

**Sedentary lifestyle prevalence
among workers in Kenya
Agricultural and Livestock
Research Organisation in Kenya**

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1. Background

People who spend too much time being sedentary(**white collar jobs**) are more likely to develop musculoskeletal disorders and other non-communicable diseases (NCDs), a **health risk** likely to increase with increasing sedentary **office setting and lifestyle**



1.2 The problem

- In Kenya, Sedentary lifestyle is on the increase while its **baseline data** has not been documented appropriately (Kenya stepwise survey for NCDs risk factor, 2015).
- Actual burden of NCDs **poorly understood** (Stuart Ali and Fransesc Xavier, 2017)
- Fight against these diseases complicated by **cultural** factors (Shi, 2015)
- NCDs account for 27% of deaths suffered by those between 30 and 70 years (**productive**)
- Absenteeism, loss of man hours and insurance premiums have increased due to associated lifestyle diseases (March and Mclennan, 2017).
- This problem calls for development of **policies and programs** that encourage PA at the workplace and outside the workplace setting.

1.3 Justification

- Sedentary lifestyle has the risk of victims developing NCDs (Bauman *et al*,2013)and increases risk of dying early (Danstan *et al*,2010).
- Office and laboratory work is **characterised** by sedentary behaviour.
- The study's aim was to investigate sedentary lifestyle prevalence among this cadre of staff in KALRO.
- The findings of this study provide a basis for policy makers in KALRO to develop policies and programs aimed at **reduced sedentary lifestyles, reduced NCDs and improved workplace productivity.**

1.3 Justification continued

- KALRO plays a critical role in the realisation of **Vision 2030** whose emphasis is on research in technology generation and development plus the **President's Big Four Agenda**
- **Staff health** is therefore a **priority** as advocated by United Nation's SDGs, STISA 2024 and Kenya's Vision 2030.

1.4 Objectives

- Main objective was to assess sedentary lifestyle prevalence among workers in KALRO
- Specific objectives were
 1. To assess policies and programs available to mitigate effects of sedentary lifestyle of the study employees in selected KALRO institutes
 2. To determine the WHtR of the study employees in selected KALRO institutes
 3. To identify factors influencing sedentary behaviour of the study employees in selected KALRO institutes.

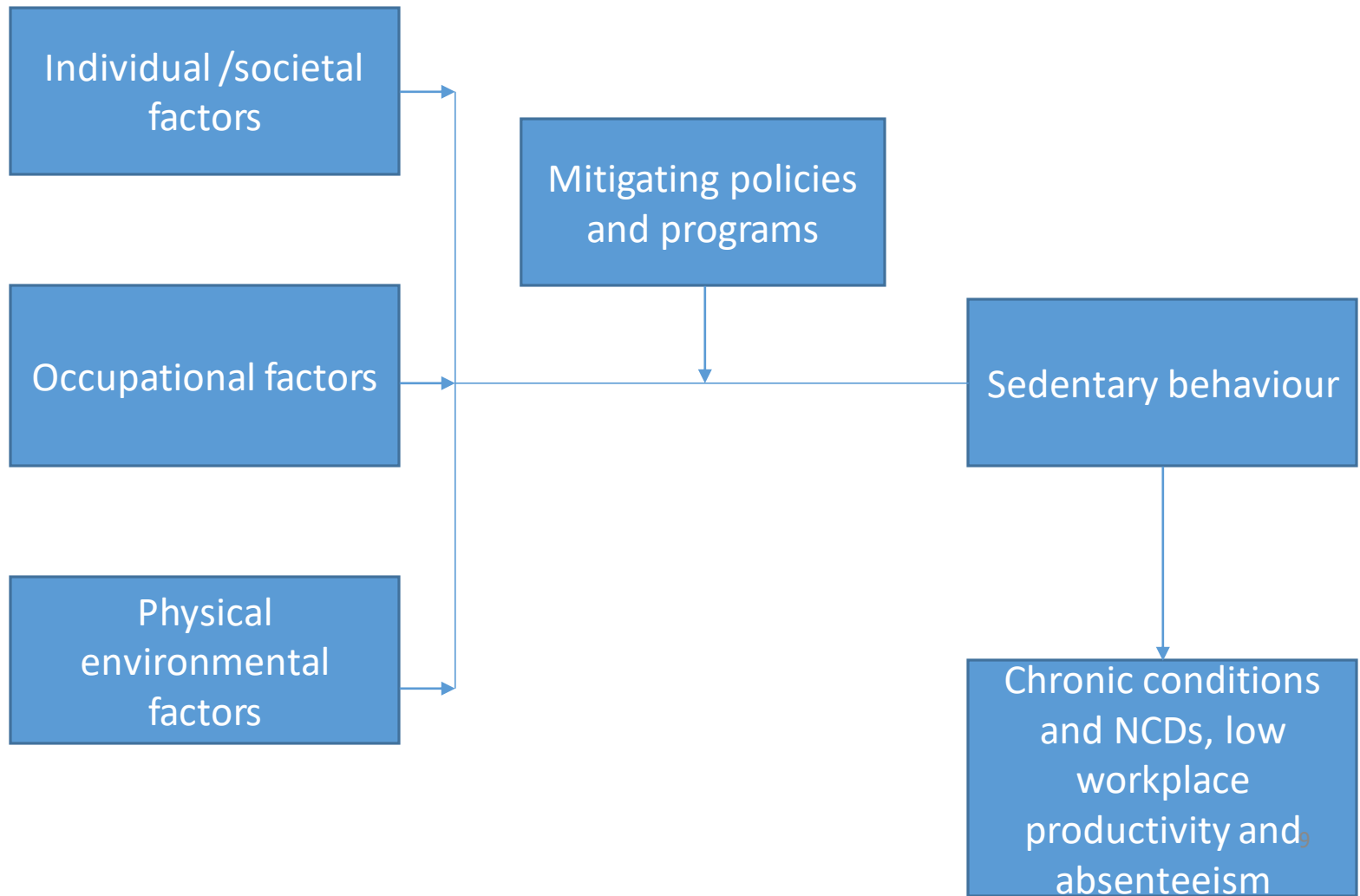
1.5 Null Hypothesis

- There is no sedentary lifestyle prevalence among the office and laboratory workers in KALRO

1.6 Scope of the study

- The study focused on sedentary prevalence among the employees in KALRO.
- It identified factors influencing sedentary behaviour among the workers and those that might be at risk of physical inactivity.
- It also assessed the policies and programs available in KALRO which might mitigate effects of sedentary lifestyle
- The study covered 7 (located in Nairobi metropolitan) out of the sixteen KALRO institutes.

1.7 Conceptual frame work



2. Methods

- The study area covered 7 KALRO institutes (Nairobi Metropolitan) with a population of 820 workers in offices and laboratories.
- The sample size, $n=96$ was calculated using Daniel's formula for prevalence studies (Naing *et al*, 2006).
- Cross sectional survey was used and two sets of structured questionnaires were administered.
- One set gathered workers' data on sedentary lifestyle and parameters influencing occupational sedentary, while the second assessed available policies and programs aimed at mitigating sedentary lifestyle among the workers.

$$n = \frac{Z^2 P(1-P)}{d^2}$$

- Z =statistical level of confidence
- P = expected prevalence or proportion
- d = precision
- n = sample size
- Level of confidence 95%
- Prevalence value P , taken as 50%
- Precision, d taken as 10%

2.1 Methods

- Respondent's waist circumference was measured in centimetres using a stretch to resist tape that provides a constant 100 gram tension as provided for by WHO, 2008 guidelines.
- Standing height was measured to the nearest 0.1 centimetres using the same tape.
- Subjects were requested to remove shoes, slippers and socks then stand with feet close together , arms at the side, and body weight evenly distributed before measurements were taken.
- Weight to height ration (WHtR) was calculated and recorded by dividing waist size (cm) by height (cm).
- Data was processed using statistical package for social sciences (SPSS- Version 20) and MS Excel computer software.
- Analysis was done using frequencies and statistical tests.
- Data was presented using statistical tables and charts.

3 Results

3.1 Respondents demographic profile

- Gender

Male 46.3%, female 50%, and 3.7% non response

- Marital status

57.4% married, 33.3% single, 5.6% widowed, 1.9% separated, 1.9% non response

- Level of education

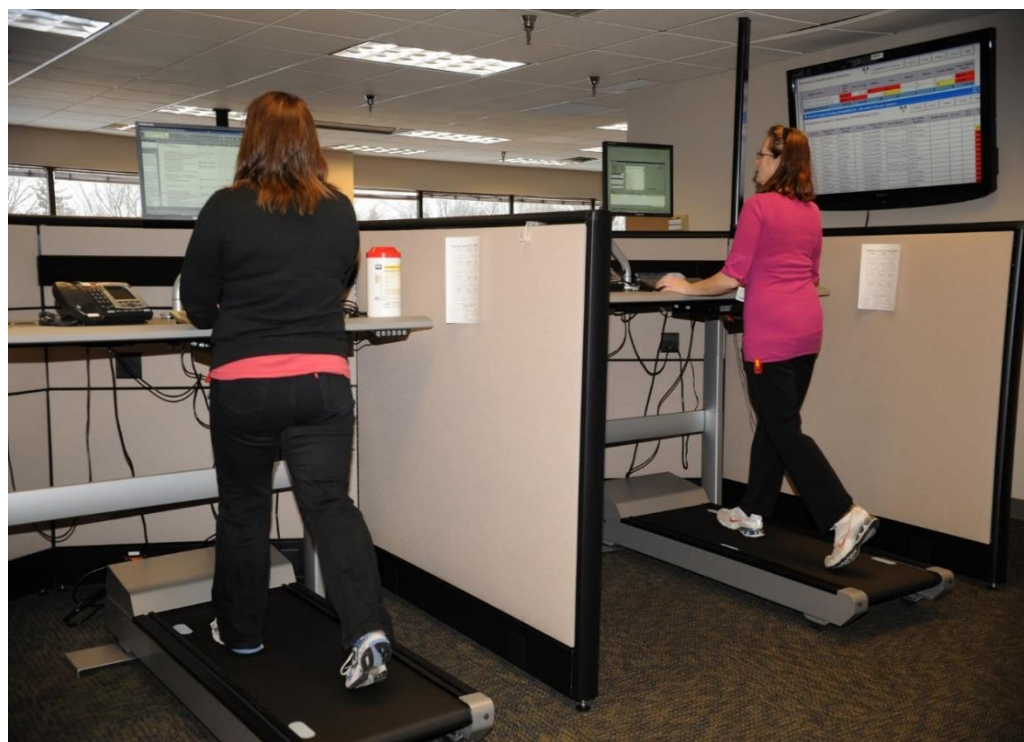
92.6% college and tertiary level

- Occupation

55% office, 42% laboratory, and 3 % in the field

3.2 Available policies and programs

- No institute encouraged workers to engage in exercises and body fitness by allowing for physical activity and membership to gyms or sports clubs



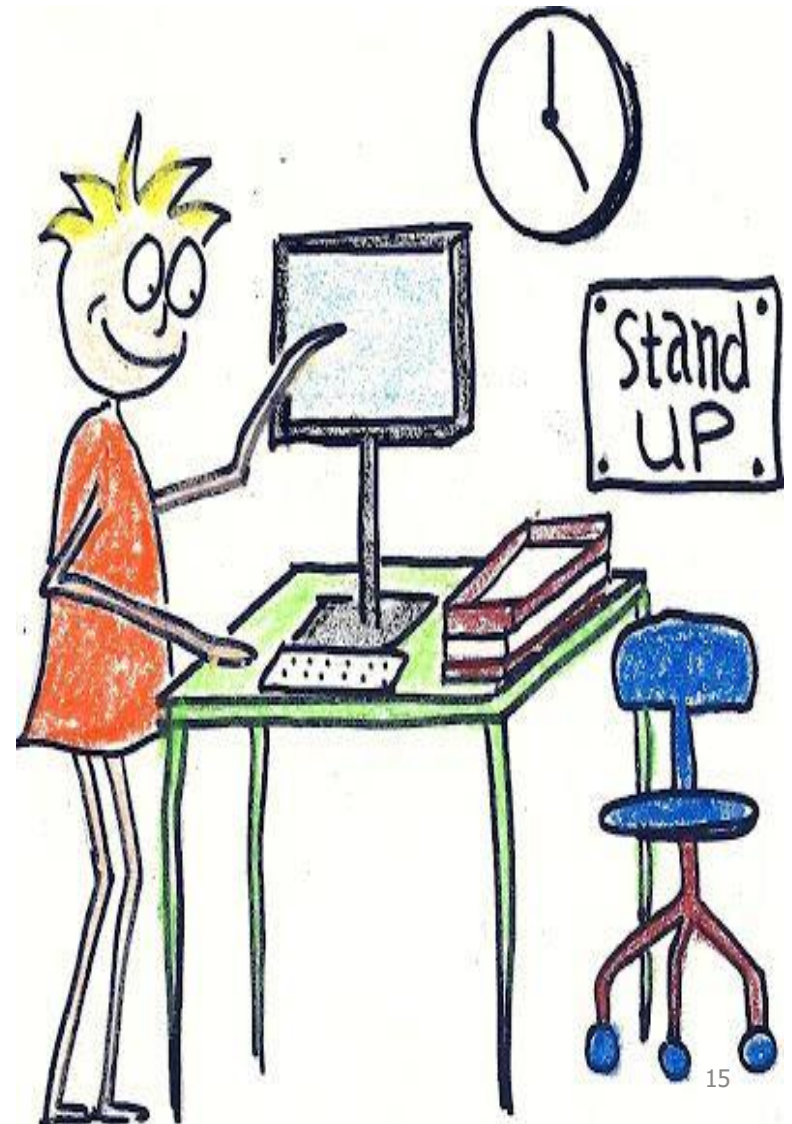
3.2 Available policies and programs cont.

- Only **57.1%** of the institutes had quarterly programs for NCDs **screening and management**
- **Poor** response to free screening programs (**14.2%**).
- 64.8% indicated they had been sitting on the same chair for more than 5 years.
- None of the sampled institutes invested in ergonomic chairs.
- None had either an active workstation or worksite programs targeting obesity factors such as behaviour change modifications, health education or weight and stress management.
- Only 43% had **operational health facilities**.
- Employer's promotion of workers wellbeing at the workplace (71.4%) provided drinking water; (89.3%) had centralised waste bins.

3.2 Available policies and programs cont.

No institute had **policies** on

- Walking meetings
- Standing meetings
- How long a sitting meeting should last



3.3 Respondents at risk of physical inactivity

- Waist circumference (**WC**) above the recommended 88.9 cm for **females (81.48%)** and 101.6 cm for males (8%)
- Most (**90.38%**) of the respondents of **both gender** with WHtR **above 0.5**
- WHtR increased with income ($p=0.516$) and had an influence on fatigue and muscle soreness after day's work ($p=0.657$).
- +ve correlation between respondents age and waist circumference ($P=0.365$).
- Respondents' PA reduced as they advanced in age ($p=0.001$) and as their earnings increased.



3.2 Results continued

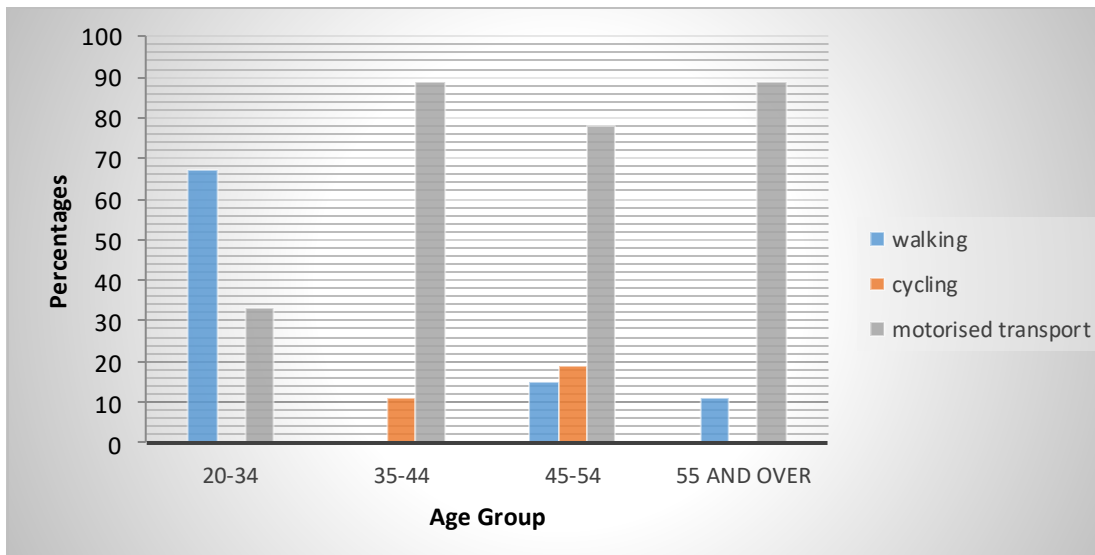
- The high % of the total staff with WHtR > 0.5 was indicative of sedentary lifestyle prevalence among the sampled KALRO workers.
- WHtR has been proposed as an alternative measure of central obesity (Trent and Watson,2016) and it is a good proxy for central fat which has a greater health risk than fat stored in other parts of the body.
- Both the WHtR and WC results showed that there was significant central obesity among both genders.
- The two measures employed were established anthropometric indices for the prediction of NCDs.
- According to a study by Wen-Cheng Li et al, (2013) on Tiwanese adults, a WHtR > 0.5 is an effective indicator of central obesity.
- Respondents with WHtR>0.5 at risk of obesity related diseases such as stroke, cardiovascular, diabetes, certain cancers and musculoskeletal disorders.

3.3 Factors influencing sedentary behaviour

The means of commuting to work was one of the factors . It was considered in relation to age, income per month and type of occupation.

(a) Respondent's age and how they commuted to and from work

- Most of older respondents (≥ 50 years) used motorized transport to and from work.
- Indulgence in PA reduced as respondents advanced in age ($p=0.365$)
- Middle age (35-44years) did not walk to work. Were either riding or using motorised transport.



(b) Relationship between respondents' income per month and how they commuted to and from work.

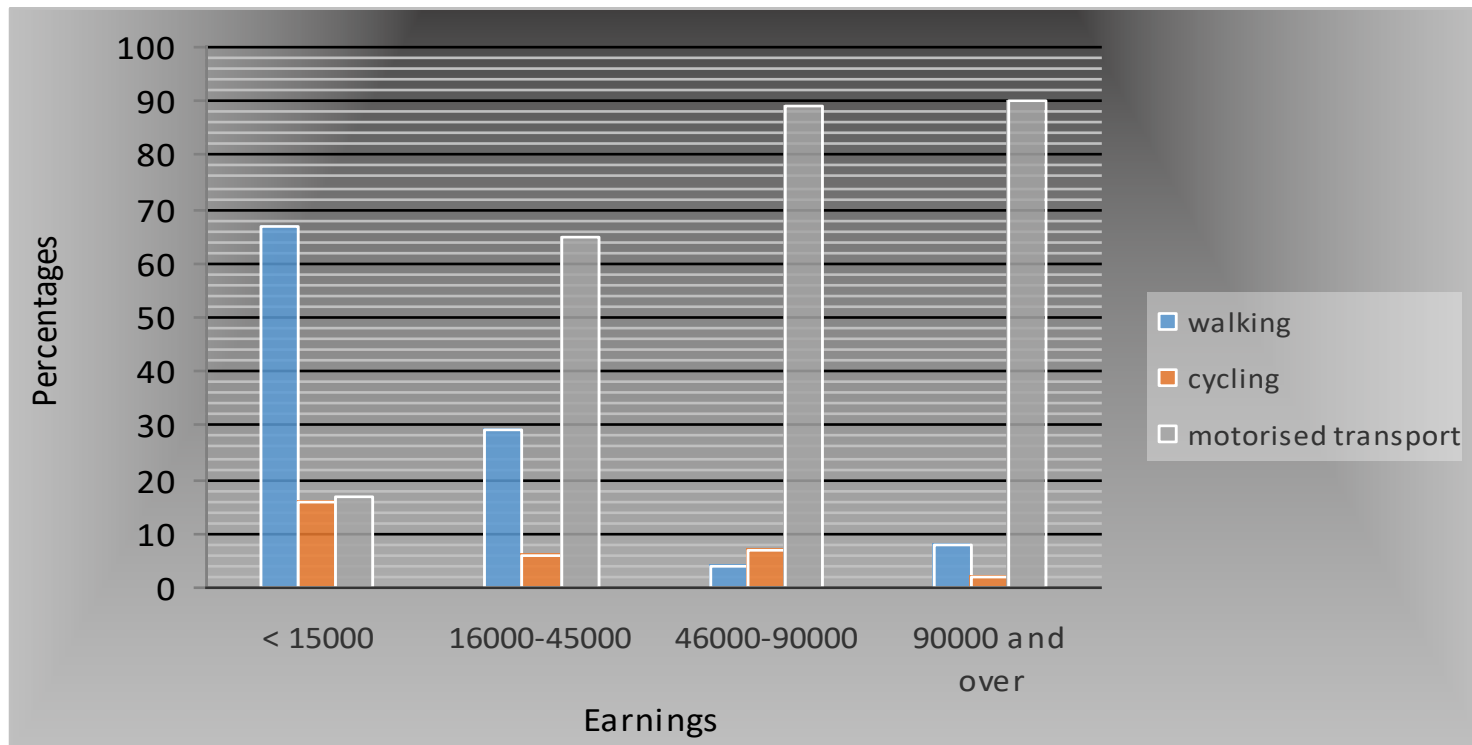
Most of the Respondents earning ≥ 46000 used motorised transport.

For respondents earning ≤ 15000 data was normally distributed about walking.

Shapiro-Wilk test p values were all below 0.05 with no output for ≤ 15000 .

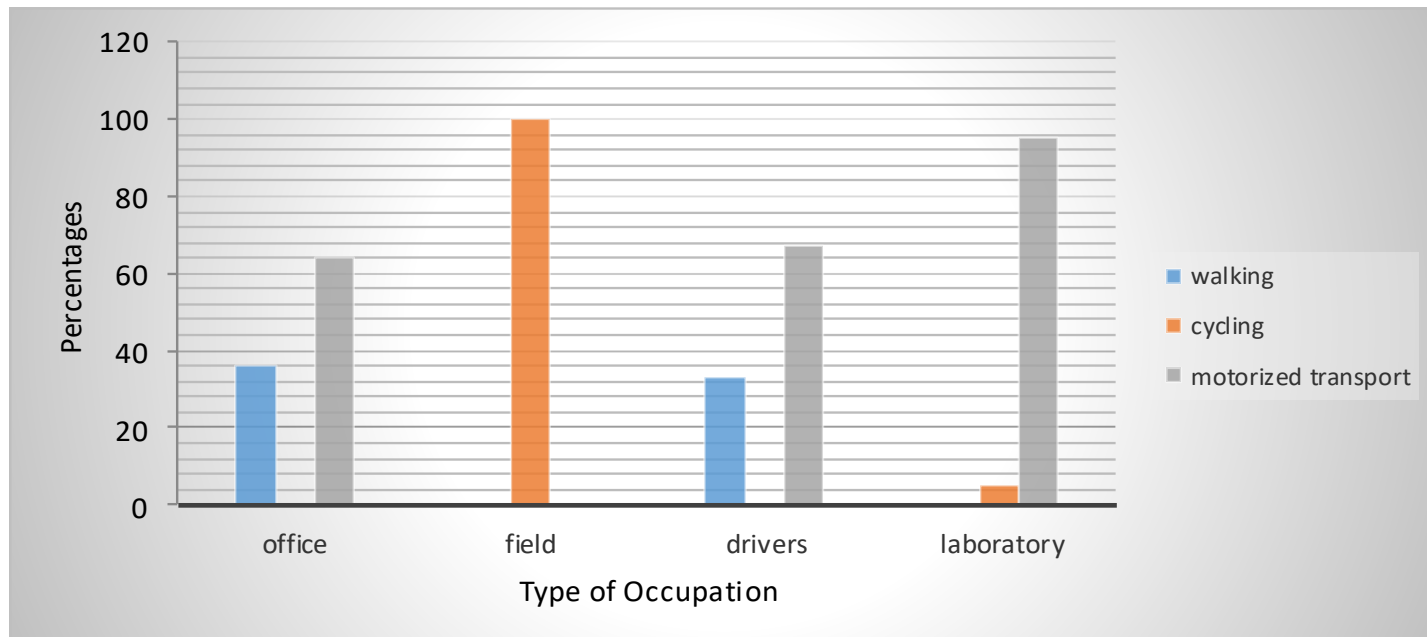
Use of motorised transport increased with earnings and socioeconomic status and lengthened the period of sedentariness.

Data was kurtotic (3.172) towards spending ≥ 60 minutes in motorised transport.



(c) Relation between type of occupation and how respondents commuted to and from work

- 94.7% of those in lab work and 64.2% of office workers used motorised transport.
- Respondents worked for a mean of 41.6 hours in a 5 days week.
- Shapiro-Wilk $p > 0.5$ for sitting for office and laboratory workers
- The kurtosis of 2.707 for males and 2.321 for females indicated data was kurtotic for both gender about working 40 hours per 5 days a week.



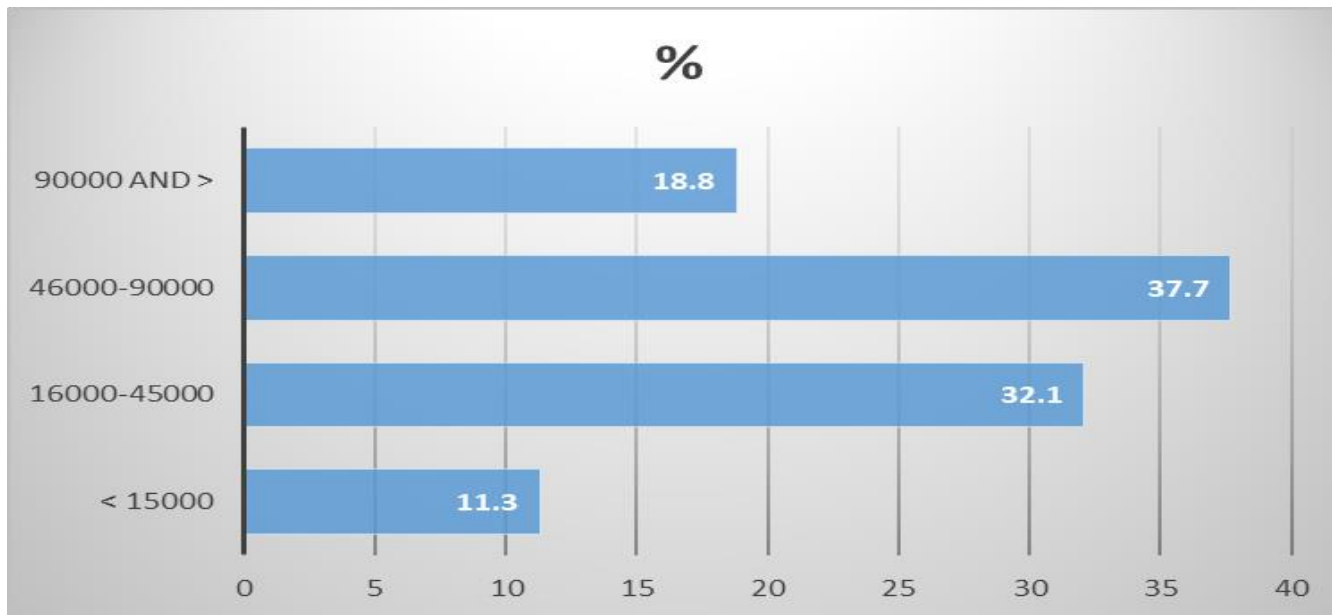
(d) Lifestyle trends

Respondents were spending 78% of their time sitting in the office, were working for 41.6 hours in a 5 days week and spending ≥ 60 minutes in traffic to and from work. **Did this sedentary lifestyle follow them at home?**

- (i) Notably, 64.7% of the respondents spent over 15 hours in front of the **TV on weekends**
- (ii) It was observed that 88.8 % watched TV while lying on a couch. Legs and backside muscles (largest in the body) are slack and levels of **blood sugar and bad cholesterol** rise affecting health of the subjects (Thyfaults, 2010).
- (iii) Most respondents spent weekend lying on couch with only **14% and 18%** being involved in PA and socialising with friends respectively.
- (iv) The respondents level of mechanization of house chores was low (23%) both with low and high income cadres.
- (v) On house work domain, **57.7%** delegated all chores to house helps after spending significant time (78%) sitting in the office and (44.6%) in traffic for more than 60 minutes. Nearly everyone except the very poor hires house help (Kindula,2014) in Kenya.

Lifestyle trends continued

- Spearman p value of (-0.659) revealed significant –ve correlation between income per month and use of mechanized house chores.
- Those with high income $\geq 46,000$ (56.5%) engaged house helps.
- Kirigo,(2012) such lifestyle reduces use of large muscles, back trunk and legs hence reduction of body intake of sugars and fats thus increasing tendency to obesity, blood clots , frequent fatigue and muscle soreness.



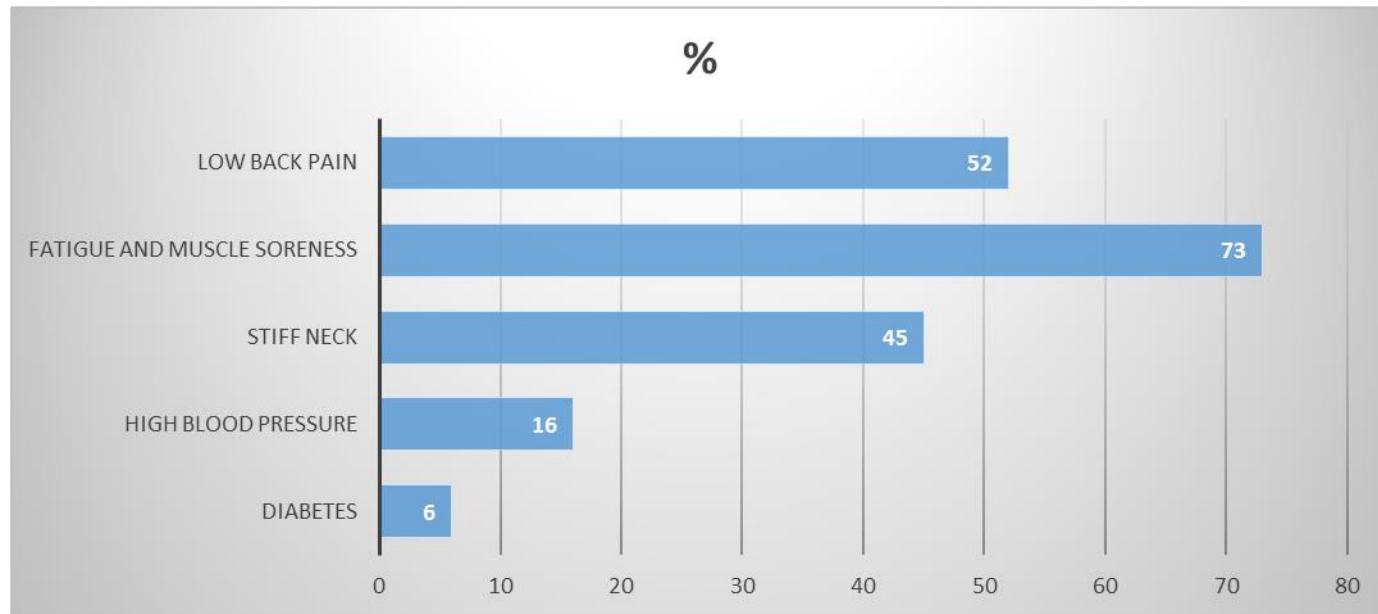
3.3. Factors influencing sedentary lifestyle continued

Illust. Source: hindustantimes.com



3.4 Respondent's medical history and work influences

The respondents suffered **medical conditions related** to having sedentary lifestyle including;



None indicated had any form of cancer

3.4 Respondents' medical history and work influences continued

- 84% indicated no to high blood pressure
- 94% indicated no to diabetes
- 100% no to any form of cancer
- This was in tandem with the findings of Stuart Ali and Fransesc Xavier, (2017) who stated that the actual burden of the disease is **poorly understood** and people **don't know** that they suffer from the condition and therefore don't seek treatment.
- The study further revealed that 42% of respondents **did not seek** for medical attention despite having such medical conditions.
- In Kenya the fight against NCDs is further complicated by **cultural factors** including perception of overweight and obesity as a **sign of prosperity** associated with white collar jobs (Shi, 2005).
- On gender basis, respondents suffering from fatigue and muscle soreness after a day's work and **had not sought** for medical attention were 31.5% male and 68.5% female.

4. Conclusion

There was high sedentary lifestyle prevalence among workers in the selected KARLO institutes.

- There was no advocacy on the part of the management on the importance of policies and programs to mitigate effects of sedentary lifestyle among workers. Female workers were considered to have higher sedentary prevalence.
- The high number of respondents of both gender with WHtR >0.5 and WC $>88.9\text{cm}$ for females and $>101.6\text{cm}$ for male was indicative of high sedentary prevalence among workers.
- Use of **motorized transport ,screen time, delegation of house chores to house helps and occupational factors** played significant role in the high prevalence of sedentary lifestyle among workers . These factors increased with earnings, social economic status and age.

5. Recommendations

- ❑ Introduce **well-being programs** in the workplace and ensure all institutes have **operational dispensary**.
- ❑ Organise programs to encourage workers to **engage in exercises and fitness**(membership of gym or sports club)
- ❑ Invest in **ergonomic** chairs since comfortable sitting improves **posture** and **performance**.
- ❑ Carry a **baseline survey** on reduction of sedentary work environment using **bottom up** approach for inclusivity
- ❑ **Replicate** findings of this study to include **other** institutes to establish **standardized** policy and programs

6. Future Research

- The study unveiled **high** sedentary lifestyle prevalence among KALRO workers. The organisation has been appropriately **advised** in the study's recommendations.
- However, **further research** needs to be carried out to reveal the **impacts** of this high sedentary lifestyle and its consequences for both **employer** and **employee**.

Parting shot

“no excuses to no PA”

