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Original Research

Non-Communicable Disease Screening Behavior and Determinants Among Bank Employees in Dire Dawa City, Eastern Ethiopia

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Abstract

Background: The significance of non-communicable disease screening behavior lies in its potential to reduce morbidity and mortality associated with these diseases. Early detection through screening can lead to more effective treatment and better health outcomes and can also play a crucial role in preventing the progression of the disease. The purpose of this study is to assess chronic disease screening practice and its predictors among overweight employees of the Bank of Dire Dawa using the health belief model.
Methods: An institutional-based cross-sectional study design was employed among 349 government and private bank employees in Dire Dawa city administration. A stratified sampling technique was used to recruit study respondents who provided information on socio-demographic, clinical-demographic, behavioral, lifestyle, and dietary habits. Bivariable and multivariable logistic regression models were used to determine the chronic disease screening practice and its associated risk factors, January 2024.
Result: From 349 study participants, 156 (44.7%) have been screened for chronic disease. Female participants were 46.6% less likely to engage in screening compared to males (AOR = 0.534; 95% CI: 0.296, 0.964; p < 0.038). Job position was also a strong predictor; with each increase in office rank, the odds of screening rose significantly (AOR = 12.634, 95% CI: 1.300, 122.776, p = 0.029). Specifically, cashiers were 22.950 times (AOR = 22.950, 95% CI: 2.243, 234.845, p = 0.008) and clerks were 78.268 times (AOR = 78.268, 95% CI: 6.708, 913.254, p = 0.001) more likely to practice screening compared to lower-tier roles such as drivers, runners, and cleaners. Additionally, those who perceived a moderate benefit from screening were more than twice as likely to undergo screening compared to those with a high perceived benefit (AOR = 2.207, 95% CI: 1.147, 4.244, p < 0.018).
Conclusion: This study found that 44.7% of respondents had ever been screened. Older age groups and those with higher job positions were more likely to be screened. The study suggests a link between healthy lifestyle choices and lower stress around blood pressure screenings. The findings highlight the complex factors influencing chronic disease screening practices and the need for targeted interventions to improve screening rates across all demographics.

Keywords: Bank employees, Dire Dawa, Non-communicable Disease, Overweight, Screening

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1. Introduction

Non-communicable disease (NCD) screening behavior refers to the actions and practices individuals engage in to detect non-communicable diseases, such as cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes, at an early, often asymptomatic stage. This proactive approach to health involves undergoing medical tests and procedures that aim to identify the presence of these diseases before symptoms manifest, thereby facilitating early intervention and management. The significance of NCD screening behavior lies in its potential to reduce morbidity and mortality associated with these diseases. Early detection through screening can lead to more effective treatment and better health outcomes and can also play a crucial role in preventing the progression of the disease [1].

The World Health Organization (WHO) defines obesity as a condition of abnormal or excessive fat accumulation in adipose tissue. It is also considered the fifth leading cause of death worldwide and one of the biggest health challenges and risk factors for some chronic diseases, including diabetes, heart disease, hypertension, and psychosocial problems in the twenty-first century [2]. The WHO defines overweight and obesity based on body mass index (BMI): overweight is a BMI of 25 to 29.9, and obesity is a BMI of 30 or greater [3]. Alcoholic consumption and physical inactivity have all been associated with obesity and overweight [4]. Diabetes mellitus is a metabolic disease with several etiologies that is typified by persistent hyperglycemia and disruptions in the metabolism of carbohydrates, lipids, and proteins due to deficiencies in insulin secretion, insulin action, or both [5].

Numerous significant risk factors can result in type 2 diabetes. These include growing urbanization, dietary modifications, decreased physical activity, obesity, aging, nutritional states, diabetes in the family history, ethnicity, and changes in bank employees' lifestyle patterns [4]. In addition to eating a balanced diet, controlling weight, practicing mindful eating, and engaging in physical activity can all lower glucose levels [6]. Obesity is linked to several conditions, including diabetes mellitus (DM) and hypertension. Approximately 30% of individuals with DM also have Obesity and overweight provide a serious risk for several non-communicable illnesses, such as diabetes, cancer, obstructive sleep apnea, and cardiovascular disease. Globally, over 650 million people (13%) were obese, and over 1.9 billion adults (39%) were overweight in 2016. Compared to the general population, healthcare workers, teachers, and bankers have been identified as high-risk occupation categories with more exposure to the predictors of overweight and obesity [7].

According to the body mass index (BMI) classification by WHO, 34.5% were overweight and 25.75% were obese of bank employees [7]. The classification shows that 18.5% of the bank employees had isolated with abdominal obesity [8]. Various risk factors for chronic disease, including age, obesity, physical inactivity, family history, alcohol use, and smoking, have been proposed by the results of several studies. Stress, poor diet, and little fruit consumption raise the incidence of chronic disease [9]. The World Health Organization (WHO) estimates that 600 million people worldwide are at risk of cardiovascular disorders such as myocardial infarction, coronary heart disease, and stroke as a result of hypertension [10].

In bank employees, long work hours, a sedentary lifestyle, and demanding professions are thought to be major causes of chronic disease, according to epidemiological studies [11]. It is estimated that up to 57.8% of people in different areas of the world will become overweight and obese by 2030 [12]. A systolic blood pressure (SBP) of 140 mm Hg or higher, a diastolic blood pressure (DBP) of 90 mm Hg or higher, or the use of anti-hypertensive medication are the definitions of hypertension (raised blood pressure), which is a condition in which the blood vessels have persistently raised pressure, putting them under increased stress. Due to its higher prevalence in urban areas, its silent killer status before diagnosis, and complications severity, high blood pressure is a widespread issue with significant economic impact. Globally, it contributes to 62% of cerebrovascular illnesses and 49% of ischemic heart disease [13].

Several research findings have demonstrated that some risk factors, such as age, obesity, physical inactivity, family history, alcohol use, smoking, and stress, raise the prevalence of chronic diseases like hypertension, diabetes, breast cancer, and so on [14]. These risk factors include Reduced physical activity and elevated mental stress are major causes of chronic disease and are typically observed in workers in professions where most of the work is sedentary, such as banking, where there is a high level of mental stress in addition to a sedentary work environment. Therefore, adult chronic disease screening aids in the identification of asymptomatic persons, minimizing harm to essential organs and lowering complications and mortality [15].

The study may have implications for health policies, both at the organizational level (within the banks) and at the broader community or regional level. Policymakers can use this information to formulate strategies that address the health needs of this specific group. Identifying patterns of chronic disease screening behaviors can aid in the early identification of health risks among overweight bank employees, allowing for timely intervention and

management. Challenge insights that can inform evidence-based treatments and policies, boosting health are also used by policymakers and relevant stakeholders to construct health promotion strategies.

2. Methods and Materials

2.1. Study Area and Period

This study was conducted among public and private bank employees in Dire Dawa city, located in the eastern part of Ethiopia, which is 515 km away from the capital, Addis Ababa. Dire Dawa comprises a population of 453,000, of whom 227,406 (50.2%) are males and 225,594 (49.8%) are females [16]. There are 24 banks with a total of 51 branches operating in Dire Dawa at the time of this study. An institution-based cross-sectional study was conducted at randomly picked branches of four selected banks in January 2024.

2.2. Population

2.2.1. Source Population

The source population for the study was all bank employees in Dire Dawa.

2.2.2. Study Population

The study population was bank employees in selected branches of four banks in Dire Dawa in the year 2024. Employees who had been diagnosed with chronic diseases and/or on treatment were excluded.

2.3. Sample Size and Sampling Technique

The required sample size was calculated with the two-population proportion formula using statistically significant variables from previous literature. All covariates for non-communicable disease screening behavior were considered to obtain the maximum sample size at a 95% confidence level, a power of 80%, and a 5% marginal error. The final calculated sample size was 349 participants.

The sample size calculation using the above formula was:

$$n = \frac{(Z_{1-\alpha/2})^2 P(1-P)}{d^2}$$

$$n = \frac{(1.96)^2 (0.80)\ (1-0.80)}{(0.05)^2}$$

$$n = \underline{349}$$

A stratified sampling technique was used to select study participants. First, four banks (CBE, Awash, Amhara, and Oromia) were selected randomly. The number of samples was allocated to each bank proportional to its workforce size. Then, the numbers of enumeration areas (branch offices) were randomly selected proportional to the total branch size of the banks. Finally, participants were selected by their employee IDs using simple random sampling from a list of employees at each selected branch.

2.4. Variables of the Study

2.4.1. Dependent Variable

- Non-communicable diseases screening behavior

2.4.2. Independent Variables

- Socio demographic characteristics such as Age, Sex, monthly income, educational status, marital status
- Knowledge of chronic disease screening
- Lifestyle such as alcohol drinking
- Physical inactivity, smoking, chewing chat.
- Perceived susceptibility to chronic illness
- Perceived severity of chronic illness
- Perceived barrier for chronic illness
- Perceived benefits for chronic illness

2.5. Data Collection Tools and Procedures

Data was collected by Kobo Collect with a questionnaire adapted from previously published similar studies, which constitute information on socio-demographics, knowledge towards chronic disease screening, behavior among overweight and health belief model domains, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy towards chronic disease screening by the principal investigator [17]. Knowledge towards chronic disease screening consisted of 8 items with yes or no questions, with 1 point given for each correct response and 0 for an incorrect response.

For each HBM construct question, a 5-point Likert scale was used, with the score ranging from strongly agree (5) to strongly disagree (1). From the HBM constructs, perceived susceptibility consisted of 4 items. Perceived severity consisted of 4 items. Perceived barrier has 4 items. Perceived benefit consisted of 4 items, cues to action consisted of 4 items, and self-efficacy consisted of 4 items. The questionnaire was initially developed in English after reviewing

existing literature and translated into Amharic and another local language, then backward translated to English to check its consistency.

The data collector was using the Kobo tool to collect the questions. The lead investigator supervised the data collection. A pretest of data collection was conducted on 5% of the total sample size at a different bank not included in the study population. The calculated reliability coefficient (Cronbach's alpha) of all HBM constructs was found in the acceptable range of >0.7: 0.848 for susceptibility, 0.797 for severity, 0.759 for barrier, 0.885 for benefits, 0.852 for cues to action, and 0.831 for self-efficacy.

2.6. Data Processing, Analysis and Interpretation

The data analysis ranged from the basic description to the identification of potential predictors of non-communicable disease screening behavior. The analysis was done by comparing employees who had screening with those who never had screening practice. Descriptive analysis, including frequency, percentage, mean, median, and standard deviation, was employed for summarizing the data. To determine the factors associated with the chronic disease screening practice components, a logistic regression analysis was performed at two levels. A first bivariable logistic regression model was used to calculate crude odds ratios (COR) and 95% confidence intervals (CI), and those independent variables whose p-values ≤ 0.20 shifted into the multivariable regression. Finally, a multivariate logit regression model was fitted to control the effect of confounding factors and to calculate adjusted odds ratios (AOR) to see the influence of independent variables.

3. Results

3.1. Characteristics of Participants

From a total of 349 participants included in the study, 156 (44.7%) had been screened for chronic diseases and 193 (55.3%) were not screened. The average age of the respondents is 34.65 years (± 5.31), ranging from 23 to 58 years. The study revealed that most participants aged 30-49 had the highest screening rates 83 (53.2%) followed by those aged 30-49 with 67(42.9%), and 6 (3.8%) a small proportion was over 50. Males were more likely to be screened for chronic disease 70 (44.9%) compared to females. On the other hand, the findings showed that married participants had slightly higher screening rates 96 (61.5%) compared to singles 56 (35.9%) and divorced/widowed 4 (2.6%).

The study showed that participants with a second degree or above had the highest screening rates 116 (74.4%), while those with a diploma had the lowest 5 (3.2%). Participants earning low income (2,500- 9,999 ETB) had shown the highest screening rates 97 (62.2%). The mean monthly income of respondents was 21,808 ETB.

The Hosmer and Lemeshow goodness-of-fit test yielded a P-value of 0.681, indicating evidence of model fitness, the variance inflation factors test (VIF) yielded in this study less than 1.5, which indicating no multicollinearity and the reliability coefficient were calculated in which the reliability coefficient (Cronbach's alpha) of all HBM constructs were found in the acceptable range (Cronbach's ȁ= 0.753) (Table 1).

Table 1. Socio-demographic characteristics of participants by non-communicable diseases screening status in Dire Dawa City Administration, 2024.

Socio-demographic Variables	Total (n=349)	Screened (n=156)	Not Screened (n=193)	P-value	VIF
Age category					
18-29	157 (45.0%)	67 (42.9%)	90 (46.6%)	0.691	
30-49	177 (50.7%)	83 (53.2%)	94 (48.7%)		1.253
>50	15 (4.3%)	6 (3.8%)	9 (4.7%)		
Sex					
Female	194 (55.6%)	86 (55.1%)	108 (56.0%)	0.876	1.136
Male	155 (44.4%)	70 (44.9%)	85 (44.0%)		
Marital status					
Single	135 (38.7%)	56 (35.9%)	79 (40.9%)	0.490	1.192
Married	203 (58.2%)	96 (61.5%)	107 (55.4%)		
Divorced/Widowed	11 (3.2%)	4 (2.6%)	7 (3.6%)		
Educational level					
Diploma	29 (8.3%)	5 (3.2%)	24 (12.4%)	0.006*	1.307
1st Degree	251 (71.9%)	116 (74.4%)	135 (69.9%)		
2nd Degree & above	69 (19.8%)	35 (22.4%)	34 (17.6%)		
Job position					
Manager	14 (4.0%)	8 (5.1%)	6 (3.1%)	0.032*	
Officers	175 (50.1%)	86 (55.1%)	89 (46.1%)		
Cashier	100 (28.7%)	43 (27.6%)	57 (29.5%)		1.359
Clerk	32 (9.2%)	14 (9.0%)	18 (9.3%)		
Other	28 (8.0%)	5 (3.2%)	23 (11.9%)		
Monthly income (ETB)					
2,500 - 9,999	235 (67.3%)	97 (62.2%)	138 (71.5%)	0.115	1.279
9,999 - 19,999	59 (16.9%)	28 (17.9%)	31 (16.1%)		
20,000+	55 (15.8%)	31 (19.9%)	24 (12.4%)		

*p<0.05

3.2. Non-communicable Disease Screening Behavior

The data show that among all respondents 156(44.7%) have screened for chronic disease and 193 (55.3%) were never screened. Considering physical exercise and screening status, out of the 349 participants, 77 (22.1%) of respondents reported their engagement in physical exercise, while the majority, 272 (77.9%) respondents did not. On the other hand, among those 156

participants who were screened for chronic diseases, 35 (22.4%) showed engagement in physical exercise, whereas 121 (77.6%) did not. The proportion of participants who reported 1-3 days eating fast food appears higher in the screened group 42 (12.0%) compared to the never consumed 12 (7.7%) had the lowest.

The distribution of participants across alcohol consumption categories (never, occasionally, a few days a week, daily) seems somewhat different between the two groups. However, it's worth noting that a higher proportion of participants who were screened reported never consuming alcohol 29 (18.6%) compared to those not screened 37 (19.2%) (Figure 1).

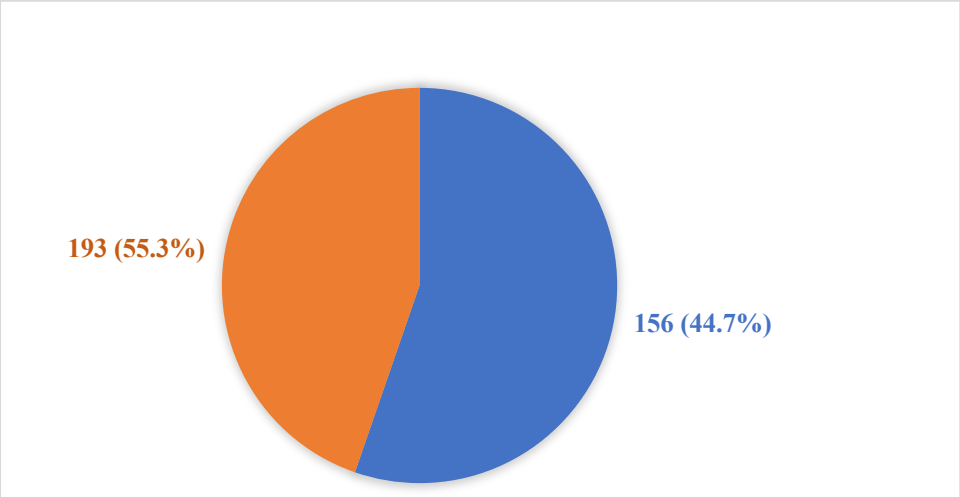

Figure 1: Non-communicable disease screening behavior among overweight bank employees in Dire Dawa City Administration, 2024.

3.3. Knowledge About Non-Communicable Disease Screening

Among the total respondents 185(53%) of them screened or checked chronic diseases in the past year, 98 (28.1%) of them screened or checked blood pressure in the past six months, screened or checked blood glucose level in the past three months 70 (20.1%), and 44(12.6%) screened breast cancer in the past two years. Of those who ever heard about chronic disease screening (hypertension diabetes, and cancer) 185(53.0%) of them heard from the media channel, 123(35.2%) from a health professional, and 4(1.1%) from other sources. Among the female respondents, 36(10.1%) had self-manual beast examinations in the past three months.

About 44.5% of participants who reported not exercising were more likely to report feeling stressed by blood pressure screenings compared to those who exercised. Participants who reported consuming no meat (9 out of 156) were less likely to report feeling stressed by blood pressure screenings (37.5%) compared to those who consumed meat more frequently (147 out of 156) (44.8%). Participants who reported never consuming butter and fat (94 out of 156)

were less likely to report feeling stressed by blood pressure screenings (45.4%) compared to those who consumed butter and fat more frequently (62 out of 156) (42.9%).

Participants who reported never consuming fast food (12 out of 156) were less likely to report feeling stressed by blood pressure screenings (28.6%) compared to those who consumed fast food more frequently (144 out of 156) (44.4%). Participants who reported never consuming alcohol (29 out of 156) were less likely to report feeling stressed by blood pressure screenings (43.9%) compared to those who consumed alcohol more frequently (127 out of 156) (44.1%) (Table 2).

Table 2: Perceptions towards NCD screening among employees of Dire Dawa City Banks, Dire Dawa, Ethiopia, 2024

Perceptions Score	Frequency (%)	Perceptions Score	Frequency (%)
Perceived Susceptibility Score		Perceived benefits	
Low (4-10)	111(31.8%)	Low (4-10)	22(6.3%)
Middle (11-16)	216(61.9%)	Middle (11-16)	182(52.1%)
High (17-20)	22(6.3%)	High (17-20)	145(41.5%)
Perceived Severity Score'		Cues to action Score	
Low (4-10)	21(6.0%)	Low (4-10)	19(5.4%)
Middle (11-16)	292(83.7%)	Middle (11-16)	289(82.8%)
High (17-20)	36(10.3%)	High (17-20)	41(11.7%)
Perceived barriers		Self-efficacy	
Low (4-10)	126(36.1%)	Low (4-10)	22(6.3%)
Middle (11-16)	214(61.3%)	Middle (11-16)	288(82.5%)
High (17-20)	9(2.6%)	High (17-20)	39(11.2%)

3.4. Perceptions Towards Non-Communicable Disease Screening

Among the Health Belief Model (HBM), most participants of perceived susceptibility 216(61.9%) have a middle score (11-16) and have had a screening in the last year., which could indicate that they perceive themselves as somewhat susceptible to non-communicable diseases. Similarly, most participants 292 (83.7%) have a middle score (11-16) for perceived severity, which could mean they view non-communicable diseases as somewhat serious. The scores for perceived benefits are more spread out, with a substantial number of participants scoring high 145 (41.5%), and middle 182 (52.1%) on a scale of 4-20 score reported getting screened in the last year. This suggests that many people believe screening for non-communicable diseases is beneficial.

The distribution of scores for cues to action is like perceived severity, with most participants 289(82.8%) scoring middle (11-16). This could indicate that many participants are somewhat motivated to act based on cues to screen. A large majority of participants 214(61.3%) scored middle (11-16) for perceived barriers, suggesting that they view some obstacles to screening

but not severe ones. Scores on self-efficacy are like perceived benefits, with a substantial number of participants scoring high 39(11.2%), and middle 289(82.8%) on a scale of 4-20. This suggests that many people believe they can get screened (Table 3).

Table 3: Association of respondent's perceptions and NCD screening practice among employees of Dire Dawa City Banks, Dire Dawa, Ethiopia, 2024.

Variables		Screened (156) N (%)	Non-screened (193) N (%)	COR (95%CI)	P-value
Age	18-29 year	67 (42.9%)	90 (46.6%)	0.370 (0.118-1.163)	0.089*
	30-49 year	83 (53.2%)	94 (48.7%)	0.359 (0.115-1.121)	0.078*
	>50 year	6 (3.8%)	9 (4.7%)	1	1
Sex	Female	194 (55.6%)	86 (55.1%)	0.702 (0.446-1.106)	0.127*
	Male	155 (44.4%)	70 (44.9%)	1	1
Monthly income	Low income (2,500-9,999 ETB)	97 (62.2%)	138 (71.5%)	0.533 (0.288-0.986)	0.045*
	Medium income (9,999-19,999 ETB)	28 (17.9%)	31 (16.1%)	0.317 (0.143-0.704)	0.005*
	High income (>20, 000 ETB)	31 (19.9%)	24 (12.4%)	1	1
Job Position	Manager	8 (5.1%)	6 (3.1%)	15.167 (1.509-152.461)	0.021*
	Officers	86 (55.1%)	89 (46.1%)	7.8498 (1.003- 61.428)	0.050*
	Cashier	43 (27.6%)	57 (29.5%)	9.250 (1.159-73.832)	0.036*
	Clerk	14 (9.0%)	18 (9.3%)	29.250 (3.248-263.415)	0.003*
	Other	5 (3.2%)	23 (11.9%)	1	1
Screened for hypertension	Yes	134 (62.6%)	80 (37.4%)	1.930 (1.175-3.168)	0.009*
	No	51 (52.0%)	47 (48%)	1	1
Perceived Susceptibility	Low (4-10)	43 (43.9%)	55 (56.1%)	2.984 (1.059-8.412)	0.039*
	Meddle (11-16)	128 (66.0%)	66 (34.0%)	1.203 (0.442-3.275)	0.717
	High (17-20)	14 (70.0%)	6 (30%)	1	1
Perceived Severity	Low (4-10)	5 (33.3%)	10 (66.7%)	3.333 (0.917-12.112)	0.067*
	Meddle (11-16)	160 (60.4%)	105 (36.9%)	1.094 (0.513-2.331)	0.816
	High (17-20)	20 (62.5%)	12 (37.5%)	1	1
Perceived benefit	Low (4-10)	8 (47.1%)	9 (52.9%)	2.202 (0.798- 6.077)	0.127*
	Meddle (11-16)	85 (54.5%)	71 (45.5%)	1.635 (1.020-2.621)	0.041*
	High (17-20)	92 (66.2%)	47 (33.8%)	1	1
Perceived Cues to Action	Low (3 -7)	6 (46.2%)	7 (53.8%)	2.423 (0.677-8.675)	0.174*
	Meddle (8-12)	152 (58.7%)	107 (41.3%)	1.462 (0.721-2.963)	0.292
	High (13-15)	27 (67.5%)	13 (32.5%)	1	1

*p<0.02.

3.5. Factors Associated with Non-Communicable Disease Screening Practice

A crude analysis was done using binary logistic regression to assess the relationship between the socio-demographic variables and chronic screening behavior of bank employees. The results of bivariate analyses revealed that age, sex, monthly income, job position, physical exercise, and screened or checked for hypertension (BP) of employees were found to be significantly associated with chronic disease screening practice at (P<0.20). Binary logistic regression was used to determine if HBM constructs perceived susceptibility, perceived severity, perceived benefits, and cues to action predicted chronic disease screening practice. The bivariate analysis shows that perceived susceptibility, perceived severity, perceived benefit, and cues to action had a significant association with chronic disease screening practice

at P<0.20. The variables with p-value <0.2 in bivariate analyses were candidates for multivariable analysis.

To identify predictors of chronic disease screening practice, multiple logistic regression using adjusted odds ratio (AOR) and 95% confidence interval (CI) was used. The results of the bivariate logistic regression model, 9 variables showed evidence of association with the outcome, and the best cut-offs were from sociodemographic variables age, income, and present job position, from HBM constructs perceived susceptibility, perceived severity, perceived benefits, cues to action and screened or checked for hypertension (BP) were the candidates for multivariate analysis with P< 0.2. However, four variables showing evidence of multivariable analysis, using a backward logistic regression model, sex, income, present job position, and perceived benefit were found to have a statistically significant association with the outcome at a p-value < 0.05.

This study identified sex as a significant predictor of chronic disease screening practices. Specifically, female employees were 46.6% less likely to engage in chronic disease screening compared to their male counterparts (AOR = 0.534, 95% CI: 0.296, 0.964, p < 0.038).

Job position also emerged as a strong predictor of screening behavior. With each promotion or increase in office position, the odds of practicing chronic disease screening increased significantly (AOR = 12.634, 95% CI: 1.300, 122.776, p = 0.029). Notably, employees in specific roles showed even higher odds of screening. Cashiers were 22.950 times more likely to undergo screening compared to baseline job categories such as drivers, runners, and cleaners (AOR = 22.950, 95% CI: 2.243, 234.845, p = 0.008), while clerks were 78.268 times more likely (AOR = 78.268, 95% CI: 6.708, 913.254, p = 0.001).

Monthly income was significantly associated with screening practices. Employees in the low-income category (ETB 2,500–9,999) were 70% less likely to practice screening compared to those earning above ETB 20,000 (AOR = 0.300, 95% CI: 0.130, 0.691, p = 0.005). Similarly, those in the middle-income group (ETB 10,000–19,999) had an even lower likelihood (AOR = 0.185, 95% CI: 0.069, 0.495, p = 0.001).

Finally, perceived benefit was also associated with screening behavior. Employees who perceived a moderate benefit from chronic disease screening were 2.207 times more likely to participate in screening compared to those who perceived a high benefit (AOR = 2.207, 95% CI: 1.147, 4.244, p < 0.018), when controlling for other variables (Table 4).

Table 5: Association between participant sociodemographic and Health Beliefs in NCD screening in Dire Dawa City Administration, 2024.

	Variables	COR (95%CI)	P-value	AOR (95%CI)	P-value
Sex	Female	0.702 (0.446, 1.106)	0.127	0.534 (0.296, 0.964)	0.038*
	Male	1	1	1	1
Monthly income	Low income (2,500- 9,999 ETB)	0.533 (0.288, 0.986)	0.045	0.300 (0.130, 0.691)	0.005*
	Medium income (9,999- 19,999 ETB)	0.317 (0.143, 0.704)	0.005	0.185 (0.069, 0.495)	0.001*
	High income (20, 000 ETB)	1	1	1	1
Job Position	Manager	15.167 (1.509, 152.461)	0.021	6.902 (.505, 94.280)	0.148
	Officers	7.8498 (1.003, 61.428)	0.050	12.634 (1.300, 122.776)	0.029*
	Cashier	9.250 (1.159, 73.832)	0.036	22.950 (2.243, 234.845)	0.008*
	Clerk	29.250 (3.248, 263.415)	0.003	78.268 (6.708, 913.254)	0.001*
	Other	1	1	1	1
Perceived benefit	Low (4-10)	2.202 (0.798, 6.077)	0.127	1.441 (0.237, 8.752)	0.691
	Meddle (11-16)	1.635 (1.020, 2.621)	0.041	2.207 (1.147, 4.244)	0.018*
	High (17-20)	1	1	1	1

*p<0.05.

4. Discussion

In this institutional-based study conducted among employees of public and private Banks of Dire Dawa, (44.7%) of the respondents have ever screened for chronic disease for the past year. This chronic disease screening practice of the current study was higher compared to a study of STEPS survey report, which was 23.4% [14]. On the other hand, the chronic disease screening practice among overweight in this study was too lower than the study conducted among the urban population in Karachi, India which showed the magnitude of every screening for hypertension was 79.8(%) [18]. This variation might be because the current study was conducted at the workplace only among bank employees.

Our finding aligns with prior research suggesting higher education is associated with increased participation in preventive health screenings [19]. The possible reasons like greater health literacy or access to educational resources in higher education groups. These might be that there were targeted outreach efforts towards higher education institutions (e.g., health fairs, workshops) that could explain the higher screening rates in this group. The relationship between job title and screening needs further investigation.

Compare our findings with studies that explore workplace-based health promotion programs. The job-based health insurance or workplace screening programs offered and if these influence participations for officers compared to cashiers. Consider if there were accessibility issues for certain jobs (e.g., cashiers with shift work) to participate in the program during designated screening times. While our results show no significant difference in age, sex, and marital status,

some studies suggest lower screening rates among young adults due to perceived invulnerability [5]. This variation might be because targeting educational messages for younger age groups could be beneficial. Sex disparities in screening have been reported in some studies [20]. Investigate if there were gender-specific barriers to participation in your program. By engaging in these discussions and comparisons with other research, you can strengthen your understanding of how sociodemographic factors influence chronic disease screening participation. This knowledge can be used to develop targeted interventions that reach a wider range of the population.

The current study also showed that there was a difference between bank employees who had ever screened for chronic disease and those who had never screened in the mean score of perceived susceptibility and perceived benefits with $P<0.05$. Employees who had ever screened for chronic disease had significantly higher perceived susceptibility and perceived benefit than employees who had never screened for chronic disease. This was consistent with the HBM hypothesis states if individuals concern themselves as susceptible to a condition(perceived susceptibility), believe that condition would have serious consequences (Perceived severity) if they believe a recommended health action available to them would be beneficial in reducing either their susceptibility or severity of the condition (Perceived benefit), if they feel themselves as competent to overcome perceived barriers to take action(self-efficacy) and if they are potentiated by other factors, mostly by cues to trigger action (cues to action) they are likely to take recommended health action that they believe will reduce their risks [21].

In this current study, perceived susceptibility, perceived severity, perceived barrier, perceived self-efficacy, and cues to action towards chronic disease screening were not identified as predictors of chronic disease screening practice which is unlikely to the HBM concept [22].
The borderline significant p-value for income suggests further exploration is needed. Compare our results with research on socioeconomic disparities in healthcare utilization [23]. The cost concerns might have influenced participation, especially if out-of-pocket expenses were involved in the screening program.

Our finding related to some studies suggesting younger adults might have higher susceptibility and severity scores for chronic diseases [24]. This could be due to factors like lower perceived risk or lack of experience with chronic illness. The educational interventions tailored to younger age groups can address these beliefs and emphasize preventive measures. Our finding on physical activity aligns with these results suggesting healthy behaviors are associated with

lower susceptibility and barrier scores [25]. This may promote the integration of physical activity programs into chronic disease prevention initiatives.

In this study, sex was found to be a significant predictor of chronic disease screening practices. Female employees were 46.6% less likely to engage in screening compared to male employees (AOR = 0.534, 95% CI: 0.296–0.964, p < 0.038). This finding is consistent with the Ethiopia STEPS Report of 2016, which revealed that 55.6% of females were screened for chronic diseases such as hypertension, diabetes mellitus, and breast cancer [26]. This could be attributed to increased healthcare engagement among women, particularly during pregnancy through antenatal care (ANC) visits. Women are often more attentive to health changes in their bodies and more proactive in seeking medical attention. However, these results also highlight the need for greater outreach to male populations, as they are less likely to utilize preventive health services. Health professionals should develop targeted interventions to improve screening participation among men, even if this requires additional resources and effort.

Monthly income was also identified as a significant factor influencing screening behavior. Employees with a low monthly income (ETB 2,500–9,999) were 70% less likely to engage in chronic disease screening compared to those with high income (above ETB 20,000) (AOR = 0.300, 95% CI: 0.130–0.691, p = 0.005). Those with a medium income (ETB 10,000–19,999) were even less likely to screen, with an 81.5% reduced likelihood compared to the high-income group (AOR = 0.185, 95% CI: 0.069–0.495, p = 0.001). These findings align with previous research on socioeconomic disparities in healthcare utilization [23]. Financial concerns, particularly out-of-pocket costs, may act as barriers to accessing screening services, especially for lower-income employees.

Additionally, job position remained a strong predictor of screening behavior. For every upward move in job hierarchy, the odds of participating in chronic disease screening increased by over 12 times (AOR = 12.634, 95% CI: 1.300–122.776, p = 0.029). Specifically, employees in cashier roles were 22.95 times more likely to undergo screening compared to those in lower-tier positions such as drivers, runners, and cleaners (AOR = 22.950, 95% CI: 2.243–234.845, p = 0.008). The odds were even higher among clerks, who were 78.27 times more likely to engage in screening (AOR = 78.268, 95% CI: 6.708–913.254, p = 0.001). These results suggest that individuals in higher-ranking or administrative roles may have better health awareness, greater access to health services, or more flexible schedules, enabling them to prioritize preventive care. This finding is in line with prior studies indicating that long working hours

and job-related stress are linked to increased chronic disease risk and lower screening rates [27]. This consistency result may be due to the bank employee's job positions which stated officer position and cashier position may be more in number and work by shifting than manager and other job positions like driver, runner, and cleaner on the workplace place, however, they can go and do chronic disease screening time and not cost for screening could not be considered as a barrier to taking up the screening practice since there are abundant health facilities in the city and they are an employee not to afford the cost for screening.

By engaging in discussions and comparisons with other research, you can strengthen the understanding of how sociodemographic factors and lifestyle choices influence health beliefs related to chronic diseases. This knowledge can inform the development of more effective interventions to promote preventive behaviors and screening participation. In this study, there is a relationship between job title and screening. Compared to our findings with other studies that explore workplace-based health promotion programs. The job-based health insurance or workplace screening programs may influence the participation of officers compared to cashiers. This may be considering that there were accessibility issues for certain jobs (e.g., cashiers with shift work) to participate in the program during designated screening times.

5. Conclusion

This study examined chronic disease screening practices among bank employees in Dire Dawa, Ethiopia. Nearly half (44.7%) had ever been screened, with participation influenced by age, sex, income, education, and job position. Older employees, those with higher education, and those in senior job positions were more likely to undergo screening, while women and employees with lower or medium incomes also showed higher participation. Cashiers were less likely to be screened compared to officers. The study further revealed that sex, monthly income, job position, and perceived benefit were significant predictors of screening behavior.

Lifestyle factors were also linked to screening experiences. Employees who exercised regularly and consumed less meat, butter, fast food, and alcohol reported lower stress related to blood pressure and other screenings. Conversely, less healthy habits were associated with higher stress levels. These findings highlight the complex interplay between demographics, socioeconomic status, health perceptions, and lifestyle in shaping screening behavior. Targeted interventions that address demographic barriers, promote healthy behaviors, and correct misconceptions about chronic disease are needed to improve screening rates across all groups.

Abbreviations

BMI: Body Mass Index, CBE: Commercial Bank of Ethiopia, CVD: Cardiovascular Disease, DM: Diabetes Mellitus, HBM: Health Believe Model, IDF: International Diabetic Federation, NCD: Non-communicable disease, SBP: Systolic Blood Pressure, SBP: Diastolic Blood Pressure, SPSS: Statical Package for Social Science, TB: Tuberculosis, WHO: World Health Organization

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Authors Contributions

YM was responsible for conceptualization, data collection supervision, data analysis, and results write-up. BD was involved in the conceptualization, data analysis, and review of the final draft. BT participated in refining the methodology, software adaptation and data analysis. All authors reviewed and approved this manuscript.

Ethics Approval

Ethical clearance was obtained from Institutional Review Board (IRB) of Dire Dawa University. Further approval will be also granted from Dire Dawa city health office and respective public health facilities. The aim of the study was informed for each study participant, and the study participants had the right to refuse or discontinue participating in the research without any restriction. Informed oral consent was obtained from each department heads of selected public facilities. Finally informed oral consent was obtained from each participant before data collection and confidentiality was assured.

Conflicting Interests

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Data Availability Statement

Data will be available upon request from the corresponding author.

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