Level of physical activity and its correlates among health care workers in Ethiopia, 2019

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Research

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Abstract

Background These days, engaging at sufficient regular physical activity strongly recommended for good health and physical functioning. Physical activity can increase the self-confidence of the health professionals and they would become fit for daily activities with patients. Knowing the level of physical activity can help health care professionals to plan for physical activity programs. This study aimed to measure the level of physical activity and associated factors among adult health professionals at Tirunesh Beijing general hospital.

Objective The aim of this study was to assess the level of physical activity and associated factors among health care workers in Ethiopia, 2019.Methods Institution based cross-sectional study conducted level of physical activity and associated factors among health care workers in Ethiopia, 2019. Two hundred nighty seven adult health professionals were participated, which was a 97.4% response rate. The global physical activity questionnaire used to measure the level of physical activity. Descriptive statistics and binary logistic regression analyses was done to affirm the variables characteristics. A predictor variable with a p-value of less than 0.2 exported to multivariate analysis. During multivariate analysis, statistical significance declared at a p-value of < 0.05.

Results In general, the majority of the study participants, 89.2% (95% CI: 85.9-92.6) were achieved recommended levels of physical activity. Regarding the intensity of the physical activity, the overall mean time score was 518.4 mints per week or 2352.6 MET/week. For moderate-intensity physical activity, 83.5% of the study participants were physically active, (≥150 minutes/week). In the case of vigorous activity, about 32.7% of the study participants were physically active and engaged in vigorous physical activity (≥75 minutes /week). The study participants, who had self-motivation for physical activity, had a BMI of less than 25 kg/m2 and aged < 40 years were physically active.

Conclusions Health care providers' habit of physical activity improved as compared with the previous studies. However, the current level of physical activity of health professionals is not adequate. Health care providers' age, body mass index and self-motivation attribute to physical activity. The level of physical activity can increase by enhancing staff motivation towards physical activity.

Introduction

Physical activity is defined as bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level [1, 2]. Nowadays, engaging at sufficient regular physical activity is strongly recommended to maintain good health and physical functioning [3]. The World Health Organization (WHO) recommends all adults, aged 18–64 to be engaged in at least 150 minutes of moderate-intensity aerobic physical activity per week, or do at least 75 minutes of vigorous-intensity physical activity or its equivalent (600 metabolic equivalent task (MET)) per week to reduce the overall risk of non-communicable disease [4].

According to the world health organization, more than 9 million people under 60 years of age die every year due to non-communicable diseases. Death due to non-communicable disease exceeds all communicable, maternal and perinatal nutrition-related death combined and represent an emerging global health threat [5]. By 2020, a chronic disease estimated to account for three-quarters of all death worldwide. On a global basis, 60% of the burden of chronic disease will occur in developing countries [6–9].

The global strategy addressed unhealthy diet and physical inactivity as a major risk factor for the heavy and growing burden of non- communicable disease, which now account for 60% of global deaths and almost half (47%) of the global burden of diseases [10].

Out of the Africa continent, the level of physical activity ranges from 27.5–82% [11–14]. In Africa, health care workers' physical activity ranges from 20.8–79.2% [15–17]. A study done in Addis Ababa showed that 73.7% of healthcare professionals as having a moderate level of physical activity. Only 2.8% of participants in the study suggested that highly physically active and only 23.5% of the respondents were categorized as low physical activity levels [18].

Participation in recommended amounts of physical activity is essential in disease prevention. Active physical activity is associated with a range of health benefits, including markedly reduced in chronic disease morbidity and premature mortality. However, one-third of adults did not achieve health physical activity goals. Insufficient physical activity is one of the leading risk factors for death worldwide. Peoples who are insufficiently physically active have a 20–30% increased risk of all-cause of mortality compared to those who engage at least 150 min of moderate-intensity physical activity per week, or equivalent as recommended by world health organization [19, 20].

Africa is in a demographic transition and the fastest urbanizing continent. Globalization, technological advances, and economic development have all contributed to a trend towards sedentary lifestyles and the uptake of unhealthy behaviors. These demographic, social and environmental changes have led to an emerging non-communicable disease epidemic, complicated by an existing high prevalence and incidence of chronic infectious diseases [21].

Decreasing physical inactivity by 25% could prevent over 1.3 million deaths per year worldwide [22]. Public awareness is the best approach to reduce the level of physical inactivity and can achieve public physical activity goals. The role of health care professionals is significant in promoting public awareness of physical inactivity as they are at the front-line of the public health service provider [23].

Evidence showed that health professionals who change their own behavior in relation to physical activity are three times more likely to encourage the same behavior in their patients [24]. Therefore, health care professionals should themselves become active physically before convincing others to take their advice.

Health care professionals had a significant contribution in promoting public awareness of physical activity as they are at the front-line of the public health service provider. However, there is little data about

the level of physical activity of health care professionals in Ethiopia. Moreover, there is no study done specifically in the current study area. The aim of this cross-sectional study was to estimate the level of physical activity of health care professionals and to identify factors associated with it. Health professionals will adjust their own behavior according to the finding before giving advice about physical activity for their patients. This will influence health care professionals' confidence positively in counseling.

Methods

Study area, period, and study design

An institution-based cross-sectional study conducted from February to April 2019 at Tirunesh Beijing General Hospital. The Tirunesh Beijing General Hospital found in Akaki Kality sub-city of Addis Ababa city administration. This hospital named after Tirunesh Dibaba an Ethiopia female athlete. Currently, the hospital delivers inpatient and outpatient services with 478 health professionals.

Population

Source population: The sources of populations were all adult health professionals working at Tirunesh Beijing General Hospital.

Study Population: The study populations were all adult health professionals working at Tirunesh Beijing General Hospital and who were available during the data collection period.

Eligibility criteria

Inclusion criteria: All health care workers employed at Tirunesh Beijing General Hospital.

Exclusion criteria: health care workers who were severely ill to the extent of hindering the interview excluded from the study. Pregnant mothers excluded from the study.

Dependent variables: Level of physical activity (active/inactive)

Independent variables

Socio-demographic characteristics: Age, Sex, Religion, Marital status, Income, Ethnicity, Occupation, Educational status, Place of residence

Anthropometric measurements: body mass index

Self-motivation: motivated/not motivated

Operational definitions

Physically active: Adult who perform at least 150 minutes of moderate- intensity aerobic physical activity per week, or do at least 75 minutes of vigorous-intensity (PA) or its equivalent (600 MET) per week [25].

Physically inactive: Adults who perform less than 150 minutes of moderate intensity aerobic physical activity per week, or do at least 75 minutes of vigorous-intensity (PA) or its equivalent (<600 MET)per week [25].

Sample size calculation and sampling techniques

The sample size was determined by using a single population proportion formula by assuming a confidence level of 95%, and 76.5% proportion of physical activity taken from the study conducted in Addis Ababa [26] and 5% degree of accuracy of deviation from the true proportion in the population. The final sample size became 305 health professionals. The simple random sampling technique used to select study participants. Random numbers generated by using open epi software.

Data collection tools and procedures

The interviewer-administered a global physical activity questioner (GPAQ) was used to measure the level of physical activity. Participants who scored 600 and above in metabolic equivalent tasks /week considered as physically active and participants who scored less than 600 metabolic equivalent tasks/week considered as physically inactive. The tool has three subdomains. These are physical activity at work, active travel, and recreational physical activities (sedentary behavior), [27]. Anthropometric measurements (height and weight) also measured. Pre-test conducted among 5% of health care workers at Zewiditu Hospital before two weeks of the actual data collection period. Amendments made based on the pre-test finding. Five undergraduate bachelor degree-nursing students collected the data. Close supervision and facilitation did by one health professional who held masters in adult health nursing. Two days of training given for data collectors and supervisors on data collection instruments, interview techniques, and the importance of taking informed consent. Each data checked for completeness and consistency.

Data Processing and Analysis

The data entered into Epi data version 3.1 software and analyzed by using SPSS version 21. Descriptive statistics like frequency distributions, percentage, mean, and standard deviations used to summarize findings. The association between the independent variables with the dependent variable was determined using binary logistic regression. Crude odds ratios with, 95% confidence interval were calculated for all variables. During bivariate analysis, variables with a p-value of less than 0.2 imported to multivariate

logistic regression analysis. During multivariate, analysis, p-value, less than 0.05 used to declare as statistically significant factors.

Ethical considerations: Ethical clearance obtained from the Debre Berhan University ethical review board. A permission letter was written for each study health institution and permission letter taken. Written informed consent taken from each study participant.

Results

Socio-demographic characteristics

Two hundred nighty seven adult health care workers have participated in the study with a response rate of 97.6%. The median age of the health care workers was 21 years with an interquartile range of nine (Q1=26 and Q3=35). Almost half, 153(51.5%) of the study participants were female. Of the study participants, 209(70.4%) were professing orthodox Christianity. Regarding marital status, more than half, 170 (57.2%) of respondents were married. Concerning ethnicity, 133 (44.8%) of participants were from the Amhara ethnic group. About 125 (42.1%) of the study participants were a nurse (Table 1).

Anthropometric measurement and motivation

Among the study participants, about 216 (72.7%) of them had body mass index (BMI) less than 25 kg/m^2. The remaining, 81 (36.3%) had a BMI of greater than 25 kg/m^2.

Most of the participants, 246 (82.8%) were self-motivated to engage in physical activities. The rest, 51(17.2%) of participants did not have self-motivation to engage in physical activity.

Level of physical activity

In general, the majority of the study participants, 89.2% (95% CI: 85.9-92.6) were achieved recommended levels of physical activity. Regarding the intensity of the physical activity, the overall mean time score was 518.4 minutes per week or 2352.6 MET/week. For moderate-intensity physical activity, 248 (83.5%) of the study participants were physically active, (≥150 minutes/week). In the case of vigorous activity, about 97 (32.7%) of the study participants were physically active and engaged in vigorous physical activity (≥75 minutes /week).

Factors associated with the level of physical activity

The association between independent and dependent was variable assessed by using both bivariate and multivariate logistic regression. Firstly, binary logistic regression analysis conducted to see the crude association of each independent variable with the dependent variable, at the p-value of < 0.2. Accordingly, those variables whose p-value <0.2 (sex, age group, place of residence, BMI and self-motivation) were

assumed to be candidates for multivariate logistic regression analysis. During multivariate logistic regression, those variables whose p-value <0.05 were considered as statistically significant and predictors of level of physical activity. After controlling the confounder variables BMI, age and self-motivation found to have a significant association with the level of physical activity.

Health care workers whose BMI less than 25 Kg/m^2 were almost five times more likely to engage in physical activity compared with whose BMI ≥25 Kg/m^2 [AOR=4.8; 95% CI=1.96-11.89].

Health care workers whose age less than 40 years were 3.5 times more likely to engage in physical activity compared with who aged ≥40 [AOR=3.5; 95%CI=1.3-9.2].

The study also showed that respondents with self-motivation for the physical activity engaged in the recommended level of physical activity. Health care providers who had good self-motivation were eighteen times more likely to engage in physical activity compared with those who were not motivated [AOR=18.2; 95% CI=7.4-44.9], (Table 2).

Discussion

In general, the majority of the study participants, 89.2% (95% CI: 85.9-92.6) were achieved recommended levels of physical activity. This study result concludes that all studies done around the globe aimed to assess the level of physical activity among health care workers.

The current study result was higher than a study in Malaysia, 67.2 % (23), Brazil 72.5% (26) and, Nigeria 20.8 % [16]. This inconsistency might be due to a difference in physical activity measurement tools used along with variation in the study population. Moreover, the level of physical activity had variation across urban, rural and region differences [28]. The current done in an urban area and this may lead health care workers to engage in physical activities. Non-communicable diseases are more concentrated in urban areas due to an unhealthy diet and sedentary lifestyles [29-31]. Therefore, healthcare workers may be more motivated to engage in physical activity.

In this study, BMI was significantly associated with physical activity. A health care worker who is with BMI less than 25 Kg/m^2 were almost five times more likely to engage in physical activity compared with whose BMI ≥25 Kg/m^2. This finding is in line with a study done in Nigeria [32]. On the contrary, a study done among health care workers in Malaysia [14], level of BMI had no association with physical activity level. This association can be explained as health care workers whose BMI is <25 engaged in physical activity in order to maintain and increase their BMI. Moreover, physical activity can increase or decrease our body mass index [33, 34].

In this study, age was significantly associated with physical activity. Health professional whose ages less than 40 years were 3.5 times more likely to engage in physical activity compared with who aged ≥ 40

years. This result is in line with a study done in South Africa showed that Younger participants (< 40 years old) were found to be more active than older participants (≥40 years old) [35]. This can be explained by the fact that when age increases fatigability will also increase. Due to this, health care workers will lose their interest to perform physical activity.

Health professionals with good self-motivation engage more in physical activity [AOR=18.2, 95% CI=7.4-44]. Health care workers who had good self-motivation were 18 times more likely to engage in physical activity compared with those who were motivated. This result is in line with a study done in Malaysia [36]. The association might be the fact that performing physical activity needs self-motivation and commitment [37].

Conclusion: The study finding concludes health care providers' habit of physical activity improved from the previous studies. However, the present level of physical activity of health professionals is not adequate since they considered as a role models for the community. Health care providers' age, body mass index and self-motivation attribute to physical activity. The level of physical activity can increase by enhancing staff motivation towards physical activity and by establishing a physical activity room at the institution.

Recommendation: for physically active staffs they have to work more on physical activity and they should give their advice for inactive staff members. The hospital should appreciate health care workers who are physically active.

Limitation: the current study includes the general hospital found in the urban area. This might increase the level of the recommended level of physical activity.

Abbreviations: MET= metabolic equivalent tasks. BMI= body mass index

Declarations

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Ethics Approval: Ethical clearance obtained from the Debre Berhan University ethical review board. A permission letter was written for each study health institution and permission letter taken form the study institution administrator. Written informed consent was taken from each study participant.

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Tables

Table 1 Socio-demographic characteristics of adult health care workers in Tirunesh Beijing general hospital, Addis Ababa, Ethiopia, 2019 (n = 297)

Variables		Frequency	Percent (%)
Age	<40	255	85.9
	≥ 40	42	14.1
Sex	Male	144	48.5
	Female	153	51.5
Religion	Orthodox	209	70.4
	Protestant	46	15.5
	Muslim	42	14.5
Ethnicity	Amhara	133	44.8
	Oromo	113	38.0
	Tigre	30	10.1
	Others*	21	7.1
Marital status	Single	123	41.4
	Widowed	2	0.7
	Divorced	2	0.7
	Married	170	57.2
Occupation	Doctor	56	18.9
	Nurse	125	42.1
	Midwife	27	9.1
	Lab technician	26	8.8
	Radiologist	13	4.4
	Pharmacist	28	9.4
	Anesthesia	9	3.0
	Health officer	13	4.4
Educational status	Diploma	35	11.8
	Degree	243	81.8
	Masters	6	2.0
Residence	Rural	112	37.7
	Urban	185	62.3
Monthly Income level	2500-4500	82	27.6
	4501-6500	133	44.8
	6501-8500	54	18.2
	>8500	28	9.4

Key: ethinicity (Others*) = other regions found in Ethiopia.

Table 2. Associated factors of physical activity among adult health care workers in Tirunesh Beijing general hospital, Addis Ababa, Ethiopia, 2019 (N= 297)

Key: COR: crude odds ratio, AOR= adjusted odds ratio, and *= statistically significant, p<0.05

Variables		Physical activity		COR (95% CI)	AOR (95% CI)
		Physically active	Physically inactive		
Age	<40	223	22	4.74 (2.16-10.4)*	3.5 (1.3-9.2)*
	≥ 40	29	13	1:00	1:00
Sex	Male	120	24	2.58(1.21-5.48)*	2.18 (0.857-5.582)
	Female	142	11	1.00	1.00
Residence	Rural	92	20	2.46(1.2-5.0)*	2.1(0.90-5.19)
	Urban	170	15	1.00	1.00
BMI (Kg/m^2)	< 25	200	16	3.8(1.85-7.89) *	4.8(1.96-11.89*
	≥ 25	62	19	1.00	1.00
Self-motivation	Absent	28	23	16.0(7.1-35.6) *	18.2(7.4-44.9)*
	Present	234	12	1.00	1.00