

# Does High Emotional Demand with Low Job Control Relate to Suicidal Ideation among Service and Sales Workers in Korea?

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We examined the relationship of high emotional demands and low job control to suicidal ideation among service and sales workers in Korea. A total of 1,995 service and sales workers participated in this study. Suicidal ideation and level of emotional demand and job control were assessed by self-reported questionnaire in 4th Korean National Health and Nutrition Examination Survey. Gender-specific odds ratio (OR) and 95% confidence intervals (95% CI) for suicidal ideation were calculated using logistic regression analysis. The results show that workers who suffered from high emotional demands (OR, 2.07; 95% CI, 1.24–3.45 in men, OR, 1.97; 95% CI, 1.42–2.75 in women) or low job control (OR, 1.96; 95% CI, 1.42–2.75 in men, OR, 1.33; 95% CI, 0.91–1.93 in women) were more likely to experience suicidal ideation after controlling for age, household income, and employment characteristics. The interaction model of emotional demands and job control revealed that workers with high emotional demands and high job control (OR, 1.93; 95% CI, 1.08–3.45 in men, OR, 1.60; 95% CI, 1.06–2.42 in women) and high emotional demands and low job control (OR; 4.60, 95% CI; 1.88–11.29 in men, OR; 2.78, 95% CI; 1.64–4.44 in women) had a higher risk for suicidal ideation compared to those with low emotional demands and high job control after controlling for age, household income, employment characteristics, smoking, alcohol drinking and physical activity habit. These results suggest that high emotional demands in both genders and low job control in men might play a crucial role in developing suicidal ideation among sales and service workers in Korea.

**Keywords:** Emotional Demands; Job Control; Sales Worker; Service Worker; Suicidal Ideation

## INTRODUCTION

Sales and service workers face customers during working hours and the standardized expression of emotions, including kindness and sympathy, are important components of their job requirements (1). Standardized expression of emotions is socially desirable, especially to the organization, and it is essential to maintaining a positive economic relationship between the customers and the sales and service workers. The standardized expression of desirable emotions and the act of hiding undesirable emotions is also an essential component of a new type of work demand (2), namely an emotional demand (3,4). Furthermore, these employees can be categorized as performing “emotional labor” (5).

Hochschild provided the first definition of emotional labor including cognitive, bodily, and expressive components (6). For example, when customers expect a positive interaction, workers should try to smile and express happiness. Accommodation of the emotional demands from customers is an essential component of the social, and ultimately the economic, skills of sales

and service workers. However, some studies have suggested that excessive emotional demands could lead to disconnect between displayed and felt emotions, or emotional dissonance. Emotional dissonance is related to adverse health effects including burnout (7). Furthermore, various studies have demonstrated that chronic exposure to emotional demands with low job control causes service workers to feel higher levels of exhaustion and cynicism (8). Emotional exhaustion in the workplace can increase suicidal ideation (9). Chronic excessive emotional demands, in turn, lead to increased risk of depression (10). Hiding one’s emotions has been found to be associated with increased suicidal ideation in depressed older adults (11).

Therefore, in sales and service workers, there is a possibility that excessive emotional demands, including hiding one’s emotions, are linked to suicidal ideation. Actually, suicide mortality rate of sales and service workers in Korea has been increasing steadily (12). Kessler et al. (13) reported the probability of transitioning from suicidal ideation to suicidal plans and then to an attempt using the National Comorbidity Survey from the United States. The transition probability from suicidal ideation to

suicidal plans was 34%, and the transition probability from plans to an attempt was 72%. In addition, the transition probability from suicidal ideation to an unplanned suicidal attempt was 26%. These results suggest that investigations of suicidal ideation are a starting point in preventing the risk of death due to suicide. A study reported that the emotional exhaust and burn out were related to suicidal ideation in medical doctor (14), but little has known whether high emotional demands increase the risk of suicidal ideation in sales and service workers in Asian countries, to our best knowledge.

Emotional demands are enforced in the workplace to serve a variety of customers' demands; hence, occupational strain is increased in sales and service workers. The structure of the work organization is an important consideration in the reduction of occupational stress. A person's sense of having little or no control over their job performance or work conditions (low job control) has been associated with an increased risk of developing occupational stress, which is linked to psychological and physiological diseases (15). Low job control has been found to decrease employees' work effectiveness (16,17), requiring more time and effort to meet customers' demands. A prospective cohort study in Japan demonstrated that low job control is a strong predictor of suicidal death (18). Therefore, we hypothesized that emotional demands and job control in the workplace may influence suicidal ideation in sales and service workers. We also tested the demand-control hypothesis (19,20) to examine whether the interaction of high job demands and low job control has an effect on suicidal ideation.

We used data from the 4th Korea National Health and Nutrition Examination Survey (KNHANES), which consists of comprehensive questionnaires including individual covariates related to suicidal ideation and lifestyle factors (20,21). The aim of this study was to investigate 1) whether high emotional demands or low job control were associated with suicidal ideation, and 2) the interactive effects of high emotional demands and low job control on suicidal ideation.

## MATERIALS AND METHODS

### Study procedures and samples

The KNHANES was conducted from 2007 to 2009. Household-based random sampling was performed using a stratified multistage probability sampling method. Stratification was based on the 600 geographical areas of the Korean population. Nine occupational categories in the 4th KNHANES corresponded to the Korean Standard Classification of Occupations. Of the 10,023 economically active participants in the study, 1,999 sales and service workers were selected. Four participants were excluded from the study due to missing responses to questions about suicidal ideation. Finally, a total of 1,995 participants (824 men and 1,171 women) were included in the analyses.

### Measurements

The 4th KNHANES includes a questionnaire that assesses individuals for the presence of suicidal ideation during the past year. To assess suicidal ideation, participants were asked, "Have you felt as though you wanted to die during past year?" 'Yes' or 'no' responses indicated the presence or absence of suicidal ideation, respectively (21). Emotional demands and job control at work were also measured by the self-report questionnaire. The following questions were asked: "I should hide my emotions while working" (22) was used to assess emotional demands, and "I have the authority to control my job, and I can use that authority during work" was used to assess the degree of job control.

The response categories for these items used a 4-point Likert-type scale ranging from 'never', 'rarely', 'yes', to 'always'. The 'yes' and 'always' responses were assigned a high rating and the 'never' and 'rarely' responses were assigned a low rating for both questions (emotional demands and job control). Four groups were defined as high vs. low emotional demand and job control as follows: Group I had low emotional demands and high job control, Group II had low emotional demands and low job control, Group III had high emotional demands and high job control, and Group IV had high emotional demands and low job control.

Total family income divided by family size (total number of family members who live together) was calculated to define the household income. The standard income level was estimated according to strata of age (5-year intervals) and gender. The standard income level was categorized as low, middle-low, middle-high, or high. Employment characteristics were categorized as paid worker or self-employed worker. Smoking history was classified as non-smoker, former smoker, or current smoker. A non-smoker was defined as a person with a lifetime history of smoking fewer than 100 cigarettes. Heavy alcohol consumption was defined as drinking 7 or more glasses of alcohol on 2 or more occasions per week in men, and 5 or more glasses on 2 or more occasions per week in women. High physical activity was defined as more than 20 minutes of physical activity that was of sufficient time and intensity to produce perspiration, performed 3 or more times per week.

### Statistical analysis

Chi-square tests were used to compare the prevalence of suicidal ideation across demographic characteristics (Table 1). The prevalence (%) of suicidal ideation is reported according to high emotional demands and low job control. The *P* values for trends were calculated using the Cochran-Armitage trend test. The odds ratio (ORs) and 95% confidence intervals (95% CIs) for suicidal ideation were estimated using multiple logistic regression analysis. The statistical analyses were conducted using SPSS PC (ver. 19.0), and *P* < 0.05 was considered statistically significant.

**Table 1.** Basic characteristics of study population

No. (weighted %)	Suicidal ideation					
	Men (n = 824, weighted n = 2,437,376)			Women (n = 1,171, weighted n = 2,460,493)		
	No (739, 89.7%)	Yes (85, 10.3%)	P	No (922, 78.7%)	Yes (249, 21.3%)	P
Age, yr			0.459			0.139
< 30	153 (91.5)	13 (8.5)		129 (74.1)	44 (25.9)	
31-40	190 (90.9)	19 (9.1)		191 (79.7)	51 (20.3)	
41-50	210 (91.4)	22 (8.6)		313 (79.3)	88 (20.7)	
51-60	130 (87.6)	19 (12.4)		212 (84.7)	46 (15.3)	
61 <	56 (82.9)	12 (17.1)		77 (79.6)	20 (20.4)	
Individual income			0.937			0.003
Below lower quartile	142 (90.1)	18 (9.9)		222 (72.6)	83 (27.4)	
Others	597 (90.3)	67 (9.7)		700 (81.9)	166 (18.1)	
House hold income			0.119			0.012
Below lower quartile	53 (84.1)	10 (15.9)		112 (70.5)	44 (29.5)	
Others	676 (91.0)	72 (9.0)		793 (80.7)	201 (19.3)	
Emotional demand			0.009			< 0.001
Low	457 (92.6)	41 (7.4)		532 (85.0)	101 (15.0)	
High	282 (86.8)	44 (13.2)		390 (73.2)	148 (26.8)	
Job control			0.054			0.036
Low	104 (84.9)	16 (15.1)		223 (74.6)	74 (25.4)	
High	635 (91.3)	69 (8.7)		699 (81.2)	175 (18.8)	
Working character			0.337			0.133
Paid worker	323 (89.1)	35 (10.9)		517 (77.9)	151 (22.1)	
Self-employed worker	416 (91.3)	50 (8.7)		405 (81.9)	98 (18.1)	
Occupation			0.823			0.976
Service worker	256 (89.9)	28 (10.1)		455 (79.4)	116 (20.6)	
Sales worker	483 (90.5)	57 (9.5)		467 (79.5)	133 (20.5)	
Education			0.055			0.459
Below middle school	95 (82.9)	23 (17.1)		295 (81.1)	80 (18.9)	
High school	294 (91.4)	30 (8.6)		423 (77.1)	124 (22.9)	
Above university	350 (91.2)	32 (8.8)		204 (82)	45 (18)	
High physical activity*			0.046			0.993
Physical activity	158 (94.5)	12 (5.5)		150 (79.4)	43 (20.6)	
Non-physical activity	564 (89.4)	70 (10.6)		754 (79.3)	202 (20.7)	
Alcohol drinking			0.240			0.014
Non-heavy	466 (91.4)	49 (8.6)		620 (79.7)	168 (20.3)	
Heavy <sup>†</sup>	208 (88.5)	28 (11.5)		82 (69.4)	35 (30.6)	
Tobacco smoking			0.483			< 0.001
Never, ex-smoker	345 (91.3)	38 (8.7)		826 (81.0)	208 (19.0)	
Current smoker	379 (89.7)	45 (10.3)		78 (64.8)	38 (35.2)	

\*High physical activity was defined as more than 1/3 hour of physical activity which sufficient to get sweating, and three or more times per week; <sup>†</sup>Heavy alcohol drinking was defined as drinking seven or more glasses of alcohol on 2 or more occasions per a week in men, and 5 or more glasses on 2 or more occasions per a week in women.

### Ethics statement

All participants provided written informed consent for their voluntary participation in the study. The identifying information of all participants was deleted before the analyses were conducted. This survey was approved by the institutional review board (IRB) of the Korea Centers for Disease Control and Prevention (IRB: 2007-02-CON-04-P; 2008-04EXP-01-C; 2009-01CON-03-2C).

### RESULTS

The prevalence of suicidal ideation was 10.3% in men (85 of 824) and 21.3% in women (249 of 1,171). The prevalence of suicidal ideation in workers with high emotional demands and low job control was higher than workers with low emotional

demands and high job control for both genders: 13.2% and 15.1% vs. 7.4% and 8.7% in men; 26.8% and 25.4% vs. 15.0% and 18.8% in women, respectively (Table 1). The prevalence of suicidal ideation was higher in women with lower individual and household income levels and in those who were heavy alcohol drinkers and current smokers compared to the women in the other groups (Table 1). There was an inverse relationship between physical activity and suicidal ideation in men, but not in women. The prevalence of suicidal ideation in men was 5.5% in physically active workers and 10.6% in workers who were not physically active ( $P = 0.046$ ).

The ORs for suicidal ideation were associated with high emotional demands in both genders (OR, 2.07; 95% CI, 1.24-3.45 in men, OR, 1.97; 95% CI, 1.42-2.75 in women) adjusted for age, household income, and employment characteristics (paid vs.

**Table 2.** Odds ratio of suicidal ideation in multivariate logistic regression models

Variables	Odds ratio (95% confidence interval)	
	Model I	Model II
<b>Men</b>		
High emotional demand	2.07 (1.24-3.45)	1.98 (1.14-3.45)
Low job control	1.96 (1.01-3.84)	1.60 (0.75-3.45)
<b>Women</b>		
High emotional demand	1.97 (1.42-2.75)	1.86 (1.26-2.73)
Low job control	1.33 (0.91-1.93)	1.27 (0.83-1.95)

Model I, adjusted for age, house hold income, pain worker (vs. self-employed worker); Model II, Model I + adjusted for smoking, alcohol drinking and physical activity habit.

**Table 3.** Odds ratio of suicidal ideation in multivariate logistic regression models

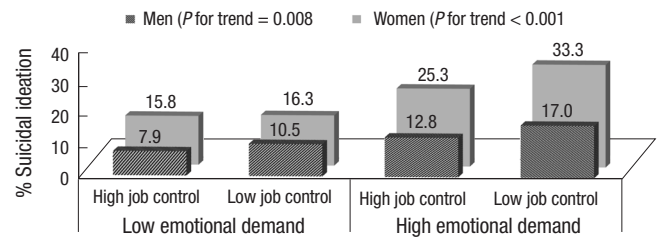
Variables	Odds ratio (95% confidence interval)	
	Model I	Model II
<b>Men</b>		
Group I: Low emotional demand and high job control	1 -	1 -
Group II: Low emotional demand and low job control	1.70 (0.59-4.89)	1.12 (0.34-3.63)
Group III: High emotional demand and high job control	1.96 (1.11-3.46)	1.93 (1.08-3.45)
Group IV: High emotional demand and low job control	4.27 (1.75-10.39)	4.60 (1.88-11.29)
<b>Women</b>		
Group I: Low emotional demand and high job control	1 -	1 -
Group II: Low emotional demand and low job control	0.96 (0.54-1.71)	0.98 (0.55-1.73)
Group III: High emotional demand and high job control	1.68 (1.13-2.52)	1.60 (1.06-2.42)
Group IV: High emotional demand and low job control	2.78 (1.72-4.50)	2.69 (1.64-4.40)

Model I, adjusted for age, house hold income, pain worker (vs. self-employed worker); Model II, Model I + adjusted for smoking, alcohol drinking and physical activity habit.

self-employed). Low job control increased the odds of suicidal ideation in men (OR, 1.96; 95% CI, 1.01-3.84), but not in women (OR, 1.33; 95% CI, 0.91-1.93). Further adjustment for smoking, alcohol drinking and physical activity habit attenuated the association between suicidal ideation and low job control in men (model II of Table 2).

We next analyzed the interactive effects of the two job characteristics (emotional demands and job control) on suicidal ideation. The number of male workers was 431 in Group I (low emotional demands and high job control), 67 in Group II (low emotional demands and low job control), 273 in Group III (high emotional demands and high job control), and 53 in Group IV (high emotional demands and low job control). The number of female workers was 486, 147, 388, and 150 in Groups I, II, III, and IV, respectively. The prevalence rates of suicidal ideation in male workers were 7.9% (n = 34), 10.5% (n = 7), 12.8% (n = 35), and 17.0% (n = 9) for Groups I, II, III, and IV, respectively (P for this trend is 0.008). The prevalence rates of suicidal ideation in female workers were 15.8% (n = 77), 16.3% (n = 24), 25.3% (n = 98), and 33.3% (n = 50) for Groups I, II, III, and IV, respectively (P for this trend is below 0.001; Fig. 1).

Compared to Group I (low emotional demands and high job control), Group III (high emotional demands and high job control; OR, 1.93; 95% CI, 1.08-3.45 in men, OR, 1.60; 95% CI, 1.06-2.42 in women) and Group IV (high emotional demands and low job control; OR, 4.60; 95% CI, 1.88-11.29 in men, OR, 2.69; 95% CI, 1.64-4.40 in women) were more likely to experience



**Fig. 1.** Prevalence (%) of suicidal ideation for high emotional demands with low job control.

suicidal ideation after controlling for age, household income, employment characteristics, smoking, alcohol drinking and physical activity habit (model II in Table 3). ORs for suicidal ideation were 1.12 and 0.98 for men and women with low emotional demands and low job control, respectively and 1.93 and 1.60 for men and women with high emotional demands and low job control, respectively. The sum of the ORs was 3.05 in men and 2.58 in women. The ORs for high emotional demands and low job control were 4.60 in men and 2.69 in women. These ORs are somewhat greater than the sums of the ORs (3.05 in men, 2.58 in women).

**DISCUSSION**

In the current study, we found that high emotional demands in both gender and low job control in men are related to suicidal ideation in sales and service workers after adjustment for age, household income and employment status. Sales and service personnel are often the first workers to face customers who argue, complain, and make various demands. Because economic decisions are dependent on customer demands, standardized emotional displays are essential economic skills for sales and service workers. Hiding and expressing emotions are also important skills needed to maintain positive relationships with customers. Recently, standardized emotions used in work settings have been labeled “emotional labor” in order to adequately represent the skill set (5). In the current study, the question-



naire item "I should hide my emotions while working" was presented to sales and service workers. The response values included in the questionnaire reflect only the act of hiding one's emotions, without addressing how one expresses emotions or experiences emotional dissonance. Hence, the results of the current study cannot be applied directly to concepts of emotional labor. However, the act of hiding one's emotions is the most important component of emotional labor, and employers encourage this behavior. Therefore, we categorized respondents as high or low emotional demand based on this item in the current study. Careful attention is needed to generalize our current results to the broader concept of emotional labor.

Patterns of suicide have been found to vary by occupation, and there are certain occupational and industrial groups that have an especially high risk of suicide (23). Some studies have reported that there are occupation-specific causes and methods of suicide, and this knowledge provides us with strategies to understand and prevent suicide in certain occupations (24). For example, epidemiological studies have revealed that easy access to lethal means in medically-related occupations (25), loneliness due to isolation in miners and farmers, and low income and inadequate social support systems are related to poor psychological well-being in manual workers (26). Suicide rates fluctuate according to the national macroeconomic conditions for farmers, fishery, and forestry workers (27). In light of the evidence regarding occupation-specific causes of suicide, our results suggest that high emotional demands are important risk factors for suicidal ideation in sales and service workers, and further that these factors have additive effects.

The mortality rate due to suicide is steadily increasing in Korean service and sales workers (12). We calculated the age-standardized prevalence of suicidal ideation in service and sales worker using the 4th KNHANES: 8.6% in men, and 19.2% in women (data not shown in the results section). Prevalence was highest among non-manual occupational groups in both genders, though it was not significantly higher than the prevalence in manual occupational groups. Standardized expressions and the act of hiding one's emotions are desired by the organization regardless of their individual characteristics; however, they cause depersonalization and emotional exhaustion (28). The increase in emotional demands accelerates exhaustion and results in burnout and depression (29). Burnout and depression are related risks for suicidal ideation (30).

These related associations support the findings of the current study, namely that high emotional demands increase the odds of suicidal ideation in sales and service workers. The relationship between low job control and suicidal ideation in men was no longer significant after adjusting for age, household income, employment characteristics, smoking, alcohol consumption, and physical activity (Model II in Table 2). Furthermore, low job control in women did not show a significant relationship with

suicidal ideation in any of the logistic models. Although there was an interaction effect between high emotional demands and low job control (Table 3), the combination of low emotional demands and low job control (Group II) was not associated with a significant increase in the odds of suicidal ideation, whereas high emotional demands and high job control (Group III) did show this association in both genders. These results suggest that high emotional demands have a stronger relationship with suicidal ideation compared to low job control in the sales and service workers in this study.

In the current study, the relationship between suicidal ideation and some of the covariates differ between men and women. First, low job control increased the odds of suicidal ideation after controlling for high emotional demands, household income, and employment characteristics in men, but not in women (Table 2). The current results suggest that the association between low job control and suicidal ideation is somewhat stronger in men than in women. In contrast to previous studies (31), our study shows that lower levels of household income are more strongly related with the risk of suicide in women. High physical activity had an inverse relationship with suicidal ideation in men, but alcohol consumption and smoking did not (Table 1). In contrast, women showed a significant relationship between suicidal ideation, alcohol consumption, and smoking (Table 1). We hope that the gender differences found in our study communicate that gender-specific strategies are needed to prevent suicide among sales and service workers.

There are several limitations of the current study. Because it is a cross-sectional study design, the direction of causality cannot be determined. The act of hiding one's emotions can be associated with personality, which may make some individual workers suffer more from stress. This indicates the possibility of an interaction between a personality trait (hiding one's emotions) and job demands affecting suicidal ideation. A more comprehensive study including personality (32,33) and organization-specific factors is needed. There may also have been selection biases, namely healthy worker selection and healthy worker survival. In other words, if a worker has difficulties performing emotional labor, the worker may be less likely to select a service job (healthy worker selection). In contrast, workers who are good at hiding their emotions are more likely to keep their service job (healthy worker survival). Selection bias would attenuate the association between hiding one's emotions and suicidal ideation; nonetheless, our study shows a significant association between hiding one's emotions and suicidal ideation. However, these limitations (including the cross-sectional study design, potential influence of personality, and selection biases) should be taken into consideration when interpreting our results. Furthermore, individuals who died as a result of suicide are not included in the study. However, the rate of suicide attempts was not high enough to influence the results of the cur-

rent study. The percentage of successful suicide attempts was 5.8% in Koreans between the ages of 20 and 69 (34). We also could not control for past job or careers due to a lack of information. Although the employment characteristics of workers were controlled for in the regression models, specific positions held by the sales and service workers were not controlled for due to a lack of information. It is possible that workers in lower positions experienced more occupational stress than those in higher positions. Further studies are needed to clarify the effects of position on the association between high emotional demands at work and suicidal ideation.

In conclusion, these results suggest that high emotional demands in both genders, as well as low job control in men, might play a crucial role in increasing the risk of suicidal ideation in sales and service workers. Furthermore, we found the interaction effects of combining high emotional demands and low job control on suicidal ideation for both genders. These interesting associations remained significant even after controlling for individual risk factors such as age, household income, employment characteristics, smoking, alcohol drinking and physical activity habit.

## DISCLOSURE

The authors have no potential conflicts of interest to disclose.

## AUTHOR CONTRIBUTION

Conception and design of the investigation: Yoon JH, Chang SJ. Analysis of data and writing tables and figure: Yoon JH, Jeung D. Writing and revision of the paper: Yoon JH, Chang SJ. Final approval of manuscript: all authors.

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