WALAILAK UNIVERSITY

Factors Affecting the BODE Index of Thai Older Adults with COPD

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Background

Chronic Obstructive Pulmonary Disease (COPD) will be the 5th leading cause of disability (DALYs) and the 4th leading cause of death by 2030.
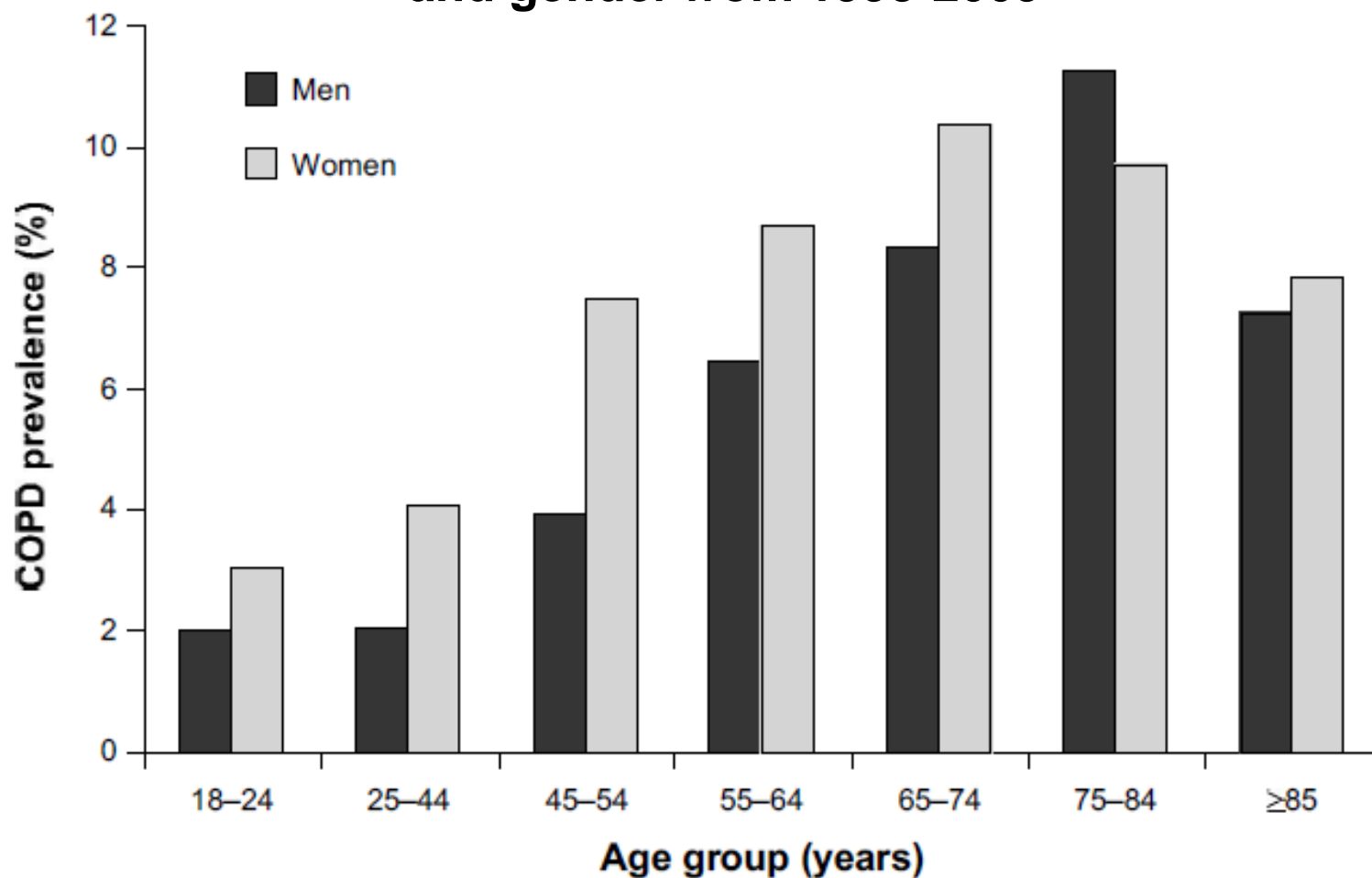
Age-related physiological changes contribute to impaired pulmonary function and contribute to the increased prevalence of COPD with age.

At age 70 years, FEV_1 decreased by about 30%, FVC expected to decline by about 20%, and FEV_1/FVC expected about 74% (GOLD, 2013)

Prevalence of COPD among adults in the US by age group and gender from 1998-2009

Akinbami, L.J. & Liu, X. (2011). Chronic obstructive pulmonary disease among adult aged 18 and over in the US, 1998-2009. *NCHS Data Brief*. 63,1-8.

Background

Morbidity and mortality resulting from COPD relate to the real impact of the disease. The specific instrument for self-evaluation of health in this disease, may be complementary to the BODE index, an indicator of mortality (Tashkin, 2011)

Recently a multidimensional grading system based on the BODE index - has begun to be used increasingly for the evaluation COPD patients. It is capable of predicting COPD-related hospitalization and mortality more than its individual components (Celli et al., 2008)

The BODE index was a better predictor of exacerbation than the FEV1 alone ($p < 0.01$) (Marin et al., 2008)

Objective of the study

To examine factors attribute to the severity of COPD among older adults with COPD in southern Thailand

Inclusion criteria

1. Age 60 years and above at the time of the initial screening;

2. Postbronchodilator FEV_1/FVC ratio < 0.70

3. Postbronchodilator FEV_1 percent predicted ≤ 70 percent

4. Good cognitive function which was assessed by standard Mini Mental Status Examination (Thai Version 2002)

5. Good functional status was assessed by Barthel ADL Index

6. Willing to participate fully in all aspects of the intervention

Sampling and setting

Systemic random sampling was used to recruit 105 COPD participants attending at Health Centers & Community Hospital, Nakhon Si Thammarat Southern Region of Thailand

Instruments for Data Collection

❖ **Socio-demographic Sheet**

    Personal data: age, gender, education and income;

    Health status: re-hospitalization, length of stay, ER-Visit
                  depression

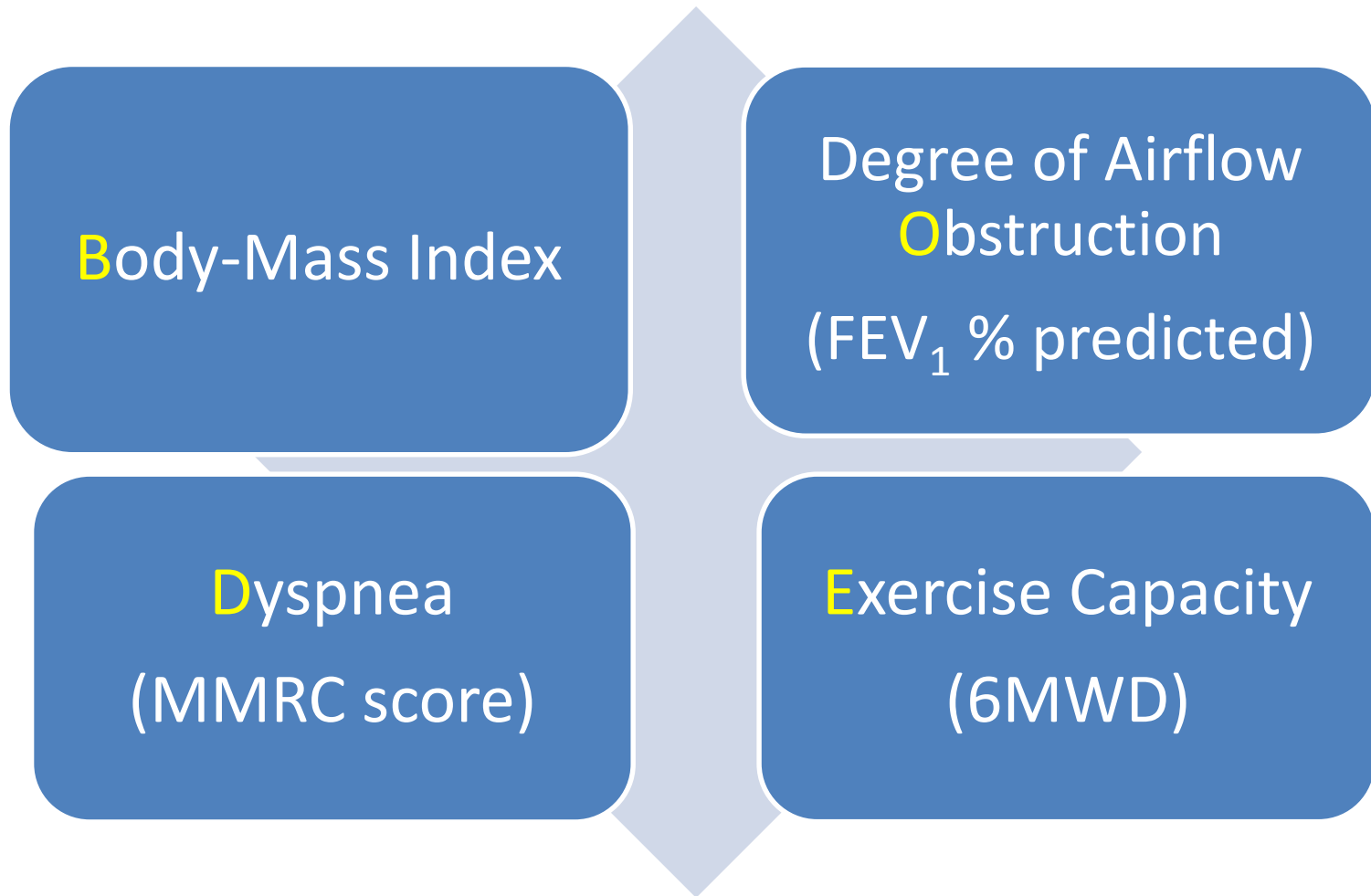   **Smoking status: current smoking, packed-year**

❖ **Personal Health Questionnaire Depression Scale (PHQ-9)**

    a screening tool of major depression consists of 9 items rating from 0 (none) to 4 (every day), with sensitivity = 0.84 and specificity = 0.77 (Lotrakul M, Sumrithe S, Saipanish R, 2008)

❖ **Severity of COPD : BODE index sheet**

BODE INDEX

Body-Mass Index

Degree of Airflow Obstruction
(FEV$_1$ % predicted)

Dyspnea
(MMRC score)

Exercise Capacity
(6MWD)

The higher scores indicate a higher risk of death

Scoring the BODE Index (Celli et al, 2004)

	0	1	2	3
$FEV_1\%$ predicted	≥ 65	50-64	36-49	≤ 35
6MWD (m)	≥ 350	250-349	150-249	≤ 149
MMRC	0-1	2	3	4
BMI (kg/m^2)	> 21	≤ 21		

Total BODE Index score = 0 to 10 units

Data Analysis

1. **Number, Percentage, Mean, SD** were used to describe the demographic characteristics of the participants

2. **Multiple Regression Analysis (Stepwise technique)** was used to determine factors explained BODE index

Personal Characteristic among All Participant (n=105)

Most patients (84%) were male; they had a mean (SD) age of 72 (8) years and mild to severe COPD (post-bronchodilator FEV_1 69% (10) predicted) with BODE index score 3 (2) points.

Nearly half of them (47%) were in Quartile 1 (0-2 scores), followed by Quartile 3 (5-6 scores) (25%) and Quartile 2 (3-4 scores) (23%) of BODE index.

Table 1 Correlation Matrix among variables (n=105)

Variable	BODE index	Age	Income	LOS	ER Visit
Age	.260**				
Income	-.252**	-.242*			
LOS	.202*	-.036	-.050		
ER Visit	.033	-.073	.039	.602**	
Depress	.237*	.086	-.139	.141	.183

Table 2 Stepwise multiple regression for the BODE index score (n=105)

Variables	B	SE	β	p	R² change
Age	.069	.025	.251	.008	.068
Depression	.416	.204	0.19	.044	.047
Length of stay	.036	.018	.185	.050	.033
Constant	-2.83				
R²	0.15				

Recommendations

❖ **The development of clinical therapeutics of prevention and reduction the severity of COPD in patients living with COPD should be considered the different of socio-demographics background and concerned the influence of depression on older adults with COPD.**

❖ **Further research should replicate the study among participants from several geographical areas are needed to broader the generalizability.**

Acknowledgement

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Thank you for your attention