KAP STUDY

DISTRIBUTION AND DETERMINANTS OF SEDENTARY LIFESTYLE AMONG HEALTH CARE PROFESSIONALS

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ABSTRACT

Background: This study aimed to assess the knowledge, attitudes of health care providers towards physical activity and healthy eating by measuring leisure-time physical activity and food intake patterns.

Methods: A cross sectional study was conducted on 211 participants using Modifiable Activity Questionnaire and Food Frequency questionnaires at the Jinnah Medical and Dental College (JMDC) and Aga Khan University Medical College (AKUMC). The targeted population was students from year 1 to 5 of MBBS, faculty & staff of medical college. Body composition analysis and questions assessing personal perception of healthy diet and lifestyle were performed.

Results: Out of the 211 participants in this study, 55.18% spent time sitting at job for 6 or more hours, 33.2% spent at least 2-3 hours on screen time. Only 42.7% individuals exercised for less than 15 minutes in a week. The most consumed food groups in the participants were bread/roti (46.9%) followed by and hot beverages (51.7%). Seventy-one percent regarded their dietary habits as moderately healthy and reported that lack of leisure time (65.9%) and work/family commitment (38.4%) were the major restraints for being physically active.

Conclusion: Health professionals followed sedentary lifestyle and unhealthy dietary patterns. The major limitation identified was being lack of time and willingness.

Keywords: Sedentary Lifestyle; Physical Activity; Health, Diet; Awareness.

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INTRODUCTION

One of the top 10 leading causes of deaths according to world health organization (WHO) is non-other than sedentary lifestyle; which is defined as physical inactivity leading to serious physical and mental health issues[1]. The WHO urges health providers to promote a healthy lifestyle, because in the long run inactivity can cause a number of life threatening complications like cardiovascular diseases, diabetes, obesity, colon cancer, high blood pressure and depression[2]. A research proposed that elimination of physical inactivity would remove as much as 6% to 10% of the aforementioned diseases, as well as increase life expectancy[1], but awareness on this serious issue is quite low in the general population.

The prevalence of higher sedentary activity has been found to increase in the last decade[3]. This not only affects elderly but also involves the young generation as sedentary activities have increased in daily routines. This is due to less park time, freely available junk food, and increase trend of playing indoor screen games. Over all; unhealthy lifestyles, more desk work, total screen-time while using computers and television, as well as driving personal vehicles are at an all-time high – ranging from 4 hours to 1 hour respectively[4]. Obesity, being one of the major complications of sedentary practices, has its own effects on the adolescences social, economic, and psychological development. Creating not only physically debilitating diseases but also social obstructions like poor education, lower wages and difficulty in finding a spouse especially in our society[5].

Although changing an individual's ingrained behavior to adapt such recommendations is understood to be a challenge, increasing evidence

suggests that intensive and repeated counseling by the health care professionals can motivate patients to get involved in recommended physical activities. Considering the impact physicians' counseling can have on an individual's lifestyle, it is advisable to consider it as an important strategy for primary prevention[6]. Belonging to a developing country, we have limited resources available for health care. More so, majority of researches focus on diseases such as cancer or diabetes cure, but there is a dearth of studies focusing the very root of the issues i.e. physical inactivity in our setting. We could find only one study form our region which evaluated the link[7]. It is therefore important to identify the factors and the awareness linking sedentary lifestyle and metabolic diseases in children and adults, for optimal prevention and healthier lifespan. Therefore, we aimed to assess the knowledge, attitudes of health care providers towards physical activity and healthy eating by measuring leisure-time physical activity and food intake patterns.[8]

METHODS

This questionnaire based cross-sectional study was conducted at Jinnah Medical and Dental College (JMDC) and Aga Khan University Medical College (AKUMC) from October 2016 till December 2017. All students from MBBS year 1 to 5 and faculty, staff of medical college irrespective of age, gender and ethnic background were included in this study. Pregnant women, children and subjects with any medical or surgical condition as a causative agent for sedentary behavior were excluded from this study. Sample size was calculated as follows by using open epi website; in order to achieve a power of 95% with a 15% estimated prevalence of obesity and a two-sided 5% level of significance, the minimum sample size required was n=210. All subjects gave a written and informed consent to be a part of this study and the institutional ethical committee approved the study (Ref Number K07-JMDC-ERC-16). The participant's demographic data including their gender, age, and occupation and education level were recorded. Body composition analysis was conducted via Bio-electrical impedance analysis (BG55, Breuer Germany), waist and hip circumference, weight were measured while Body mass index was calculated. Modifiable Activity Questionnaire and Food Frequency questionnaires were given to the study participants[8,9].

These questionnaires consisted of options concerning time spent for television watching or computer use, reading; knowledge-based questions assessed dietary habits such as eating patterns, kind of food that was eaten, personal perceptions about "healthy diet" and constraints that an individual face to changing their dietary patterns.

Statistical analysis was carried out by using Statistical Package for Social Sciences (SPSS, version 21).Descriptive statistics like mean, standard deviation, and frequencies were calculated for the analysis of collected data. For the test of significance, Chi-square test was applied to compare the frequencies. The level of signi¬ficance was considered to be $p< 0.05$.

RESULTS

A total of 211 participants were recruited in the study with the response rate of 98.6 %. The study participants comprised of 85 males and 126 females among the different occupations. The majority of participants were students. The average age of the study participants was 24.52 ± 10.09 year and their BMI was 22.9± 6.36 kg/m2 (Table 1).

Table 1: Biophysical Profile of the study Cohort

Variable		Mean ± S.D.
Age (year)		24.52 ± 10.09
Waist circumference (inches)		31.07 ± 3.52
Hip circumferences (inches)		35.80 ± 6.52
BMI (kg/m^2)		22.99 ± 6.36
Weight(kg)		64.34 ± 15.17
Body fat (%)		26.10 ± 17.57
Body Water (%)		54.24 ± 6.73
Muscle mass (kg)		39.99 ± 7.54
Basal Metabolic Rate		1570.58 ± 329.15
Bone weight (kg)		7.61± 2.14
Sex	Females	126 (59.7)
	Males	85 (40.3)
Occupation	Students	142 (67.3)
	Faculty	34 (16.1)
	Staff	35 (16.5)
Highest degree	Metric/O-level	16 (7.58)
	Inter/A-level	142 (67.29)
	Bachelors	9(4.26)
	Masters	44 (20.85)

Majority of the participants reported to practice sedentary life style during the daily activities; 67.77% spent at least 1-2 hours eating full meals, 33.2% spent 2-3 hours sitting in transport while 55.18% spent at job sitting for 6 or more hours. Furthermore 63.30% said that they spent at least 2-3 hours watching screens. All of these show that the majority had sedentary lifestyle with high idle inactivity. Only n=87 out of the 211 individuals took part in exercise/gym/walk/yoga for less than 15 minutes (Table 2).

Table 2: Time spent in various activities.

How many hours do you spend doing these activities?				
	Absolute Count (percentage)			
	1-2 hours	2-3 hours	4-5 hours	6 or more hours
Sleep at night	-	2 (0.94)	11 (5.2)	199 (93.86) *
Nap in a day	129 (61.13)	82 (38.67)	-	-
Eating full meals	143 (67.77)	68 (32.07)	-	-
Sitting during transport	64 (30.3)	133 (63.30)	14 (6.6)	-
Working at your job/study/ volunteering or working at home	11 (5.2)	21 (10)	18 (8.5)	161 (76.30) *
Watching TV, using computer/laptop or reading a book or magazine or listening to music etc.	46 (21.8)	70 (33.2)	88 (41.70) *	7 (3.3)
Praying meditating	121 (57.34)	86 (40.75)	3 (1.4)	1 (0.5)
Exercise/gym/walk/yoga	36 (17.1)	51 (24.2)	-	-
Values expressed as absolute count and percentages. Chi-square or Fischer exact test was applied to check for difference in categories. P value of <0.05 was considered significant. *p<0.05				

Food groups with the least preference of less than once a month included cereals (70.5%), and fish (45.5%); whereas bread/roti (46.9%), meat (36%) and hot beverages (51.7%) had a consumption count of more than 6 times per week, showing taste preference and common availability of these food groups (Table 3).

Table 3: Consumption of food items per week.

What is the average consumption of these items in your weekly routine?				
	Count (percentage)			
	Less than once a month	1-2 times	3-4 times	6+ times
Cereal/ Porridge/oatmeal	148 (70.5)	44 (21)	15 (7.1)	4 (1.4)
Eggs	42 (19.9)	59 (28)	63 (29.9)	47 (22.3)
Bread/roti	9 (4.3)	39 (18.5)	64 (30.3)	99 (46.9)
Rice/pasta	20 (9.5)	56 (26.5)	70 (33.2)	65 (30.8)
Meat (chicken/beef)	16 (7.6)	46 (21.8)	73 (34.6)	76 (36)
Fish	96 (45.5)	81 (38.4)	25 (11.8)	9 (4.3)
Vegetables/salads	19 (9)	71 (33.6)	80 (37.9)	41 (19.4)
Legumes (Daal)	24 (11.4)	83 (39.3)	58 (27.5)	46 (21.8)
Fruits (canned/fresh)	33 (15.6)	69 (32.7)	57 (27)	52 (24.6)
Cold drinks	71 (33.6)	73 (34.6)	39 (18.5)	28 (13.3)
Hot beverages (chai/coffee)	38 (18)	34 (16.1)	29 (13.7)	109 (51.7)

The overall consensus of the participants regarding their dietary habits was moderately healthy for 71%, while 17% said that they practiced healthy eating and 12% admitted to a self-reported unhealthy eating habit. Lack of leisure time 139 (65.9%) and work/family commitment 81 (38.4%) were the most common reasons noted as obstacles that prevented participants from doing physical or outdoor activity, whereas financial constraints was the being the least likely reason 6 (2.8%) (Figures 1 and 2). Further, when we asked why they wanted to adopt physically active lifestyle more than 106 (50.2%) claimed to help maintain good health and 86 (40.8%) to get or feel fit.

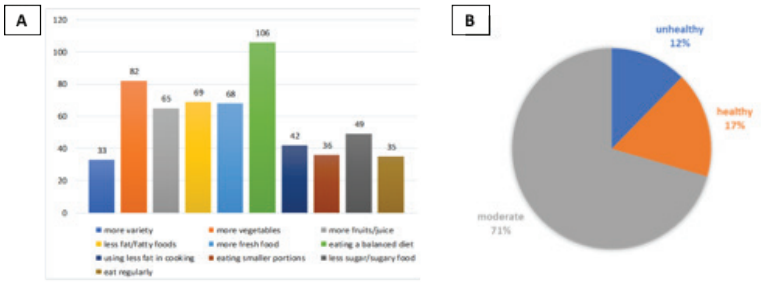

Figure 1 A: Food groups that could be consider as healthy diet B: How would you describe your diet.

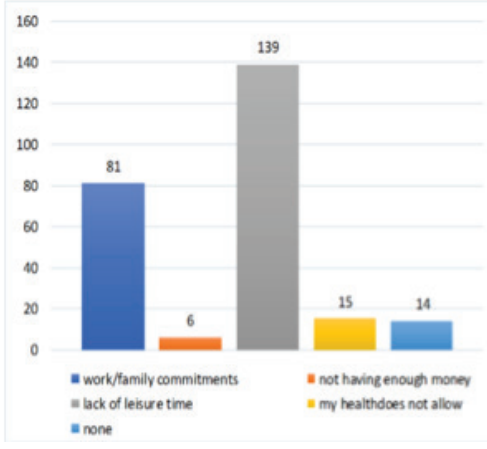

Figure 2: Common reasons noted as obstacles that prevented participants from doing physical or outdoor activity

We later stratified our group according to the unhealthy characteristics they follow. Activities were considered unhealthy if they reflected more indoor, stationary and decreased physical activity. These included less than 3 hours spent for sleep, eating, meditating, exercise, breaks or more than 3 hours spent for transport, working, watching electronics, reading music talking sewing artwork. Out of total 13 bad activities, a person with more than 7 bad was considered unhealthy. According to this model; we found that a total of 109 people did not practice any bad habit. On the other hand, 102 individuals were involved in more than 7 bad activities. When we compared their body composition, the body fat % of unhealthy activities group was significantly higher as compared to the healthy activities group. Similarly, the bone weight of active group was higher as compared to the inactive or unhealthy group (Table 4).

Table 4: Characteristics of the participants.

Variable	Healthy (n=109)	Unhealthy (n=102)	P value
Age (year)	24.69 ± 9.98	24.34 ±10.25	0.796
Waist circumference (inches)	31.66 ±3.704	30.424 ±3.25	0.116
Hip circumferences (inches)	36.41 ± 6.49	35.07 ±6.74	0.702
Weight (kg)	66.95± 16.47	61.55 ± 13.15	0.944
Body fat (%)	24.26 ± 7.47	27.83 ± 3.27	**0.027**
BMI (kg/m^2)	22.41 ± 5.68	23.52 ± 6.92	0.182
Water (%)	54.00 ± 6.59	54.49 ± 6.91	0.078
Muscle mass (kg)	40.00 ± 8.22	39.99 ± 6.79	0.335
Basal Metabolic Rate	1626.04 ± 96.19	1511.32 ± 224.83	0.399
Bone weight (kg)	7.88 ± 2.28	7.33 ± 1.95	**0.007**
Data presented as Mean and SD. Groups were compared by t test and a p value of <0.05 was considered significant.			

DISCUSSION

This study identified that most individuals who worked in the health care industry reported a sedentary lifestyle. While a majority reported changes that were needed for a healthy diet, only a minority included the healthy diet and healthy lifestyle regime such as exercise in their daily activities. When we asked the participants about the difficulties that might be preventing them from eating healthier; 42.7% identified their busy lifestyle as the main culprit, with 32.2% said that they were reluctant to give up food they like and 29.9% blamed on a lack of will power. About 11.8% participants were unaware about the healthy eating habits. This goes to show that even though the individuals possess knowledge regarding constituents of a healthy lifestyle, there is a barrier in the information that they have and the application of this knowledge. These barriers can be attributed to factors such as a lack of leisure time, familial responsibilities and financial constraints.[9]

Studies conducted previously have established a direct link between sedentary lifestyle and healthy eating habits with adverse health outcomes, however, none of them focused on the influence of knowledge on lives of healthcare professionals. The findings of our study suggest that even though healthcare professionals are responsible for encouraging healthy behaviors amongst patients, they themselves face significant hurdles which prevent them from adopting similar behaviors.

Health care professionals are at a higher risk of exhibiting bad habits due to increased work hours and stress levels. This not only predisposes them to higher chances of developing adverse health outcomes, but also a less satisfactory quality of life. All factors such as exercise, food intake and sleep habits contribute to the overall effect of lifestyle on health.

Our study also showed a similar link in terms of dietary intake and level of physical activity. 65.6% of the participants participated in bad activities and bad dietary habits. However, an average BMI of 22.99 kg/m^2 indicated that the mean BMI for our population did lie within the normal healthy limits. Our study results were also comparable to another study which evaluated time spent on sedentary activities and in adolescents. This particular study concluded that 50.3% of male and 67.8% of female adolescents were inactive however; overweight status was not significantly associated with physical inactivity. It was found to be dependent on factors such as gender, type of activity and time spent on each activity.

Previous studies have made similar comparisons to assess the distribution of sedentary lifestyle in different populations and its relationship to development of several risk factors like obesity. A study conducted in 2003 concluded that the prevalence of behaviors which promote sedentary lifestyle is more prevalent in individuals who were obese, less-educated and smokers. Their questionnaire comprehensively covered various leisure-time physical activities and lack of physical activity. The average weekly hours spent on all activities were calculated metabolic equivalents (MET) were used to quantify the amount of physical activity[10]. Since our study was conducted in a specific setting with all participants being non-smokers, adequate comparison cannot be made to assess any link between education status and smoking to sedentary lifestyle. However, the amount of time spent in sedentary leisure activity was noticeably high in our population. Similarly, another study assessing the link between television viewing and its association with overweight sedentary lifestyle and insufficient consumption of healthy diet found that one out of ten students was overweight[11]. There was a consistency in association between TV viewing and being overweight and both these factors were independent of individuals taking part in vigorous physical activities and consumption of fruits and vegetables according to portion size. It suggested that the primary influence of TV viewing over obesity might be linked to decreased duration of vigorous activity[12]. These finding s were consistent with our results as 33.2% population of our study watched screens for 2-3 hours.

This study also linked higher body fat % with the group that had unhealthy activities; similarly, another study in Australian young overweight/obese women, linked lifestyle behaviors and CVD risk markers where they found physical activity was inversely associated with body fat, comparable to our study's findings[13].

A few more studies from around the globe are discussed here which further reconfirm and elaborate, this study results. In Australia similar results and benefits of risk reduction like this study were seen; it focused on Objectively Measuring Sedentary Time, Physical Activity, and Metabolic Risk[13]. They used an accelerometer, Waist circumference, Triglycerides, HDL cholesterol, Resting blood pressure, Fasting plasma glucose and Clustered metabolic risk score. They showed that decreasing factors like high cholesterol, resting blood pressure and Fasting plasma glucose prevented further complications[13].

A study conducted in U.S focusing on high school students showed positive link between Television Viewing and its Associations with Overweight, Sedentary Lifestyle, and Insufficient Consumption of Fruits and Vegetables[14].

A study in Canada on adolescent also further

confirms this study results as it shows
direct complex link between physical inactivity and sedentary lifestyle. Factors in play were gender and also the type of sedentary behavior (for example, where maximal amount of time was spent Weekly time spent on computers, Video games, Television, Reading during leisure-time)[12].

Furthermore, another study reported that youngsters residing in areas where walking was possible were involved in less time spent while watching television and use of vehicles. All of this was independent of income categories[15]. The only study from Lahore, Pakistan. showed no direct link between; dietary behaviors, physical activity and sedentary lifestyle. But these were independent predictors of overweight and higher BMI7; however, low physical activity has been linked with obesity in both genders in local communities[16, 17]. In France, it showed that physical activity and metabolic syndrome was inversely proportional. As one decreased the other raised, independent of gender[18]. A cohort study in USA, New York found that reducing sedentary behaviors resulted in healthier weight, fitness, and psychological state. It also suggested that sedentary behavior was a leading cause of excessive adiposity[19]. Another cross-sectional study from Australia examined over 60 research papers on sedentary lifestyle, of all, which targeted on the correlation between leisure time and sedentary behavior the conclusion, showed a direct correlation between sedentary behavior (non-occupational), excess adiposity and increased metabolic disorders. Most common non-occupational sedentary behavior found was watching TV[20]. Therefore, physical activity should be encouraged from the preschool- kindergarten stage to prevent obesity associated complications.

Despite the alarming findings, this study had some limitations such as our sample population consisted of health care professionals from only two institutes in Karachi. To cater to this limitation, future studies should include a larger sample size from across several regions. Furthermore, due to the nature of this study, we were unable to confirm any correlation between adverse health outcomes of the health care professionals with their knowledge and habits. Studies using a retrospective design could investigate this relationship and establish a causal relationship between these factors. Regardless of the limitations, our study determined the prevalence of sedentary lifestyle amongst health care professionals and explored several factors that might lead to serious adverse health outcomes. A study from 2019 shows High sedentary time was significantly associated with mortality among MI survivors, independent of physical activity status and metabolic abnormalities[21].

CONCLUSION

Health professionals followed sedentary lifestyle and unhealthy dietary patterns. The major limitation identified being lack of time and willingness.

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