ENVIRONMENTAL AND INTERPERSONAL DETERMINANTS OF SEDENTARY BEHAVIOR PHYSICAL ACTIVITY AMONG CIVIL SERVANTS IN SOUTHERN ETHIOPIA

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Abstract

Objectives: To determine environmental and Interpersonal factors potentially influencing people to sit much or to not participate in physical activity.

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% (222) men and 40.7% (150) 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 data. Data were collected using self reporting availability of environmental supports and interpersonal factors questionnaires. Chi-square test, Crosse tabulation, A multiple regression Kruskal wallis H test was employed to compute descriptive and inferential statistics. **Result:** Environmentally supportive factors in residing area were absent confirmed by mass of the population. There was no statistically significant association between genders was seen except for community program and for health clubs. Family and culture such as unlimited time of watching TV, using taxi rather walking, inactive in recreational time, culture, lack of family advice, support, and facilitation was found the interpersonal factors confirmed by more than 75% that discouraged to move, walk, engage in PA. **Conclusion:** Urban policies addressing neighbourhood environmental features or facilitating the implementation of national public physical activity recommendations should be revised for sustainable public use thereby building walking ways along the street, green areas can

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be used to PA, active recreational places, parks that attract participation in PA, promoting the investment of gymnasiums and fitness centres and the likes should be incorporated in urban plan in government level.

Key words: Determinants, Sedentary Behavior, Physical Activity, Civil Servants Environmental, Interpersonal.

Background:

Increasingly, sedentary behaviours are environmentally-driven and ubiquitous [7]. Among various determinants, one of the most important influencing factors of physical activity or SB which is not understood largely is environmental factor that should be focused through public health intervention [10].The physical or built environment plays a great role which can be leveled number one to influence every kinds of people group and environmental attributes and their associations with PA behaviors were a major research area of public health research in the past decade [4]. Public health goals related to physical activity are achieved by strategies aimed at changing physical and socio political environments, but among other influences, physical environment are the least studied type of influence on physical activity particularly [16]. Studies indicated that participants compliant about their surrounding environment are that it does not offer adequate stimuli to encourage them to stand up or enough facilities to allow them to be active [18]. Every people exposed to the environment are beneficial from the nearby environment. Environmental and policy approaches complement behavior and lifestyle modification strategies. Therefore focusing on environment rather than changing the behavior of an individual at a time is more advantageous approach [16].

Environmental factors can be evaluated in Individual Level: (Time, Motivation, Health), Social Environment Level: (Culture, Social Connections, Social Access), Physical Environment Level: (Built Environment and Active, Transportation, Physical Access, Natural Environment) that might influence participation in PA should keep in mind when developing PA programs and opportunities [2]. Under physical environment level, natural environment includes Natural settings: (parks, nature trails, rivers, lakes, and green space), Climate: (temperature, precipitation, and wind) Topography: (landscape, trees, mountains, hills, prairies, and woods), Air and air

quality: (clear air, exhaust fumes and pollution, and allergens) are known determinants of physical activity [2]. Socioeconomic, political, cultural, daily living conditions and Individual health are considered as social determinants of PA and SB that can influence participation in PA and SB of attractive neighborhoods or availability of opportunity to involve in physical activity that can be created by urban design policies can invite or encourage people to participate in activities [8].

Culture under social environment is a significant determinant of SB or PA in the community. We need to pay attention to how we think or feel about other people and how these beliefs will influence our actions towards them. If we are aware of our biases—which are a part of our own cultural makeup—we can reduce the barriers that keep us from understanding each other. Culturally appropriate programs and messages can be very beneficial. However, be cautious about further segmentation of cultural groups. Every culture and individual is unique; we can't say this is right and that is wrong culture, rather understanding and being strategic full accordingly is advantageous [2].

As Hoebeke, Mansfield, and Caperchione et al, sited in Alberta Centre for Active Living 2010, For example, some cultures accept that men participate in sports, but that women do not, rather women are responsible for taking care of the home and children. Taking time away from these tasks for recreational or leisure physical activity is deemed inappropriate or seen as selfish, some types of physical activity are valued more than others (Household chores and physical labor are not considered physical activity in the same way as recreational and leisure activities), In North America, few people walk to do every day jobs, etc... are positive or negative attitudes people already developed. In some cultures, clothing requirements can restrict involvement in physical activity, e.g. Women must wear skirts or a hijab and Men must wear a turban, Some religious practices and holidays may affect an individual's ability to participate in scheduled programs e.g. Many Muslim men and women pray regularly throughout the day. A scheduled physical activity program may not be able to accommodate this time constraint are some expectations from culture Caperchione et al, as sited in (ACAL). From the perspective of health, still there are misconceptions exists. E.g. to be thin is to be healthy in some culture whereas in other cultures do not associate thinness with health. Also ACAL sited Thompson et al and explained that some

culture sweating and heavy breathing are considered unhealthy and should be avoided, good health and longevity are left "in the hands of a higher power" [1].

In addition to physical environmental supports, the family and peer environment affects levels of physical activity or SB at large. Family factor refers to the verbal or nonverbal forms of encouragement for PA directly and indirectly. Direct support involves logistic supports such as facilitating (providing transportation, paying enrolment fees for activities) where as indirect support involve encouragement by increasing perceived competence [5]. PA and SB can be determined by both structural (socioeconomic, political and cultural contexts) and individual (motivation, self-efficacy, perceived barriers such as cost, lack of time) factors. Influences are multi factorial across social, individual and environmental [8]. Also class size, exercise models, group cohesion, past family influences, physical influence, social isolation, social support from friend/ family are basic social determinants of PA and SB that many studies explored positive relationships between PA behavior and social support from family, friends, peers and program staff in supervised settings [3].

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 [21, 11]. 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 [19]. 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 [13,] 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 [15, 17]. The amount of error can be tolerated, that is with margin error of 5%, 95% confidence level and 50% response distribution [17]. The tool used to collect data was Self-reporting environmental and interpersonal determinants assessing questions. Environmental questions requests the availability of stimuli that trigger, encourage, attract people to participate in PA within walking distance of their neighborhoods and working place help to sit less or to be active. It contains 9 items which can be considered as environmental supporting factors and request to respond yes or no. Interpersonal factors assessing questions involves family parents and peer factors (social) factors potentially impacting SB which contains 10 likert-scale 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 Environmental and Interpersonal factors

Environmental determinants question involves factors such as Recreational places, parks, Facilities, Playing fields, Sport courts, Sport supplies, health clubs or teams, community programs and supervised recreation and requests to say 'Yes' if available and 'No' if not. Factors determining SB or PA were leveled based on the frequency of respondents report. Environmental (community support, availability) was determined based on the conformation of respondent frequency above 50%. 50% and above was considered as absence or lack of environmental support existing. Thus, cumulative score of the response greater than 50 % were considered as the factor is leveled as determinant of SB PA where as failure to achieving 50% or less than 50% were considered as the factor is not leveled as determinant of SB PA.

Concerning interpersonal or societal pressure, family, parents and peer factors, all were five level likert scale items requires their agreement or disagreement. Negative and positive questions were examined in the way: for negative questions, if the averages mean score lay in agreed or accept side, the factor did not considered as determinant and factors lay in disagree or reject side considered as determinants of SB PA. For positive questions, if the average mean score lay in the agreed or accept side, the factor did not considered as determinants and factors lay in disagree or reject side are considered as determinants of SB PA. So that the averages mean score position was a criterion to level proposed factors under determinants of SB PA.

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 [20]

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 [14], 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 measured in K/g without heavy wearing and carrying objects with a precision of 0.5 kg and flexible height measuring tape measured the height in centimeter without shoe with margin of error of 1 cm [9].

Statistical Analysis

Environmental factors particularly the availability of important infrastructure that can support people to take part in PA and reduce SB was assessed. Descriptive statistics was performed by using crosstab to summarize the conformation of participants towards the availability of environmental support in their residing area and the association between demographic variables and environmental determinants was tested using Chi-square test. A multiple regression was run to predict continuous dependent variable (environmental determinants) from categorical or/and continuous independent some demographic variables (gender, age, education, income, weight and height).

Descriptive statistics of interpersonal determinants of SB and PA was carried out using crosstab and 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 scale (personal/social determinants of SB PA) was run.

Result:

Environmental determinants

Environmental factors particularly the availability of important infrastructure that can support people to take part in PA and reduce sedentary behaviour was assessed. Chi-square test was performed to evaluate group differences between genders (dichotomous independent variable) in relation to availability of environmental support (dichotomous dependent variable). Descriptive statistics was obtained from crosstab (frequency table) and the summed value of conformation of participants towards the availability of environmental support in their residing area versus gender shown in table 1. Accordingly, among the 375 total sample subjects 335 (89.3%) were confirmed the absence or in availability of environmentally supportive factors in their residing area where as only 40 (10.7%) which is relatively insignificant amount of participant confirmed the availability of supports. Among 335 (89.3%), 195 (52.0%) were men respondents where as 140 (37.3%) were women confirmed unavailability of environmental support that can help to

increase PA and reduce sitting time in their work or residing area in near distance. Over all frequency table explained both male and female confirmed the absence of environmental support except availability of recreational places. Both men and women confirmed the presence of recreational places. However Chi-square (pearsons chi-square) revealed, $\chi(1) = 0.134$, $p = 0.714$ and which tells us that there is no statistically significant association between Gender and availability of recreational places because both group confirmed the presence of recreational places relatively a bit higher frequency $(48.5\%, 51.5\%)$ corresponding to not present and present respectively. Among this responded present (51.5%), 30.9% was men and 20.5% was women. Pearsons chi-square found $\chi(2) = 0.715$, $p = 0.699$ for park, $\chi(1) = 0.001$, $p = 0.970$ for facility, $\chi(1) = 0.445$, $p = 0.505$ for play field, $\chi(1) = 2.916$, $p = 0.088$ for sport courts, $\chi(1) = 0.259$, $p = 0.611$ for sport supplies, $\chi(1) = 14.708$, $p = 0.000$ for health clubs, $\chi(1) = 4.119$, $p = 0.042$ for community program and $\chi(1) = 0.070$, $p = 0.792$ for supervised recreation, see table 2. So that except community program and health club, over all environmental determinants were found independent of gender or there was no statistically significant association between genders was seen. Community program and health club was dependent of gender or there was statistically significant association in between gender and systematic measure (phi) explained weak negative association between gender and both in health club (- 198) and community program (– 105).

A multiple regression was run to predict continuous dependent variable (environmental determinants) from categorical or/and continuous independent some demographic variables (gender, age, education, income, weight and height). See on table 3. Among the others, gender and age statistically significantly predicted the availability of health club among nine environmental determinants. Accordingly, the model was god fit to predict data for both gender and age $F(6, 367) = 5.108$, $p < 0.05$. Gender was significantly predicted the availability of health club $F(6, 367) = 5.108$, $p < 0.05$ $R^2 = 0.062$. This means, for one unit increase or change in gender, there is 0.123 decreases in health club in the community. Age was statistically significantly predicted the health club and explained as: one unit increase in age is associated with 0.067 decreases in presence of health club in the community.

Table 1. Descriptive statistics of availability of environmental support

Crosstab					
D. Variables	Gender		No	Yes	Total
Recreational places	Male	Count	106	116	222
		% within Recreational places	58.2%	60.1%	59.2%
	Female	Count	76	77	153
		% within Recreational places	41.8%	39.9%	40.8%
	Total	Count	182	193	375
		% of Total	48.5%	51.5%	100.0%
parks	Male	Count	166	55	222
		% within parks	58.9%	59.8%	59.2%
	Female	Count	116	37	153
		% within parks	41.1%	40.2%	40.8%
	Total	Count	282	92	375
		% of Total	75.2%	24.5%	100.0%
Facilities	Male	Count	160	62	222
		% within Facilities	59.3%	59.0%	59.2%
	Female	Count	110	43	153
		% within Facilities	40.7%	41.0%	40.8%
	Total	Count	270	105	375
		% of Total	72.0%	28.0%	100.0%
Playing fields	Male	Count	148	74	222
		% within Playing fields	58.0%	61.7%	59.2%
	Female	Count	107	46	153
		% within Playing fields	42.0%	38.3%	40.8%
	Total	Count	255	120	375
		% of Total	68.0%	32.0%	100.0%
Sport courts	Male	Count	153	69	222
		% within Sport courts	56.7%	66.3%	59.4%
	Female	Count	117	35	152
		% within Sport courts	43.3%	33.7%	40.6%
	Total	Count	270	104	374
		% of Total	72.2%	27.8%	100.0%
Sport supplies	Male	Count	195	27	222
		% within Sport supplies	58.7%	62.8%	59.2%
	Female	Count	137	16	153

		% within Sport supplies	41.3%	37.2%	40.8%
	Total	Count	332	43	375
		% of Total	88.5%	11.5%	100.0%
health clubs	Male	Count	165	57	222
		% within health clubs	54.5%	79.2%	59.2%
	Female	Count	138	15	153
		% within health clubs	45.5%	20.8%	40.8%
	Total	Count	303	72	375
		% of Total	80.8%	19.2%	100.0%
community programs	Male	Count	199	23	222
		% within community programs	57.7%	76.7%	59.2%
	Female	Count	146	7	153
		% within community programs	42.3%	23.3%	40.8%
	Total	Count	345	30	375
		% of Total	92.0%	8.0%	100.0%
supervised recreation	Male	Count	220	2	222
		% within supervised recreation	59.1%	66.7%	59.2%
	Female	Count	152	1	153
		% within supervised recreation	40.9%	33.3%	40.8%
	Total	Count	372	3	375
		% of Total	99.2%	0.8%	100.0%

Table 2. Chi-square test for gender versus environmental determinants.

Pearsons Chi-Square Tests

Symmetric Measures

Dependent variable	Value	df	Asymp. Sig. (2-sided)	Nominal by Nominal value	Phi Approx. Sig
Recreational place	.134[a]	1	.714	-.019	.714
Parks	.715[a]	2	.699	.044	.699
Facilities	.001[a]	1	.970	.002	.970
Playing fields	.445[a]	1	.505	-.034	.505
Sport courts	2.916[a]	1	.088	-.088	.088
Sport supply	.259[a]	1	.611	-.026	.611

Health clubs or teams	14.708[a]	1	<mark>.000</mark>	-.198	.000
Community program	4.119[a]	1	<mark>.042</mark>	-.105	.042
Supervised recreation	.070[a]	1	.792	-.014	.792

Table 3. Multiple regressions for health club versus demographic variables

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.481	6	.747	5.108	.000[b]
	Residual	53.658	367	.146		
	Total	58.139	373			

a. Dependent Variable: health clubs or teams

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

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 Gender	-.123	.059	-.153	-2.083	.038	-.238	-.007
Age	-.067	.024	-.164	-2.845	.005	-.114	-.021

Interpersonal (social) determinants

An interpersonal factor involves family, friends support and cultural influence to sit more and to move less. Descriptive statistics show the distribution of people agreement/disagreement on 10 positive and negative interpersonal determinant questions that are assumed indicators of family,

friends, society support or encouragement to sit less, to move, walk and to participate in PA more. Crosse tabulation summary presented in table 4 was run to examine the distribution and the relationship between interpersonal factors and response category (accepted and rejected group) in respect to gender. The interpretation of interpersonal determinants response was designed or defined as: The value of accept response (sum of agreed and strongly agreed) for negative items (1-5 Q) and reject response (sum of disagreed and strongly disagreed) for positive items (6-10 Q) were representing or considered as "factors were confirmed by participants as determining factors of SB PA" whereas the sum of rejected for negative items (1-5) and accepted for positive items (6-10) were representing the "factors were not a determining factors of SB PA." Accordingly, 314 (83.70%) 0f the respondents accepted negative items and rejected positive items which are leveled as confirmed group whereas only 54 (14.36%) of respondents shown disagreement on the negative questions and agreement for positive questions which are the indicative of family culture discouragement to move, walk, engage in PA were not the factor influenced to sit more and move less while insignificant number of respondents 7 (1.98%) exhibit abstain. Among this confirmed group men share was high and found 45.28% whereas 28.15% were women. Also 230 (63.14%) of respondents disagreed or rejected positive questions which are the indicator of family, friends, society support or encouragement to sit less and to move, walk and to participate in PA while 127 (33.78%) were agreed or confirmed that there were family, friend, society support to participate in PA while 12 (3.10%) were abstain. Totally 272 (73.42%) respondents confirmed that overall mentioned factors listed in the questions were potentially important social or interpersonal factors that can influence people to sit more and to move less while 90.5 (24.7%) were rejected or mentioned factors cannot be considered as influencing factors of physical activity. Culture factor was included in both negative and positive item parts in different approach and reviled important factor in both item questions consistently (75.2%, 66.9%). Unlimited time of watching TV, using taxi rather walking, inactive in recreational time, culture, lack of family advice, support, and facilitation was found the highest leading interpersonal factors confirmed by more than 75% of participants.

Table 4 Descriptive statistics of interpersonal determinants of SB and PA.

Questions	Accepted		Neutral		Rejected		Total
	Count	percent	Count	percent	count	percent	
Negative items							

1. I can watch TV as much as I want.	322	85.9%	3	0.8%	50	13.4%	100%
2. My family allowed me to take taxi any time	342	91.2%	2	0.5%	31	8.3%	100%
3. My family supply money for fuel or taxi	299	79.8%	16	4.3%	60	16.0%	100%
4. Our culture encourages sitting instead of standing	282	75.2%	10	2.7%	83	22.1%	100%
5.Most people prefer sitting than stand in recreational time	324	86.4%	6	1.6%	45	12.0%	100%
Average	**314**	**83.70%**	**7**	**1.98%**	**54**	**14.36 %**	100%
Positive items							
6. My family advise me to walk rather using vehicle	144	38.4%	4	1.1%	227	60.5%	100%
7. Encouragement to participate in physical exercise.	156	41.6%	8	2.1%	211	56.3%	100%
8. My family Facilitate to me to attend physical activity	96	25.6%	12	3.2%	267	71.2%	100%
9. Friends support to reduce sitting time	134	35.9%	13	3.5%	228	60.8%	100%
10. Nearby society discourage sitting	104	27.4%	21	5.6%	215	66.9%	100%
Average	**127**	**33.78%**	**12**	**3.10%**	**230**	**63.14 %**	100%
Total average	**272**	**73.42%**	**9.5**	**2.54%**	**90. 5**	**24.07**	100%

		Accepted factors as a determinants		Neutral		Rejected factors as a determinants		Total	
		Count	percent	Cou nt	percent	count	percent	Count	percen t
Gender	Male	168	45.29%	6.2	1.62%	46.5	12.3%	220.2	59.21 %
	Female	104	28.15%	3.1	0.91%	45.0	11.8%	152.1	40.86

								%
Total	**272**	**73.42%**	**9.3**	**2.54%**	**91.5**	**24.1**%	**375**	100%

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 scale (personal/social determinants of SB PA) was run as presented in table 5. A Kruskal wallis H test showed that there was statistically significant difference in family advice to walk rather using transportation, friend support to reduce sitting time and nearby society courage to not sit much between men and women X^2 (1) = 14.078, p = 0,000, with a mean rank point score of (male 204.34 female 164.29), X^2 (1) = 9.418, p = 0,002, with a mean rank point score of (male 201.34 female 168.64) and X^2 (1) = 6.333, p = 0,012 with a mean rank point score of (male 199.01 female 172.03) respectively.

Between over all age, occupational and income groups, there were statistically no significant difference in respect to entire personal or social determinants of PA SB p = > 0.05.

Also statistically significant differences observed in family advice to walk rather to use transportation between different education group X^2 (3) = 8.933, p = 0,030 with a mean rank point score of 198.48, 154.75, 196.51, and 185.30 for high school, diploma, degree and masters in that order.

Also Statistically significant differences was obtained by kruskal wallis Htest in lack of family inhibition to take taxi any time and supply of money, fuel to take taxi score between marital status X^2 (3) = 12.894, p = 0,005 and X^2 (3) = 13.376, p = 0,004. A mean rank score for marital status in relation to lack of family inhibition to take taxi any time for married group was 190.033, single 174.53, divorced 313. 00, for other groups (widow and the likes) 206.13, and a mean rank score for status in respect to supply of money, fuel to take taxi for married 194.11, single 167.58, divorce 300.58, and widows and the likes 176.13.

Regarding residing town statistically significant differences was seen in encouragement and facilitation to participate in PA in between three residing towns from which the study subject obtained. Accordingly, $X^2 (2) = 8.37$, $p = 0.012$ for encouragement and $X^2 (2) = 9.137$, $p = 0,010$ for facilitation to participate in PA with the mean rank score for encouragement in respect to residence was 181.27, 207.80, and 218.85 and the mean rank score for facilitation was 181.27, 208.38, and 234.59 for Hawassa, Soddo, and Dilla correspondingly.

Table 5. Kruskal wallis H test for demographic factors versus interpersonal/ social determinants of sedentary behaviour physical activity.

Test Statistics [a,b]

Grouping Variable b	Test	I can watch TV as much as	My family allowed me to	My family supply money	Our culture encourages	Most people prefer sitting	My family advise me to	Encouragement to participate	My family Facilitate to	Friends support	Nearby society to discourage
gender		2.795	.015	2.099	.011	1.780	14.078	1.656	.055	9.418	6.333
	df	1	1	1	1	1	1	1	1	1	1
	Asymp. Sig.	.095	.901	.147	.916	.182	.000	.198	.815	.002	.012
Education	Chi-Square	2.689	1.526	1.628	3.793	2.187	8.933	1.523	5.090	2.450	4.203
	df	3	3	3	3	3	3	3	3	3	3
	Asymp. Sig.	.442	.676	.653	.285	.534	.030	.677	165	.484	.240
Marital Status	Chi-Square	6.533	12.894	13.376	2.975	1.492	.447	1.287	.504	5.909	3.329
	df	3	3	3	3	3	3	3	3	3	3
	Asymp. Sig.	.088	.005	.004	.396	.684	.930	.732	.918	.116	.344
Residing	Chi-Square	4.070	4.278	3.454	1.060	3.423	5.226	8.837	9.137	4.436	.403

Town	df	2	2	2	2	2	2	2	2	2	2
	Asymp. Sig.	.131	.118	.178	.589	.181	.073	.012	.010	.109	.817

a. Kruskal Wallis Test

Mean Rank

Grouping Variable	Group	I can watch TV as much as	My family allowed me to	My family supply money	Our culture encourages	Most people prefer sitting	My family advise me to	Encouragement to participate	me to attend physical	Friends support to	Nearby society discourage
gender	male	195.00	188.51	181.86	188.46	182.36	204.34	193.66	187.01	199.01	201.31
	female	177.85	187.26	196.90	187.33	196.18	164.29	179.79	189.44	172.03	168.64
Education	High school	192.88	210.40	195.22	207.44	204.36	198.48	194.26	207.04	210.72	178.66
	Diploma	198.49	188.11	195.84	167.91	192.78	154.75	188.11	201.75	177.22	173.93
	Degree	181.89	185.73	188.07	191.80	182.68	196.51	190.64	187.07	186.67	187.94
	Masters	201.83	187.41	172.99	186.20	199.62	185.30	171.14	163.54	197.59	212.71
Marital Status	Married	186.95	190.03	194.11	188.84	191.2	189.7	192.9	189.00	194.70	190.38
	Single	185.80	174.53	167.58	181.74	178.8	186.5	179.4	183.9	175.69	183.77
	Devours	288.17	313.00	300.58	254.17	183.2	195.8	178.3	206.5	202.17	229.25
	Others	175.50	206.13	176.13	193.50	194.4	166.3	180.3	197.31	124.56	136.63
Residence	Hawassa	183.80	184.88	183.65	189.73	183.75	182.48	181.20	181.27	183.43	186.67

e										
Soddo	198.10	187.49	204.68	187.71	202.96	209.70	207.880	208.38	199.15	190.73
Dilla	220.93	224.33	212.91	168.70	214.33	218.85	236.28	234.59	223.61	199.15

Discussion:

The present study is the first of its kind to be conducted to examine determinants of SB PA among office working adults in SNNPR in Ethiopia. Dates are inadequate or unavailable to compare results with the current findings; however, this research can break new ground that can cause farther questions or research and can provide comparative data in determinants of SB in the country. The findings of this study help to identify opportunities for intervention and barriers to reduce SB and promote PA and can inform the development of interventions to reduce sedentary time and the associated health impact.

Generally determinants of SB PA identified in this study are not far different from existing trend. Unavailability/absence of environmentally supportive factors, Interpersonal factors involving family, friends and cultural influence such as unlimited time of watching TV, using taxi rather walking, inactive in recreational time, culture, lack of family advice & support, and facilitation was found the highest foremost interpersonal and environmental factors confirmed by more than 75% of participants are the major determining factors of SB PA in adult population.

 Studies reported factors influenced SB PA involvement in Canadian women and identified External and Internal Factors, Personal Influencing Factors, Community Influencing Factors, Organizational Supporting Factors, Interpersonal Supporting Factors. Within these category of influencing factors, Built environment (availability of facilities, parks, play fields, sport courts), Transportation, Family influence, Spousal, support, Fatigue Guilt, Culture were included similar to the present study [12].

Regarding interpersonal or social factors studies reported or considered Culture, Social Connections (family and friends support, advice) are reported as determinants of SB PA similarly with this study [2, 8].

Though the pioneering role of this study in the area is one of the strength of this study, number of limitations can be mentioned. Restriction of studies to refer or to compare results, relaying only on self reporting questionnaire that can be subjected to response bias without the help of other supporting methods, limited number of interpersonal questions and the likes are notable limitation of this study.

Conclusion:

Despite of small disparities, determinants of SB PA are not far different all over the world, however the degree of understanding the effect and the extent of intervention based on the knowledge and evidence is varied throughout countries or population. Absence of environmental support and hampered social support found in this study could not be ignorable incidence can lead people to not engage in PA and promote SB. As several studies reveled, SB or inactivity is associated with multiple health hazards that can impact health; economy; social and political situation in any country. Therefore, urban policies addressing neighborhood environmental features or facilitating the implementation of national public PA recommendations should be revised for sustainable public use. Meaning that buildings such as walking ways along the street, green areas or open space in residence and commercial zones areas that can be used to perform PA individually or in group, promoting the investment of gymnasiums and fitness centers in central cites of residences and commercial zones in near distance people can rich easily, active recreational places, parks that promote or allow or attract participation in PA can change the life style should be incorporated in urban plan in government level. Moreover, education/Information/, awareness, campaigns, are needed to raise awareness, increase knowledge of potential behavior change to an uninformed unaware audience [6].

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