

# Healthcare Professionals' Habits of Physical Activity and Their Confidence to Prescribe/Counsel Physical Activity in Hospital Setting, Ethiopia

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**Abstract:** The purpose of this study is to assess healthcare professionals' physical activity habits and their confidence to prescribe for chronic (non-communicable) diseases in hospital setting through a cross-sectional survey design. Seven sample hospitals were selected randomly based on the inclusion and exclusion criteria from 12 hospitals. The sample size was determined by using the formula for estimating a single population proportion. The mean score of the participants' confidence was ( $N = 369$ ,  $M = 21.7 \pm 6.36$ ), indicates that above half of healthcare professionals were had moderate confidence to counsel/prescribe physical activity. The majority of (73.7%) of healthcare professionals reported doing moderate level of physical activity, only 2.8% of participants in the study were categorized as vigorous and 23.5% of the respondents were categorized as low physical activity level. Personal physical activity levels was significantly and positively correlated with confidence of HCPs to prescribe/counsel PA ( $r_s = .266$ ,  $p = .00$ ). Hence, the more physically active the participants, they were had a greater confidence to prescribe/counsel about physical activity for their patients.

**Keywords:** Confidence, Physical Activity Level, Healthcare Professionals, Physical Activity Prescription

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## 1. Introduction

Physical inactivity has been identified as one of the major public health issues of the 21st century. It is considered to be one of the major causes of non-communicable diseases [1]. The problem of physical inactivity is not restricted to only higher income countries [1, 2] but also the problem of low income countries [1]. Physical inactivity, or sedentary is considered a major risk factor for a number of diseases including obesity, hypertension, cardiovascular disease, diabetes mellitus and all cause mortality [3, 4, 5, 6].

There is evidence for the benefit of exercise in many forms of disease. It is effective, inexpensive, with a low side-effect, and can have a positive environmental impact. Despite this, there remains a low practical implementation within the healthcare providers to use exercise as a management as well as prevention. This probably reflects a lack of confidence and practical skills in the prescription of exercise for persons with chronic disease by healthcare professionals [7].

There is a considerable body of evidence supporting the need to increase the use of physical activity counseling for the general population, in order to promote better health. The most structured advice uses established behavioral strategies to change the lifestyle behaviour of the individual. High quality of life represents the ultimate goal and is important outcome of all medical interventions in patients with NCDs, hence to increase the quality of life of the population [34], PA counseling is important.

PA could also be delivered as part of a exercise referral scheme or "on prescription", but also as part of the in-hospital services [8]. The healthcare setting has been recognized as an appropriate and promising venue for prescribing physical activity [9]. In developing countries, where physicians hold a respected position, this setting may exert a strong influence on patients' behavior [10]. Physical activity can be effectively applied in practice for disease

prevention and treatment in healthcare settings [11]. Healthcare providers are well positioned to provide physical activity (PA) counseling/prescription to patients. They are a respected source of health-related information and can provide continuing preventive counseling feedback and follow-up; they may have ethical obligations to prescribe PA [12]. Physicians who regularly engaged in PA, prescribe more frequently [13]. One study indicates that with few doctors delivering physical activity advice to their patients, even when confident in their knowledge [14].

Physically active healthcare providers were significantly more likely to counsel their patients to incorporate daily physical activity into their lives, with some studies indicating that active physicians were two to five times more likely than their sedentary counterparts to recommend physical activity to their patients [15]. Consistent evidence revealed that physically active physicians and other HCPs are more likely to provide PA counseling to their patients and can indeed become powerful PA role models [16]. Physical inactivity prevalence in Ethiopia is not well known, since there is no sufficient research regarding to this area. The main objective of this study was to assess the self reported physical activity level of healthcare professionals and their confidence to prescribe physical activity in hospital setting.

## 2. Methods and Materials

A cross-sectional survey design was used to assess healthcare professionals' habits of physical activity and their confidence to prescribe physical activity for chronic (non-communicable) diseases in hospital setting from December 2015 to April 2016.

### 2.1. Participants

Addis Ababa city is the capital city of Ethiopia. Addis Ababa city would provided the setting for the study. Seven sample hospitals were selected randomly based on the inclusion and exclusion criteria from 12 hospitals. Inclusion criteria: Participants had to meet the following criteria were included in the study: a registered medical doctors, nurses and physiotherapist, male or female, currently working in the sample hospitals and any age. Hospitals that give services related to: Cardiovascular diseases, Diabetic type 2 and Chronic respiratory diseases were included. Exclusion Criteria: Participants who met the following criteria were excluded from the study: If the participants were not voluntary and during the study time hospitals were not give services related to cardiovascular diseases, diabetes type 2 and chronic respiratory diseases.

**Sample Size:** The sample size was determined by using the formula for estimating a single population proportion. Sample size was calculated by taking the proportion of physical activity prescription/counseling which is 50% on healthcare professionals (medical doctors, nurses and physiotherapist) for chronic disease with 95% confidence level, 5% margin of error to get an optimum sample size. Based on the above assumptions, the formula is as follows

[17].

$$s = X^2NP(1-P) \div d^2(N-1) + X^2P(1-P)$$

s = required sample size

X<sup>2</sup> = the table value of chi-square for 1 degree of freedom at the desired confidence level

$$(3.841) \div 1.96 \times 1.96 = 3.8416$$

N = the population size

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

Based on this formula the sample would be 384, assume 85% will be return rate, then add 15%, the total sample will be 442.

### 2.2. Measures and Data Collection Instruments

Confidence of healthcare professionals to prescribe/counseling physical activity for patients were measured by 10 items of physical activity prescription self efficacy scale which is adapted from the exercise self efficacy scale answers with anchored on a four-point scale ranging from not at all true = 1 to exactly true = 4 [18] The reliability of the scale previously reported that: Internal consistency = (Cronbach's  $\alpha$  = 0.87 - 0.93), Test-retest reliability = 0.8836 (Equal-Length Spearman-Brown test). Where as in our study the reliability statistics shows (Cronbach's  $\alpha$  = .804). Self-reported personal physical activity level of healthcare professionals were measured by the validated questionnaire of International Physical Activity Questionnaire short form [19]. To assess the participants physical activity level the International Physical Activity Questionnaire (IPAQ) short version survey was used [19, 20]. The IPAQ was constructed to assess physical activity level among individuals aged 15-69. The full IPAQ measures; leisure time physical activity, domestic and gardening activities and work related physical activity. The IPAQ short version assesses three types of physical activity; walking, moderate intensity activities and vigorous intensity activities. The IPAQ short version was selected because it is a validated survey and provides a validated scoring system.

### 2.3. Statistical Analysis

The data analyses were conducted with the Statistical Package for Social Sciences (SPSS version 20 ). Simple descriptive statistics, mean, standard deviation, One-way ANOVA and correlation were used to examine associations and differences among variables. A participant's physical activity level could be categorized as low, moderate or high. To be categorized as "high" the participant had to achieve vigorous intensity activities of at least 3 days a week, or 7 days or more of any combination of walking and moderate intensity or vigorous intensity activities. To be categorized as "moderate" the participant had to achieve at least 3 days of 20 minutes per day, or 5 or more days of moderate intensity activity involving at least 30 minutes per day. To be categorized as "low" neither of these criteria's above were

achieved [19].

### 3. Results

Regarding to healthcare professionals' confidence, the result of our study show that, the mean score of the participants was ( $N = 369$ ,  $M = 21.7$ ,  $SD = 6.36$ ). This indicates above half of healthcare professionals were had moderate confidence to counsel/prescribe physical activity and most of healthcare professionals were physically active. But the practice of healthcare professionals to prescribe/counsel physical activity was low. For example,

regarding to the practice of healthcare professionals on asking their patients about physical activity (PA), provide verbal and written PA and assess their fitness as physical exam were low [21]. Our research finding revealed that there was a significant difference among healthcare professionals (physician, nurses and physiotherapist) in their confidence to prescribe/counsel PA from the Post Hoc Scheffe ( $F = 125.31$ ,  $df = 2$ ,  $p = .00$ ). Specifically physiotherapists were had more confidence to prescribe/counsel physical activity than the others and nurse were had less confidence to prescribe/counsel physical activity for their patients.

**Table 1.** Post hoc scheffe test for HCPs' confidence to prescribe/counsel PA.

<sup>a</sup> Scale	(I) Profession	(J) Professions	M difference (I-J)	P-value
Confidence	Physicians Physiotherapist	Nurses	5.64	.00
		Physician	7.23	.00
		Nurses	12.87	.00

Note: <sup>a</sup> Exercise prescription/counseling self efficacy scale adapted from exercise self efficacy scale (10 items) answers with anchored on a four-point scale ranging from not at all true = 1 to exactly true =4, The total score is calculated by finding the sum of 10 items. Scores range from 1-40. A higher score indicates more confidence.

The result of present study from independent T-test revealed that there was a significant difference between male and female healthcare professionals ( $t = 4.95$ ,  $df = 367$ ,  $p = .00$ ). Hence, male healthcare professionals were had more confidence than female healthcare professionals

(male:  $M = 23.35$  and female:  $M = 20.25$ ).

According to "International Physical Activity Questionnaire" data processing protocol 34 participants were excluded from the personal physical activity analyses because of missing data ("Don't Know") [20]. IPAQ also recommends that truncating all minutes spent in walking, moderate, and vigorous physical activities to not exceed more than 180 minutes a day, permitting a maximum of 21 hours of each of the three different activities [19]. This rule creates a more normalized distribution of activity levels, which are usually skewed in national or large population data sets [19]. Consequently, the rule prevents misclassifying individuals as "High" active ([19]. Truncation was performed for categorical variables (low, moderate, and high activity levels), as well as for continuous variables used in correlation analyses. Descriptive analysis of personal physical activity is presented in this study as median minutes, as it is suggested that continuous variables measuring physical activity should be presented as median minutes/week or median MET-minutes/week given the non-normal distribution of energy expenditure in many populations [19]. Regarding to Minimum Values for Duration of Activity, only values of 10 or more minutes of activity would be included in the calculation of summary scores. Responses of less than 10 minutes [and their associated days] should be re-coded to zero [20]. Based on this our study revealed that the majority of (73.7%) of healthcare professionals categorized as moderate level of physically active, only 2.8% of participants in the study were suggest that highly physically active and only 23.5% of the respondents were categorized as low

physical activity level. In general above the three-fourth of participants were categorized as physically active and nearly one-third of the respondents categorized as low level of physical activity.

**Table 2.** Personal physical activity levels.

PLs	N	Percent of respondents
Low	83	23.5
Moderate	260	73.7
High	10	2.8

As observed from Table 2, the participant healthcare professionals were physically active for a total of 220 minutes per week (Low PA:  $Mdn = 150$  min/week, Moderate PA:  $Mdn = 50$  Min/week and Vigorous PA:  $Mdn = 20$  Min/week) by walking and involving in different moderate and vigorous physical activities. The respondents walked (low physical activity level) about 150 minutes per week. And also, the participants involved in moderate level of physical activity, like carrying light loads, bicycling at a regular pace, double tennis and brisk walking for about 50 minutes and they were performed vigorous level of physical activity such as, heavy lifting, digging, aerobics, or fast bicycling for 20 minutes per week. Participant's weekly physical activities performed were converted to Metabolic Equivalent (MET-Minutes) which considered the intensity of the physical activity performed. In measured MET- minutes, Vigorous physical activities can contribute more to the total energy expenditure(MET) per week than the moderate and low physical activities. But, our study suggest that low physical activity (walking) was the most commonly perfumed physical activity among HCPs, which providing the highest energy expenditure (495 MET-minutes per week).

**Table 3.** Summary of HCPs' personal physical activity level from IPAQ.

PAL	N	Days per week (Mdn)	Min/Week (Mdn)	MET Min/Week
Low PA	354	5	150	495
Moderate PA	354	2	50	200
Vigorous PA	353	1	20	160

The chi-square analysis revealed that there was not a significant difference between male and female healthcare professionals about their physical activity level ( $X^2 = 1$ ,  $df = 2$ ,  $p = .590$ ). To show the differences among healthcare professionals in relation to physical activity level we apply Kruskal-Wallis test. Therefore our finding revealed that there was a significant difference among healthcare professionals regarding to physical activity level (physicians: Mean rank =197.56, Nurses: Mean rank =151.64, Physiotherapist: Mean rank =256.65,  $X^2 = 28.537$ ,  $df = 2$ ,  $p = .000$ ). Specifically physiotherapist were more physically active than physicians and nurses.

Personal physical activity levels was significantly and positively correlated with confidence of HCPs to prescribe/counsel PA ( $r_s = .266$ ,  $p = .00$ ). This indicates that, the more physically active the healthcare professionals, they were had a greater confidence to prescribe/counsel about physical activity for their patients.

**Table 4.** Correlations of personal physical activity level with confidence.

Scale	PALs in MET minutes per week		p
	N	$r_s$	
Confidence		.266	.000*

\*Spearman Rho correlation is significant at the.01(2-tailed)

## 4. Discussion

Studies have shown that the prevalence of NCD Risk factors was high in Ethiopia [33], so physical activity counseling is very important practice in healthcare professionals to prevent NCDs.

Present study suggest that (73.7%) of participants were categorized as moderate PA level and 2.8% categorized as highly active and 23.5% low level of physical activity. In line with this in Saudi Arabia one study conducted on "A Cross-sectional Study on the Prevalence of Physical Activity Among Primary Health Care Physicians" [22] suggest that 44.32% of healthcare professionals were doing moderate physical exercise, 25.35% were doing mild exercise and 20.88% were doing vigorous physical activity. Small proportions of physicians (9.45%) were not doing any exercise or rarely doing any physical activity. Moderate to vigorous physical activities constitute 65.2% of the total number of physicians. [23] revealed that more than 47% of participated physicians were physically inactive and further more than 31% were moderately inactive.

In South India one study conducted on "Doctors' self-reported physical activity and their counseling practices" demonstrate that moderate PA was reported by 37.7% of the doctors and the remaining 62.3% reported being inactive. Most of participants were physically inactive [24]. In other

study more than half of physicians (64%) were classified as physically active [25, 26] reported that 42% were physically active. In general our study show that most of the participants' physical activity level was categorized as moderate level.

According to [27]. a study conducted on "Exercise counseling by family physicians in Canada") show that, the results clearly demonstrated a problem with the level of physician confidence in helping patients make a behavioral change, such as starting to exercise or continuing to exercise. The proportion of healthcare professionals who thought they could be successful with 50% of their patients (8.5%). It is unknown if the lack of physician confidence represented a lack of physician self-efficacy or a belief on the part of physicians that their patients cannot make a behavioral change. In line with this, the result of our study show that, the mean score of the participants was ( $N = 369$ ,  $M = 21.7$ ,  $SD = 6.36$ ). This indicates above half of healthcare professionals were had moderate confidence to counsel/prescribe physical activity. But the practice of healthcare professionals to prescribe/counsel physical activity was low. For example, regarding to the practice of healthcare professionals on routinely counseling physical activity to accumulate 30 minutes of moderate intensity on most of days of the week indicates that most of HCPs (84.62% ) does not routinely counsel to accumulate 30 minutes of moderate intensity PA on most days of the week and only few (15.38%) of HCPs routinely counsel PA accumulate 30 minutes of moderate intensity on most days of the week [21].

According to [28]. reported that patient-centered PA prescription was important. However, they showed less than moderate competence at performing PA prescription behaviors. In other words medical students may not be adequately prepared to provide physical activity prescription/counseling for their patients. In line with this indicates that few doctors delivering physical activity advice to their patients, even when confident in their knowledge [14]. Regarding to the difference between male and female physicians in their physical activity level, Chi-Square test did not show any significant difference ( $P > 0.05$ ,  $\chi^2 = 0.44$ ) in physical activity between males and females [22]. In relation to this our study also show that there was not a significant difference between male and female healthcare professionals' physical activity level ( $X^2 = 1$ ,  $df = 2$ ,  $p = .590$  or  $p > 0.05$ ). In other hand women physicians reported being physically active [29]. Healthcare providers that had BMIs in the overweight or obese range were less confident about physical activity counseling, even if they met current moderate or vigorous USDHHS guidelines. Physicians and medical students with a normal BMI, and who met moderate and

vigorous USDHHS guidelines, were more likely to feel confident about counseling their patients about physical activity than those who did not meet the guidelines or those who are overweight or obese [30]. Healthcare providers who were physically active were significantly more likely to provide advice on physical activity to their patients compared to physically inactive healthcare professionals [22]. Regarding to barriers of populations to participate in PA: shortage of facilities and equipment's, lacking interest, missing of required skill comparing with active individuals, lack of self-confidence and lacking periodical checkup about entire health condition associated to NCDs were the significant bottleneck barrier engaging with regular physical exercise program [32]. Therefore healthcare professional have the responsibility to promote/counsel confidentially about PA to their patients to reduce such barriers

## 5. Conclusion

This is the first study to assess healthcare professionals' self-reported PA habits and confidence to prescribe physical activity. The results of this study revealed that above half of healthcare professionals were had moderate confidence to counsel/prescribe physical activity and above the three-fourth of participants were categorized as physically active and nearly one-third of the respondents categorized as low level of physical activity. But Most of HCPs does not routinely counsel to thier patients [21]. Healthcare professionals' physical activity level was significantly and positively correlated with their confidence to prescribe/counsel PA. This indicates that, the more physically active the healthcare professionals, they were had a greater confidence to prescribe/counsel about physical activity for their patients. Our result revealed that there was a significant difference among healthcare professionals regarding to their physical activity level. Specifically physiotherapists were more physically active and confident to prescribe PA than physicians and nurses. Our study also suggest that low physical activity (walking) was the most commonly performed physical activity among HCPs, which providing the highest energy expenditure (MET-minutes per week).

Healthcare professionals' PA level and confidence to prescribe physical activity was modest not high, so strategies to improve their confidence, physical activity habits and prescription practices are important. Such as short term training regarding physical activity prescription for non communicable diseases.

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