

Differences in Unhealthy Weight Control Behaviors and Depression in Korean Adult Women: The Roles of Body Mass Index and Body Weight Perception

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Background

Korea has undergone a rapid nutritional transition, leading to an increase in overweight women

Korean women are becoming increasingly concerned with their body image, and the thin, Western ideal body image has become an important standard of comparison in the context of social interactions

Not only overweight women, who deviate greatly from the thin body ideal, but also even normal-weight women are often vulnerable to a distorted body weight perception (BWP), a negative body image, or body weight dissatisfaction (see Fig. 1)

There has been a substantial difference in the rates of increase between those who are overweight in terms of BMI and those who perceive themselves to be overweight in recent years, especially young women (see Fig. 2 and 3)

In Korean society, the gap between clinically ideal (normal size) and culturally ideal (slim size) physiques for women has widened in recent years, promoting an increased interest in women's health behaviors and health status

According to a recent study by Wardle et al. (2006), female Korean college students aged 17-30 years have lower mean BMI but a higher prevalence of dieting than do Western and other Asian populations (see Fig. 4)

Despite this situation, adult women, with all these factors relating to BMI, BWP, unhealthy weight control behaviors (UWCBs) and depression, has been understudied

Objectives

- To examine the mediating function of BWP in the relationship between BMI and UWCBs and between BMI and depression
- To investigate who is at greater risk of UWCBs and depression

Data Source & Study Area

Data: 2001 Seoul Citizens Health Indicator Survey

- A stratified multistage sampling design from 20,981 in 25 districts throughout Seoul, Korea

- The survey includes information on Korean women's BMI, BWP, UWCBs, and depression

- 8581 women aged 20-64 (37.3 years ± 1.8)

- Seoul is not only the capital of Korea, but also the center Korean culture, politics, and economics with residents numbering over 11 million, occupying about a quarter of the Korean population

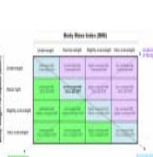


Figure 5. Combination of BMI and BWP



Figure 1. Social comparison and body dissatisfaction among overweight and normal-weight women

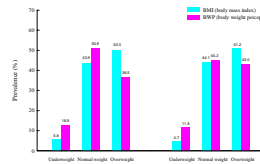


Figure 2. Prevalence of BMI and BWP in 2001 and 2005 among Korean women aged 20-64 years

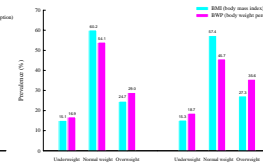


Figure 3. Prevalence of BMI and BWP in 2001 and 2005 among young Korean women aged 20-29 years

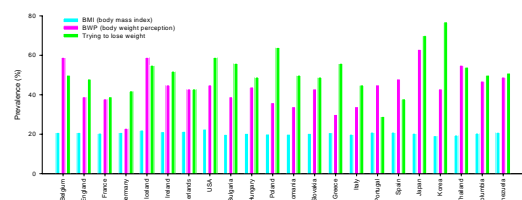


Figure 4. Prevalence of BMI, BWP, and trying to lose weight female college students aged 17-20 years in 23 countries

Measures & Analysis

- Outcomes: UWCBs and depression
 - UWCBs: those who have ever engaged in at least one of the following weight control methods during the last year, such as skipping meals, taking diet pills/products, using laxatives/diuretics, and weight loss surgeries
 - Depression: those who have always felt depressed
 - Predictors: BMI and BWP
 - BMI: self-reported weight and height (kg/m²) Asian-Pacific BMI criterion by WHO e.g., underweight (<18.5), normal weight (18.5 to 22.9), overweight (23.0 to 24.9), and obese (>25.0)
 - BWP: how to self-rate one's body weight e.g., underweight, about right, overweight, & very overweight
 - Combination of BMI and BWP (see Fig. 5)
 - Control variables
 - Age: e.g., 20-29, 30-39, 40-49, & 50-64
 - Marital status: e.g., married, unmarried, and divorced/separated/widowed
 - Monthly household income (unit: ₩): e.g., 1000 or less, 1001-2000, 2001-3000, & 3001 or more
 - Employment status: e.g., non-manual, manual, & unemployed
 - Smoking status: e.g., never smoker, ex-smoker, & current smoker
 - Alcohol intake: e.g., never drinker, moderate drinker, & heavy drinker
 - Physical exercise: e.g., 4 or more days per week, 1-3 days per day, & sometimes or never
- This research used the mediating procedures proposed by Baron and Kenny (1986)

Table 1. Adjusted odds ratios (95% confidence intervals)* for the effects of BMI, body weight perception (BWP), combination of BMI and BWP (BM-BWP), demographic/socioeconomic characteristics, and health behaviors on unhealthy weight control behaviors (UWCBs) in adult Korean women

	Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI
BMI						
Underweight	0.39**	(0.30-0.50)	0.72*	(0.54-0.96)		
Normal-weight	1.00		1.00			
Slightly overweight	1.84**	(1.84-2.18)	1.05	(0.81-1.32)		
Very overweight	3.32**	(2.77-3.99)	1.44**	(1.17-1.82)		
BWP						
Underweight			0.54**	(0.27-0.51)		
About the right			1.00			
Slightly overweight			2.47**	(2.11-2.88)		
Very overweight			3.91**	(3.00-5.09)		
Combination of BMI and BWP						
Normal BM - About right BWP			1.00			
Underweight BM - Underweight BWP			0.22**	(0.12-0.38)		
Slightly overweight BM - Slightly overweight BWP			2.61**	(2.10-3.24)		
Very overweight BM - Very overweight BWP			6.12**	(4.70-7.95)		
Normal BM - Underestimation BWP			0.42**	(0.25-0.70)		
Slightly overweight BM - Underestimation BWP			1.38	(0.95-1.98)		
Very overweight BM - Underestimation BWP			3.49*	(2.71-4.33)		
Underweight BM - Overestimation BWP			0.94	(0.62-1.15)		
Normal BM - Overestimation BWP			2.71**	(2.27-3.22)		
Slightly overweight BM - Overestimation BWP			4.99**	(3.22-7.75)		

Table 2. Adjusted odds ratios (95% confidence intervals)* for the effects of BMI, body weight perception (BWP), combination of BMI and BWP (BM-BWP), and unhealthy weight control behaviors (UWCBs) on depression among adult Korean women

	Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI
BMI						
Underweight	1.16	(0.86-1.58)	1.00	(0.76-1.40)	1.10	(0.78-1.56)
Normal	1.00		1.00		1.00	
Slightly overweight	1.12	(0.90-1.36)	1.00	(0.80-1.27)	0.91	(0.72-1.16)
Very overweight	1.30*	(1.01-1.66)	0.92	(0.69-1.23)	0.79	(0.59-1.06)
BWP						
Underweight			1.44*	(1.08-1.93)	1.30*	(1.00-1.83)
About the right			1.00		1.00	
Slightly overweight			1.30*	(1.05-1.59)	1.30*	(1.05-1.61)
Very overweight			2.00**	(1.42-2.80)	1.90*	(1.38-2.67)
Engaging in UWCBs						
No			1.00		1.00	
Yes			1.30*	(1.10-1.76)	1.40*	(1.10-1.77)
Combination of BMI and BWP						
Normal BM - About right BWP			1.00			
Underweight BM - Underweight BWP			1.44	(0.96-2.17)		
Slightly overweight BM - Slightly overweight BWP			1.18	(0.90-1.56)		
Very overweight BM - Very overweight BWP			1.51*	(1.06-2.16)		
Normal BM - Underestimation BWP			1.35	(0.94-1.96)		
Slightly overweight BM - Underestimation BWP			0.84	(0.58-1.21)		
Very overweight BM - Underestimation BWP			1.00	(0.75-1.33)		
Underweight BM - Overestimation BWP			1.14	(0.71-1.81)		
Normal BM - Overestimation BWP			1.26	(0.96-1.64)		
Slightly overweight BM - Overestimation BWP			2.34*	(1.74-3.20)		

Discussion & Conclusion

BMI-UWCB and the BMI-depression relationships were mediated, in part, by BWP, respectively
 - How adult women perceive their body weight may play an important contributor to their possible chances of UWCB and depression

Women whose BMIs and BWPs were all very overweight had the greatest risk when it came to engaging in at least one UWCB

- Perhaps because women are socioculturally expected to be thin, women who are not only actually very overweight but who also perceived themselves to be very overweight may be less likely to have an ideal shape and more likely to feel social pressure and/or make negative comparisons with others that could drive them to have a higher risk of UWCB, as compared to others with underweight, normal, and even slightly overweight BMIs

Slightly overweight women who perceived themselves to be very overweight had a greater risk of depression than even those whose BMIs and BWPs were all very overweight
 - It suggests that the importance of the effects of a distorted BWP on UWCBs and depression for even normal-weight women (p=0.0940)

UWCB was significantly associated with an elevated risk of depression

These findings suggest that education programs or effective treatments that help women who perceive themselves to be overweight or have a distorted body weight to critically evaluate socio-cultural ideal body image should be developed to reduce the potential risks of UWCBs and depression

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