

Who is at high risk of DM and pre-DM?

Weinan Dong, Emily T.Y. Tse, Carlos K.H. Wong, Esther Y.T. Yu, Laura Bedford, Eric H.M. Tang, Cindy L.K. Lam

Introduction

- Diabetes mellitus (DM) is common and serious but 50.1% of DM are undiagnosed.
- The HK Reference Framework recommends DM screening for people aged ≥ 45 years or having well-known risk factors, such as obesity or gestational DM.
- Current screening recommendation does not consider life-style factors and may miss some high-risk groups
- Clustering analysis that integrates lifestyle sociodemographic & anthropometric factors may identify specific high-risk groups

Results

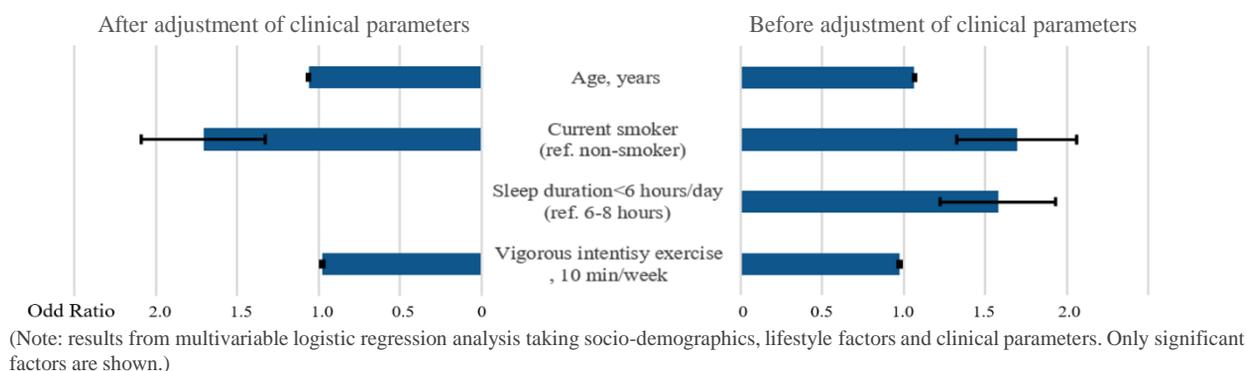
Among 1,857 subjects with a mean age of 40.7 years and 47.7% males, 15.1% had DM ($n=70$, 3.8%) and pre-DM ($n=210$, 11.3%) detected by blood tests.

The factors that were significantly associated with DM and pre-DM are shown in Figure 1.

Clustering analysis classified the subjects into 8 groups. Subjects within each group had similar characteristics but were distinguishably different from those of other groups (**Figure 2**).

Group 4, had a very high prevalence of DM and pre-DM (29.2%), despite normal BP, waist circumference and BMI. They were mostly male with a mean age 40.5 year, less-educated, engaged in manual labour and lacking in vigorous recreational exercise.

Figure 1. Factors associated with the risk of DM & pre-DM.



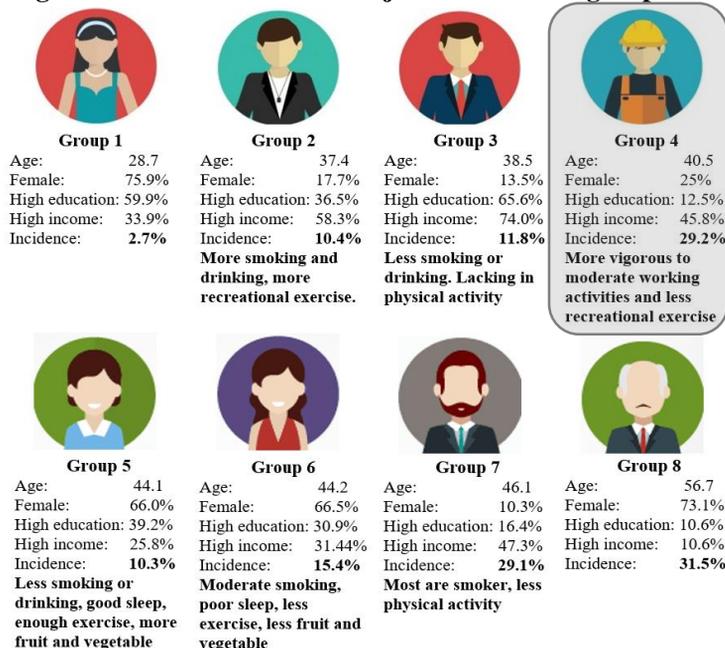
Objectives

- To explore the association between lifestyle factors and pre-DM and DM.
- To identify specific groups of people at high risk of DM and pre-DM.

Methods

- **Data source:** Hong Kong Population Health Survey 2014/15
- **Sample:** people aged 18-84, without self-reported DM or other major chronic diseases or anaemia, and have completed the health survey, health examination and blood test.
- **Outcome:** DM and pre-DM (defined as fasting plasma glucose higher than 6.0 mmol/L or HbA1c higher or equal to 5.7%).
- **Risk factors:** age, sex, marital status, education level, income level, smoking, drinking (AUDIT score), physical activity (vigorous-intensity working/exercise time, sedentary time), sleep (sleep duration, sleep bad days per month, sleep quality), diet (fruit/vegetable consumption, eat-out times per month).
- **Multivariable logistic regression** was used to examine the associations between the risk factors and the outcome after adjustment.
- **Clustering analysis** was performed to classify the people into multiple groups.

Figure 2. Characteristics of subjects in different groups



Conclusion

- Lack of sleep and lack of vigorous exercise were associated with increased risk of DM and pre-DM, which should be considered as screening inclusion criteria.
- Screening should be targeted at middle-aged males with low education levels and little vigorous exercise, even though they are not obese.

Acknowledgement

We would like to thank the Department of Health for approval of the data usage for this research study.