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Intrapersonal Determinants of Sedentary Behavior Physical Activity among Civil Servants in Southern Ethiopia

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Abstract
Objectives: To identify and determine personal pressure limiting people to participate in physical activity or influencing to sit too much. **Methods:** The study was a cross sectional survey conducted in SNNPR region in the year 2015 in Ethiopia. Stratified cluster sampling method was employed to select 375 representative samples ranging from18 - 65 years old adults 59.7% men and 40.7% women. The amount of error can be tolerated, that is with margin error of 5%, 95% confidence level and 50% response distribution. IBM SPSS Statistics version 20 was used to analyze descriptive and inferential data. Data were collected using self reporting intrapersonal (individual) determinants such as self efficiency, attitudes towards PA, and biological questions and analyzed using Chi-square test to evaluate association between gender and self efficiency. Crosstab was employed to describe relationship between IDV and DV and also A multiple regression model was run to see the predictability of IDV on DV. Kruskal wallis H test was used to see whether differences are exist in between demographic factors and biological determinants. **Result:** Attitude towards PA and self efficiency cannot be considered as intrapersonal determining factors where as overall biological factors found significant determinants of SB PA. Statistically significant difference observed in between biological factors and some demographic factors. **Conclusion:** Education awareness and intervention to fight SB and promote PA is highly needed to enhance people health and enjoyable life thereby overcoming intrapersonal determinants beside interpersonal determinants.
Keywords: Intrapersonal, Interpersonal, Determinants, Sedentary Behavior, Physical Activity

Background

Age, ethnicity, gender, race/ethnicity, body mass index, income, socioeconomic status, marital status are considered as biological and demographic factors having well documented associations with various determinants PA among adults, particularly age and gender are the most reliable associates with PA[2].

Evidence shown that SB generally increases consistently with age increase but, the rise is very sharp or high from the age of 70 onwards. Though it may be difficult to setup whether men or women are more generally sedentary, evidences revealed Women are more sedentary than men up the age of 40 years and men are more sedentary than women on the age of 60 and above [25]. Socioeconomic characteristics of a population expressed statistically, such as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage [2, 24] A census is a collection of the demographic factors associated with every member of a population. SB like TV viewing have been examined several times and independent association between age, gender, ethnicity, socioeconomic status, marital status, parental bodyweight, maternal depressive symptoms were found among people [24].

Inverse relationship between age and PA (the older the age, the lower in PA or the higher sedentary) and female likelihood of being less active or more sedentary is well studied [3, 5, 12, 15,] Low income association with PA is well known or number of contemporary researches distinguished clearly [1, 7, 8, 12].The relationship between PA and education is reported by previous studies [4, 8]. 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 [8]. 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) [4]. Most studies examined the association between screen-based SB and weight status [17]. Even though evidences are inconsistence, or disparities are observed in data, demographic factors are necessary factors to influence SB or limit PA. So that understanding demographic characteristic of a given population is key factor in the processes of intervention of SB.

Among intrapersonal factors, behavioral factors are important factors influence to sit too much or to decrease participation on physical activity. As chasten explained, Physical complaints such as Pain felt in the standing position, fatigue experienced while standing and functional limitations which make standing difficult were appeared to be the main personal reasons that people would sit down [19]. As it has been supported by studies, Individual factors such as perceived enjoyment, self-discipline, time and convenience have potential to influence both physical and sedentary activities [22]. If people do not see sitting as an unhealthy behavior, but rather as a positive coping strategy which enables them to remain functional, comfort and independent, or believe sitting as a way of managing chronic disease symptoms, such as pain and stiffness, renewing or conserving energy levels and making life easier and more enjoyable [19], it will be difficult to participate people

in sedentary reducing activities or impossible to implement strategies to reduce sitting time aimed to overcome health effects that can kill people. Therefore working to change the attitude, belief, developed pattern of life style, etc... Of the population should be the priority step in intervention program. According to BROCHADO, et al; attitudes, barriers to exercise, control over exercise, enjoyment over exercise, expected benefits, health locus of control, intention to exercise, knowledge of health and exercise, lack of time, mood disturbance, normative beliefs, perceived health or fitness, personality variables, body image, psychological health, self-efficacy, self motivation, stage of change, stress, value of exercise outcomes are considered as Psychological, cognitive, and emotional factors whereas activity history during childhood/youth, activity history during adulthood, alcohol, contemporary exercise program, dietary habits, past exercise program, process of change, school sports, skilled for coping with barriers are considered as behavioral attributes and skills [2].

Methods

Study design and population

The present study is observational study in which naturalistic observation survey merely used to collect descriptive information namely cross-sectional survey study. Cross-sectional study assesses the popularity of cases among the community that involves data collection from a random sample representative subsets at one specific point in time [11, 23]. The study was conducted in central part of **SSNPR (**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 38 governmental offices. Governmental organizations in the region structured in 14 administrative zones, 4 special woredas, Regional burros and Hawassa municipality each comprises nearly 38 admin sectors and 38 municipality offices [20]. Among, three largest zonal Towns called Hawassa, Wolita Soddo, and Dilla situated in the central part of the region were the study population. Particularly regional Town Hawassa involved Sidama zone admin offices, Sidama zone sector offices, Hawassa municipality, and regional burros which accounted 82.1% of the study population. 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 or residing Town. Samples were randomly selected and all members of selected burro/ office/ clusters have been included in survey considering the proportionality of the stratum. Sample size estimate was determined by the use of Rao sample size calculating software which was online survey conducting method [14] 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 [16, 18]. The amount of error can be tolerated, that is with margin error of 5%, 95% confidence level and 50% response distribution [18]. The tool used to collect data was Self-reporting intrapersonal determinants such as self efficiency, attitude towards PA and biological factors assessing questions. Data collecting procedure was manual and questions were distributed and collected contacting each sample burro/office face to face wondering each office in the working days by the help of trained professionals. The response and completion rate was 83% and 95% respectively. 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.

Assessing intrapersonal determinants

Intrapersonal determinant assessing questions are questions that involve intrapersonal (individual) factors like self efficiency, attitudes towards PA, biological factor that hinder people to participate in PA and sit too much. Self efficiency questions involve 'I can be physically active during my free time on most day', 'I can be physically active during my free time on most days no matter how busy my day is', 'I can be physically active during my free time on most days even if it is very hot or cold outside'. Attitudes towards PA involves 'Doing PA in free time is not waist of energy and time', 'Physical activity is part of my life just like eating & drinking', 'When I am physically active', 'It gives me energy, 'Physical activity is interesting for me', and biological factor that are personal reasons people prefer sitting rather standing or moving such as 'I feel pain when i stand', 'I exercise fatigue when I stand', 'There are jobs that I cannot perform standing'. Participant requested to level their feeling and practice on the given five options or Likert-scales. Likert-scales were commonly used in survey research often to measure respondents' attitude by asking the extent to which they agree or disagree with a particular question or statement. A typical scale might be "Strongly agree, agree, undecided, disagree, strongly disagree" may seem easy to analyze data. Both; self efficiency, attitudes and biological factors questions were positive five level likert-scales items requires leveling respondent's agreement or disagreement. Criteria to determine self efficiency, attitudes and biological factors of an individual is based on the sum score of agreed and disagreed response. If the sum of agreed and strongly agreed frequency is more than the sum of disagree and strongly disagree, an individual is considered as self efficient, having positive attitude towards PA and biological factors are considered as determinants of PA and if the sum of agreed and strongly agreed frequency is less than the sum of disagree and strongly disagree, an individual lack self efficiency, lack positive attitude and biological

factors are not considered as determinants of PA corresponding to each item.

The quality of the instrument was tested using those who were not a part of sample population participated to measure the pilot questionnaires and reliability; validity was tested using test method Alpha Method Using SPSS Version 21 (Cronbach's Alpha). The value of Cronbach's Alpha were found (6.95) which is quit high Reliability and validity also validity was assessed using persons product moment correlations and the significant value of all items were revealed in between (0.00) and (0.048) which is < 0.05 interpreted as all items are valid or significantly associated [21].

Demographic and other variables

Sex, Age, Height, Weight, Education, Income, Marital status, Responsibility, and Residence were considered independent variables. Age category was 18-30, 31- 40, 41- 50 and 51 – 65 years old [15], education was categorized in four (High school & below, College Diploma, Degree, Masters, PhD and above), Income was leveled 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 leveled as low income group. Also marital status is categorized in to four (Married, Unmarried, Divorce, Others), Occupational responsibility was classified in three (Leader, Professional and None), residence is categorized on the base 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 [9].

Statistical Analysis

Chi-square test was performed to evaluate association between gender (dichotomous independent demographic variable) and self efficiency (I can be active in my free time, I can be active even I'm so busy and I can be active in any weather condition). Crosstab from Chi-square test was described and summarized the relationship between two categories of attitude (positive or accept, and negative or reject) towards PA in respect to some demographic variables (gender, age, education and income) and the statistical significant association between demographic variables and attitude towards PA was explored. A multiple regression model was used to see whether some categorical or/and continuous demographic variables predicted the DV attitude towards physical activity. Kruskal wallis H test called "one way ANOVA on rank " is a rank based non parametric test used to determine if there are statistically significant difference between two or more groups of demographic variable (IDV) on an ordinal DV (Biological factors) was run.

Result

Self efficiency

Self efficiency was assessed using likert-scales with five level (Strongly agree, Agree, Neutral, Disagree, Strongly disagree) to discover respondents self efficiency towards physical activity. To distinguish agreed and disagreed group, agreed and strongly agreed group was summed and considered accepted group and disagreed and strongly disagreed groups was summed and considered as rejected group while undecided group kept as it is abstain group. Chi-square test was performed to evaluate association between gender (dichotomous independent variable) and self efficiency (I can be active in my free time, I can be active even I'm so busy and I can be active in any weather condition) see table 2. As we can see the descriptive statistic shown below in cross tabs table 1, Collectively 241.3 (64.4%) of respondents responded or achieved self efficiency status and 109.1 (29.2%) were rejected or leveled lack self efficiency whereas 24 (6.4%) were neutral or undecided in self efficiencies questions. Men found more self efficient than women 42.7% and 21.7% respectively.

Chi-square (pearsons chi-square) revealed difference in between genders and χ (2) = 18. 459, p = 0.000, χ (2) = 16. 267, p = 0.000 and χ (2) = 12. 211, p = 0.002 respectively to being active in free time, being active on most days even busy and active even hot or cold. The result tells as that there were statistically significant association was discovered in between gender and self efficiency and over all self efficiency was independent of gender and differences in between gender is also significant. Systematic measure Nominal by Nominal (phi) explained the strength of association in between gender and self efficiency. Accordingly, positive moderate association was revealed in both being active in free time and being active on most days even busy with value of (0.222), (0.208) and also weak positive relationship was obtained in being active even hot or cold (0.180). Generally, self efficiency was identified as not the problem of the people or self efficiency cannot be considered as a determining factor for PA in the study area.

Table 1 Crosstabs descriptive statistics for self efficiency

	Gender		Self efficiency status			Total
			Self efficient	Abstain/ undecided	Lack self efficiency	
I can be active in my free time	male	Count	177_a	7	38_b	222
		% Total	47.2%	1.9%	10.1%	59.2%
	female	Count	92_a	15	64_b	153
		% Total	24.5%	4.0%	12.3%	40.8%
I can be active even so I'm busy	male	Count	161	10	51	222
		% Total	42.9%	2.7%	13.6%	59.2%
	female	Count	81	17	55	153
		% Total	21.6%	4.5%	14.7%	40.8%
I can be active in any weather	male	Count	142	14	66	222
		% Total	37.9%	3.7%	17.6%	59.2%
	female	Count	71	19	63	153
		% Total	18.9%	5.1%	16.8%	40.8%
Average	male	Count	160	7	48.7	215.7
		% Total	42.7%	1.9%	13%	57.6%
	female	Count	81.3	17	60.7	159
		% Total	21.7%	4.5%	16.2%	42.4%
Total	Male+ female	Count	241.3	24	109.4	375
		% Total	64.4%	6.4%	29.2%	100%

Table 2 Chi-square test for gender and self efficiency.

Pearsons Chi-Square Tests				Symmetric Measures	
Dependent variable	Value	df	Asymp. Sig. (2-sided)	Nominal by Nominal Phi value	Approx. Sig
I can be active in my free time	18.459[a]	2	.000	.222	.000
I can be active even so I'm busy	16.267[a]	2	.000	.208	000
I can be active in any weather	12.211[a]	2	.002	.180	.002

a. 1 cells (8.3%) have expected count less than 5 The minimum expected count is 2.88 a
a. Not assuming the null hypothesis. a
b. Using the asymptotic standard error assuming the null hypothesis'

Attitude

Five level likert-scales (Strongly agree, Agree, Neutral, Disagree, Strongly disagree) was used to discover respondents attitude towards physical activity with four positive questions and descriptive statistic revealed 283.75 (75.67%) of response found in the positive or agree side and 74.75 (19.9%) were disagreed while 16.5 (4.4%) were neutral group. This positive indicator or agreed side indicates that their attitude towards physical activity is good and cannot be considered as a determining factor. Crosstab from Chi-square test was described and summarized the relationship between two categories of attitude (positive or accept, and negative or reject) towards PA in respect to some demographic variables (gender, age, education and income), see table 3 and 4. And the statistical significant association between demographic variables and attitude towards physical activity was explored. Accordingly, men found better than women in having positive attitude towards physical activity (65.8%, 60.1%) respectively. 18-30 and 31-40 age group were revealed having better attitude (66.0% and 70.6%) whereas 51-65 age group found with decreased attitude towards physical activity (45.0%) respectively. Positive attitude towards physical activity increased with increased educational status (40.0%, 56.9%, 67.2% and 66.0%) in high school & below, diploma, degree and masters respectively. High school & below education group were the group with hampered attitude towards physical activity (40.0%). Middle income group was found with better attitude (67.8%) compared with high income group (62.7%) and low income group (55.3%). Based on the finding discovered lack of attitude towards physical activity was not a factor that determined people to not participate in physical activity. However enhancing attitude towards physical activity needed high intervention for women and old adults. Also educating people and increasing living status (income) is the most important means to increase physical activity and decrease SB.

Table 3. Summary of descriptive statistics for personal attitude towards PA.

Questions	Strongly agree & agree		Neutral		Strongly disagree & disagree	
	count	percent	count	percent	count	percent
it gives me energy	293	78.1%	13	3.5%	69	18.4%
It is interesting	304	81.1%	14	3.7%	57	15.2%
It is not waist of energy and time	304	81.0%	15	4.0 %	56	14.9%
It is part of my life	234	62.4%	24	6.4%	117	31.1%
Total	1135		66		299	
Average	283.75	75.67%	16.5	4.4%	74.75	19.9%

Table 4. Personal attitude towards physical activity cross tab.

Crosstab

			Personal attitude towards PA		
			Positive or accept	Negative or reject	Total
Gender	male	Count	146_a	76_a	222
		% within Gender	65.8%	34.2%	100.0%
	female	Count	92_a	61_a	153
		% within Gender	60.1%	39.9%	100.0%
Age	18-30	Count	66_a	34_a	100
		% within Age	66.0%	34.0%	100.0%
	31-40	Count	96_a	40_b	136
		% within Age	70.6%	29.4%	100.0%
	41-50	Count	58_a	41_a	99
		% within Age	58.6%	41.4%	100.0%
	51-65	Count	18_a	22_b	40
		% within Age	45.0%	55.0%	100.0%
Educational status	High school & below	Count	10_a	15_b	25
		% within Educational s	40.0%	60.0%	100.0%
	Diploma	Count	37_a	28_a	65
		% within Educational s	67.2%	32.8%	100.0%
	Degree	Count	160_a	78_b	238
		% within Educational s	67.2%	32.8%	100.0%
	Masters	Count	31_a	16_a	47
		% within Educational s	66.0%	34.0%	100.0%
Income	High Income	Count	69_a	41_a	110
		% within Income	62.7%	37.3%	100.0%
	Middle income	Count	122_a	58_a	180
		% within Income	67.8%	32.2%	100.0%
	Low Income	Count	47_a	38_a	85
		% within Income	55.3%	44.7%	100.0%

Each subscript letter denotes a subset of self efficiency status categories whose column proportions do not differ significantly from each other at the .05 level.

A multiple regression model was used to see whether some categorical or/and continuous demographic variables (gender, age, education income, height and weight) predicted the dependent variable (attitude towards physical activity) see table 5. The model was good fit for gender and age to predict mean attitude towards physical activity $F(6, 367) = 3.376$ $p < 0.05$ R^2 and meaning that for one unit change in gender, there is 0.283 increase in attitude towards physical activity and for one unit increase in age, there is 0.123 increase in attitude towards physical activity.

Table 5. Multiple regressions for mean attitudes versus gender and age.

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.218	6	2.536	3.376	.003[b]
	Residual	275.705	367	.751		
	Total	290.923	373			

a. Dependent Variable: Average mean attitude score

b. Predictors: (Constant), Income of respondent, Height of respondents, Age of respondents, Educational status, Weight of respondents, Gender of respondents

Coefficients a

Model		Un standardized Coefficients		Standardized Coefficients			95.0% C I for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	Gender	.283	.133	.158	2.121	.035	.021	.545
	Age	.123	.054	.134	2.292	.022	.017	.229

Dependent Variable: Average means attitude score.

Biological factors

Biological factors assessed by three negative questions in five level likert-scales. 216 (57.69%) were agreed the questions while 149.7 (39.92%) were found in disagreed group and only 9 (2.4%) were neither agree nor disagree group. So that majority of response lay on accepted group and as the result biological factors can be considered as determining factors of physical activity, see table 6. Cross tabulation was used to examine the descriptive distribution and the relationship between biological factors and response category (agreed and disagreed group) in respect to some demographic variables (gender, age, education and income). Women were consistently found more affected by overall biological factors than men with in gender presented in table 7. Feeling of pain while standing was higher in women than in men respectively (52.9%, 44.6%). Experiencing fatigue while standing was revealed more serious in women than in men (59.4%, 52.7%). Most women (73.8%) and (66.6%) of men were confirmed or agreed that they cannot perform jobs unless they were sitting. In general, among biologic factors jobs cannot be performed standing were confirmed by both men and women more than feeling of fatigue and pain while standing. Feeling of pain while standing was revealed consistently increased with age increase. (38.0%, 44.1%, 56.6% and 66.0%) corresponding to 18-30, 31-40, 41-50 and 51-65 age group in that order. Experiencing fatigue also found increase with age increase steadily (43.0%, 54.4%, 64.6%, 67.5%) 18-30, 31-40, 41-50 and 51-65 respectively. Jobs cannot be performed standing was confirmed very high (86.8%) in 41-50 age group and it also discovered increase with age increase (59.0%, 71.3%, 72.5%) 18-30, 31-40, 51-65 correspondingly. Generally increase in overall biological factors absorbed consistently with age increase.

Education is concerned; overall biological factors (Feeling of pain while standing, experiencing fatigue while standing and Jobs cannot be performed standing) were consistently decreased as educational status increased in opposite direction. Low level of educational status was corresponded with high level of biological factors. Biological factors also revealed consistent decrease with income increase. The only group whose response was almost equal in agreed (49.3%) and disagreed (49.0%) category was income group.

Table 6 summary descriptive statistics for biological factors.

Question	Strongly agree & agree		Neutral		Strongly disagree & disagree	
	Count	percent	Count	percent	Count	percent
Pain	118	48.0%	7	1.9%	118	50.1%
Fatigue	208	55.5%	5	1.3%	162	43.2%
Jobs	261	69.6%	15	4.0%	99	26.4%
Total	649	163.1%	27	7.2%	449	119.7%
Average	216.33	57.69%	9	2.4%	149.7	39.92%

Table 7 Crosstabs for some demographic and biological factors

Crosstabs

DV	**gender**		Str-	Un	Agree	Total
I feel pain when I stand	Male	% within Gender	52.7%	2.7%	44.6%	100.0%
	Female	% within Gender	46.4%	0.7%	52.9%	100.0%
	Average	% within Gender	49.55%	1.7%	48.75%	100.0%
I exercise fatigue when I stand	Male	% within Gender	45,9%	1.4%	52.7%	100.0%
	Female	% within Gender	39.2%	1.3%	59.4%	100.0%
	Average	% within Gender	42.55%	1.35%	56.05%	100.0%
jobs that I cannot perform standing	Male	% within Gender	28.8%	4.5%	66.6%	100.0%
	Female	% within Gender	22.8%	3.3%	73.8%	100.0%
	Average	% within Gender	25.8%	3.9%	70.2%	100.0%
	Age					
I feel pain when I stand	18-30	% within Age	61.0%	1.0%	38.0%	100.0%
	31-40	% within Age	52.2%	3.7%	44.1%	100.0%
	41-50	% within Age	43.4%	0.0%	56.6%	100.0%
	51-65	% within Age	32.5%	2.5%	66.0%	100.0%
	Average	% within Age	47.28	1.80%	51.18%	100.0%
I exercise fatigue when I stand	18-30	% within Age	54.0%	3.0%	43.0%	100.0%
	31-40	% within Age	44.1%	1.5%	54.4%	100.0%
	41-50	% within Age	35.4%	0.0%	64.6%	100.0%
	51-65	% within Age	32.5%	0.0%	67.5%	100.0%
	Average	% within Age	41.5%	1.13%	57.38%	100.0%
jobs that I cannot perform standing	18-30	% within Age	36.0%	5.0%	59.0%	100.0%
	31-40	% within Age	23.5%	5.1%	71.3%	100.0%
	41-50	% within Age	26.2%	1.0%	86.8%	100.0%
	51-65	% within Age	22.5%	5.0%	72.5%	100.0%
	Average	% within Age	26.05%	4.03%	69.90%	100.0%
	Education					
I feel pain when I stand	H/school	% within Educ.	24.0%	0.0%	76.0%	100.0%
	Diploma	% within Educ.	43.1%	0.0%	56.9%	100.0%
	Degree	% within Educ.	52.5%	2.9%	44.6%	100.0%
	Masters	% within Educ.	61.7%	0.0%	38.3%	100.0%
	Average	% within Educ.	45.33%	0.73%	53.95%	100.0%
I exercise fatigue when I stand	H/school	% within Educ.	20.0%	0.0%	80.0%	100.0%
	Diploma	% within Educ.	43.0 %	1.5%	55.4%	100.0%
	Degree	% within Educ.	43.7%	1.7%	54.4%	100.0%
	Masters	% within Educ.	53.1%	0.0%	46.8%	100.0%
	Average	% within Educ.	39.95%	0.8%	59.23%	100.0%
jobs that I cannot perform standing.	H/school	% within Educ.	20.0%	4.0%	76.0%	100.0%
	Diploma	% within Educ.	24.6%	4.6%	70.8%	100.0%
	Degree	% within Educ.	27.7%	3.8%	68.5%	100.0%
	Masters	% within Educ.	25.5%	4.3%	70.2%	100.0%
	Average	% within Educ.	24.45%	4.18%	71.38%	100.0%
	Income					
I feel pain when I stand	High	% within Income	53.6%	0.9%	54.5%	100.0%
	Middle	% within Income	52.2%	1.7%	50.5%	100.0%
	Low	% within Income	41.2%	1.2%	67.1%	100.0%
	Average	% within Income	49.0%	1.73%	49.3%	100.0%
I exercise fatigue when I stand	High	% within Income	44.6%	0.9%	54.5%	100.0%
	Middle	% within Income	47.7%	1.7%	50.5%	100.0%
	Low	% within Income	31.8 %	1.2%	67.1%	100.0%
	Average	% within Income	49.0%	1.73%	56.36%	100.0%
jobs that I cannot perform standing	High	% within Income	28.1%	3.6%	68.1%	100.0%
	Middle	% within Income	27.3%	5.0%	67.8%	100.0%
	Low	% within Income	22.4%	2.4%	75.3%	100.0%
	Average	% within Income	25.93%	3.67%	70.4%	100.0%

Kruskal wallis H test called “one way ANOVA on rank “is a rank based non parametric test used to determine if there are statistically significant difference between two or more groups of an independent variable (gender, age, education, income, occupational responsibility, marital status and residing town) on an ordinal dependent variable likert-scales (Biological factors) was run shown in table 8. A Kruskal wallis H test showed that there was statistically significant difference in Feeling of pain while standing, Experiencing fatigue while standing between gender, age, education and marital status and also differences in income group was revealed between experiencing fatigue while standing. However there was no statistically significant difference observed

between overall biological factors and occupational responsibility and residing town P > 0.05. Statistical differences in between gender, age, education, marital stat and income explained as follows. Pain while standing X^2 (1) = 5.848, p = 0.049 with a mean rank point score of (male 179.21 female 200.75), fatigue while standing X^2 (1) = 5.848, p = 0.016 with a mean rank point score of (male 177.32 female 230.50). Significant difference among age in respect to Pain while standing revealed X^2 (3) = 9.564, p = 0.023 with a mean rank point score of (167.94, 181.98, 206.76, 212.19 corresponding to 18-30, 31-40, 41-50, 51-65) age group respectively and fatigue while standing X^2 (3) = 9.639, p = 0.022 with a mean rank point score of 165.37, 185.66, 209.22, 200.01 corresponding to 18-30, 31-40, 41-50, 51-65) age group. Education concerned, Pain while standing shown X^2 (3) = 15.440, p = 0.001 with a mean rank point score of (249.18, 207.96, 181.75 and 159.48 respectively to High school & below, Diploma, Degree and Masters) and fatigue while standing X^2 (3) = 11.289, p = 0.010 with a mean rank point score of (244.24, 198.05, 184.44 and 162.23 corresponding to High school & below, Diploma, Degree and Masters). Statistical difference between income group was observed only in fatigue while standing X^2 (2) = 6.194, p = 0.045 with a mean rank point score of 178.83, 182.122, 12.32 in that order of High, Middle and Low Income group. Among marital status, statistically significant difference was obtained in between overall biological factors. Accordingly, Pain while standing X^2 (3) = 11.539, p = 0.009 with a mean rank point score of (197.49, 160.58, 192.17 and 241.25 in respect to Married, Single, Divorce and Other) and fatigue while standing X^2 (3) = 9.079, p = 0.028 with a mean rank point score of (197.83, 162.53, 186.33 and 209.06 corresponding to Married, Single, Divorce and Other) and Job cannot perform standing X^2 (3) = 9.622, p = 0.022 with a mean rank point score of (197.26, 164.09, 239.17 and 167.19 corresponding to Married, Single, Divorce and Other).

Table 8 Kruskal wallis H test for demographic factors versus Biological determinants

Grouping Variable b	Test	I feel pain when i stand	I exercise fatigue when I stand	jobs that I cannot perform standing
Gender	Chi-Square	3.886	5.848	2.211
	df	1	1	1
	Asymp.Sig.	0.049	0.016	0.137
Age	Chi-Square	9.564	9.639	6.393
	df	3	3	3
	Asymp.Sig.	0.023	0.022	0.094
Education	Chi-Square	15.440	11.289	.219
	df	3	3	3
	Asymp.Sig.	0.001	0.010	0.975
Income	Chi-Square	4.819	6.194	1.851
	df	2	2	2
	Asymp.Sig.	0.090	.045	0.396
Marital Status	Chi-Square	11.539	9.078	9.622
	df	3	3	3
	Asymp.Sig.	0.009	0.028	0.022

a. Kruskal Wallis Test [a]

Mean Rank

Grouping Variable	Groups	I feel pain when i stand		I exercise fatigue when I stand		jobs that I cannot perform standing	
		N	Mean Rank	N	Mean Rank	N	Mean Rank
Gender	male	222	179.21	222	177.32	222	181.46
	female	153	200.75	153	203.50	153	197.48
Age	18-30	100	167.94	100	165.37	100	167.41
	31-40	136	181.98	136	185.66	136	192.93
	41-50	99	206.76	99	209.22	99	202.69
	51-65	40	212.19	40	200.01	40	186.35
Education	High school	25	249.18	25	244.24	25	191.44
	Diploma	65	207.96	65	198.05	65	192.15
	Degree	238	181.75	238	184.44	238	187.31
	Masters	47	159.48	47	162.23	47	183.95
Income	High	110	177.19	110	178.83	110	179.88
	Middle	180	184.71	180	182.12	180	187.32
	Low	85	208.95	85	212.32	85	199.94
Marital Status	Married	256	197.49	256	197.83	256	197.26
	Single	105	160.58	105	162.53	105	164.09
	Devours	6	192.17	6	186.33	6	239.17
	Others	8	241.25	8	209.06	8	167.19

Discussion

To summaries the finding discovered, most respondents responded or achieved criteria for self efficiency status except a few. There were statistically significant association was discovered in between gender and self efficiency and over all self efficiency was independent of gender and a difference in between gender is also significant. Majority of response lay in the positive side and minority were disagreed while only (4.4%) were neutral group. This indicates that their attitude towards PA is good or positive and cannot be considered as a determining factor. Men found better than women in having positive attitude towards physical activity. Age concerned, attitude towards PA found increase with age increase up to 50 and dramatic decrease of attitude recorded after 51age. Also Positive attitude towards physical activity increased with increased educational status. More than half respondents confirmed biological factors are important determinants of SB PA. Women were consistently found more affected by overall biological factors than men with in gender; however, most of both men and women confirmed they cannot perform jobs unless they were sitting. Feeling of pain while standing and experiencing fatigue while standing was revealed consistently increased with age increase and Jobs cannot be performed standing was found consistent with age increase but higher in 41-50 age group. Generally increase in overall biological factors absorbed consistently with age increase. Overall biological factors also revealed consistent decrease with income and education increase. Low level of income and low level educational group was highly affected by biological factors.

As Chasten explained, Physical complaints such as Pain felt in the standing position, fatigue experienced while standing and functional limitations which make standing difficult were appeared to be the main personal reasons that people would sit down[7]Chastin, 2014) was similarly appeared in this study under biological factors. Among biological (demographic) factors, particularly age and gender are the most reliable associations with various determinants of physical activity among adults [2] is similar report to this study.

The influence of biological factor is more in low level of education is supported by various previous literatures [4, 8]. 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 [8]. The odds of engaging in PA were higher for individuals with high levels of education compared to individuals with low education (OR = 1.176, 95% CI = 1.137, 1.216) [4] is similar trend with the current study.

Self efficiency and attitude towards PA failed to be considered as intrapersonal determinants is a strange result need due emphasis to explain the reason behind. SB PA study conducted in the same population reported that 81.5% of the study subjects were revealed inactive which were failed to achieve recommended level of PA [10]. If they are self efficient and have positive attitude towards PA that they are able to confirm 'I can be active in my free time'; 'I can be active even so I'm busy'; 'I can be active in any weather' and 'PA gives me energy'; 'It is part of my life'; 'It is not waist of energy and time'; It is interesting, how could they be inactive? Is the question must be answered. It seems contradicting each other. This might be due to response biases of respondent. Leveling oneself inefficient and having negative attitude may be thought as opposing oneself or/and sense of psychological failure. Due to the reason people can pretend them self as they are self efficient and have positive attitude towards PA. However, such magnificent disparity needs deep search and strategies by considering overall related factors.

Even though the research is exploratory research that is conducted in the condition where there is no or few earlier study in the country is strong side; limitation of studies to refer to comparing result can be taken as limitation of this study. In addition, self efficiency, attitude and biological factors assessing tools consisted limited amount of measures or questions that may affect deep assessment on determinants are some limitations of the study.

Conclusion

Identifying determinants mainly help to set strategies corresponding to discovered determinants to improve public health thereby reduce sitting time and promote PA in daily life base. Moreover, creativity during setting strategies and intervention can result success in particular program. Even though the result of this study or majority of response explained lack of self efficiency and people attitude towards PA are not be considered as determinants of PA SB, still un ignorable population observed lack of self efficiency and hampered attitude towards PA needs to upraise their attitude and self efficiency aside with discovered biological determinants. If we ignore to overcome these determinants to promote PA, the population is subjected to run inactive life style or SB which have notable impact on health, economy, social and political afire of the country. If we intervene the consequences are vice-versa. Despite the significant contribution of environmental, social or external factors to influence PA, internal or personal factors are the priority important and low cost compared with environmental or building infrastructure to uplift PA. Education awareness and intervention to fight SB and promote PA is highly needed to enhance people health and enjoyable life thereby overcoming intrapersonal determinants beside interpersonal determinants. Moreover, farther deep search is mandatory to understand health statues, Life style of population in relation to promote PA.

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