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Prevalence of Physical Inactivity among Civil Servants in Southern Ethiopia

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Abstract

Objectives: To determine the prevalence of inactivity in the lifestyle of civil servants in southern Ethiopia.

Methods: It was a cross-sectional study carried out in SNNPR region in Ethiopia, 2015. 375 participants are considered as the representatives of the total population ranging from18 - 65 years old, 59.7% men and 40.7% women. Data were collected using standardized self-reporting IPAQ short form and time spent active were assessed. Also, demographic variables were evaluated and prevalence estimates for Inactive/sedentary were determined. Chi-square test ($\chi 2$) was used to analyse the bivariate relationship between demographic variables and PA. The predictability of independent variables on dependent variable was utilized by the use of binomial logistic regression. The amount of error can be tolerated, that is with a margin error of 5%, 95% confidence level, and 50% response distribution was determined.

Results: Of the 375 participants, 80.5% were found inactive and the remaining 19.5% were classified as minimally active which met minimal PA recommendations. The prevalence of inactivity was higher in female than in men (87.6% and 75.7% respectively). There was significant association found between PA and gender (x^2 (1) = 8.19, p = 0.004), income (x^2 (2) = 5.83, p = 0.005). But, PA was independent of Age, Education, Marital status, Profession, and Residence. The predictability of independent variables on (PA) was tested and reviled (OR = 2.267; 95% CI: 1.282, 4.008).

Conclusion: prevalence of inactivity is high among the population; particularly very higher inactivity was associated with women, older age, leaders that need due public attention and intervention.

Keywords: Physical activity, sedentary behaviour, Inactive, Civil servant.

Introduction

We believe or not, Inactivity is viewed and evidently proposed potentially more prevalent than and as serious as cigarette smoking that should be levelled as a "priority warning" in the modern world [20]. (WHO) on his report of (2010) demonstrated that Physical inactivity and obesity become the leading risk factors for global mortality. "In the year 2008, Of the 57 million global deaths, 36 million, or 63%, were due to NCDs, principally cardiovascular diseases, diabetes, cancers and chronic respiratory diseases" [26] which are directly associated with physical inactivity, and In the same report, the number of people pass away each year reaches 3.2 million due to physical inactivity because; people who are inactive have a 20% to 30% greater hazard of death in any case compared with active people [26]. In contrary, proper physical activity has a remarkable positive effect on physiological and psychological domains of life thereby reducing the risk of developing risk factors for degenerative and chronic diseases [2] and even against illness or death (morbidity motility) [24]. Adults can be protected from over 20 chronic health problems such as coronary heart disease, stroke, type 2 diabetes, cancer, obesity, mental health problems, musculoskeletal conditions and the likes by engaging in the recommended amount of physical activity [3]. Consequently, in developed countries there are numerous health or other organizations that devote their attention and effort on prevention of public health and reduction of major risk factors for public health such as inactivity or sedentary [2]. Studies demonstrated the high prevalence rate of sedentary/inactive among countries. Overall physical inactivity among Kingdom of Saudi Arabia was found 66.6% for males and 72.9% for females and leisure time physical inactivity was 87.9% for males and 90.2% for females [15]. A review of adults prevalence of inactivity among 5 Arabian Gulf region countries revealed 61.0% of males and 73.7% of females were sedentary or inactive [16]. Spittaels *et al*, reported that 57 % of US (7.89 hr/a day), 55 % of Sweden (7.7 hr/a day), 57 % of Australian (8.12 hr/a day), 58 % of European adults (8.12 hr/a day), and 58 % of western countries (7.89 7.89 hr/a day) dedicated their waking time in sedentary pursuit [44]. According to Oehlschlaeger, *et al*, Over 60% of the USA and 80.8% of Brazilian adults are levelled sedentary [2]. A review of adults prevalence of inactivity among 5 Arabian Gulf region countries revealed 61.0% of males and 73.7% of females were sedentary or inactive [16]. Screen time (the time spent watching television and movies, playing video games, and using computers) accounts the majority share of time per a day spent in sedentary which is negatively associated with multiple of adverse functional and medical health outcomes [4, 46]. But yet almost nothing or very little is known about the prevalence and effects of sedentary behaviour in developing countries like Ethiopia. The health risk of sedentary/inactivity has been started to be explored through research and reported that unlike exercise and diet, sedentary/inactivity has a potential to determine or predict a future health status of people just as bad habits such as smoking [20]. As the result, countries are developing guidelines and recommending physical activity at least 30 min of MIPA per day, or 150 minutes moderate intensity aerobic exercise per a week in multiple short bouts not less than 10 minutes or 75 min of VIPA or equivalent combination of MVIPA. Those who fail to meet these criteria

were considered to be sedentary/inactive [24, 38, 39]. As it has been mentioned by Fox, the future health status of the people will be in danger if we failed to intervene or ignorant to aware and to take the necessary measurement [20]. So that, the increase in sedentary/inactivity is associated with increased risk of health, and increased risk of health is associated with increased health care cost and reduction of productivity in any citizen [5, 22]. In other words, as it has been mentioned by World Economic Forum, 2011, the long-term effect of inactivity increasingly burden national economies. Decreasing its prevalence is a major strategy to decrease premature mortality and promoting and restoring healthy population [17].

In the light of the rising alarm all over the world and insignificant or almost null effort to overcome inactivity, no data about the effect or prevalence of sedentary/inactivity and time spent sitting among adults in the area like Ethiopia, the present study had the objective of determining the prevalence of sedentary/ inactivity and examine its association with socio-demographic variables among civil servants in southern Ethiopia.

Methods

Study design and population

The present study was observational study that enables to carry out naturalistic observation survey merely used to collect descriptive information namely cross-sectional survey study (also known as cross-sectional analyses, transversal studies) because it assesses the prevalence of cases among the community that involves data collection from a random sample of people, or a representative subsets at one specific point in time [25, 28]. The study was conducted in central part of **SSN**PR **(**Southern Nations, Nationalities, and People's Region**)** between July and September in the year 2015 in Ethiopia. The population was permanent (full time) employee of urban adult civil servants working in governmental organizations in which each regional burro, zone sector offices, town administrative sector offices structured in 38 offices found in the three largest Town called Hawassa, Wolita Soddo, and Dilla situated in central part of SNNPR. Stratified cluster random sampling method was employed to select 375 representative participants aged 18 - 65 years old from the three Towns proportional to the population structure in terms of geographical area of residence (Town). Sample size was determined by the use of Rao sample size calculating software which was online survey conducting method used to estimate sample size [29] that is equivalent to the result from the formula$s = X^2 NP(1-P) \div d^2 (N-1) + X^2 P(1-P)$ used [30, 41]. The amount of error can be tolerated, that is with a margin error of 5%, 95% confidence level, and 50% response distribution [30]. Procedurally the population was naturally stratified geographically in three major Towns and each stratum has 38 regional burro and zone sector offices considered as clusters of stratum and samples were randomly selected from each stratum and all members of selected burro/office/clusters have been included in survey considering the proportionality of the stratum.

The tools used to collect data was standardized self-reporting IPAQ short form, digital weight measuring scale and height measuring tape, was administered by five trained professionals.

IPAQ short form (English version) questions are commonly used and internationally recommended tools to acquire related data on physical activity and "acceptable measurement properties for use in many settings and in different languages, and are suitable for national population-based prevalence studies of participation in physical activity" [18]. Self-reported IPAQ is a type of subjective measurements are "less costly and easier to implement than other measurements" [33]. As it has been indicated in IPAQ, [18] it requires writing the number of days and the estimated time spent active in vagarious, moderate, and walking activities at least not less than 10 minutes bout in 7 weekdays. According to its guidelines, translation from English to Amharic (the working language of the participant) was done by existing language expertise in Dilla University. Concerning Reliability and validity, "the development of an international measure for physical activity commenced in Geneva in 1998 and was followed by extensive reliability and validity testing undertook across 12 countries (14 sites) during 2000" [18]. Validity and reliability of Self-reported IPAQ instruments have been tested and have acceptable and reasonable measurement properties, at least as good as other established self-reports for monitoring population levels of physical activity among adults in diverse settings [32, 40]. As quantified as Rosenberg *et al* cited in Heaslop, (2012), "The test-retest reliability of the short and long forms of the IPAQ is good. However, the validity is only moderate (IPAQ-SF: r = 0.33; IPAQ-LF: r = 0.34)" (p. 13) [33]. Since the concern of this study was adult's ranging from 18-69 years, among many different ways to assess physical activity, "IPAQ is an instrument designed primarily for population surveillance of adults" [19].

Also, reliability and validity were tested in the particular setting in the context of the research area. Hence the Reliability Test Method Alpha Method Using SPSS Version 21 (Cronbach's Alpha) value were found (0.64) which is High Reliability and validity test was performed using Pearson Product Moment Correlations (correlating each item questionnaire scores with the totally) and the significance value was found in between (0.035 and 0.045) which is valid and the value of total score was correlated with the value of each items and found rxy (total value) 0.627 > r table product moment in range of (0.314 and 0.537) which can be interpreted all items are valid [42]. So that the result of reliability and validity is consistent with previous evidence [33].

Data collecting procedure was manual and direct contact with the participant. Informed consent was obtained from each office/burro head and the participant before conducting survey and participation was voluntary and confidential. Also, ethical approval for the study was obtained from Dilla University. Questioners were distributed and collected contacting each sample burro/office face to face or cloth contact in their office in the working days by the help of trained sport science professionals. The response and completion rate was 83% and 95% respectively.

Assessing Physical activity

Definition of inactive/sedentary is based globally recommended guidelines of PA that is at least 30 min of MIPA per day, or 150 minutes moderate intensity aerobic exercise per a week in multiple short bouts not less than 10 minutes or 75 min of VIPA or equivalent combination of MVIPA. Those who fail to meet these criteria were considered to be sedentary/inactive [24, 38, 39]. Even though the recent studies provoking that sedentary could not simply define as the absence of physical activity, because it is possible to be sedentary whilst meeting the recommended level of vagarious moderate physical activity, or individuals can be both highly active and highly sedentary [1, 34, 39]. Inactivity or lack of

activity is not a measure of sedentary, such approach is instinctive and "misleading" [31]. Wilmot, *et al*, strongly argued that; Studies were not included if 'inactivity' was reported as sedentary behaviour, rather than a measure of actual time spent in sedentary activities [39]. So that, if sedentary time is independent of physical activity, It might be difficult to set a standard for activity that defines sedentary [27, 34] because it's closeness to physical activity makes it difficult to develop unique definition separately. Therefore, the term "physical inactivity" is often used interchangeably in this study with "sedentary", implying it is the absence of recommended level of "physical activity" [1].

There are two known ways to determine level or volume of physical activity are relay on recommended level of physical activity in terms of hours spent in MVPA as mentioned and computing METs on the basis of recommendations. To determine the prevalence rate of sedentary or inactivity, IPAQ short form was utilized which encompasses three distinct types of physical activity with diverse intensity (Vigorous, Moderate, and Walking). Activities required higher effort with greater intensity that makes breathe much harder than normal such as heavy lifting, digging, fast bicycling for at least 10 minutes at a time was reported as Vagarious physical activity; activities that take moderate physical effort and make breathe somewhat harder than normal such as carrying light loads, bicycling at a regular pace, tables tennis (without include walking) for at least 10 minutes at a time was reported as Moderate physical activity and time spent walking including at work and at home, walking to travel from place to place, and any other walking that have done solely for recreation, sport, exercise, or leisure for at least 10 minutes at a time reported as walking in the last 7 days. Participants requested to report only the number of days they engaged in the three mentioned activities in last week and the average hours and/or minutes they spent in each activity per a day. The reported hours/minutes were converted into minutes and multiplied by the number of days they engaged and converted into METs by multiplying with assigned METs to activities. On the basis of WHO adopted guidelines, the estimate of energy cost for activities was calculated so as the total MET-min/week = (Walk METs X min X days) + (Mod METs X min X days) + Vig METs X min X days) where the value of Walking = 3.3 METs, Moderate Intensity = 4.0 METs, and Vigorous Intensity = 8.0 METs [36]. So that, according to the guidelines METs was computed to determine the category of physical activity level mainly into three distinct levels.

1. Minimally active: 5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 600 MET-min/week ($\geq$ 6oo < 2999 METs).
2. High active (Health-enhancing Physical Activity): 7 or more days of any combination of walking, moderate intensity or vigorous intensity activities achieving a minimum of at least 3000 MET-minutes/week ($\geq$ 3000 METs).
3. Insufficiently active or inactive or sedentary: the lowest level of physical activity, those individuals who does not meet criteria for categories 1 or 2 were considered sedentary (< 600 METs) [19, 24].

Demographic and other variables

Sex, Age, Height, Weight, Education, Income, Marital status, Responsibility, and Residence were considered as independent variables examined. Age category was 18-30, 31- 40, 41- 50 and 51 – 65 years old [23], education was categorized in four (High school & below, College Diploma, Degree, Masters, Ph.D. and above), Income was levelled as 5,000.00 ET Birr and above were high-income groups, 3,000.00 - 2,999.00 ET Birr were considered medium income group and 2,999.00 ET Birr and below were levelled as low-income group. Also marital status is categorized into four (Married, Unmarried, Divorce, Others), Occupational responsibility was classified in three (Leader, Professional, and None), residence is categorised on the basis of geographical location or Towns (Hawassa, Wolayta Soddo and Dilla), Body height and weight measured by the help of portable digital weight scale without heavy wearing and carrying objects with a precision of 0.5 kg and portable, flexible height measuring tape without shoe with margin of error of 1 cm [2].

Statistical Analysis

Statistical tests were performed using the programme IBM SPSS Statistics version 20 (IBM Corporation, USA). Overall frequency distributions of demographic variables characteristics, the level of physical activity (Inactive, minimally active, super active) of the study subjects by gender was examined to determine the estimate of prevalence and level of PA. Associations and differences in PA level were established and the strength was quantified. Chi-square test ($\chi 2$) was used to analyse the bivariate relationship between categorical demographic variables and PA level. The predictability of independent variables (Sex, Age, Height, Weight, Education, Income, Marital status, Responsibility, and Residence) on dependent variables (PA) was utilized by the use of binomial logistic regression model analysis with the determination of odds ratios (OR) and 95% confidence interval (95% CI). All reported P values are two-tailed, and statistical significance was set at .05 levels.

Results:

Overall characteristics demographic variables of the population inrespect to the category of physical activity have been described in table 1. Of the 375 participants, 80.5% (n = 302) were found physically inactive and the remaining 19.5% (n = 73) were classified as minimally active which met minimal PA recommendations and no one was able to achieve the highest level of physical activity continuum (HEPA). From the said inactive amount (80.5%), n= 168 (44.8%) were male and n=134 (35.7%) were female. Among minimally active category (19.5%), n=54 (14.4%) were male and n=19 (5.1%) were female. The prevalence of inactivity was higher in female than in males (87.6% and 75.7% respectively). Prevalence of inactivity was also goes higher to lower from older to younger age (51-65, 41-50, 31-40, 18- 30; 87%, 80.8%, 80.1, 78.0 respectively). Lower income group and higher income group were found high sedentary compared with a middle-income group (87.1%, 83.6%, 75.6%; Lower, higher, and middle income respectively). Similarly, leaders and nonprofessionals were found high inactive compared with professionals (90%, 88%, 78%; nonprofessionals, leaders, and professionals respectively). Residing in Dilla were more inactive (85.2%) than residing in Soddo (80%) and Hawassa (80.2%). Among three physical activity options the Mean METs was found for vigorous activity (3.30) for moderate activity (16.01) and for walking (117.14), indicated that almost all participant have lacking trends of performing the vigorous activity and a few amount or very fewer were performing the moderate activity.

The minimally active category accounted 19.5% of the sample population was mostly performed walking rather than vigorous or moderate activity.

Table 1: Overall Demographic characteristics of respondents * Lifestyle or PA category Cross tabulation

Demographic Variables	category		Lifestyle or PA category		Total
			Inactive/ Sedentary	Minimally active	
Gender	male	Count	168	54	222
		% within Gender	75.7%	24.3%	100.0%
	female	Count	134	19	153
		% within Gender	87.6%	12.4%	100.0%
Total		Count	302	73	375
		% within Gender	80.5%	19.5%	100.0%
Age	18-30	Count	78	22	100
		% within Age	78.0%	22.0%	100.0%
	31-40	Count	109	27	136
		% within Age	80.1%	19.9%	100.0%
	41-50	Count	80	19	99
		% within Age	80.8%	19.2%	100.0%
	51-65	Count	35	5	40
		% within Age	87.5%	12.5%	100.0%
Total		Count	302	73	375
		% within Age	80.5%	19.5%	100.0%
Income	>=5000 (High)	Count	92	18	110
		% within Income	83.6%	16.4%	100.0%
	3000-4999 (Middle)	Count	136	44	180
		% within Income	75.6%	24.4%	100.0%
	<=2999 (Low)	Count	74	11	85
		% within Income	87.1%	12.9%	100.0%
Total		Count	302	73	375
		% within Income	80.5%	19.5%	100.0%
Occupational responsibility	Leader	Count	31	4	35
		% within O.R	88.6%	11.4%	100.0%
	professional	Count	244	66	310
		% within O.R	78.7%	21.3%	100.0%
	non	Count	27	3	30
		% within O.R	90.0%	10.0%	100.0%
Total		Count	302	73	375
		% within O.R	80.5%	19.5%	100.0%
Residence	Hawassa	Count	247	61	308
		% within Residence	80.2%	19.8%	100.0%
	Soddo	Count	32	8	40
		% within Residence	80.0%	20.0%	100.0%
	Dilla	Count	23	4	27
		% within Residence	85.2%	14.8%	100.0%
Total		Count	302	73	375
		% within Residence	80.5%	19.5%	100.0%
Marital status	Married	Count	213_a	43_a	256
		% within Marital. S	83.2%	16.8%	100.0%
	Single	Count	76_a	29_b	105
		% within Marital. S	72.4%	27.6%	100.0%
	Divorce	Count	5_a	1_a	6
		% within Marital. S	83.3%	16.7%	100.0%
	Other	Count	8_a	0_a	8
		% within Marital. S	100.0%	0.0%	100.0%
Total		Count	302	73	375
		% within Marital. S	80.5%	19.5%	100.0%
		% of Total	80.5%	19.5%	100.0%

The association of demographic categorical variables and PA category were tested using chi square independence test presented in table 2, 3 and found gender ($p = 0.004$), age ($p = 0.65$), Education ($p = 0.12$), income ($p = 0.05$), marital status ($p = 0.06$), Profession ($p = 0.15$), Residence ($p = 0.82$). So that, there were a significant association between PA and gender ($x^2(1) = 8.19$, $p = 0.04$), income ($x^2(2) = 5.83$, $p = 0.05$). But, PA was independent (no association) of Age, Education, Marital status, Profession, and Residence ($p > 0.05$) whereas gender and income status were significantly associated with PA ($p \leq 0.05$). Binomial logistic regression test was performed to ascertain the predictability of independent variables on a

categorical dependent variable (PA). Initially PA was categorized into three (trichotomous variable) but in the last category (HEPA) there was no achievement or no data reported by respondents and as the result SPSS considered as a binary variable in which limitation of using the third category of PA was demanded, the approach used in WHO report [37]. The effects of demographic variables (age, gender, weight, height, education, income) on the likelihood that participant's lifestyle is shown in table 4. The logistic regression model was statistically significant for weight and height, $p < 0.05$. A unit change in height result in the probability of 428.816 times increase in being physically active but, increase in weight is associated with o.960 time's reduction in the likelihood of being physically active. Except weight and height, other demographic variables were not predicted or did not add significantly to the model with $p > 0.05$. The model explained 10.9% (Nagelkerke R^2) of the variance in PA and correctly classified 80.7% of cases.

Table 4: Binomial Logistic regression

Variables in the Equation									
Variable		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Age			1.169	3	.761			
	Age(1)	.224	.584	.147	1	.701	1.251	.398	3.929
	Age(2)	.344	.547	.396	1	.529	1.411	.483	4.124
	Age(3)	.546	.558	.954	1	.329	1.726	.578	5.155
	Weight	-.041	.014	8.428	1	.004	.960	.933	.987
	Height	6.061	1.948	9.679	1	.002	428.816	9.417	19525.970
	Education			4.430	3	.219			
	Education(1)	.155	.759	.042	1	.838	1.168	.264	5.173
	Education(2)	-1.065	.602	3.128	1	.077	.345	.106	1.122
	Education(3)	-.236	.391	.366	1	.545	.790	.367	1.698
	Income			4.329	2	.115			
	Income(1)	.008	.536	.000	1	.988	1.008	.352	2.883
	Income(2)	.604	.457	1.743	1	.187	1.829	.746	4.481
	Constant	-9.076	2.994	9.193	1	.002	.000		
a. Variable(s) entered on step 1: Age, Weight, Height, Education, and Income.									

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	340.149[a]	.068	.109
a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.			

Classification Table					
	Observed		Predicted		
			Lifestyle or PA category		Percentage Correct
			Inactive/Sedentary	Minimally active	
Step 1	Life style or PA category	Inactive/Sedentary	302	0	100.0
		Minimally active	72	0	.0
	Overall Percentage				80.7
a. The cut value is .500					

Discussion:

The present study is the first of its kind to be conducted to provide comparative data on the levels of PA of civil servants (office workers) in SNNPR in Ethiopia. Even though gaps in surveillance of PA [8] or many African countries like Ethiopia lack baseline data or trends for PA, SB, and its prevalent rate and the likes are scarce needed to effective planning and policies, [7, 45] taking initiatives to begin fighting inactivity the worst health hazard of people is mandatory and this study can add significant input and information for public society as well trigger further research.

Findings confirm the highest prevalence estimate of PA among civil servants in the region. Using the criteria of IPAQ, [19, 24] the prevalence estimate of inactivity was 80.5%. It was higher in female than in males (87.6% and 75.7% respectively). Prevalence of inactivity was also goes higher as age increase (51-65, 41-50, 31-40, 18- 30; 87%, 80.8%, 80.1, 78.0 respectively). This indicates that the older the age, the lower in PA or the higher sedentary. From the public perspective, the condition is an alarming warning risk that should not be seen easily.

Prevalence estimate of PA among civil servants is quite higher than the most existing reports even though some similar evidence is available. Spittaels *et al*, (2012) which was objectively measured PA as a whole country wise reported, 55% of Sweden, 57% of US adults, 55% of Sweden, 69% of Canadian adults, 58 % of European adults found either sedentary or have low levels of physical activity [44]. Similarly Commonwealth Australia, 2014 reported more than half (56%) of all Australian adults are an inactive or low level of PA [21], 71-76% inactivity in leisure-time observed for adults in Madrid [24]. When we evaluate the present study in light of existing evidence mentioned, it seems amplified or exaggerated but not. It is important to understand that when generalising or taking average data from a large population with multiple dissimilar groups, the incidence of occurrence decreased compared with particular groups (small sample). Office workers are one of the most sedentary occupational sitting reduction initiative target

groups [10] that can account the maximum range in sedentary population prevalence data because those who sit for longer at work are more likely to sit outside of work [9]. Moreover, due to lack of awareness or limited information about sitting too much or inactivity, civil servants usually thought to attend office sitting for a longer time to achieve better efficiency on work. Because those attending office sitting for a long time were considered as hard workers even though there isn't objectively measured task all over the country. In this regard, Levine cited in Brigid Schulte supported saying "In the office, there's so much pressure to sit – the feeling is, if your butt's not in your seat, you're probably not doing your job," [17]. Still similar trend report is existing even in country wise large population. For example, [2] reported that 80.8% of Brazilian adults are levelled sedentary, almost the same trend even higher than the present study. The most consistent study to the finding discovered presently was conducted on adults residing in Geneva, Switzerland even though the subjects were not only office workers. PA level was determined by calculating basal metabolic rate to estimate daily energy expenditure which is identical to METs the way the present study used to determine PA level and reported sedentary was 79.5% in men and 87.3% in women [43] which is very close to the present study. Research findings showed that more than two-third of working days, especially 77% of office-based, call centre and retail employee working days is occupied by sedentary pursuit. A review of adults prevalence of inactivity among 5 Arabian Gulf region countries revealed 61.0% of males and 73.7% of females were sedentary or inactive [16]. Recent studies also confirmed that as a result of physical inactivity, one-third of adults and close to 80% of adolescents are at increased risk of disease worldwide [6]. Sedentary time and its associated effect have been increasingly acknowledged in office-based workplace and need due attention to support and facilitate reduction of sitting too much time in the workplace [5]. Also British psychological society [9] reported nearly 70% of workforce surveyed sedentary or did not meet the recommended guidelines for PA. The strong speculation of researchers "due to the widespread availability of computers and labour-saving devices, sedentary time at work has risen in recent decades" [10], is become true supported by the present findings. In general, raised level of inactivity becomes a world trend. Because, as WHO estimated 95 % of the world's adult population is inactive failing to meet minimum recommendations [17].

Concerning prevalence rate of inactivity in gender and age wise, our finding indicated gender ($p = 0.004$) which is significantly associated with PA showed consistency with evidence elsewhere, see table 2. The value of odds ratio was (OR = 2.267; 95% CI: 1.282, 4.008) which implies that a one unit increase in female gender increased the odds that women exhibited to be more likely physically inactive than men. Despite notable disparities exist in the prevalence of PA, in most countries inactivity is higher in women than in men and older adults are less active than younger adults. Meaning that, as age increases, PA decreases, and vice versa. As it has been confirmed by the finding of the present study, the usual inverse relationship of PA and age observed a consistent trend over the world [3, 8, 23, 24,]. Such a consistent pattern is very important for policy makers to plan and implement successful programs for the prevention and reduction of sedentary time and increasing of PA at work or out of work in the population. Increased rate of inactivity in women has an adverse impact on children lifestyle. As Moore, *et al*, 1999 cited in [2], children whose mother is active is twice active than those whose mother is inactive, meaning that future health status of people health is determined by mothers lifestyle. It is well understood that influence of family lifestyle on young people is great to shape future generation, hence treating or intervening adult's lifestyle is also treating future generation.

Table 2: Gender of respondents * Lifestyle or PA category

Chi-Square Tests					
Gender	**Value**	**df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	**Exact Sig. (1-sided)**
Pearson Chi-Square	8.190[a]	1	.004		
Continuity Correction[b]	7.448	1	.006		
Likelihood Ratio	8.559	1	.003		
Fisher's Exact Test				.005	.003
Linear-by-Linear Association	8.168	1	.004		
N of Valid Cases	375				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.78.					
b. Computed only for a 2x2 table					

Relationships observed in the current study between PA and several socio-demographic variables. Lower income group and higher income group were found high sedentary compared with a middle-income group (87.1%, 83.6%, 75.6%; Lower, higher, and middle income respectively). Income association with PA in the current study reviled (x^2 (2) = 5.83, p = 0.05), which is statically significantly related with PA See table 3 below. Low-income association with PA is well known or a number of contemporary researches distinguished clearly [8, 11, 12, 14].

Table 3: Income of respondent * Lifestyle or PA category

Chi-Square Tests

Income	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.829[a]	2	.050
Likelihood Ratio	5.937	2	.051
Linear-by-Linear Association	.150	1	.699
N of Valid Cases	375		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.55.

The recent research carried out by Kim and Soon Korean adults, traditionally men were assumed to be a head of the household have the economic responsibility to support family, culturally similar as current study subjects reported that People that live in low-income households have greater difficulty being physically active compared with higher income people whereas middle-income earners participation in physical activity begins to increase and show a statistical relationship which is consistent with the current study. Several reasons mentioned for why low-income people become physically inactive were social and environmental barriers such as sports facilities, poor transportation services, poor neighbourhoods and traffic conditions, lack of exposure to social support related to exercise. These barriers affect other income groups as well but, the impact is much greater on low-income communities [11, 14]. Another study also quantified lowest income has more than a 30 % chance of doing no physical activity whilst those in the highest group have a less than a 10 % chance. The coefficient estimate shows that a one-log point increase in household income is associated with a 1.3 percent point's lower probability being physically inactive. In the same report individuals earning highest income are less likely inactive but with an exception because those who are working full-time are more likely to be inactive than those who spend less time working [12]. However, the results of present study shown high income (83.6%) group are high inactive than middle group (75.6%). If raise in income is related to increased physical activity, the reason behind why high-income group found high inactive compared with the middle-income group in the current study is unclear. However, most high-income earners in the current study are leaders or/and play political role in the organizations thereby performing several Intra and inter-organizational extended meetings in and out of work time, extra work burden, as the result luck of time to engage in physical activities, having access to transport facility supposed to facilitate work bourdon that can limit them moderate activity like walking, and the likes may be the cause for decreased PA which requires further research.

The relationship between PA and education is reported by previous studies [12, 13]. For example, Degree educated males and females only have a 12 % chance of being physically inactive, whilst those with no qualifications are three times as likely to be physically inactive [12]. The odds of engaging in PA were higher for individuals with high levels of education compared to individuals with less education (OR = 1.176, 95% CI = 1.137, 1.216) [13].

Regarding occupational responsibility the current findings also reviled leaders and non-professionals were high inactive compared with professionals (90%, 88%, 78%; non-professionals, leaders, and professionals respectively). Even though the detailed study is required, it is possible to suggest reasons behind why leaders that can be categorized in high income and education group become high inactive compared with a professional group based on the previous literature and current findings. Generally, non-professionals are a low level of education and low level of income supposed to be high sedentary or inactive because the current data and literature confirmed clearly [11, 12, 13, 14]. Leaders are also shown higher inactive than professionals due to aforementioned reasons like extra workload, extended meeting, lack of time, having access to using vehicle rather than walking etc can be major reasons to be inactive even they are high income and education group. Among demographic variables, Gender, income and education are consistently related with PA in literature and just the same trend is shown in the present study, but marital status, residence, occupational responsibilities are inconsistently related to PA and literature are scarce.

To the best of my knowledge, this is the first study of sedentary/ prevalence of inactivity among civil servants working in Ethiopia. Due to the reason, it was impossible to compare results with previous findings similarly aimed in the study area can be a limitation of this study. Another limitation is the use of the (subjective) self-report approach to assessing PA which is usually inherited to errors. However, this instrument is internationally accepted reliable validated measurement for cross-sectional study worldwide [18, 32, 33, 40]. Moreover, the finding of this study may not be generalized to the rural population because samples were taken only from urban-dwelling adults' full-time employee supposed to be at list literate or professionals working in civil organizations in Ethiopia. Besides limitations, this study has a number of strength such as The study used an appropriate tool for data collection, recruited representative samples proportional to geographical areas of the region etc. Mainly, it is a pioneer of its kind in the country and adds to the limited body of evidence thereby providing comparative data on sedentary behaviour PA/ lifestyle study in Ethiopia.

Conclusion:

The substantial finding of the prevalence of inactivity /sedentary is quite high among the population; particularly very higher inactivity was associated with women than men that need due public attention and intervention. Prevalence of inactivity was also gone higher as age increase. This inverse relationship of PA with age and gender observed consistent trend throughout the world. Lower income groups and higher income groups were found high sedentary compared with middle-income groups. Low-income association with PA is well known or a number of contemporary researchers distinguished clearly. The lower level of education was high inactive than a high level of education group. Leaders and non-professionals were found high inactive compared with professionals. Residing in Dilla was more inactive than residing in Soddo and Hawassa. Generally, the entire productive force of the region is exposed to the high risk of inactivity and associated health hazards. Especially women, low income and education groups, leaders are in severe condition. From the public perspective, the condition is an alarming warning risk that should not be seen easily and needs due public attention and intervention. Considering the long effect of inactivity increasingly burden the national economy and decreasing its prevalence is promoting and restoring healthy population [16], future researches and strategies aimed at promoting PA and reducing inactivity at work and out of work should also take into account.

Abbreviations

ALBD: Active Living by Design; AU: Andhra University; BPS: British psychological society; HEPA: Health-enhancing Physical activity; IPAQ: International physical activity questionnaire; METs: Metabolic equivalent times; MIPA: Moderate intensity physical activity; MVPA: Moderate-vigorous physical activity; NCDs: None communicable diseases; ND: No date; OR: Odds ratio; PA: Physical activity; SNNPR: South nation nationality people region; USA: United States of America; US: United States

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