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Chronic Disease Prevalence and Risk Factors at Intermed Hospital's Health Screening Center: Insights from Selvy AI Risk Assessments

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Abstract

Introduction: Chronic diseases, including diabetes, cardiovascular diseases, and other diseases, are major public health concerns globally. These conditions significantly contribute to morbidity and mortality rates, underscoring the need for effective prevention and management strategies. According to the Global Burden of Disease study, cardiovascular diseases are the leading cause of disease burden worldwide, followed by cancers and diabetes. In Mongolia, the leading causes of mortality are cardiovascular diseases, cancers, and injuries. Notably, men aged 40-44 have a higher mortality rate from cardiovascular diseases.

Aim: This study aims to investigate the prevalence and risk factors associated with chronic diseases, including diabetes, cardiovascular diseases, and cancers, among clients undergoing health screening checkup using Selvy AI.

Materials and Methods: We utilized health data from clients who underwent examinations at the Health Screening Center of Intermed Hospital in 2024. The dataset includes information on demographics, medical history, lifestyle factors, and laboratory measurements and Selvy AI risk calculator.

Results: In our study, a total of 206 individuals aged 20-84 years participated in health screening checkup in 2024. Using Selvy AI, the risk percentages for potential diseases over the next four years (based on AI module) were calculated. The results indicate that men have a higher risk of developing diabetes and liver cancer ($p=0.01$), whereas women have a higher risk of developing dementia ($p=0.003$). Risk factors for the development of diabetes revealed that an increase in body mass index and waist circumference is significantly associated with a higher risk of developing diabetes (BMI OR 1.34, $p=0.000$, Waist circumference OR 1.09, $p=0.000$).

Conclusion: Among the general population, overweight, abdominal obesity, and dyslipidaemia are highly prevalent, contributing significantly to the increased risk of cardiovascular disease and type 2 diabetes.

Keywords: Prevention; AI; Public health; Screening; Health

Introduction

Chronic diseases, including diabetes, cardiovascular diseases and cancers are major public health concerns globally. These conditions significantly contribute to morbidity and mortality rates, underscoring the need for effective prevention and management strategies. According to the Global Burden of Disease study, cardiovascular diseases are the leading cause of disease burden worldwide, followed by cancers and diabetes [1]. In Mongolia, the leading causes of mortality are cardiovascular diseases, cancers, and injuries. Notably, men aged 40-44 exhibit a higher mortality rate from cardiovascular diseases compared to other age groups [2]. Furthermore, the prevalence of type 2 diabetes was recorded at 3.1%

in 1999. By 2023, this figure had increased significantly to 10.8%, highlighting a concerning upward trend in the national burden of diabetes over the past two decades [3]. In 2024, cancer accounted for one in every five deaths in Mongolia, with 4,755 cancer-related fatalities and 8,169 newly diagnosed cases—a 13% increase from the previous year—highlighting liver, stomach, lung, cervical, and colorectal cancers as the most prevalent types contributing to the nation's growing public health burden [4]. Evaluating the risks of these conditions during health screening checkups is crucial for early detection and prevention. Understanding the prevalence and risk factors of chronic diseases within specific populations is essential for developing targeted interventions that can mitigate these health risks and improve overall public health outcomes. In recent years, the use of Artificial Intelligence (AI) in the healthcare sector has been rapidly advancing, particularly in the application of AI for predicting disease risks during preventive health screenings [5]. By utilizing the Selvy AI calculator, we aim to enhance the accuracy and depth of our risk assessments. The Selvy AI tool, developed by the DIOTEK company in collaboration with a major hospital in South Korea, possesses advanced analytical capabilities for predicting the risk of major diseases—including diabetes, cardiovascular disease, stroke, dementia, and various cancers—by analyzing health screening data [6]. Comprehensive evaluation of individual risk profiles not only helps identify high-risk individuals but also informs public health initiatives aimed at reducing the burden of chronic diseases in Mongolia.

Material and Methods

This cross-sectional study includes 206 patients, and the dataset comprises information on demographics, medical history, lifestyle factors, and laboratory measurements.

Participants

From January to December 2024, a total of 206 patients who underwent preventive health screening were included in this study. Based on a designed AI questionnaire, data were collected, and laboratory results were entered into the AI system to calculate individual risk assessments. Selvy AI estimates the risk of developing chronic diseases over the next four years based on a patient's medical history, blood pressure, Body Mass Index (BMI), waist circumference, laboratory test results, physical activity level, and alcohol and tobacco use.

Table 1: Characteristics of the study participants.

Characteristics	Mean Values	Male (n=85)	Female (n=121)	P-value
Age (mean)	41.1 ±12.85	40.31±1.27	41.67±1.23	0.22
BMI (mean)	25.62±5.48	27.82±0.60	24.05±0.44	0.0001
Waist Circumference (mean)	85.27±14.70	94.00±1.40	79.14±1.14	0.0001
Alcohol consumption				
None	131	42	89	
Yes	75	43	32	0.000
Alcohol consumption frequency				
1-2 days/week	69	38	21	0.36

Data analysis

Analyses were conducted using SPSS 26 and Stata 14 statistical analysing program. The results of summary analysis were expressed as mean (standard deviation) and percentage (number) and standard deviation of the mean variation of numerical values. Statistical analysis was performed to identify the prevalence of chronic diseases and their association with various risk factors. Chi-square tests were used to calculate p-values for the association between risk factors and chronic diseases. Also, the OR, its 95% confidence interval, and statistical significance at the 0.05 level were calculated.

Results

In our study, a total of 206 individuals aged 20-84 years participated in health screening checkup in 2024. The average age was 41.1±12.85 years. Among the participants, 85 (41.3%) were male and 121 (58.7%) were female, indicating a slight predominance of females. The general characteristics of the study participants are shown in Table 1. The body mass index and waist circumference are higher in males, and the consumption of alcohol and tobacco is significantly more prevalent among males. Furthermore, the investigation into blood pressure elevation during examinations indicated that males exhibited a significantly greater increase in blood pressure compared to females (Table 1). The average number of cigarettes smoked per day among all participants was 6.63±0.86, and the average duration of smoking was 10.78±0.89 years. Using Selvy AI, the risk percentages for potential diseases over the next four years (based on AI module) were calculated. The results indicate that men have a higher risk of developing diabetes and liver cancer, whereas women have a higher risk of developing dementia. No significant gender-specific differences were observed for other diseases (Table 2). The analysis of laboratory test results revealed that men exhibited significantly higher levels of blood triglycerides, low-density and high-density lipoproteins, liver function indicators, renal function indicators, and fasting blood glucose compared to women (Table 3). The study of risk factors for the development of diabetes revealed that an increase in body mass index and waist circumference is significantly associated with a higher risk of developing diabetes. Additionally, higher blood triglyceride levels are associated with an increased risk of diabetes, whereas higher levels of low-density lipoproteins appear to be a protective factor (Table 4).

3-5 days/week	4	4	0	
6-7 days/week	2	1	1	
Smoking				
None	138	41	97	
Current or former	68	44	24	0.000
Family history				
None	98 (47.5%)	44	54	0.313
Medical History	108 (52.4%)	41	67	
Cancer /yes/	62 (30.1%)	24	38	0.625
Myocardial Infarction /yes/	22 (10.6%)	9	13	0.972
Stroke /yes/	21 (10.1%)	7	14	0.436
Diabetes /yes/	16 (7.7%)	6	10	0.75
Elevated blood pressure during examination				
Yes	30 (14.5%)	18	12	0.02
No	176 (85.4%)	67	109	

Table 2: Comparison of AI calculated risk percentages for disease.

Calculated Risks (%)	Mean Values	Male (n=85)	Female (n=121)	P-value
Diabetes Mellitus	8.51±1.15	11.10±2.10	6.71±2.28	0.03
Cardiovascular disease	13.80±1.33	15.70±2.15	12.49±1.69	0.11
Stroke	10.22±1.18	9.53±1.66	10.70±1.64	0.62
Dementia	6.64±1.15	3.71±0.89	8.69±1.85	0.01
Liver cancer	19.4±1.28	23.57±2.12	16.59±1.53	0.003
Colon cancer	22.96±1.83	23.34±2.96	22.69±2.34	0.43
Lung cancer	11.24±1.02	10.93±1.56	11.46±1.37	0.59
Gastric cancer	15.18±1.43	17.08±2.53	13.85±1.67	0.13

Table 3: Comparison of mean laboratory test values between male and female participants.

Lab Tests	Mean Values	Male (n=85)	Female (n=121)	P-value
Total cholesterol	5.20±2.94	5.56±4.42	4.95±0.98	0.07
Triglyceride	1.13±0.72	1.35±0.71	0.97±0.69	0.001
HDL	1.55±0.64	1.34±0.69	1.70±0.56	0.001
LDL	2.93±1.83	3.32±2.16	2.65±0.89	0.004
GOT	21.37±10.70	23.97±9.39	19.54±11.22	0.001
GPT	25.22±30.16	36.03±39.14	17.62±19.68	0.000
GGT	32.81±39.31	43.08±32.98	25.60±41.85	0.0008
Creatinine	68.72±14.09	79.14±13.31	61.39±11.14	0.000
Glucose	5.15±0.67	5.27±0.66	5.06±0.66	0.01

Table 4: Risk factors for diabetes mellitus.

Diabetes Mellitus Risks	OR	95% CI	P Value
BMI	1.34	1.21-1.48	0.000
Waist Circumtance	1.09	1.06-1.13	0.000
Triglyceride	2.87	1.35-6.11	0.006
HDL	0.50	0.26-0.96	0.03

Discussion

Body Mass Index (BMI) and abdominal obesity are among the leading risk factors for noncommunicable diseases in the world. In our study, the mean Body Mass Index (BMI) of participants was

25.62±5.48, with males showing a higher mean of 27.82±0.60. These results are comparable to findings from international studies on body weight. Notably, one in three adults in the world is classified as overweight, with the prevalence being one in three among men and one in four among women [7]. Elevated levels of dyslipidaemia,

impaired liver function markers, and fasting blood glucose observed among male participants suggest a tendency toward neglecting personal health, poor dietary habits, and limited health literacy. These findings underscore the need for targeted health education and preventive strategies, particularly among men. AI-based cancer risk assessments in our study revealed that male participants exhibited a higher predicted risk of cancer compared to females. This finding aligns with global data, including a 2023 study by Tan et al., which reported that men are disproportionately affected by liver cancer, with significantly higher incidence, mortality, and Disability-Adjusted Life Years (DALYs) than women across 204 countries [8].

AI in the medical field has changed the predicative, diagnosing, and preventive characteristics of various diseases, which is a major development. Predictive health utilizes artificial intelligence to accommodate a great amount of clinical and genetic information to enhance the recognition of diseases and carry out preventive actions, changing the way of work for healthcare providers [9]. Similar to global trends, Artificial Intelligence (AI) is rapidly advancing across various sectors in Mongolia. In the healthcare field, AI is being widely applied in diagnostic imaging. As a newly emerging discipline, preventive medicine has begun to incorporate AI technologies to estimate disease risks and calculate probabilities, thereby enhancing early detection and intervention strategies. In Mongolia, cardiovascular diseases and cancers remain among the leading causes of mortality. It is deeply concerning that many individuals lose their lives and working ability due to preventable conditions. Participation in preventive health screenings alone can significantly reduce these risks. Moreover, the integration of Artificial Intelligence (AI) into these screenings plays a crucial role in generating personalized and evidence-based risk assessments, thereby enhancing the effectiveness of early intervention strategies.

Conclusion

Among the general population, overweight, abdominal obesity, and dyslipidaemia are highly prevalent, contributing significantly

to the increased risk of cardiovascular disease and type 2 diabetes. Moreover, men exhibit a higher risk for cardiovascular conditions, diabetes and liver cancer compared to women. Moving forward, it is essential to promote participation in preventive health screenings, integrate AI-based risk assessment tools, and enhance public health education to effectively reduce the burden of noncommunicable diseases in Mongolia.

References

1. (2021) Global Burden of Disease, pp. 8-17.
2. (2023) Health Indicators 2023, Mongolia, pp. 161-172.
3. Dayan A, Erkhembayar R, Luvsandavaajav O, Mukhtar Y, Enkhtuvshin B, et al. (2023) Prevalence of type 2 diabetes in Mongolia: Results from population-based survey compared with 1999 study. *Diabetes, Metabolic Syndrome and Obesity* 16: 1833-1846.
4. Freddie B, Mathieu L, Hyuna S, Jacques F, Rebecca LS, et al. (2024) Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 74(3): 229-263.
5. Bajwa J, Munir U, Nori A, Williams B (2021) Artificial intelligence in healthcare: Transforming the practice of medicine. *Future Healthc J* 8(2): e188-e194.
6. Cheol SL, Kuk SK (2024) Design of interactive artificial intelligence for early cognitive diagnosis. *Int J Adv Sci Eng Inf Techno* 14(5): 1633-1638.
7. Bryan S, Joseph A, Margaret DC, Te CC, Orlando D, et al. (2021) National health and nutrition examination survey 2017-march 2020 prepandemic data files-development of files and prevalence estimates for selected health outcomes. *Natl Health Stat Report*, p. 158.
8. Darren JHT, Veronica WS, Cheng HN, Wen HL, Mark DM, et al. (2023) Global burden of liver cancer in males and females: Changing etiological basis and the growing contribution of NASH. *Hepatology* 77(4): 1150-1163.
9. Ashwini LH, Vinaykumar LH, Hanumanaik L (2024) The role of artificial intelligence in predictive healthcare: Transforming early diagnosis and preventive medicine. *Journal of Population Therapeutics and Clinical Pharmacology* 13(11): 218-227.