA and the high motivation to increase PA among most respondents suggest the need for multilevel interventions depending on their feasibility and available local resources. First, social and environmental level interventions such as providing maps with routes and distances and address of places with PA

**Table 7: Predictors of sufficient physical activity among respondents**

| Variable | OR | 95% CI | *P* |
|---|---|---|---|
| Brisk walk (yes/no) | 1.22 | 0.60-2.51 | 0.58 |
| Housework (yes/no) | 2.39 | 1.15-4.96 | 0.02* |
| Car washing (yes/no) | 1.52 | 0.41-5.67 | 0.53 |
| Aerobic exercises (yes/no) | 11.57 | 1.29-103.63 | 0.03* |
| Jogging (yes/no) | 2.16 | 0.84-5.58 | 0.11 |
| Walking upstairs (yes/no) | 2.27 | 0.94-5.52 | 0.07 |
| Running (yes/no) | 3.88 | 0.85-17.66 | 0.08 |
| Rope skipping (yes/no) | 3.96 | 0.35-44.34 | 0.26 |
| Physical activity plan (yes/no) | 1.78 | 0.82-3.89 | 0.15 |
| Constant | - | - | 0.00 |

*Significant. OR: Odds ratio, CI: Confident interval

facilities.[23,24] Second, workplace (hospital) interventions such as establishing joint employee-management committees for PA,[25] PA campaigns,[26] scales placed at common rooms, and fitness exposition weeks.[27] Third, interpersonal and intrapersonal interventions such as pedometers, providing regular information and education materials,[23,28] establishing PA teams for various sports competitions, and offering fitness classes.[23,28] Furthermore, those with insufficient PA can explore moderate-intensity housework as a PA. It can be an important option for inactive medical practitioners (especially women) who find outdoor PAs inconvenient. However, the exact type of culturally accepted housework to be recommended may require further research. Again, about a tenth of respondents did not engage in significant (≥10 min of PA) moderate- or vigorous-intensity activity, suggesting the need for future studies to decipher the reasons for nonparticipation in PA.

## Study limitation

This study had some limitations, which includes studying only practitioners who attended the CME lectures. There may be significant differences between the PA behavior of those who attended and those who did not. We could not exclude selection bias because of the use of a convenience sampling technique. Self-reporting of PA could lead to spurious estimation of PA levels in some cases. We did not assess walking, body mass index, and sitting time; this has affected comparison with other studies. However, this preliminary study clearly shows the trend in respondents' behavior toward moderate- and vigorous-intensity PA and the need to address the PA gap among practitioners.

# Conclusion

The prevalence of sufficient PA among respondents was below target. Time devoted to PA was suboptimal. Engagement in moderate-intensity housework and aerobic exercises predicted the attainment of sufficient PA among respondents. Most respondents appear motivated to become physically active in the future. Appropriate interventions are therefore required to improve their PA levels.

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## Conflicts of interest

There are no conflicts of interest.

# References

1. Lee I, Shiroma EJ, Lobelo F, Paska P, Blair SN, Katzmarzyk PT. Impact of physical inactivity on the world's major noncommunicable diseases. Lancet 2012;380:219-29.
2. World Health Organization. Global Recommendation on Physical Activity on Health. World Health Organization; 2010. Available from: https://www.who.int/dietphysicalactivity/publications/9789241599979/en/. [Last accessed on 2020 Apr 10].
3. World Health Organization. Physical Activity Fact Sheets. World Health Organization; 23 February, 2018. Available from: https://www.who.int/news-room/fact-sheets/detail/physical-activity. [Last accessed on 2020Apr 10].
4. World Health Organization. Global Health Observatory Data: Prevalence of Insufficient Physical Activity. World Health Organization; 2016. Available from: https://www.who.int/gho/ncd/risk_factors/physical_activity_text/en/#:~:text=Globally%20in%202016%2C%2023%25%20of,%3B%2027.5%25%20in%202016. [Last accessed on 2020 Oct 30].
5. Oyeyemi AL, Oyeyemi AY, Omotara BA, Lawan A, Akinroye KK, Adedoyin RA, *et al*. Physical activity profile of Nigerians: Implications for research surveillance and policy. Pan Afr Med J 2018;30:175.
6. Akarolo-Anthony SN, Adebamowo CA. Prevalence and correlates of leisure-time physical activity among Nigerians. BMC Public Health 2014;14:529.
7. Adegoke BOA, Oyeyemi AL. Physical inactivity in Nigerian young adults: Prevalence and socio-demographic correlates. J Phys Act Health 2011;8:1135-42.
8. Iwuala SO, Sekoni AO, Olamoyegun MA, Akanbi MA, Sabir AA, Ayankogbe OO. Self-reported physical activity among health care professionals in South-West Nigeria. Niger J Clin Pract 2015;18:790-5.
9. Aghaji MN. Doctors lifestyle in Enugu, Nigeria. East Afr Med J 2000;77:480-4.
10. Ambakederemo TE, Chikezie EU. Assessment of some traditional cardiovascular risk factors in medical doctors in Southern Nigeria. Vasc Health Risk Manag 2018;14:299-309.
11. Nigerian Medical Association, Kano State Chapter: Medical and Dental Council of Nigeria Register; 2018.
12. Meriwether RA. Tool for assessing patients' physical activity. Am Fam Phys 2008;77:1132-3.
13. International Physical Activity Questionnaire. Guidelines for data Processing and Analysis of the International Physical Activity Questionnaire (IPAQ)-Short and Long Forms; November, 2002.
14. Scoring the International Physical Activity Questionnaire (IPAQ). Available from: https://ugc.futurelearn.com/uploads/files/bc/c5/bcc53b14-ec1e-4d90-88e3-1568682f32ae/IPAQ_PDF.pdf. [Last accessed on 2020 Jan 22].
15. McGrady FP, McGlade KJ, Cupples ME, Tully MA, Hart N, Steele K. Questionnaire survey of PHysical activITy in general practitioners (PHIT GP Study). Ulster Med J 2007;76:91-7.
16. Mandil AM, Alfurayh NA, Aljebreen MA, Aldukhi SA. Physical activity and major non-communicable diseases among physicians in Central Saudi Arabia. Saudi Med J 2016;37:1243-50.
17. Srilatha A, Doshi D, Reddy MP, Kulkarni S, Reddy BS, Reddy S. Physical activity among dental health professionals in Hyderabad City: A questionnaire survey. Dent Res J (Isfahan) 2016;13:544-51.
18. Rogers LQ, Gutin B, Humphries MC, Lemmon CR, Waller JL,

Baranowski T, *et al*. A physician fitness program: Enhancing the physician as an "exercise" role model for patients. Teach Learn Med 2005;17:27-35.
19. Lobelo F, de Quevedo IG. The evidence in support of physicians and health care providers as physical activity role models. Am J Lifestyle Med 2016;10:36-52.
20. World Health Organization. Physical Inactivity: Meeting the 2025 Global Targets. Geneva: World Health Organization; 2013. Available from: http://www.searo.who.int/entity/noncommunicable_diseases/events/ncd_workshop_2014_physical_inactivity.pdf. [Last accessed on 2016 Nov 09].
21. World Health Organization. Global Strategy on Diet, Physical Activity and Health. What is Moderate-Intensity and Vigorous-Intensity Physical Activity. World Health Organization; 2020. Available from: https://www.who.int/dietphysicalactivity/physical _activity_intensity/en/. [Last accessed on 2020 Apr 10].
22. Center for Disease Control, US. General Physical Activity Defined by Intensity. Available from: https://www.cdc.gov/nccdphp/dnpa/physical/pdf/PA_Intensity_table_2_1.pdf. [Last accessed on 2020 Apr 10].
23. Faghri PD, Omokaro C, Parker C, Nichols E, Gustavesen S, Blozie E. E-technology and pedometer walking program to increase physical activity at work. J Prim Prev 2008;29:73-91.
24. Gilson ND, Puig-Ribera A, McKenna J, Brown WJ, Burton NW, Cooke CB. Do walking strategies to increase physical activity reduce reported sitting in workplaces: A randomized control trial. Int J Behav Nutr Phys Act 2009;6:43.
25. Dishman RK, DeJoy DM, Wilson MG, Vandenberg RJ. Move to Improve: A randomized workplace trial to increase physical activity. Am J Prev Med 2009;36:133-41.
26. Pedersen MT, Blangsted AK, Andersen LL, Jørgensen MB, Hansen EA, Sjøgaard G. The effect of worksite physical activity intervention on physical capacity, health, and productivity: A 1-year randomized controlled trial. J Occup Environ Med 2009;51:759-70.
27. French SA, Harnack LJ, Hannan PJ, Mitchell NR, Gerlach AF, Toomey TL. Worksite environment intervention to prevent obesity among metropolitan transit workers. Prev Med 2010;50:180-5.
28. De Cocker KA, De Bourdeaudhuij IM, Cardon GM. The effect of a multi-strategy workplace physical activity intervention promoting pedometer use and step count increase. Health Educ Res 2010;25:608-19.