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Practice and Self-Efficacy Relating to the Modifiable Risk Factors of Non Communicable Diseases among Staff of Tertiary Institutions in Ondo State, Nigeria

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Abstract: *This study examined the practices and self-efficacy related to modifiable risk factors of Non-Communicable Diseases (NCDs) among staff of tertiary institutions in Ondo State, Nigeria. Specifically, it assessed staff engagement in health-related practices, evaluated their self-efficacy levels in managing modifiable risk factors, and investigated the relationship between self-efficacy and healthy practices, including potential gender differences. A descriptive survey research design was adopted, involving 1,580 academic and non-academic staff selected through a multistage sampling technique from five tertiary institutions. Data collection employed a validated and reliable questionnaire titled the NCD Modifiable Risk Factors Questionnaire (NMRFQ). Findings indicated that most staff occasionally engaged in physical activity, consumed fruits and vegetables irregularly, and monitored health parameters such as weight, blood pressure, and blood glucose. Notably, the prevalence of unhealthy behaviours such as smoking and alcohol use was low. However, only 12% of respondents demonstrated high self-efficacy in managing modifiable risk factors, with nearly half exhibiting low self-efficacy. A significant positive relationship ($r = 0.427$; $p < 0.05$) was found between self-efficacy and health practices, indicating that higher self-efficacy correlates with better health practices. Gender, however, did not significantly influence these practices ($p = 0.971$). The study concluded that low levels of self-efficacy are a barrier to optimal health practices and recommended targeted interventions to improve staff confidence in managing NCD risk factors.*

Keywords: non-communicable diseases, self-efficacy, modifiable risk factors, health practices, tertiary institutions

INTRODUCTION

Non-Communicable Diseases (NCDs), including cardiovascular diseases, cancers, chronic respiratory conditions, and diabetes, have become leading causes of premature mortality worldwide, with a disproportionate burden in developing countries like Nigeria (Ahmad et al., 2016). Staff of tertiary institutions in Ondo State, Nigeria, are not exempt from this global health crisis. Observations indicate a disturbing trend among this population, reflected in increased sick leave, sudden illnesses, absenteeism, and collaborative fundraising for ailing colleagues. These challenges are compounded by the sedentary nature of academic roles, which include prolonged periods of sitting during lectures, meetings, marking, and research, often at the expense of physical activity, proper rest, and health maintenance.

Although awareness of general health practices exists among academic staff, there appears to be a gap in specific knowledge about NCDs, their signs, symptoms, and complications. Misconceptions persist, such as the belief that NCDs affect only a certain class of people. Many are unaware of the behavioural and lifestyle factors that contribute to the development of NCDs, which affects their attitudes towards preventive health practices (Agofure et al., 2021). The prevalence of NCDs is alarming. Globally, over 40 million of the 56.9 million deaths recorded in 2016 were attributed to NCDs (WHO, 2022). Cardiovascular diseases alone accounted for 17.9 million deaths, followed by cancers (9.0 million), chronic respiratory diseases (3.8 million), and diabetes (1.6 million). Africa, including Nigeria, faces an increasing burden of these diseases, expected to surpass communicable diseases in mortality rates by 2030 (WHO, 2022). This shift signals a health crisis, particularly in sub-Saharan Africa where limited resources are often directed towards combating infectious diseases and maternal and child health issues (Yu et al., 2020).

The perception that NCDs only affect affluent individuals has been disproven, as middle- and low-income countries now account for about 80% of global NCD cases (Visseren et al., 2021). The implications are particularly grave for Nigeria, where NCDs such as hypertension, diabetes, asthma, and cancer are prevalent. For example, the incidence of diabetes is expected to rise from 300 million in 2010 to 366 million by 2030 (United Nations Educational Scientific and Organization Cultural 2021), with associated complications that include vascular damage, increased morbidity, and reduced life expectancy (WHO, 2022).

Risk factors significantly influence the development of NCDs. Defined as attributes or exposures that increase the probability of disease (Trevethan, 2017), these are categorised as non-modifiable and modifiable. While non-modifiable risk factors such as age, gender, and genetic predisposition cannot be changed, modifiable risk factors like tobacco use, alcohol consumption, unhealthy diets, physical inactivity, poor sleep, chronic stress, and lack of medical check-ups can be addressed through behavioural changes (WHO, 2022).

Among academic staff, physical inactivity is a notable concern. Sedentary lifestyles, common in tertiary institutions, are directly linked to increased risk of NCDs. Even modest physical activity can provide substantial health benefits. Cardiovascular fitness, enhanced through aerobic exercise, helps manage blood pressure, cholesterol, and glucose levels, thereby reducing disease risk (Stromsnes et al., 2021). Alcohol intake, particularly when excessive, exacerbates the risk of NCDs, including cardiovascular diseases and cerebrovascular accidents (Shirotiya, 2020; Shen, et al., 2020). Tobacco use is another prevalent behavioural risk, often resulting in hypertension and increased cardiac workload due to nicotine-induced vasoconstriction (Shatnawi et al., 2018). The self-efficacy and practice of health-promoting behaviours among academic staff are crucial to mitigating these risks. Self-efficacy is the belief in one's capability to execute behaviours necessary to produce specific performance attainments, influences motivation and persistence in adopting healthier lifestyles. When individuals believe they can make a change, they are more likely to engage in risk-reducing practices.

The findings from the reviewed literature highlight critical issues surrounding the practices and self-efficacy of individuals in relation to modifiable risk factors of Non-Communicable Diseases (NCDs). Several studies have established that unhealthy lifestyle practices such as physical inactivity, poor dietary habits, smoking, and alcohol consumption are prevalent and contribute significantly to the growing burden of NCDs. Hughes, Puoane, and Bradley (2006) attributed this rise, especially in developing countries like South Africa, to urbanisation and economic transitions that promote unhealthy behaviours such as low physical activity and obesity. Similarly, Selvam et al. (2017) observed that Western eating habits and decreased physical activity have become more common in urban African environments, posing major health risks.

Further findings from Seibt et al. (2015) supported the claim that sedentary lifestyles and diets high in saturated fats, salt, and sugar are central to the rise of NCDs. A study by Sapra and Bhandari (2023) found that 41% of respondents never checked their blood pressure, 38.2% frequently consumed fatty foods, and only 31.8% engaged in 30–60 minutes of physical activity frequently. Kato et al. (2023) research in Tanzania revealed that while 66.8% of respondents were aware of NCDs, only 19.75% understood their risk factors. Just over half (52.35%) reported engaging in physical activity, while a smaller proportion smoked (9.54%) or consumed alcohol (29.56%).

In Nigeria, Jamiu et al. (2024) discovered that hypertensive patients had poor lifestyle practices and low knowledge of NCDs, with only 18% identifying risk factors. Similarly, Olusegun et al. (2011) found that less than half of Nigerian adults surveyed (41%) were knowledgeable about NCDs, although a greater number (58.8%) were informed about their hypertension medication. Compliance with medication was low, with only 32.1% adhering strictly, and women showed slightly better knowledge than men. On the aspect of self-efficacy, the literature reveals that it significantly influences an individual's health behaviours. Those with higher self-efficacy are more likely to adopt healthier habits such as fat-restrictive diets and increased physical activity (Dankoli & Amosu 2022). Academic staff, due to their sedentary lifestyle and potential reliance on high-calorie diets, face

increased risk, with their confidence in managing these behaviours playing a crucial role in the success of any health intervention aimed at reducing NCDs.

This study, therefore, seeks to examine the practice and self-efficacy related to modifiable risk factors of NCDs among staff of tertiary institutions in Ondo State. The objectives of this study were to investigate the practices of staff of tertiary institutions in Ondo State, Nigeria, regarding the modifiable risk factors of Non-Communicable Diseases (NCDs), and to assess their level of self-efficacy in managing these risk factors. Additionally, the study aimed to determine whether there is a significant relationship between self-efficacy and practices related to modifiable risk factors of NCDs, and to examine whether gender differences exist in both the practices and self-efficacy of staff concerning these risk factors.

RESEARCH METHOD

This study employed a descriptive survey research design to assess modifiable risk factors of non-communicable diseases (NCDs) among staff of tertiary institutions in Ondo State, Nigeria. The population included all male and female academic and non-academic staff of various tertiary institutions across the state. A sample of 1,580 respondents was selected through a multistage sampling technique. Initially, five institutions were chosen, including one state university, one private university, a polytechnic, a college of education, and a federal university. In the second stage, 50% of faculties from each institution were selected through simple random sampling, followed by the selection of 50% of departments within those faculties. The third stage employed proportionate sampling to include specific categories of respondents, while the final stage used stratified random sampling to ensure adequate representation of male and female staff.

The instrument used was a self-structured questionnaire titled NCD Modifiable Risk Factors Questionnaire (NMRFQ), which comprised three sections. Section A collected demographic data; Section B explored practices regarding NCDs using a three-point scale; and Section C assessed self-efficacy related to NCD risk factors using a five-point Likert scale. The instrument was validated through face and content validation by experts in Human Kinetics and Health Education, and construct validity was confirmed via a pilot study involving 20 respondents from a non-participating institution. The reliability was confirmed with a Cronbach's alpha coefficient of 0.791, indicating strong internal consistency. The researcher and two trained assistants administered the questionnaire across the selected institutions after obtaining permission from institutional authorities. Data collected were coded and analysed using descriptive statistics such as frequency, percentage, mean, and standard deviation. Inferential statistics included Pearson's Product Moment Correlation for hypothesis one, and t-test analysis for hypotheses two and three, all tested at a 0.05 level of significance.

RESULTS

Research Question 1: What are the practices of staff of tertiary institutions in Ondo state towards the non- modifiable risk factors of Non-Communicable Diseases?

In table 1, the mean score cut-off mark of 2.50 was derived by finding the average of the scoring system. Mean score of items greater than mean cut-off of 2.50 were accepted while those less than 2.50 were rejected.

Table 1: Mean Scores of practice of modifiable risk factors of NCD

S/N	ITEMS	Mean	S.D	Remark
1.	I engage in lot of physical activity	1.70	0.78	Occasionally
2.	I walk for at least 10 minutes to get to and from places	2.24	0.74	Occasionally
3.	I maintain a sitting position for 6 hours or more daily	1.78	0.84	Occasionally
4.	I walk to places that are of short distances instead of going by means of transport	1.61	0.71	Occasionally
5.	I engage in physical exercises that make me sweat	2.03	0.69	Occasionally
6.	I take fruits as part of my diet	2.29	0.63	Occasionally
7.	Vegetables are part of my diet	2.37	0.64	Occasionally
8.	Fried foods like egg roll, and beef are part of my diet	2.92	0.72	Sometimes
9.	I use a lot of salt for cooking	1.45	0.59	Never
10.	I smoke	1.42	0.53	Never
11	I stay close to smokers	1.14	0.55	Never
12	I drink alcohol	1.64	0.61	Occasionally
13	I sleep for at least 6 hours	2.65	0.54	Sometimes
14	I check my weight	2.98	0.35	Sometimes
15	I check my blood pressure	2.96	0.30	Sometimes
16	I check my blood glucose	2.55	0.56	Sometimes

Mean Cut-off: 2.50 (Never: 1.00-1.49, Occasionally: 1.50-2.49; Sometimes: 2.50 – 3.49; Often: 3.50-4.00)

Table 1 showed the practices of staff of tertiary institutions in Ondo state towards the non-modifiable risk factors of Non-Communicable Diseases. Using the criterion mean score of 2.50 as cut-off to determine the affirmative of each statement, the respondents indicated that the practices of modifiable risk factors of Non-Communicable Diseases are Fried foods like egg roll, and beef are part of my diet (Mean = 2.92), I sleep for at least 6 hours (Mean = 2.65), I check my weight (Mean = 2.98), I check my blood pressure (Mean = 2.96), and I check my blood glucose (Mean = 2.55). The least factors related to the practices of staff towards the non- modifiable risk factors of NCDs included I engage in lot of physical activity (Mean = 1.70), I walk for at least 10 minutes to get to and from places (Mean = 2.24), I maintain a sitting position for 6 hours or more daily (Mean = 1.78), I walk to places that are of short distances instead of going by means of transport (Mean = 1.61), I engage in physical exercises that make me sweat (Mean = 2.03), I take fruits as part of my diet (Mean = 2.29), vegetables are part of my diet (Mean = 2.37), I use a lot of

salt for cooking (Mean = 1.45), I smoke (Mean = 1.42), I stay close to smokers (Mean = 1.14) and I drink alcohol (Mean = 1.64).

Research Question 2: What is the level of self-efficacy of staff of tertiary institutions in Ondo state on modifiable risk factors of Non-Communicable Diseases?

Table 2: Level of self-efficacy on modifiable risk factors of NCD

Levels of self-efficacy on modifiable risk factors of NCD	**No of Respondents**	**Percentage**
Low (12.00 – 28.41)	716	49.8
Moderate (28.42 – 43.42)	549	38.2
High (43.43 – 60.00)	172	12.0
Total	**1,437**	**100**

Table 2 revealed the level of modifiable risk factors of knowledge of Non-Communicable Diseases among the respondents. The mean score and standard deviation of the responses were used to determine the levels as either low, moderate or high. The low level of self-efficacy on modifiable risk factors of Non-Communicable Diseases was determined by subtracting the standard deviation from the mean score (35.92 – 7.51 = 28.41). The moderate level of self-efficacy on modifiable risk factors of Non-Communicable Diseases was determined by the mean score (35.92) while the high level of self-efficacy on modifiable risk factors of Non-Communicable Diseases was determined by adding the mean score and standard deviation (35.92 + 7.51 = 43.43). Therefore, low level of self-efficacy on modifiable risk factors of Non-Communicable Diseases starts from 12.00 to 28.41, the moderate level starts from 28.42 to 43.42 and the high level of self-efficacy on modifiable risk factors of Non-Communicable Diseases is from 43.43 to 60.00. The findings showed that the level of self-efficacy on modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions was low. Figure i further revealed the level of self-efficacy on modifiable risk factors of Non-Communicable Diseases at a glance

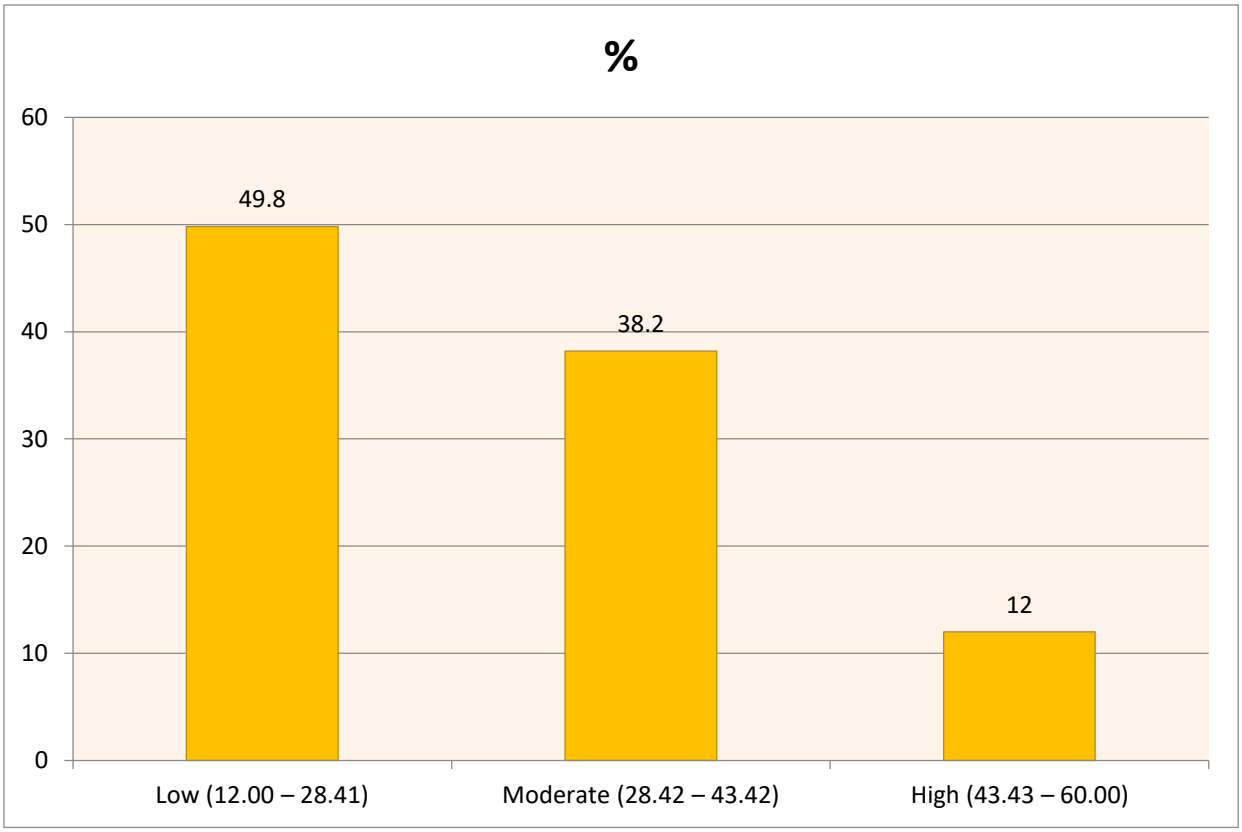

Figure i: Bar Chart showing level of self-efficacy on modifiable risk factors of Non-Communicable Diseases among the respondents

Testing of Hypotheses

Ho1: There is no significant relationship between self-efficacy and practice of modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions

Table 3: Relationship between self-efficacy and practice of modifiable risk factors of NCD

Variables	N	Mean	Stand Dev	r-cal	P-value
Self-efficacy of modifiable risk factors of NCD	1437	35.92	7.51	0.427*	0.000
Practice of modifiable risk factors of NCD	1437	33.73	3.64		

*P<0.05

Table 3 showed a positive relationship between self-efficacy and practice of modifiable risk factors of Non-Communicable Diseases. The r-calculated value of 0.427 is significant at 0.05 level ($r = 0.427$, $n = 1437$, $p<0.05$). This indicated that there was a significant positive relationship between self-efficacy and practice of modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions. The null hypothesis was

rejected. This implies that, as the self-efficacy of Non-Communicable Diseases increases, the practice of modifiable risk factors of Non-Communicable Diseases increases.

Ho2: There is no significant gender difference in practice related to the modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions.

Table 4: Gender difference in practice related to modifiable risk factors of NCD

Variations	N	Mean	SD	df	t_{cal}	P
Male	763	33.73	3.70	1435	0.036	0.971
Female	674	33.72	3.57			

P>0.05

Table 4 shows that the t-cal value of 0.036 was not significant because the P value (0.971) > 0.05. This implies that null hypothesis was not rejected. Hence, there was no significant gender difference in practice related to the modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions.

Hypothesis 3: There is no significant gender difference in self-efficacy on modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions.

Table 5: Gender difference in self-efficacy on modifiable risk factors of NCD

Variations	N	Mean	SD	df	t_{cal}	P
Male	763	35.94	7.49	1435	0.121	0.904
Female	674	35.89	7.55			

P>0.05

Table 5 shows that the t-cal value of 0.121 was not significant because the P value (0.904) > 0.05. This implies that null hypothesis was not rejected. Hence, there was no significant gender difference in self-efficacy on modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions.

DISCUSSION

It was further revealed that the practices of majority of staff of tertiary institutions in Ondo state, towards the modifiable risk factors of Non-Communicable Diseases are eating fried foods, sleeping for at least 6 hours, checking their weight, blood pressure and glucose. It was revealed that some practices that could minimize the risk factors of NCD were not followed by the respondents. The probable reason for this finding might be due to the opinion of Adewuyi et al. (2022) who opined that an increase in exposure to western lifestyle and eating habits which are characteristics of urban Africa environment might have affected good practice of non-modifiable risk factors of NCD. Agaba et al., (2017) also found that increasing sedentary lifestyle, coupled with rapidly growing urban cultures and modified diets are predicted to tripe the prevalence of NCDs in the next twenty-five years.

The study revealed that the level of self-efficacy of staff of tertiary institutions in Ondo state on modifiable risk factors of Non-Communicable Disease was low. This implies that most of the staff of tertiary institutions in Ondo State have low level of self-efficacy of modifiable risk factors of Non-Communicable Diseases. The probable reason for this finding might not be farfetched from the opinion of Rosario et al. (2024) who submitted that staff of tertiary institutions are not getting enough exercise or are not exercising at all to burn off excess calories and many may indulge in fat related dietary behaviour that can increase the risk of fat related diseases.

It was also revealed that there was significant relationship between self-efficacy and practice of modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions. This implies that an increase in self-efficacy of modifiable risk factors of Non-Communicable Diseases will lead to an increase in practice of modifiable risk factors of Non-Communicable Diseases.

The study also revealed that there was no significant gender difference in practice related to the modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions. This implies that both male and female staff exhibit same practice of modifiable risk factors of Non-Communicable Diseases. The finding of Akinlua, et al. (2015) contradicted the present finding as they concluded that gender difference existed in practice of risk factors of NCD. The study further revealed that there was no significant gender difference in self-efficacy on modifiable risk factors of Non-Communicable Diseases among staff of tertiary institutions. This implies that both male and female staff have same self-efficacy of modifiable risk factors of Non-Communicable Diseases. Ale and Braimoh (2017); Akseer et al. (2011) also found no gender difference among adults on self-efficacy on modifiable risk factors of Non-Communicable Diseases.

CONCLUSION

Staff of tertiary institutions in Ondo State demonstrated suboptimal practices towards modifiable risk factors of Non-Communicable Diseases (NCDs), with limited engagement in physical activity, dietary moderation, and health-protective behaviours. Their level of self-efficacy in managing these risk factors was predominantly low, indicating a lack of confidence or ability to consistently adopt healthy lifestyle choices. However, the study revealed a significant positive relationship between self-efficacy and practice, suggesting that improvements in self-efficacy could potentially enhance the adoption of healthier behaviours. Additionally, gender was not a determining factor in either the practice of or self-efficacy towards modifiable risk factors, as no significant differences were found between male and female staff.

Recommendations

Based on the findings of this study, the following recommendations were made.

1. Since low self-efficacy was found to be a major barrier to practising healthy behaviours, tertiary institutions should organise regular health education and

behavioural change programmes focused on building staff confidence in managing modifiable risk factors of NCDs. These programmes can include goal-setting workshops, peer mentoring, and motivational counselling sessions to encourage sustainable lifestyle changes.

2. Given the low level of physical activity among staff, management of tertiary institutions should promote and facilitate regular physical exercise by providing access to gym facilities, organising fitness clubs, or scheduling brief physical activity breaks during work hours. Walk-to-work campaigns and institution-wide fitness challenges could also encourage staff participation in physical activity.
3. The study found that some respondents occasionally monitor key health indicators such as weight, blood pressure, and blood glucose. Institutions should collaborate with health service providers to offer periodic on-site health screenings and counselling services. These measures will support early detection and management of NCD risk factors.
4. In light of poor dietary habits such as frequent consumption of fried foods and low intake of fruits and vegetables, institutions should provide clear dietary guidelines and promote healthy eating through staff canteens, awareness campaigns, and nutrition workshops. These initiatives should focus on the benefits of balanced diets in preventing NCDs and improving overall wellbeing

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