

Abstract

Homelessness is a significant social issue affecting major cities worldwide, often linked to factors such as unemployment, mental health challenges, and substance abuse. This study, conducted from October 2021 to December 2022, enrolled 83 homeless individuals (47 males, 36 females) to assess their medical histories, lifestyle factors, and willingness to engage in health education and social welfare resources.

Our findings revealed a high prevalence of hypertension and diabetes, with males showing greater receptiveness to health education. Surprisingly, women had a higher return visit rate. Despite relatively low Brief Symptom Rating Scale-5 scores, their mental health may be underestimated.

This study calls for **more similar homeless care program implemented by hospitals in all regions to ensure universal health coverage and achieve health equity**.

Introduction

The phenomenon of homelessness is prevalent in major cities worldwide, representing a significant social issue. From a medical perspective, the reasons for individuals becoming homeless may include factors such as unemployment, mental health issues, low education levels, experiences with incarceration, dysfunctional family backgrounds, and substance abuse.

As the Family Medicine division of Taichung Hospital of the Ministry of Health and Welfare, we take the responsibility to perform community-based, family-centered clinical practice, and take care of the disadvantaged populations with medical issues.

Under the project commissioned by the Social Welfare Bureau, we formed a team comprised of doctors, nurses, social workers and volunteers, visited homeless individuals near Taichung Railway Station, provided supply kits containing daily essentials and conducted inquiries into their medical information, with **the aim of establishing a comprehensive understanding of this population's characteristics**.

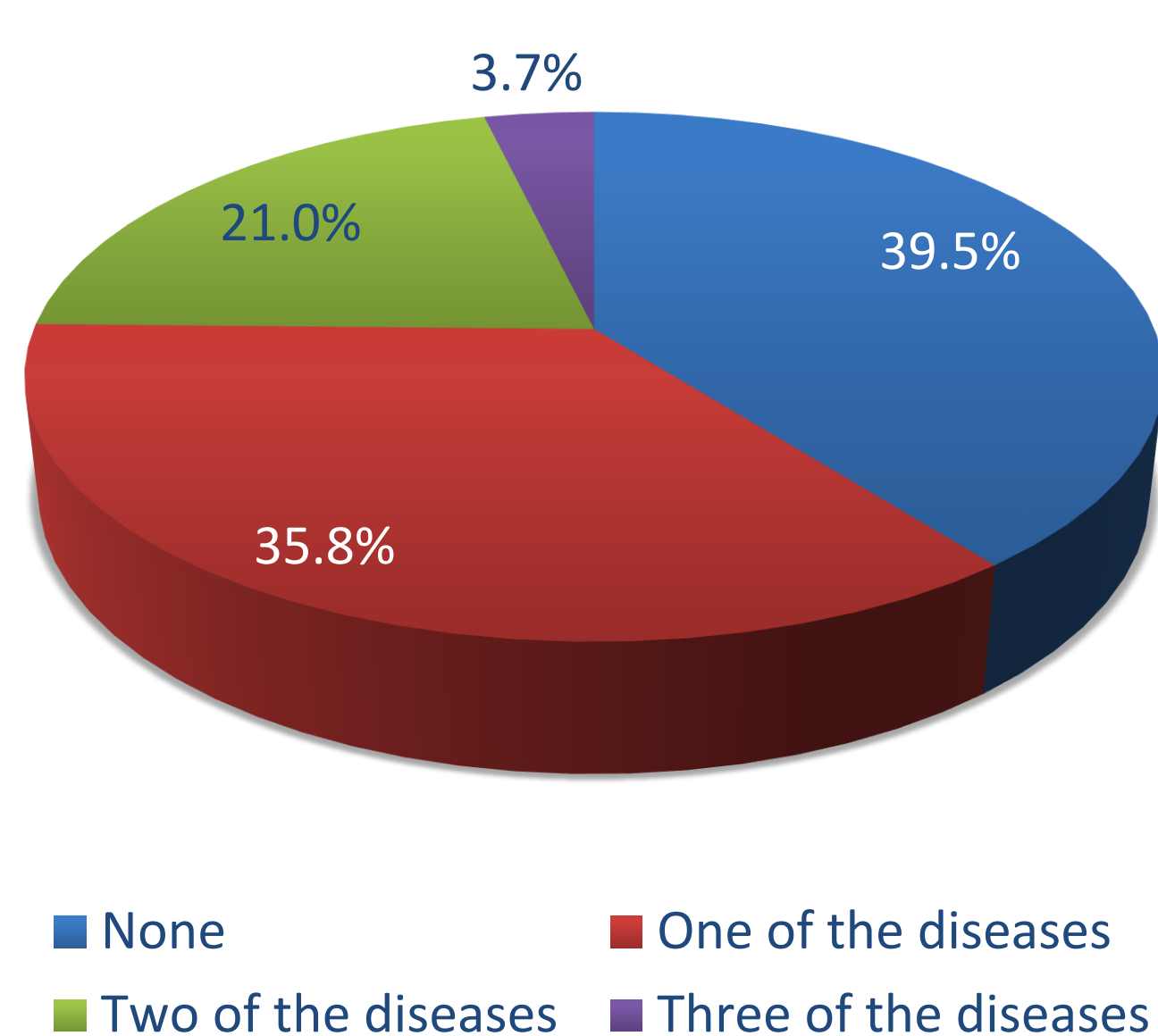


Figure 1. The Proportion of Individual's Leading Three Medical Histories (Hypertension, Diabetes Mellitus, and Hyperlipidemia)

Methods and Subjects

Our visits started in October 2021 and concluded in December 2022. A total of **83 cases** were enrolled, consists of **47 males and 36 females**. Our descriptive analysis included medical history, tobacco, alcohol, and betel nut usage habits. Blood pressure, random blood sugar levels were also recorded. We utilized the Brief Symptom Rating Scale-5 (BSRS-5) to assess distress levels. We recorded their wills to receive brief health education session and social welfare resources acknowledgment after the inquiry. We then filed those who had visited our hospital for further follow-up.

We conducted T-test in descriptive analysis and logistic regression to examine the application rate of health education and social welfare resources. In parallel, we explored the factors that may affect the individual's will of return appointment.

Results

General characteristics of participants:

Average age: 64.0± 13.8 years old

Medical history:

- Hypertension: 45.8%
- Diabetes Mellitus: 16.8%
- Heart disease: 14.5%
- Spinal injury or fracture: 10.8%
- Hyperlipidemia: 6.0%
- Hyperuricemia: 4.0%
- Stroke or other CNS disease: 4%
- Liver and renal disease: 2.0% each

The proportion of the individual's leading three medical histories is mentioned in **Figure 1**.

Lifestyle factors:

- Smoking : 34.9%, 93.0% over 20 years
- Alcohol: 20.5%, 19.5% currently drinking
- Betel nuts: 3.6%

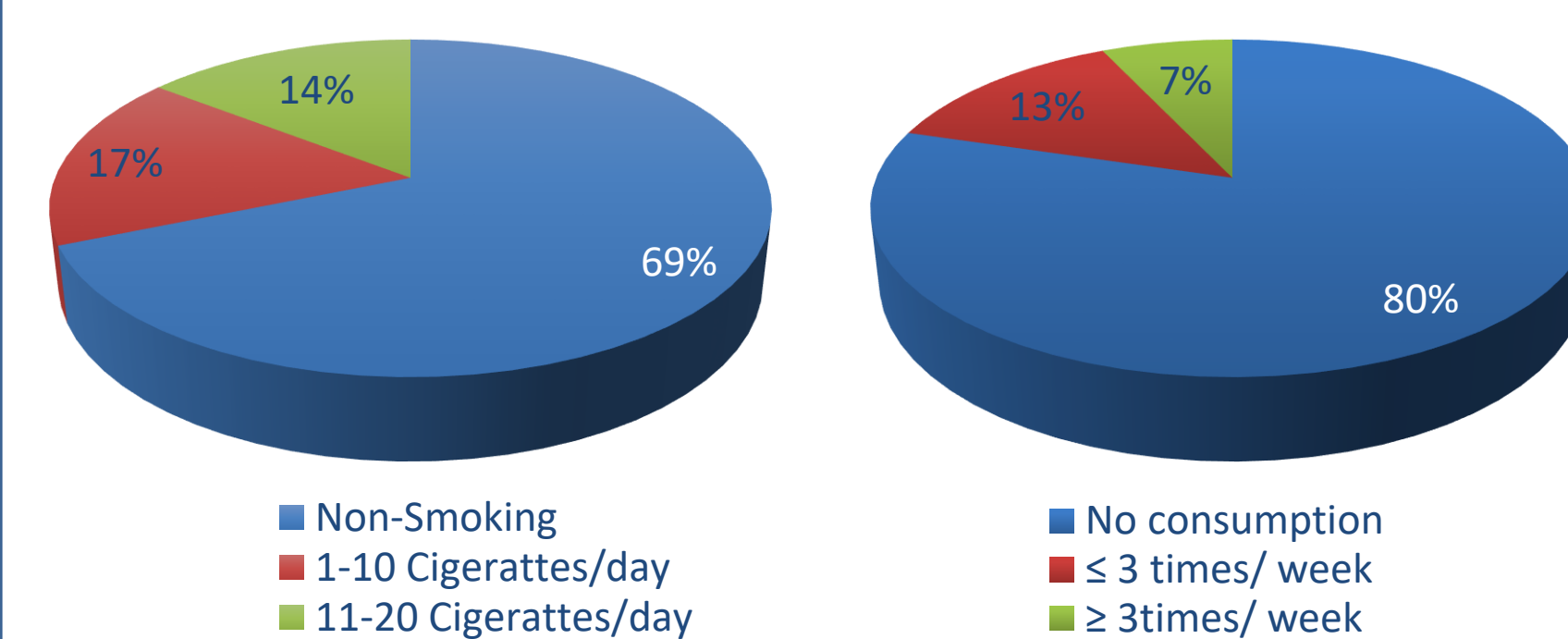


Figure 2: Distribution of Cigarettes and Alcohol Consumption Habits

Descriptive analysis of blood pressure, random blood sugar levels and BRS-5 scores are mentioned in **Table 1**. There were no significant difference between men and women in these variables.

We discovered that male individuals are more willing to receive both health education(odds ratio, 2.00; 95% CI 1.26-3.06, p=0.003) and social welfare resources compared to women. In our case, not a single female individual received social welfare resources acknowledgment.

The **return visit rate is significantly higher if health education was offered** (odds ratio, 2.35; 95% CI 1.31-4.21, p=0.004). We noticed that **women's return visit rate were notably higher** (odds ratio, 2.21; 95%CI, 1.24-3.96, p=0.007) compared to men (**Table 2**).

Table 1: Descriptive analysis of blood pressure, blood sugar and BSRS-5

Variables	Male (n=47)	Female (n=36)	Total (n=83)	P
SBP ^a	145.2±22.6	147.0±22.4	146.1±22.3	p=0.72
DBP ^b	88.1±12.7	87.2±16.0	87.5±14.1	p=0.78
Blood sugar	125.5±34.8	146.5±61.5	134.4±48.8	p=0.06
BSRS-5 ^c	1.69±2.2	0.97±1.9	1.3±2.1	p=0.18
Education ^d	36.1%	19.3%	55.4%	p<0.05
Social Welfare	20.5%	0.0%	20.5%	-

Note: a= Systolic blood pressure (mmHg), b= Diastolic blood pressure(mmHg), blood sugar (mg/dl) c= Brief Symptom Rating Scale-5(points), d=Health education after inquiry, e=Social welfare acknowledgment after inquiry

Table 2. Odds Ratio for Return Rate by Gender and Health Education

Variable	OR (95% CI) for Return Visit	P
Sex		
Male	Ref	
Female	2.21 (1.24 – 3.86)	*p<0.05
Health Education		
No	Ref	
Yes	2.35(1.31 – 4.22)	*p<0.05

Discussion

The average age of individuals falls in the middle and old age interval. The individuals' percentage of **hypertension and diabetes mellitus is significantly higher** than the general population¹(28.9% and 12.1%) in Taiwan. Individuals' persistent **usage of tobacco** is also **higher** than the general population² (14.6%), which may aggravate the risk of chronic kidney disease, peripheral and central arterial diseases. Cessation of substance use should be strongly emphasized.

As for their mental health, although the average BSRS-5 score suggest relatively good mental health, their mental health score might be underestimated due to individual's unwilling to share their genuine feelings upon first encounter. **Psychological stress could be underestimated**, requiring more efforts for the individuals to pour out.

Finally, we observed that **health education significantly impacts the return visit rate**. Women's return visit rate was notably higher than men, even though they had lower rates of health education and social welfare resources usage rate. The reasons of their visit or absence was not recorded, which requires further investigations.

Conclusions

The homeless are a group that has long been at a resource disadvantage, making it even more important to help them identify their own risks compared to the general population. Our study shows that more effort in cessation of alcohol use, hypertension and diabetic treatment is required compared to the general population. Global health education strongly elevates their will in tracking their own illnesses, while men are of higher risk of lost of follow-up compared to women.

To assist them with precision, **similar homeless care program should be widely promoted** in all regions to ensure **universal health coverage and achieve health equity** in the future.

Keywords

Homeless, Smoking, Alcohol, Hypertension, Diabetes, Health education, Social welfare, Return visit, Equity

References

1. Figure 19 Current Smoking Rates among Individuals Aged 18 and Over, Statistics of Health Promotion 2021, Taiwan
2. Table 2-2-5 Drinking Rates in the Past Year among Individuals Aged 18 and Over, Statistics of Health Promotion 2021, Taiwan

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