

# The Association between Socio-demographic Factors and the Prevalence of the Non-Communicable Diseases

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**Abstract:** This study aimed at evaluating the Association Between Socio-demographic Factors and the Prevalence of the Non-Communicable Diseases. Primary data were collected by means of self-administered questionnaire. The sample was chosen from outpatients attending various non-communicable diseases clinics at Mwananyamala Hospital using simple random sampling technique. The analysis was performed using Statistical Package for Social Science (SPSS ver. 20) and the findings of the study show that psychological adjustment services dealing with diabetes mellitus are available and affected people are aware about the services provided. The findings revealed marked differences were seen in the prevalence of risk factors between men and women. Smoking and weekly alcohol consumption were more common in men than women. Low physical activity, overweight and abdominal obesity were much more common in women than men. The study found the levels of most NCD risk factors to be higher among older than younger age groups as well, High Density Lipoprotein (HDL) cholesterol, which is considered a protective factor, increased across age groups. The policies and programs targeted to reduce NCD risk factors within the Tanzania population should be designed as per the socio-demographic gradient of the country.

**Keywords:** Socio-demographic, Prevalence, Non-Communicable.

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## 1. INTRODUCTION

Non-Communicable Diseases (NCDs) account for 71% of all deaths worldwide, presenting a challenge for the ageing population and the world (WHO, 2021). Cardiovascular diseases, diabetes and cancer commonly co-occur with both common mental disorders (such as depression and anxiety disorders) and severe mental illnesses (such as schizophrenia and bipolar disorder). A recent report by WHO (2018) indicates that the global disease profile is changing at an astonishing rate, with deaths and disabilities from NCDs exceeding those from infectious diseases and nutritional deficiencies. According to (Mendes *et al.*, 2017), chronic diseases of lifestyle (CDLs), which include heart diseases, stroke, type 2 diabetes, cancer and chronic obstructive pulmonary diseases (COPDs), account for almost 60% of global deaths and 47% of the global burden of disease. Approximately 80% of the global CDLs deaths occur in low-income and middle-income countries.

The incidence of non-communicable diseases (NCDs) is rising in Tanzania with its attendant morbidity and mortality. NCDs (particularly cardiovascular disease, diabetes and cancers) were responsible for 38 million (68%) of the world's 56 million deaths in 2012 (Nyirenda, 2016). Studies have shown that early detection and timely intervention can prevent further morbidity and ultimately prolong life. Additionally, some risk factors for these diseases, when identified, can be modified, thus preventing their onset and progression.

In Tanzania, the common NCDs include cardiovascular disease, hypertension, diabetes and cancers (WHO, 2014). Many studies have documented the rising prevalence of NCDs among the general population in Tanzania. Hypertension is said to

affect 25 to 48% of the adult population, while nearly 10% are diabetic, and the incidence of cancer is on the increase (Nyirenda, 2016). NCDs and the associated impairments and comorbidities greatly impact a patient’s quality of life. The leading environmental and behavioural risk factors for NCDs are tobacco use, air pollution, physical inactivity, unhealthy diet, and the harmful use of alcohol; many individuals combine several risk factors associated with the development of NCDs (Nyirenda, 2016).

Some studies such as, Balogun *et al.*, (2017), Da Silva *et al.*, (2015), Dumith *et al.*, (2019), have examined the relationship between psychosocial factors operating at different levels and specific NCDs, only a few studies (Nyirenda, 2016) and (WHO, 2014) to date have attempted to systematically collate and synthesise the overall evidence provided from this considerable, but widely dispersed, evidence base on the association of socio-demographic factors and prevalence of Non-communicable diseases. The existing reviews usually focus on individual health outcomes and most of them have been done in developed countries which have different settings compared to Tanzania. This paper therefore studied the association of socio-demographic factors and prevalence of Non-communicable diseases with the purpose of filling this gap in the Tanzanian context using Outpatients at Mwananyamala Hospital.

## 2. MATERIAL AND METHODS

The study was carried out at Mwananyamala Hospital in Dar es Salaam Tanzania. The area was selected because it is a business capital of Tanzania and has a huge population and therefore the lifestyle of residents is frantic and would make good sample for the study at hand. This was a cross-sectional population-based survey of participants aged 25 years and older.

This study employed probability sampling procedures, that is, stratified and simple random sampling. This technique reduced biases since in simple random sampling technique every person in the targeted population was given the same chance of being included in the sample. In the stratified sampling technique, the population was divided regarding specific characteristics such as gender, age, educational level and then used simple random sampling to sample from the elements for each subcategory of the population using lottery techniques.

Quantitative data obtained from questionnaires were summarised, coded and analysed through tables. The data was presented, interpreted and organised based on statistical inferences derived from the analysed data. Statistical Package for Social Sciences (SPSS) was used which included percentages, frequencies and statistical means that were determined through descriptive statistics.

## 3. RESULTS AND DISCUSSION

The study focused on assessing the association between socio-demographic factors and the prevalence of the non-communicable diseases and the analysis was done in respect to women and men descriptively to establish the link between the two constructs; socio-demographic factors and the prevalence of the non-communicable diseases.

**Table 1: Association between Socio-Demographic Factors and the Prevalence of the Non-Communicable Diseases by Sex**

Variable	Total (n=90)	Men (n=56)	Women (n=34)	P-value*	Adjusted P-value*
<b>Lifestyle risk factors</b>					
Current smoker	6.5 (5.8–7.1)	13.1 (11.7–14.5)	1.3 (9.5–16.8)	<0.001	<0.001
Alcohol user	34.6 (30.6–38.6)	40.2 (35.3–45.2)	30.3 (26.6–34.0)	<0.001	<0.001
Weekly drinker	11.4 (9.6–13.3)	19.1 (15.9–22.3)	5.7 (4.6–6.8)	<0.001	<0.001
Low physical activity	29.8 (28.2–31.5)	20.8 (19.0–22.6)	36.7 (34.5–39.1)	<0.001	<0.001
<b>Physical risk factors</b>					
Overweight	11.8 (10.6–13.1)	5.2 (4.3–6.1)	16.9 (15.0–18.8)	<0.001	<0.001
Abdominal obesity	17.7 (16.4–19.0)	1.5 (1.1–2.0)	30.0 (27.8–32.3)	<0.001	<0.001
Raised blood pressure	16.5 (15.3–17.6)	16.9 (15.3–18.5)	16.1 (14.8–17.5)	<0.532	<0.443

Source: Survey Data, 2022

Marked differences were seen in the prevalence of risk factors between men and women. Smoking and weekly alcohol consumption were more common in men than women (13.1% vs 1.3% and 19.1% vs 5.7%, respectively,  $P$ -value  $<0.001$  for all). However, low physical activity, overweight and abdominal obesity were much more common in women than men (36.7% vs 20.8%, 16.9% vs 5.2%, and 30.0% vs 1.5%, respectively,  $P$ -value  $<0.001$  for all). Consistent with the differences in overweight and abdominal obesity between men and women, lipid profiles were worse in women. By contrast, no marked difference between men and women was found in the prevalence of raised blood pressure (16.9% vs 16.1%,  $P$ -value 0.443) or raised HbA1c (0.6% vs 0.9%,  $P$ -value 0.166). The study found the levels of most NCDs risk factors to be higher among older than younger age groups ( $P$ -value  $<0.001$ ). Notable exceptions were low fruit and vegetable consumption, which showed no clear relationship with age for women ( $P$ -value 0.757) and a weak relationship with age for men ( $P$ -value 0.033), and high staple consumption which showed no evidence for being related to age for men ( $P$ -value 0.289) or women ( $P$ -value 0.203). High Density Lipoprotein (HDL) cholesterol, which is considered a protective factor, increased across age groups ( $P$ -value  $<0.001$ ).

The present study finding is in contrast to the previous study conducted in Brazil. In Brazilian studies, the most prevalent risk factors were physical inactivity followed by the unhealthy diet: the proportion of excessive alcohol consumption was significantly higher in older adolescents than that in younger adolescents (Silva *et al.*, 2014). The common findings in the Tanzania studies were the high prevalence of the unhealthy diet and physical inactivity: this implies that the socio-cultural norms of the society may be unaware of the burden of these risk factors for NCDs. In SSA, the knowledge of risk factors for NCDs in particular unhealthy diet and physical inactivity among adolescents and youths has been reported to be poor (Romo & Kelvin, 2016). On the other hand, risk factors such as tobacco use and excessive alcohol consumption may be considered by the society and policymakers to be less harmful to health: the tolerance of these risk factors in the society is uncertain. Therefore, the prevalence of tobacco use and excessive alcohol consumption may be under-reported than that of physical inactivity and unhealthy diet.

The most prevalent combination of risk factors for NCDs were two factors and three factors: the most prevalent co-occurrence factors were an unhealthy diet and physical inactivity; unhealthy diet and suicide attempt; and unhealthy diet and tobacco use. This finding is comparable to the previous studies conducted in middle-income countries (Alamian, 2009): however, the proportion of these risk factors combinations was relatively higher in middle-income countries than that in the present study. Moreover, in contrast to the present study, the previous studies focused on the independent prevalence of the risk factors for NCDs among outpatients at Mwananyamala. There is evidence that the co-occurrence of lifestyle, health-risk behaviours is more detrimental to health than that could be expected if the individual risk factors are added independently. It has been suggested that multiple risk factors prevention approaches have a great impact at a lower cost than that of the individual risk factors prevention approach (Noble, 2015). Therefore, a multiple risk factors approach may be suitable for low-income and resource limited settings such as Tanzania: to mitigate the burden of NCDs risk factors.

Whereas smoking, alcohol consumption (men only) and low HDL cholesterol were more common in the lower social demographic factors group, we found that overweight, abdominal obesity, raised blood pressure, raised total cholesterol and raised Haemoglobin A1c (HbA1c) (women only) were more common in the higher social demographic factors group. Although overweight was more common among those of higher social demographic factors ( $P$ -value  $<0.001$  for men and women), low physical activity ( $P$ -value 0.230 for men, 0.397 for women), low fruit and vegetable consumption ( $P$ -value 0.499 for men, 0.299 for women) and high staples consumption ( $P$ -value 0.365 for men, 0.088 for women) showed no clear trend with social demographic factors.

Within this study there was a significantly higher smoking prevalence amongst males than females, which aligns with the patterns of smoking observed in other countries (Marmot *et al.*, 2018). Studies have indicated that this could be due to a range of factors including tobacco industry market strategies that portray smoking as more masculine and community tolerance of male smoking over female smoking (Murray *et al.*, 2012). The findings revealed an increasing prevalence in smoking with increasing age, a similar finding to that of the previous 2013 STEPS survey and other global data (Salomon *et al.*, 2010). A possible explanation for increasing smoking prevalence with age may be due to increased levels of dependence with age, or lack of effective cessation programs which may lead to the accumulation of smokers with increasing age (Lozano *et al.*, 2012). Participants with none/less than primary education were more likely to smoke as compared to those with a higher education level (primary, secondary or higher secondary above) in our study. This finding was consistent with previous data from demographic and health surveys of nine countries, including Tanzania (Miranda *et al.*, 2008).

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Alcohol intake and harmful alcohol intake was higher among males than females. Regarding types of alcohol used, a significant proportion of females consumed home-brewed alcohol whilst males consumed alcohol from other sources i.e., industrially produced alcohol (Sobngwi *et al.*, 2017). This difference in consumption of alcohol based on the sex of participants could be linked to social and cultural norms which define drinking alcohol by males as normal behaviour, while in females, drinking alcohol is still considered as an anti-social act (WHO, 2018). In addition, findings revealed that there is a higher prevalence of the harmful use of alcohol among employed participants (10.96%) compared to other groups.

The current study reports a low prevalence of physical inactivity, a finding that is in line with those of previous national and international surveys (Guthold, 2018). However, in comparison with the 2013 STEPS survey, physical inactivity has doubled. Those in the richest quintile were found to have the highest prevalence of physical inactivity because most of the time they use cars rather than walking. This may be due to the adoption of a sedentary lifestyle associated with occupations among this group of people along with better access to means of transportation, thereby reducing walking hours in a day.

Almost one quarter (24%) of people were overweight, a figure slightly higher than that reported in the STEPS survey in 2013 (21%) (Mather, 2015). This increment may be understood in relation to changes in physical inactivity level, which was about 3% in 2013 and has increased to 7.4%. Apart from sedentary lifestyle, urbanisation accompanied with increased consumption of processed/junk foods may be a factor in the increased prevalence of overweight among Tanzanian adults.

#### 4. CONCLUSIONS

The present study showed clear evidence that psychological risk factors for NCDs exist and are prevalent among out patients in Tanzania. However, in the present study, older participants were significantly more likely to have a higher prevalence of psychological risk factors for NCDs. A multi-strategy public health intervention study may be more cost-effective than a single risk factor approach hence suitable for resource-limited settings, such as Tanzania. The complex nature of associations between sociodemographic factors and NCDs risk factors is further illustrated by the apparent interdependence between the sociodemographic factors in their association with NCDs risk factors, as shown through interaction analyses. The difference between men and women in the strength of association between age and lifestyle risk factors may be due to cultural reasons and gender roles across age groups. However, there may also be underlying biological differences between men and women leading to differences in the relationship between age and risk factors, observed here for blood pressure and HDL cholesterol. The relationship between socio-demographic factors and NCDs risk factors may be modified by both age and sex in some cases. This may reflect a difference in how the lives of men and women and of those of different age groups are affected by their household's socio-demographic factors. The study was cross-sectional in design and therefore unable to comment on a temporal relationship between sociodemographic factors and NCDs risk factors.

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