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Prevalence of Diabetes in 50-Year-Olds and Some Related Factors in Tan Loi Ward, Buon Ma Thuot City, Dak Lak Province, 2021

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Abstract— *Diabetes has a serious impact on public health with a very high number of cases and mortality. Statistics worldwide show that there are 451 million people (18-99 years old) in 2015. It is predicted that in 2045 this number will save about 693 million people. Increased awareness and behavioral interventions are needed to reduce the prevalence of diabetes.* ***Objectives:*** *Determining the rate of diabetes and some related factors in people 50 years old in Tan Loi ward, Buon Ma Thuot city, Dak Lak province, 2021.* ***Research subjects and methods:*** *A cross-sectional descriptive study was performed on people > 50 years old living in Tan Loi ward, Buon Ma Thuot city, Dak Lak province, in 2021.* ***Results:*** *The results show that the diabetes rate in the area is still quite high, 31.1%, of which people who do not know they have diabetes account for 70.5%. The study also found a relationship between the prevalence of diabetes and some factors such as age, hypertension, BMI, occupation, waist circumference, alcoholism with p<0.05.* ***Conclusion:*** *The prevalence of diabetes in the study area is high. Based on the research results, we need to make oriented recommendations to strengthen health education for people, especially with pre-diabetic and pre-diabetic groups. group with high risk factors,*

Keywords— *Diabetes – non-communicable disease.*

I. Introduction

Noncommunicable diseases" are a threat to health systems around the world, in 2018, in the group of 4 noncommunicable diseases with the highest mortality in the world, in addition to cardiovascular disease, cancer and respiratory diseases, the 4th disease that causes about 1.6 million deaths each year is diabetes [11]. According to the International Diabetes Federation (IDF), in 2017 there were 451 million people (18-99 years old) with diabetes worldwide, which is expected to increase to 693 million by 2045. With the increase in the number of diabetes cases in the world, Vietnam is no exception. Assoc. Prof. Dr. Binh Van Ta - Chairman of the Vietnam Association of Diabetes Educators commented that: "Vietnam is not a country with the largest rate of diabetes in the world, but it is among the countries with the fastest growing diabetes"

In Vietnam, cording to statistics of the Ministry of Health during the incomplete 10 years in Vietnam, every day more than 150 people die from diabetes, 7 times higher than the number of deaths from traffic accidents. This disease is placing more and more burdens on the health care system and social security of Vietnam, as well as many countries around the world In Tuy Duc, Dak Nong, in 2019 author Kim Le Thi Nguyen also showed that the overall shortage rate of pregnant women of the M'Nong ethnic group was 37.7%. The author found a relationship with the prevalence of anemia such as malaria parasite infection, nutrient deficiency, culture [5].

To determine the prevalence of diabetes and a number of related factors in Tan Loi ward - Buon Ma Thuot city, from which there is a basis for the assessment, assessment and proper attention to the care work. public health in order to improve the prevalence of diabetes and pre-diabetes as well as reduce mortality from complications of diabetes. We conducted a study on "The prevalence of diabetes and some related factors in Tan Loi ward, Buon Ma Thuot city, Dak Lak province, in 2021.

II. Objectives

(1) Determination of diabetes rate of people aged 50 years in Tan Loi ward, Buon Ma Thuot city, Dak Lak province, in 2021. (2) Describe some factors related to diabetes rate of people aged 50 in Tan Loi ward, Buon Ma Thuot city, Dak Lak province, in 2021.

III. Research Methodology

A. Study design

A cross-sectional descriptive research design was employed for this study. Data collected in people over 50 years living in Tan Loi ward, Buon Ma Thuot city, Dak Lak province, in 2021.

B. Sample

Selecting a systematic random sample of 237 people, in fact we collected 305 research subjects, so the sample size in our study is 305

Inclusion criteria were: (1) Persons aged ≥ 50 years old who have been living in Tan Loi ward for 6 months or more; (2) consent to participate in the study.

Exclusion criteria were: Mental disorders, some acute illnesses, refused to participate in the study.

Data were collected through survey through face-to-face interviews with people over the age of 50 according to questionnaires and blood samples for blood glucose testing. Test technicians read, analyze and return results based on test standards according to WHO.

C. Data analysis

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Data were cleaned and processed using SPSS 22.0 software. The results are presented in tabular form showing frequency, percent, PR, CI 95%.

D. Approval

Research subjects were explained clearly and fully before the interview. All subject information is for research purposes only and has no other purpose. The research proposal was approved by the scientific council of Buon Ma Thuot University of Medicine and Pharmacy under Decision No. 347QD-ĐBMT dated November 11, 2021.

IV. Results and Discussion

A. General information of research subjects

TABLE I. General information of research subjects (n = 305).

Characteristic		Frequency (n)	Rate (%)
Age group	50-	141	46,2
	60-69	113	37,0
	70-79	34	11,1
	≥ 80	17	5,6
Ethnic	Kinh	304	99,7
	ethnic minority	1	0,03
Education level	Primary level	173	56.7
	Secondary level	102	33,4
	High school and above	30	9,8
Occupation	Office staff	13	4,3
	Farmer	71	23,3
	Worker	16	5,2
	Housewife	113	7.4
	Retirement	92	30,2
Economic conditions	Poor	6	2,0
	Not poor	299	98,0
Sex	Male	118	38,7
	Female	187	61,3

In 305 research sample sizes, women account for a higher proportion than men (61.3%); Kinh ethnic group accounted for the majority (99.7%); family economy is mostly normal (98%); occupation is mainly housewife and pensioner; The age group from 50 - 59 years old accounted for the highest proportion (46.2%).

B. The rate of diabetes in people > 50 years old (n = 305).

TABLE II. The rate of diabetes in people > 50 years old (n = 305)

Content	Frequency (n)	Rate (%)
Diabetes	95	31,1
pre-diabetes	142	46,5
Normal	68	22,3

In this study, we conducted a survey on 305 people aged 50 and over in Tan Loi ward, the results showed that the prevalence of diabetes and pre-diabetes accounted for a relatively high proportion (31.1%; 46.6%). he results of our study are different from some studies such as Tri Ba Nguyen (2016) in Sa Thay town, Kom Tum province with the prevalence of diabetes and pre-diabetes being (3.5%; 13.3%), Anh Thi Nguyen (2013 - 2015) in 9 districts and 1 city of Hung Yen, respectively (4.7%; 25.4%) [3]; Le Hoai Nguyen (2018) in Vinh Phuc with the rate (10.7%; 31% [2]. Thanh That Ton (2017) in Da Nang on the annual screening program showed that the prevalence of diabetes was lower with 11.4%, but the rate of prediabetes was quite high (52.9%) [15].

C. Factors associated with the prevalence of diabetes.

TABLE III. Factors associated with the prevalence of diabetes n= 305).

Content		n	diabetes (n)	Rate (%)	PR, CI 95%	p
Age	≥ 80	17	10	58.8	1.9 (1.2-3.0)	0.01
	< 80	288	17	19.5		
Occupation	retirement	92	36	39.1	1,4 (1,0-2,0)	0.048
	Other	213	59	27.7		
BMI	Yes	177	67	37.9	1,7 (1.2-2.5)	0.003
	No	128	28	29.1		
Hypertension	Yes	107	40	37.4	1.4 (1.0-1.9)	0.04
	No	198	55	27.8		
Pre-diabetes	Yes	22	11	50.0	1.7 (1.1- 2.7)	0.04
	No	283	84	29.7		
Waist circumference	Yes	165	62	37.6	2.0 (1.5-2.8)	0.008
	No	104	33	23.6		
Alcohol	Yes	114	52	45.6	2.0 (1.5-2.8)	0.001
	No	191	43	22.5		

The study showed that the relationship between age and diabetes, the older the age, the greater the prevalence of diabetes, the age group with the greatest likelihood of having diabetes is the group over 80 years old, the risk of diabetes is 1.9 times higher than that of the group. another age, the age when there is a lot of change in body structure with reduced movement, increased energy accumulation, increased risk of insulin resistance. In Tan Loi ward of Buon Ma Thuot city, economic and medical conditions have also been improved, so life expectancy is prolonged. Our study is equivalent to some studies such as: Trien Dinh Vu and Thuy Bich Dang on the prevalence of diabetes aged 25 years and older in Thai Binh (2017), the age group older than 70 has the highest rate (9.0% [9]. Chau Minh Luu (2017) in Hung Yen, people over 60 years old with diabetes is 11.7%. The US CDC (2015) showed that the prevalence of diabetes in the elderly over 65 years old reached 25.2% [13]. However, showing that the rate of diabetes tends to be younger as the rate in children and young adults continues to increase, statistics in 2019 showed that nearly 20% of young people aged 12-18 years old and 25% of young people aged 19 - 18 years old. 34 years old with prediabetes [10]. This situation requires more practical policies for young people to avoid the situation of "long life with chronic diseases" that severely affect the lives and economy of individuals as well as society.

Overweight obese people with diabetes accounted for 37.9% had a risk of diabetes 1.7 times higher than those with BMI within the normal range. Research by author Anh Thi Nguyen in 3 districts in Hung Yen (2013 - 2015) shows that people with high BMI have a 1.4 times higher risk of diabetes than those with BMI within the normal range [3]. According to some current studies, the proportion of people under the age of 40 with diabetes is higher in Asia than in Europe and the United States, is it true that in Asia this is a region of poor and developing countries, with poor conditions? The economy is difficult, the main food is rice, the food is less diverse and full of nutrients, too much starch in the meal, busy life should often use fast food in addition to that. is a sedentary lifestyle behavior, which leads to an increasing prevalence of overweight and obesity [14], [16].

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Retirement occupations have a diabetes rate (39.1%) and were 1.4 times more likely to have diabetes than other occupational groups. Research by Tri Ba Nguyen in Kon Tum (2016), people with light jobs have a 13.1 times higher probability of having diabetes than people with heavy jobs [1]. Trien Dinh Nguyen et al (2017) showed that the prevalence of diabetes was higher in sedentary occupations [9]. Nhat Le Pham (2019) at Dong Nay Rubber General Hospital showed that the proportion of diabetes in the retirement group accounted for the highest (39.8%) [4]. This can be explained that the retirement group belongs to the elderly, the nature of light work, low exercise, reduced basal metabolism means that BMI is higher than normal, moreover due to the epidemic situation. Therefore, regular health check-ups are difficult. All these factors may have also contributed to the increase in the prevalence of diabetes in the study area.

People with hypertension and diabetes (37.4%) of those with hypertension had a 1.4 times higher risk of diabetes than those without hypertension. The research results are equivalent to some studies such as: in 2019, a descriptive cross-sectional study on the prevalence of diabetes among seafarers in Vien Duong, those with hypertension were 6.5 times more likely to have diabetes than those with high blood pressure. with those without hypertension [7]. In Ho Chi Minh City from 2015 - 2016 author Xuan Hanh Thi Vo and colleagues studied the prevalence of hypertension with diabetes (79.1%) and also determined a relationship between hypertension and diabetes [8].Tri Ba Nguyen (2016) in Kom Tum, the rate of hypertension with diabetes (6.4%) [1]. In 2018 in India, a study of 1,320,555 people showed that the prevalence of diabetes was 7.5%, hypertension was 25.3% and there was a parallelism of these two diseases in the community [12]. From the research results of our project as well as domestic and international topics, it is shown that the relationship of hypertension and diabetes is both a risk factor and a consequence of diabetes, creating a pathological spiral. Many other studies also show that hypertension and diabetes often go hand in hand because they share common risk factors such as overweight or obesity, high-fat diet, inactivity [6].

People with large waist have diabetes accounted for 37.6% and have 2 times the risk of diabetes compared with people with normal waist. The results were higher than the study by Tri Ba Nguyen in Kon Tum province, the prevalence of diabetes in people with large waists was 7.1%. Therefore, waist circumference as well as BMI are closely related to diabetes, so regular exercise as well as appropriate diet are essential activities for those who have diabetes. elderly people to prevent diabetes of the people and the community.

Diabetes is not contagious but can be inherited. According to WHO, family history is a high risk factor for type 2 diabetes. Groups of people with a family history of diabetes have a high risk of early disease, possibly because in each family, often the members share a common living environment, especially diet [3]. Research results show that close family members such as parents, grandparents with diabetes have a 1.7 times higher risk of developing diabetes than those without a family history of diabetes. The results are consistent with some studies by Anh Thi Nguyen (2013 - 2015) in Hung Yen, showing that the group of people with a family history of diabetes has a higher risk of diabetes than the group without this history. 2.8 times [3]. Results are equivalent to some studies such as: Tri Ba Nguyen in Kon Tum 12.5 times [1]; Hoai Le Nguyen (2018) at Vinh Phuc 1.7 times [2].

People who regularly use alcohol have diabetes, accounting for 45.6%, have 2 times the risk of diabetes compared to those who do not use alcohol. Research results are higher than that of author Hoai Le Nguyen (2018) in Vinh Phuc, the group of alcohol abusers with diabetes accounted for 18.06% [2]. In our research group, the majority of people are elderly, the subjects of addiction are mainly men, however, the process of alcohol abuse does not start in a short time but lasts for many years, this is also the main reason. is a risk factor leading to an increased prevalence of diabetes in our study subject

V. Conclusions

A. The rate of diabetes in people > 50 years old

The prevalence of diabetes and pre-diabetes in the study area is 31.1% and 46.5%.

Prevalence of diabetes by sex: male (33.9%), female (29.4%).

Prevalence of diabetes and age group: age ≥ 80 (58.8%), the lowest age 50 - 59 (26.2%).

Percentage of diabetes with education level: illiterate (44.4%), university - upper secondary school (40%), grade 1 - 9 (30.0%), grade 10 - 12 (29.4%).

The prevalence of diabetes according to BMI: overweight and obesity (37.9%) and normal BMI (21.9%).

Rate of diabetes and personal history of diabetes: had a history of diabetes (29.47%), no history of diabetes (70.53%

B. Factors associated with the prevalence of diabetes

The study also found an association between the prevalence of diabetes and some factors such as age, hypertension, BMI, retirement occupation, waist circumference, alcohol abuse with $p<0.05$.

VI. Recommendations

Communication on diabetes prevention can be achieved by "lifestyle treatment" such as proper nutrition, weight improvement, increased exercise, lifestyle changes to prevent and limit complications of diabetes. road in the community.

Strengthen the implementation of screening in the community, in order to detect diseases for subjects with risk factors for early management and treatment, reduce complications, reduce disease burden and treatment costs for patients. family and society.

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