

Factors of Metabolic Syndrome and Health Related Quality of Life among Korean Postmenopausal Women



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INTRODUCTION

- ♦ **METABOLIC SYNDROME (METS):** A Major Risk Factor for Cardiovascular Disease
- ♦ **DETERMINANTS IN ASIAN FEMALES**
 - Triglyceride (TG) ≥ 150 mg/dl, High-density Lipoprotein (HDL) Cholesterol < 50 mg/dl
 - SBP ≥ 130 mmHg or DBP ≥ 80 mmHg
 - Fasting Blood Glucose (FBG) ≥ 100 mg/dl, Waist Circumference (WC) ≥ 80 cm
- ♦ **PREVALENCE:** USA 34%, Asia 13.7~25.6 % (2015)
 - Developed countries ↓, Asian countries, including Korea ↑
- ♦ **ASSOCIATED FACTORS**
 - ◇ **INDIVIDUAL FACTORS:** Age, Obesity, Alcohol, Smoking, Physical Activity
Diet, Education, Income etc.
 - ◇ **CONTEXTUAL FACTORS:** Region, Free Available Facilities
- ♦ **LIMITATIONS OF PRIOR STUDIES**
 - ◇ **Methodological Issues**
 - Few Studies of Multilevel Analysis Approaches
 - Logistic Regression vs. Count Model
 - ◇ **Conceptual Issues**
 - Not enough testing between menopausal women with Mets and HRQoL
 - Important Mets components associated with HRQoL in postmenopausal women with Mets
 - What time to give interventions for these population

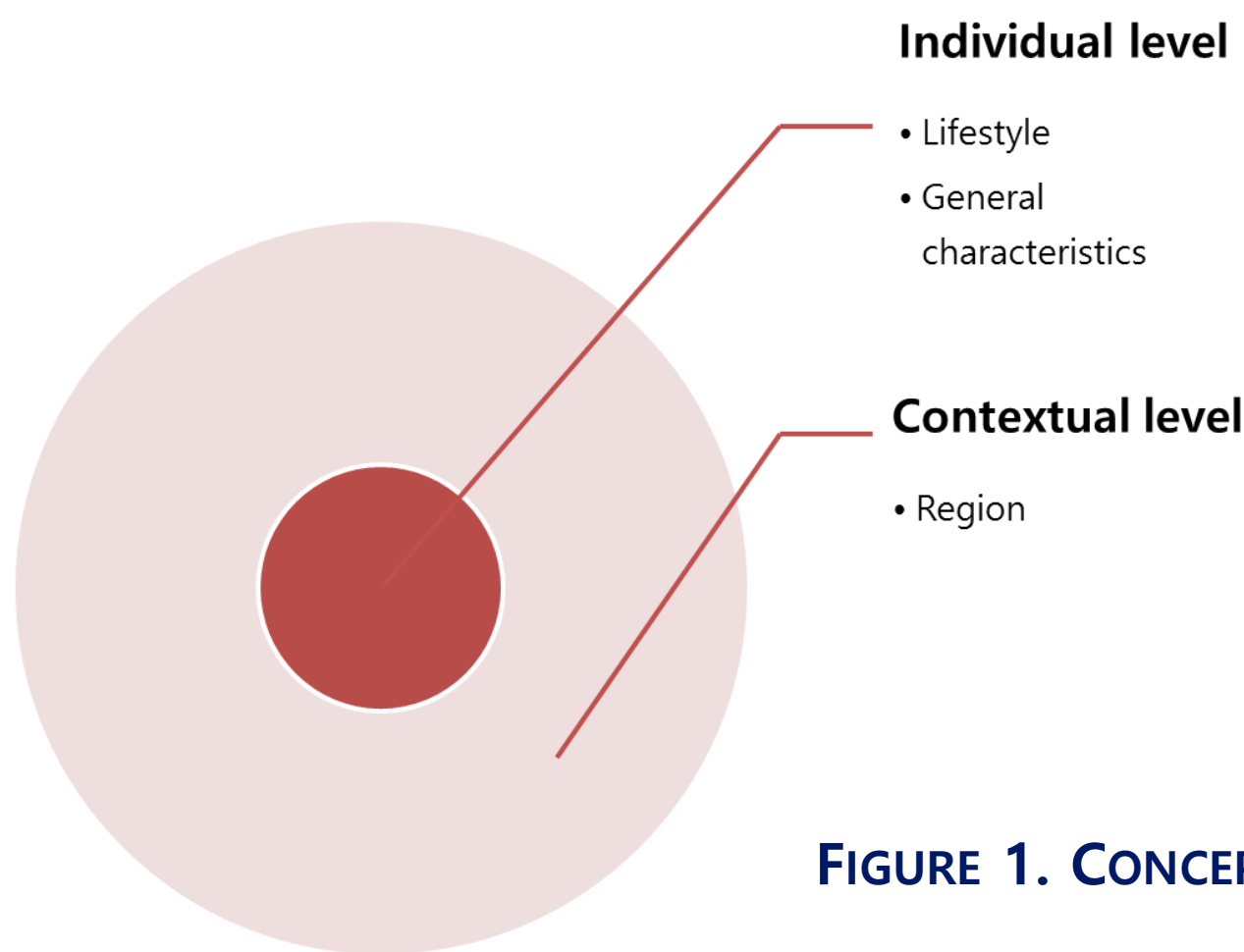


FIGURE 1. CONCEPTUAL MODEL

- ♦ **RESEARCH QUESTIONS**
 1. What time is the critical time point that we should give interventions?
 2. Which statistical model could predict the risk of Mets more effectively among postmenopausal women?
 3. Which of Mets components affect HRQoL most?

METHODS

STUDY DESIGN AND PARTICIPANTS

SECONDARY ANALYSIS, CROSS-SECTIONAL DESCRIPTIVE STUDY

A complex, stratified, multistage, probability cluster sampling
Korea National Health and Nutrition Examination Survey data 2010~2014

POSTMENOPAUSAL WOMEN

$N=7,123$
Weighted $N=6,530,873$

STATISTICAL ANALYSIS

DESCRIPTIVE STATISTICS: Mean, SD, Weighted N, and Percent

GROUP DIFFERENCE: Chi-square test

LOGISTIC REGRESSION VS. POISSON REGRESSION

TOBIT REGRESSION

Not Appropriate for the Multilevel Analysis

(Variance of Contextual Level: .000101($p > .614$))

SOFTWARE: SPSS 23 and STATA 13.

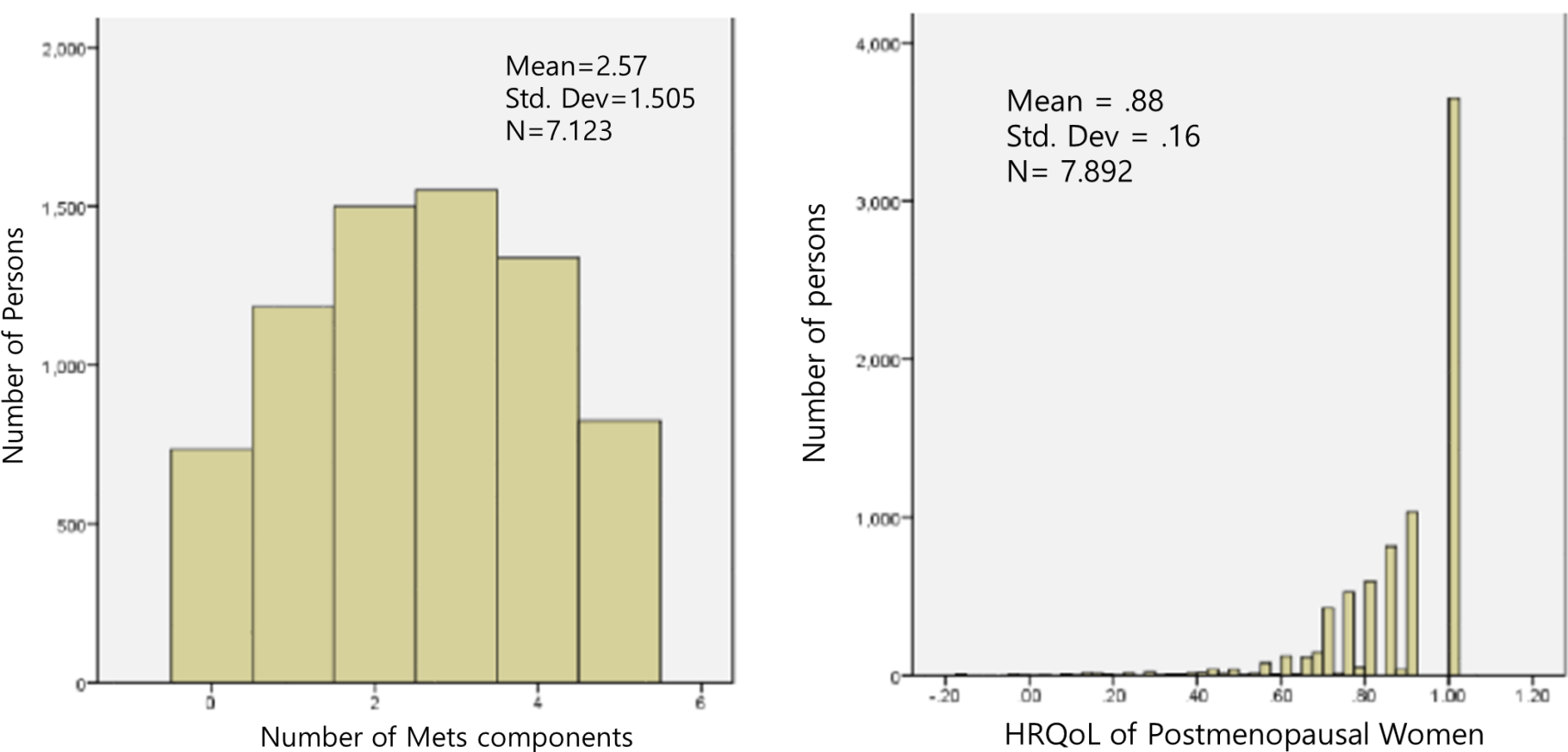


FIGURE 2. DISTRIBUTIONS OF HRQoL

RESULTS

DIFFERENCES OF DEMOGRAPHIC CHARACTERISTICS BETWEEN TWO GROUPS

Age

Sample Age: Mean(SD) 62.95(0.16)
Menopause Age: Mean(SD) 48.82(0.75)

General Information between Mets and non-Mets

Statistical Significant Variables

→ BMI, Alcohol Consumption, Aerobic Exercise,
Living with Spouse, Education Level, Occupation
House income, Region

FIGURE 3. PREVALENCE OF POSTMENOPAUSAL METABOLIC SYNDROME

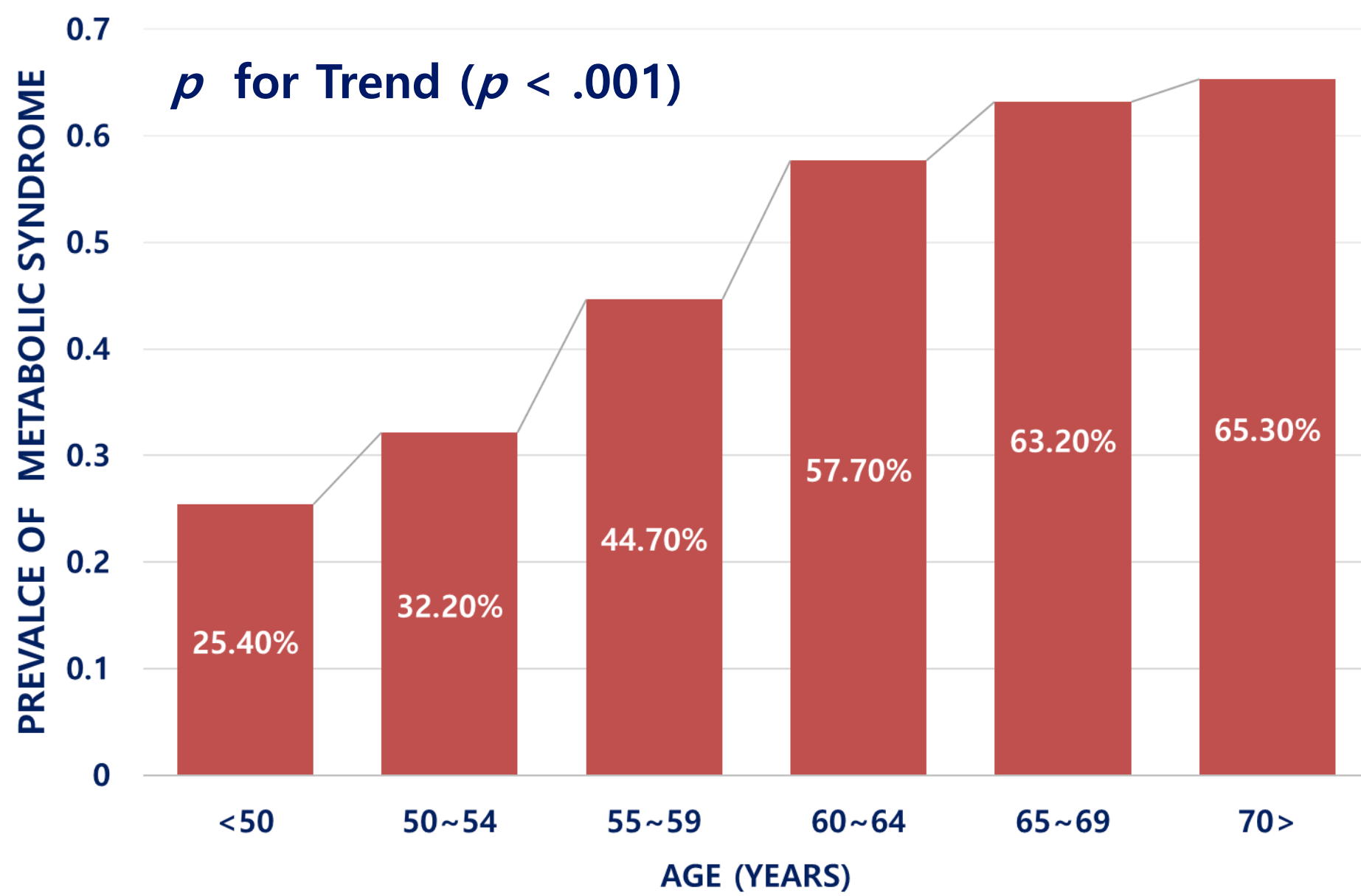


TABLE 1. FACTORS AFFECTING METS AMONG POSTMENOPAUSAL WOMEN

(WEIGHTED $N=6,530,873$)

Variable	Categories	Logistic Regression			Poisson Regression		
		OR	95% CI		IRR	95% CI	
			Lower	Upper		Upper	Lower
BMI (kg/m ²)	<25.0	1.0			1.0		
	≥25~<29.9	3.843	3.332	4.432	1.411	1.379	1.444
	≥30.0	8.721	6.232	12.205			
Alcohol Consumption	No	1.0			1.0		
	Yes	0.885	0.776	1.010	0.963	0.933	0.995
Aerobic Exercise	none	1.0			1.0		
	<150min/weeks	0.977	0.835	1.143	1.002	0.984	1.021
	≥150min/weeks	1.050	0.878	1.255			
Living with Spouse	No	1.0			1.0		
	Yes	0.857	0.744	0.987	0.973	0.942	1.005
Education Level	Elementary	1.0			1.0		
	Middle	0.773	0.638	0.973			
	High	0.626	0.520	0.753	0.914	0.896	0.932
	≥College	0.468	0.353	0.621			
Occupation	Housewives	1.0			1.0		
	Worker	0.692	0.609	0.786	0.904	0.875	0.934
House Income (Quartile)	Low	1.0			1.0		
	Medium-low	0.972	0.818	1.154			
	Medium-high	0.943	0.778	1.143	0.986	0.971	0.999
	High	0.799	0.658	0.970			
Region	Urban	1.0			1.0		
	Rural	0.908	0.781	1.051	0.964	0.930	0.999
Postmenopausal Time Period		1.025	1.018	1.133	1.007	1.005	1.009

TABLE 2. COMPONENTS OF METS AND HRQoL IN POSTMENOPAUSAL WOMEN

(WEIGHTED $N=6,530,873$)

Components of Mets	β	SE	p
WC ≥ 80	-0.047	0.016	.003
TG ≥ 150	0.004	0.014	.779
HDL Cholesterol < 50	-0.029	0.018	.098
SBP ≥ 130 or DBP ≥ 85	-0.067	0.015	< .001
FBG ≥ 100	-0.010	0.011	.380
Number of Mets Components	-0.025	0.007	< .001

CONCLUSION

As the number of Mets components increased, HRQoL among the Korean postmenopausal women decreased. The weight control is key factor preventing postmenopausal Mets. Since the group with postmenopausal Mets has low socioeconomic status (living alone, unemployed, low education level and income), health care professionals should provide interventions at community level, considering their critical time point.

Count model can be use as an alternative statistical method to the logistic regression model for analyzing Mets.