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Analysis of the Current Status of Detection of Major Chronic Diseases in Different Occupational Health Check-up Populations

Yue Mengyuan, Zou Jiaying, Liu Qiling*

School of Public Health, Shaanxi University of Chinese Medicine, Xianyang, Shaanxi, 712000, China

**Corresponding author*

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Abstract: The purpose of this study is to understand the health issues of different occupational groups by examining the detection rates of major chronic diseases among these groups during occupational health checkups. The study involved selecting 200 individuals from various occupations who underwent health checkups at our hospital between January 2022 and December 2023. These individuals represented five main occupational groups: financial institutions, government agencies, healthcare workers, educational institutions, and law enforcement. The health status of these five groups was analyzed.The analysis revealed that out of the 200 individuals from different occupations, 82 were found to have abnormal conditions, resulting in an abnormal detection rate of 41.0%. The diseases with the highest to lowest detection rates were hyperlipidemia, thyroid disease, fatty liver, hypertension, and diabetes. Among hyperlipidemia, fatty liver, hypertension, and diabetes, the detection rates were higher in men than in women, while thyroid disease had a higher detection rate in women than in men. The highest detection rates in government agency employees were for hyperlipidemia, hypertension, and diabetes, while healthcare workers had the highest detection rate for thyroid disease, and law enforcement personnel had the highest detection rate for fatty liver.In the 60-69 age group, the highest detection rates were for hyperlipidemia, thyroid disease, hypertension, and diabetes, while the 50-69 age group had the highest detection rate for fatty liver. Among the five chronic diseases detected, the detection rate increased proportionally with age until the age of 70. These findings indicate that the detection rates of chronic diseases vary among different occupational groups, age groups, and genders. Fatty liver, thyroid disease, and hyperlipidemia have relatively high detection rates in law enforcement, healthcare workers, and government agency employees. Additionally, as age increases, the detection rate of chronic diseases also rises, which warrants attention in clinical practice.

1. Introduction

In contemporary society, the quality of life has significantly improved, leading to an increased

focus on personal health and a growing awareness of the importance of prevention over treatment. The consensus among modern populations is to prioritize early detection, diagnosis, and treatment of diseases. Consequently, health examinations have become a crucial means for self-care, enabling timely identification of illnesses and serving as an important method for recognizing individuals in a suboptimal health state [1]. As modern society continues to evolve with increasing industrialization, various occupational groups face health issues influenced by their lifestyles and environments. Research has shown that the top three diseases affecting these occupational groups are hyperlipidemia, cardiovascular diseases, and liver and gallbladder diseases, with incidence rates rising with age. Recent surveys on the health status of different occupational groups have revealed that chronic non-communicable diseases, such as hyperlipidemia, hypertension, and fatty liver, are increasingly prevalent and impact health outcomes negatively. These chronic non-communicable diseases severely affect the quality of life and work performance of occupational groups, and have a growing impact on both individual health maintenance and socio-economic development. Based on these observations, this study analyzes the current state of chronic disease detection among 200 individuals from various professions who underwent health examinations at our institution from January 2022 to December 2023 [2].

2. Information and Methods

2.1. General information

Two hundred people of different occupations who underwent health checkups in our hospital between January 2022 and December 2023 were selected, which mainly included five types of occupational groups: financial institutions, organizations, medical personnel, educational units, and public security system. There were a total of 81 cases of male medical check-ups and 119 cases of female medical check-ups, with a total of 51 cases in the age group of 20-29 years old, 49 cases in the age group of 30-39 years old, 41 cases in the age group of 40-49 years old, 19 cases in the age group of 50-59 years old, 13 cases in the age group of 60-69 years old, and 27 cases in the age group of 70-79 years old. There were 19 cases of medical check-ups in the public security system, 102 cases of medical personnel, 34 cases of medical check-ups in institutions, 30 cases of medical check-ups in the financial system, and 15 cases of medical check-ups in educational institutions [3].

2.2. Methods

Descriptively analyze the medical examination information of medical examiners from financial institutions, authorities, medical personnel, educational units, and public security system.

2.3. Observation indicators

①Disease detection rate;
② Disease detection rate of different genders;
③Disease detection rate by occupation;
①Disease detection rate by age.

2.4. Statistical processing

SPSS20.0 statistical software was used, in which the mean + standard deviation ($\bar{x}$ ±s) was used to indicate the measurement data, which was calculated by calculating t-value, and the rate (%) was used to indicate the count data, which was calculated by calculating X^2.

3. Results

3.1. Disease detection rate

After 200 health checkups of different occupational groups, there were 82 cases of patients with abnormal reactions, with an abnormal detection rate of 41.0%, and the diseases with abnormal detection rates from high to low were: hyperlipidemia 24.39% (20/82), thyroid disease 23.17% (19/82), fatty liver 14.63% (12/82), hypertension 12.20% (10/82), Diabetes 4.88% (4/82), and 15 other cases [4].

3.2. Disease Detection Rate by Sex

Hyperlipidemia, fatty liver, hypertension and diabetes mellitus were detected more frequently in men than in women, and thyroid disorders were detected more frequently in women than in men, as shown in Table 1;

Table 1: Disease Detection Rates by Gender

Disease Type	Total		Male		Female	
	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)
Hyperlipidemia	20	24.39	11	55.00	9	45.00
Thyroid Disease	19	23.17	4	21.05	15	78.95
Fatty Liver	12	14.63	9	75.00	3	25.00
Hypertension	10	12.20	6	60.00	4	40.00
Diabetes	4	4.88	3	75.00	1	25.00
Total	65	79.27	33	50.77	32	49.23

3.3. Detection rate of diseases in different occupations

The highest detection rates among medical check-ups for institutionalized persons were for hyperlipidemia, hypertension and diabetes, and the highest detection rate among medical personnel was for thyroid disease; the highest detection rate among medical check-ups for the public security system was for fatty liver, as shown in Table 2 [5,6].

Table 2: Detection Rate of Diseases in Different Occupations

Disease Type	Total		Organizations		Medical personnel		Public Security System		Educational Units		Financial institutions	
	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)
Hyperlipidemia	20	24.39	6	30.00	5	25.00	4	20.00	3	15.00	2	10.00
Thyroid Disease	19	23.17	5	26.32	6	31.58	3	15.79	3	15.79	2	10.53
Fatty Liver	12	14.63	3	25.00	1	8.33	4	33.33	2	16.67	2	16.67
Hypertension	10	12.20	3	30.00	2	20.00	2	20.00	2	20.00	1	10.00
Diabetes	4	4.88	2	50.00	1	25.00	0	0.00	1	25.00	0	0.00
Total	65	79.27	19	29.23	15	23.08	13	20.00	11	16.92	7	10.77

3.4. Disease detection rate by age

The highest detection rates of hyperlipidemia, thyroid disease, hypertension, and diabetes mellitus were found among those who had a physical examination at the age of 60-69 years; the

detection rate of this fatty liver was highest among those who had a physical examination at the age of 50-69 years, and among the five types of chronic diseases detected, the detection rate was before the age of 70 years, and the rate of detection was directly proportional to the age, as shown in Table 3 [7].

Table 3: Disease Detection Rates by Age

Disease Type	Total		20-29		30-39		40-49		70-79	
	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)	Number of cases	Detection rate (%)
Hyperlipidemia	20	24.39	1	5.00	2	10.00	3	15.00	4	20.00
Thyroid Disease	19	23.17	1	5.26	2	10.53	3	15.79	4	21.05
Fatty Liver	12	14.63	1	8.33	1	8.33	2	16.67	2	16.67
Hypertension	10	12.20	0	0.00	1	1.00	1	1.00	2	20.00
Diabetes	4	4.88	0	0.00	0	0.00	0	0.00	1	25.00
Total	65	79.27	3	4.62	6	9.23	9	13.85	13	20.00

4. Discussion

4.1. Current status of chronic disease detection in different occupational groups

The current study reveals that among 200 individuals from various professional backgrounds undergoing health examinations, there were a total of 82 cases exhibiting abnormal responses, yielding an abnormal detection rate of 41.0%. The diseases, ranked from highest to lowest prevalence among those detected, include: hyperlipidemia at 24.39% (20/82), thyroid disorders at 23.17% (19/82), fatty liver disease at 14.63% (12/82), hypertension at 12.20% (10/82), and diabetes at 4.88% (4/82), with a remainder of 15 cases categorized as other conditions [8].

The underlying factors may be attributed to: ① The demanding nature of professional life, coupled with the rapid pace of urban living, compels individuals to align their lifestyles with the relentless advancement of the city. Consequently, the pace of life for the modern populace is accelerating, leading to significant alterations in lifestyle. Particularly for urban dwellers, the primary manifestations of such changes are elevated cholesterol and high-fat levels, exacerbated by prolonged work hours, diminished physical activity, and irregular living patterns, which in turn precipitate the aforementioned ailments [9,10]. ② To adapt to contemporary production conditions, individuals are confronted with multifaceted pressures daily, including those stemming from society, work, family, and education. Each person's ability to self-regulate under stress is crucial for maintaining physiological equilibrium. Psychological factors play a substantial role in influencing one's health status. In an era marked by escalating pressures, individuals, regardless of gender, must navigate significant stressors, such as competition for employment and the pursuit of self-improvement [11]. The pervasive stress experienced by the professional populace, compounded by continuous psychological pressure and prolonged states of repression, disrupts endocrine function, diminishes bodily resilience, and ultimately contributes to physiological changes. Over time, the body emits abnormal signals, leading to a state of "sub-health." ③ In modern society, individuals often compromise their health to keep pace with societal demands while also contending with an increasingly deteriorating living environment; consequently, those with weakened immune systems are prone to illness [12].

4.2. Analysis of the differences in the detection of chronic diseases in different occupational groups

4.2.1. Differential analysis of detection of hyperlipidemia, hypertension and diabetes mellitus

In contemporary society, the quality of life has markedly improved, yet this has led to abnormal dietary habits and nutritional structures, which have increased the prevalence of conditions such as hyperlipidemia, hypertension, and diabetes. Hyperlipidemia is a metabolic disorder primarily caused by abnormalities in the metabolism or function of fatty liver, resulting in elevated lipid levels in the plasma [13,14]. There is a close association between hyperlipidemia and the occurrence and progression of cardiovascular diseases. Research indicates that hyperlipidemia is an independent risk factor for strokes, coronary heart disease, myocardial infarction, and sudden cardiac death. Many employees in government agencies predominantly engage in sedentary work, lacking physical exercise, with considerable mental labor but minimal physical activity [15]. Furthermore, social engagements often involve consuming high-fat, high-calorie foods. Additionally, adverse lifestyle habits such as smoking and alcohol consumption further elevate lipid levels in the blood, leading to increased blood viscosity and a higher incidence of hyperlipidemia among individuals [16].

4.2.2. Analysis of variability in detection of thyroid disease

Thyroid disorders are a category of endocrine system diseases. Healthcare professionals face significant occupational risks and responsibilities, with frequent occurrences of emergencies during their daily duties. Prolonged states of emergency, coupled with numerous night shifts, prevent adequate rest and disrupt the balance of the endocrine system [17]. Furthermore, the complexity of the work environment can impact the emotional stability of healthcare workers. Frequent encounters with terminally ill or deceased patients can affect their emotional fluctuations, potentially leading to feelings of despondency. If these negative emotions are not effectively managed, they may induce stress responses in the body, escalating the tension in the work environment. Prolonged stress can adversely affect the physical and mental health of healthcare workers, leading to hyperthyroidism and subsequent endocrine system disruptions, thus precipitating thyroid disorders [18].

4.2.3. Differential Analysis of Detection of Fatty Liver

Fatty liver is most common in obese people, alcoholics, people with high-fat diets, people who move little, and people with chronic liver disease. The staff of public security organizations have special working nature, irregular life, irregular rest and meal time, and the staff of public security system are mainly male, and men drink and smoke more, which will greatly affect the health of the public security system people, and then lead to fatty liver [19,20].

4.3. Correlation between gender, age and detection of chronic diseases

4.3.1. Correlation between gender and detection of chronic diseases

The detection rate of hyperlipidemia, fatty liver, hypertension and diabetes mellitus is higher in males than in females, and the detection rate of thyroid diseases is higher in females than in males, which may be attributed to the fact that pregnancy, lactation and menstruation in female populations lead to cyclic changes in endocrine secretion, which increases thyroxine and causes thyroid diseases [21,22].

4.3.2. Age and chronic disease detection correlation

The detection rates of hyperlipidemia, thyroid disease, hypertension and diabetes mellitus were the highest among people aged 60-69 years old; the detection rate of fatty liver was the highest among people aged 50-69 years old [23]. The study found that age is a major factor affecting the occurrence of chronic non-communicable diseases, and as age increases, the incidence of chronic diseases gradually increases due to the gradual deterioration of their physical functions [24].

4.4. Summary

People need to pay attention to the prevention of chronic diseases, regular life, scientific work, appropriate regulation of emotions, especially for the elderly, more need to do a good job of self-management to prevent chronic diseases [25].

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