Impact of Smoking on Cardiometabolic Disturbance Among Disabled Male Adults in Taiwan

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Purpose: Evidence indicates that cigarette smoking is one of the most common causes of mortality and morbidity in developed and developing countries in present times. Smoking and metabolic syndrome emerged to be major cardiovascular risks, which contribute to metabolic disturbance, systemic inflammation, atherosclerotic cardiovascular events and mortality burden. However, the associations of smoking and cardio-metabolic risks in disabled adult men have not been described. The aim of the study is to explore the prevalence of smoking, cardio-metabolic disturbance and associated factors among men adults with disabilities in Chiayi County, Taiwan.

Methods: A nurse-led health promotion program for community adults with disabilities was launched from July 2013 to December 2014. This study collaborated with a local hospital and the Chiayi Bureau of Health Promotion, Taiwan. The inclusion criteria were (1) male gender with a certified disability; (2) age > 20 years, ability to complete the questionnaire with or without assistance; (3) ability to walk to the study setting; and (4) ability to sign an informed consent form. Before conducting this study, the institutional ethical committee review board was approved (No 102-3331B). The collaborating of Chiayi Bureau of Health Promotion sent a cover letter with the detail information of free check-up to invite them to participate in this study. The research team described the purpose and procedure of the study to all candidates, such as the time spent the procedure of the withdrawal of blood sample and interview contents. All participants have completed their written informed consent. Each participant was interviewed in a private setting in a middle school's auditorium.

Results: Of the total 1526 participants enrolled in this study, 874 male samples with complete data were analyzed. The mean age was 55.6 years (range: 18-90). Nearly one-third of participants classified as physically and visually impaired, 27% was mental retardation. Adopting regular exercise (64.1%), intake of water ≥ 1500 cc per day (53.7%), intake vegetable ≥ 3 portions per day (28.7%), intake fruit ≥ 2 portions per day (19.6%). The prevalence of cigarette smoking and metabolic syndrome were 42% and 33.3%, respectively. More than half had high blood pressure (62.7%) and 43.5% with central obesity. To compare with the non-smokers, smokers tended to less adopting regular exercise (p<0.001), eating less adequate portions of vegetable and water (p<0.05). After adjusting for potential confounding variables, multivariate analysis showed that the smoking was an independent factor of cardio-metabolic risk factors (OR, 1.51; 95% CI, 1.13–2.03).

Conclusion: The findings indicate that disability adult men show a high prevalence of cigarette smoking, unhealthy lifestyle, and cardio-metabolic risk factors. Clinicians and community nurses could reduce the consequences of these risk factors and improve cardio-metabolic health through the initiation of smoking cessation and health-promoting programs.

Title:
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Keywords:
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References:


Abstract Summary:
Disability adult men show a high prevalence of smoking, unhealthy lifestyle, and cardiometabolic risk factors. Cigarette smoking was an independent factor of cardiometabolic risk factors. Clinicians and community nurses could reduce the consequences of these risk factors and improve cardiometabolic health through the initiation of smoking cessation and health-promoting programs.

Content Outline:

1. Introduction

1.1. Tobacco kills more than 7 million people each year. More than 6 million of those deaths are the result of direct tobacco use while around 890,000 are the result of non-smokers being exposed to second-hand smoke.

1.2. Tobacco use is one of the main risk factors for a number of chronic diseases, including cancer, lung diseases, and cardiovascular diseases (WHO, 2017).

1.3. Evidence indicates that cigarette smoking is one of the most common causes of mortality and morbidity in the developed and developing countries in present times.

1.4. Smoking and metabolic syndrome (MetS) emerged to be major cardiovascular risks, which contribute to metabolic disturbance, systemic inflammation, atherosclerotic cardiovascular events and mortality burden.

1.5. However, the associations of smoking and cardio-metabolic risks in disabled adult men have not been described.

1.6. The aim of this study was to investigate the features and individual components of MetS among adult men with disability and current smoking. We also explored the association between smoking and MetS and the relationship through multiple models analysis.

2. Methods

2.1. A nurse-led health promotion program for community adults with disabilities. This study collaborated with a local hospital and the Bureau of Health Promotion in Chiayi County, Taiwan.
2.2. Before conducting this study, the institutional ethical committee review board was approved (No 102-3331B). The measurements included (1) Cardio-metabolic risk factors and metabolic syndrome, (2) Cigarette smoking, and (3) Healthy lifestyle.

2.3. Cardio-metabolic risk factors and metabolic syndrome were based on the national standard [Ministry of Health and Welfare, 2017]; the presence of each following 5 biomarkers was classified as abnormal or cardio-metabolic risk factor. More than or equal to 3 abnormal items called metabolic syndrome: (1) waist circumference > 90 cm define as central obesity, (2) if systolic/diastolic blood pressure > 130/85 mmHg, (3) high-density lipoprotein-cholesterol (HDL-c) < 40 mg/dL, (4) fasting blood glucose > 100 mg/dL, and (5) triglyceride level > 150 mg/dL.

3. Conclusions

3.1. Of the total 1526 participants enrolled in this study, 874 male samples with complete data were analyzed. The mean age was 55.6 years with a range of 18 to 90. The average education year was 8.7 which is equal to completing courses of junior high school in Taiwan.

3.2. Nearly one-third of participants classified as physically and visually impaired, 27% was mental retardation. Adopting regular exercise (64.1%), intake of water ≥ 1500cc per day (53.7%), intake vegetable ≥ 3 portions per day (28.7%), intake fruit ≥ 2 portions per day (19.6%).

3.3. The prevalence of MetS in this study was 33.3% (291 / 874) and each participant had 2 components of MetS on average.

3.4. The proportion of physically or visually impaired was higher in smokers while that of mental retardation was higher in non-smokers.

3.5. Smokers seem to have a poor lifestyle, including a lower proportion of regular exercise, insufficient intake of vegetable and insufficient intake of fruit.

3.6. The findings show a high prevalence of smoking, unhealthy lifestyle, and cardio-metabolic risk factors among adult men with disability.

3.7. Clinicians and community nurses could reduce the consequences of these risk factors and improve cardio-metabolic health through the initiation of smoking cessation and health-promoting programs.

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