

Suppressing emotion and engaging with complaining customers at work related to experience of depression and anxiety symptoms: a nationwide cross-sectional study

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Abstract: Our aim was to investigate the relationship between suppressing emotion and engaging with complaining customers at work and experience of depression and anxiety symptoms. We used nationally representative data from the Korean Working Condition Survey with 15,669 paid customer service workers. Job characteristics of “Engaging with Complaints”, “Suppressing Emotion”, experience of depression and anxiety symptoms were measured by self-reported questionnaires. Gender specific odds ratios (OR) and 95% confidence intervals (95% CI) were calculated using multivariate logistic regression after controlling for age, income, education level, job satisfaction, and working hours per week. The results showed that people who were ‘Always Engaging with Complaints’ (OR: 3.81, 95% CI: 1.83–7.96 for male, OR: 3.98, 95% CI: 2.07–7.66 for female) and ‘Always Suppressing Emotion’ (OR: 2.33, 95% CI: 1.33–4.08 for male, OR: 2.83, 95% CI: 1.67–4.77 for female) were more likely to experience depression and anxiety symptoms compared to those ‘Rarely Engaging with Complaints’ and ‘Rarely Suppressing Emotion’, respectively. Additionally, there was an interactive relationship between those job characteristics. Our nationwide study demonstrates that mental health problems are incrementally related to how much service workers must engage with complaining customers and suppressing emotion at work.

Key words: Service worker, Suppressing emotion, Engaging with complaints, Mental health problems

Introduction

The range of the service industry has been steadily increasing. Worldwide, the service industry accounted for almost 70% of the GDP in 2012¹. In the East Asia and

Pacific area, the service industry accounted for 43% of GDP in 1973 and 64% of GDP in 2012¹. In 2013, that proportion was 73% for Europe and Central Asia, 43% for the Middle East and North Africa, and 63% for Latin America and Caribbean. An increase in these proportions over time demonstrates the importance of occupational health issues in the service sector.

Service workers are usually the first workers who face customers. Thus, the economic value and service qual-

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ity of products are deeply connected to the relationship between customers and service workers. That means that services workers must regulate the various demands, arguments, and complaints from every customer²⁾. Often, company-desired emotion must be displayed, and company-restricted emotion must be suppressed to maintain a positive economic relationship among workers, customers, and the employer. Thus, displaying and suppressing emotion are essential skills for customer service workers, as was recently recognized when customer service was labeled “emotional work”³⁾.

Although emotional work is an essential skill for service workers, excessive demands for it could lead to adverse health effects for the workers, just as in any other industry. Because the emotions to be displayed or suppressed are standardized by an organization, workers are required to express emotions different from those they actually experience. When felt emotions become too far away from those displayed, emotional dissonance, which is linked to emotional burnout, can result⁴⁾. Hence, excessive emotional demands can drive emotional workers into exhaustion or lead to mental health problems such as depression^{5, 6)}.

If customers' complaints are too complex or go beyond the ability of a service worker to manage, the emotional demands can become an increasing strain for the worker⁷⁾. If workers have lack the authority to answer a complaint or have no right to get out of such a stressful situation (for example, they cannot pass the complaint to a superior officer with adequate authority to solve the problem), all they can do is suppress their actual emotions and repeat apologies until the customer stops complaining. Hence, we hypothesize that job characteristics requiring workers to suppress emotion during work (Suppressing Emotion)⁸⁾ while engaging complaining customers (Engaging with Complaints) could create emotional demands that together lead to mental health problems among service workers.

The aims of our study were to investigate 1) whether the need to suppress emotions or engage with complaining customers is related to experience of depression and anxiety symptoms, and 2) whether those two job characteristics have interactive relationships on the experience of depression and anxiety symptoms in service workers. To investigate that association, we used nationally representative data from the Korean Working Condition Survey (KWCH)⁹⁾, which provides comprehensive occupational information for approximately 50,000 workers in Korea.

Subjects and Methods

Ethics statement

All participants of the KWCS provided written informed consent for their voluntary participation in the study. The personal, identifying information from all the participants was deleted before the analyses were conducted. This analysis was approved by the Institutional Review Board (IRB) of Yonsei University Graduate School of Public Health (IRB: 2-1040939-AB-N-01-2015-309).

Study population

We used data from the 2011 KWCS conducted by the Korea Occupational Safety and Health Agency. The 50,031 workers in the 2011 KWCS were sampled by multistage random sampling to represent the active Korean working population aged 15 to 60 years old. In this study, we excluded 20,321 workers who were not paid worker. To identify customer service workers, we used a question about job characteristics: “Does your job include something like the following?” with the answer, “I directly manage those who are not business partners, such as customers, passengers, students, or patients”. The response options were: always, almost always, 75% of the time, 50% of the time, 25% of the time, almost never, and never. We categorized the responses of almost never or never as non-service workers. In that way, we excluded 14,041 workers to focus on service workers. Data from the remaining 15,669 paid customer service workers (8,255 men, 7,414 women) were used in the current study. A schematic diagram of the study population is depicted in Fig. 1.

Job characteristics

The first question about job characteristics was, “Does your job include something like the following?” with “I manage upset customers or patients” as an answer. The response options were the same as those listed above. We re-categorized the responses of always or almost always into “Always” and responses of almost never or never into “Rarely”. We then called the responses of 75% of the time, 50% of the time, or 25% of the time “Sometimes”. The second job characteristics question was “Choose the most appropriate points for my job situation” with “I have to suppress my emotions during work” as an option. The response options for that question were always, almost always, sometimes, almost never, or never. Again, we re-categorized the first two responses, always and almost always, as “Always” and the last two responses, almost never or never, as “Rarely”, maintaining “Sometimes”. We

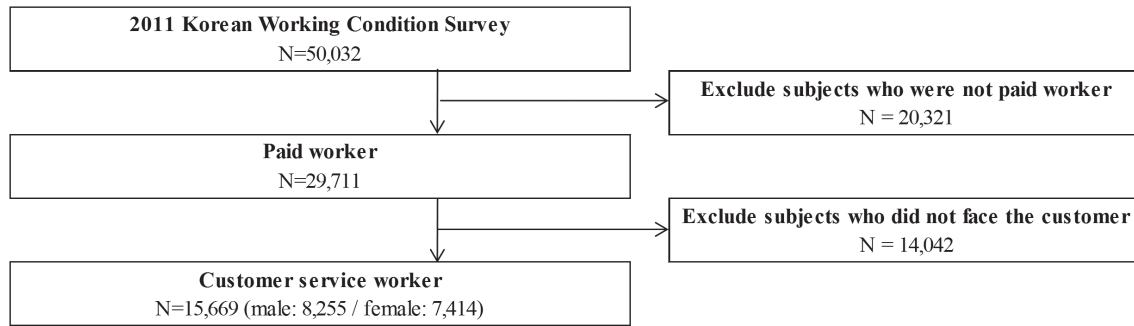


Fig. 1. Schematic diagram depicting the study population.

Table 1. Characteristics of service workers according to their experience of experience of depression and anxiety symptoms in the past 12 months

	Men (n=8,255)			Women (n=7,414)		
	Experience of depression and anxiety symptoms Yes (n=92, %=1.1)	No (n=8,163, %=98.9)	<i>P</i>	Experience of depression and anxiety symptoms Yes (n=106, %=1.4)	No (n=7,308, %=98.6)	<i>P</i>
Age	42.2 ± 12.6	41.1 ± 12.1	0.39	42.0 ± 10.4	38.7 ± 11.2	0.002
Engaging with Complaints						
rarely	50 (0.8)	5,919 (99.2)	<0.01	56 (1.1)	5,298 (98.9)	<0.01
sometimes	33 (1.7)	1,940 (98.3)		38 (2.1)	1,757 (97.9)	
always	9 (2.9)	304 (97.1)		12 (4.5)	253 (95.5)	
Suppressing Emotion						
rarely	19 (0.7)	2,692 (99.3)	0.017	20 (0.9)	2,226 (99.1)	<0.01
sometimes	35 (1.1)	3,023 (98.9)		30 (1.1)	2,775 (98.9)	
always	38 (1.5)	2,448 (98.5)		56 (2.4)	2,307 (97.6)	
Income level (per month)						
<1,000,000 Won	6 (0.9)	641 (99.1)	0.253	24 (1.7)	1,409 (98.3)	0.159
<2,000,000 Won	35 (1.4)	2,489 (98.6)		51 (1.3)	3,966 (98.7)	
<3,000,000 Won	23 (0.8)	2,740 (99.2)		16 (1.2)	1,293 (98.8)	
≥3,000,000 Won	28 (1.2)	2,293 (98.8)		15 (2.3)	640 (97.7)	
Education level						
middle school or below	7 (1.2)	602 (98.8)	0.965	8 (1.4)	552 (98.6)	0.953
high school	32 (1.1)	2,948 (98.9)		45 (1.5)	2,996 (98.5)	
university	53 (1.1)	4,613 (98.9)		53 (1.4)	3,760 (98.6)	
Job satisfaction						
satisfied	51 (0.8)	6,211 (99.2)	<0.01	57 (1.0)	5,645 (99.0)	<0.01
unsatisfied	41 (2.1)	1,952 (97.9)		49 (2.9)	1,663 (97.1)	
Working hours per week						
<40 h per wk	27 (1.0)	2,776 (99.0)	0.626	40 (1.3)	3,106 (98.7)	0.304
<50 h per wk	33 (1.2)	2,660 (98.8)		40 (1.8)	2,250 (98.3)	
≥50 h per wk	32 (1.2)	2,727 (98.8)		26 (1.3)	1,952 (98.7)	

named those characteristics “Engaging with Complaints” and “Suppressing Emotion”, respectively.

We then defined nine groups in a 3 by 3 matrix of Rarely, Sometimes, or Always for ‘Engaging with Complaints’ and ‘Suppressing Emotion’. For example, group I was ‘Rarely Engaging with Complaints’ and ‘Rarely Suppressing Emotion’, and group IX was ‘Always Engaging with Complaints’ and ‘Always Suppressing Emotion’.

Experience of depression and anxiety symptoms

For mental health problems, we used a question regarding anxiety disorders and depression. The question was, “Have you suffered from the following health problems during the past 12 months”, and one answer was “depression or an anxiety disorder”. The response options were “ever” and “never”. We defined respondents who chose “yes” as having experience of depression and anxiety

symptoms in the last 12 months and others as not having these mental health problems in the last 12 months.

Potentially confounding variables

Socio-economic status is a well-known confounding variable when investigating risk factors for mental health problems. The KWCS includes questions about monthly income and education. Monthly income levels were <1,000,000 Won (1,000 Won equals about 1.2 USA dollars), <2,000,000 Won, <3,000,000 Won, and $\geq 3,000,000$ Won. We re-categorized education level into middle school or below, high school, and university or more. Working hours per week, not counting lunch or other breaks, were categorized as below 40 h, 40 to 49 h, and 50 or more hours per week.

The level of job satisfaction was assessed by the question, "Generally, what do you think about your current work?" The response options were very satisfied, satisfied, not very satisfied, and not at all satisfied. We re-categorized the four options into "satisfied" and "unsatisfied".

Statistical analysis

We used *t*-tests and Chi-square tests to compare the different occupational and demographic characteristics of those with and without experience of depression and anxiety symptoms (Table 1). The odds ratio (OR) and 95% confidence intervals (95% CIs) for having experience of depression and anxiety symptoms were calculated using multiple logistic regression. Because mental health problems, emotional labor, and service workers' characteristics generally show a gender difference, we undertook a gender-stratified analysis¹⁰. The *p*-values for the combined relationships between 'Engaging with Complaints' and 'Suppressing Emotion' were estimated in a logistic regression model. A *p*-value below 0.05 was considered statistically significant.

Results

Among the participants, 1.1% of men and 1.4% women reported having experience of depression and anxiety symptoms in the last 12 months. The mean age between those with and without experience of depression and anxiety symptoms differed in women, but not in men. The proportion of those with experience of depression and anxiety symptoms was highest in the 'Always Engaging with Complaints' group for both genders (2.9% in men and 4.5% in women, respectively). The proportion of those with experience of depression and anxiety symptoms was highest in

the 'Always Suppressing Emotion' group for both genders (1.5% in men, 2.4% in women). Job satisfaction was also related to experience of depression and anxiety symptoms: unsatisfied workers had experience of depression and anxiety symptoms more often than satisfied workers for both genders (0.8% vs. 2.1% in men, 1.0% vs. 2.9% in women for satisfied vs. non-satisfied, respectively). Hours worked per week, income, and education levels were not related to the prevalence of experience of depression and anxiety symptoms for either gender.

In men (Table 2), the level of Engaging with Complaints did not differ according to age group, but the proportion of those Always Suppressing Emotion was highest in the 30–49 age group ($p < 0.05$). The groups with the highest income level ($\geq 3,000,000$ Won), a high school education, non-job satisfaction, and working 41–50 working hours per week showed the highest proportion of Always Engaging with Complaints (all *p*-values < 0.05). The highest proportion of Always Suppressing Emotion was shown in the groups with the highest income level ($\geq 3,000,000$ Won), university school education, job satisfaction, and working ≥ 50 h per wk (all *p*-values < 0.05).

In women (Table 2), almost 30% of the below 30 age group and the 30–49 age group Rarely or Always Engaged with Complaints, while just 24% of the group age 50 or older was those groups (*p*-value below 0.05). The proportion of those in the Always Suppressing Emotion group was highest in the younger age group (below 30 years old) and lowest in the older age group (50 years old or older) (*p*-value < 0.05). The group with the highest income level ($\geq 3,000,000$ Won), university education, non-job satisfaction, and working 41–50 h per wk showed the highest proportion of Always Engaging with Complaints (all *p*-values < 0.05). The highest proportion of workers Always Suppressing Emotion was shown in the group with the highest income level ($\geq 3,000,000$ Won), university school education, and ≥ 50 working hours per week (all *p* < below 0.05).

In a crude logistic regression model, people who were in the 'Always Engaging with Complaints' (OR: 4.05, 95% CI: 1.95–8.40 for men; OR: 4.83, 95% CI: 2.54–9.18 for women) and 'Always Suppressing Emotion' (OR: 2.20, 95% CI: 1.27–3.83 for men; OR: 2.70, 95% CI: 1.62–4.52 for women) groups were more likely to experience of depression and anxiety symptoms compared to those in the 'Rarely Engaging with Complaints' and 'Rarely Suppressing Emotion' groups (Table 3). After controlling for confounding variables such as age, income, education level, job satisfaction, and working hours per week, people who

Table 2. Demographic and occupational characteristics according to Engaging with Complaints and Suppressing Emotion

	Engaging with Complaints			<i>p</i> -value	Suppressing Emotion			<i>p</i> -value
	rarely	sometimes	always		rarely	sometimes	always	
<i>Men</i>								
Age				0.559				<0.001
	<30	1,017 (72.9)	319 (22.9)	59 (4.2)	465 (33.3)	499 (35.7)	431 (30.9)	
	30–49	3,499 (72.1)	1,168 (24.1)	188 (3.8)	1,502 (30.9)	1,835 (37.8)	1,518 (31.3)	
	≥ 50	1,453 (72.5)	486 (24.2)	66 (3.3)	744 (37.1)	724 (36.1)	537 (26.8)	
Income level (per month)				<0.001				<0.001
	<1,000,000 Won	503 (77.7)	121 (18.7)	23 (3.6)	263 (40.6)	196 (30.3)	188 (29.1)	
	<2,000,000 Won	1,807 (71.6)	635 (25.2)	82 (3.2)	884 (35.0)	944 (37.4)	696 (27.6)	
	<3,000,000 Won	1,935 (70.0)	739 (26.8)	89 (3.2)	855 (30.9)	1,077 (39.0)	831 (30.1)	
	≥3,000,000 Won	1,724 (74.3)	478 (20.6)	119 (5.1)	709 (30.6)	841 (36.2)	771 (33.2)	
Education level				<0.001				<0.001
	middle school or below	429 (70.4)	157 (25.8)	23 (3.8)	264 (43.4)	200 (32.8)	145 (23.8)	
	high school	2,042 (68.5)	817 (27.4)	121 (4.1)	1,036 (34.8)	1,195 (40.1)	749 (25.1)	
	university	3,498 (75.0)	999 (21.4)	169 (3.6)	1,411 (30.2)	1,663 (35.6)	1,592 (34.1)	
Job satisfaction				<0.001				<0.001
	satisfied	4,639 (74.1)	1,401 (22.4)	222 (3.5)	2,028 (32.4)	2,270 (36.2)	1,964 (31.4)	
	non-satisfied	1,330 (66.7)	572 (28.7)	91 (4.6)	683 (34.3)	788 (39.5)	522 (26.2)	
Working hours per week				<0.001				<0.001
	<40 h per wk	2,129 (76.0)	564 (20.1)	110 (3.9)	1,080 (38.5)	954 (34.0)	769 (27.4)	
	<50 h per wk	1,896 (70.4)	680 (25.3)	117 (4.3)	868 (32.2)	1,019 (37.8)	806 (29.9)	
	≥ 50 h per wk	1,944 (70.5)	729 (26.4)	86 (3.1)	763 (27.7)	1,085 (39.3)	911 (33.0)	
<i>Women</i>								
Age				0.005				<0.001
	<30	1,282 (72.5)	422 (23.9)	64 (3.6)	501 (283)	647 (36.6)	620 (35.1)	
	30–49	3,135 (71.0)	1,125 (25.4)	158 (3.6)	1,303 (29.5)	1,707 (38.6)	1,408 (31.9)	
	≥ 50	937 (76.3)	248 (20.2)	43 (3.5)	442 (36.0)	451 (36.7)	335 (27.3)	
Income level (per month)				<0.001				<0.001
	<1,000,000 Won	1,130 (78.8)	259 (18.1)	44 (3.1)	580 (40.5)	531 (37.0)	322 (22.5)	
	<2,000,000 Won	2,855 (71.1)	1,030 (25.6)	132 (3.3)	1,136 (28.3)	1,577 (39.3)	1,304 (32.5)	
	<3,000,000 Won	904 (69.1)	350 (26.7)	55 (4.2)	359 (27.4)	490 (37.4)	460 (35.1)	
	≥3,000,000 Won	465 (71.0)	156 (23.8)	34 (5.2)	171 (26.1)	207 (31.6)	277 (42.3)	
Education level				0.002				<0.001
	middle school or below	434 (77.5)	108 (19.3)	18 (3.2)	250 (44.6)	186 (33.2)	124 (22.1)	
	high school	2,150 (70.7)	794 (26.1)	97 (3.2)	928 (30.5)	1,225 (40.3)	888 (29.2)	
	university	2,770 (72.7)	893 (23.4)	150 (3.9)	1,068 (28.0)	1,394 (36.6)	1,351 (35.4)	
Job satisfaction				<0.001				0.1872
	satisfied	4,238 (74.3)	1,283 (22.5)	181 (3.2)	1,722 (30.2)	2,133 (37.4)	1,847 (32.4)	
	non-satisfied	1,116 (65.2)	512 (29.9)	84 (4.9)	524 (30.6)	672 (39.3)	516 (30.1)	
Working hours per week				<0.001				<0.001
	<40 h per wk	2,355 (74.9)	696 (22.1)	95 (3.0)	1,138 (36.2)	1,112 (35.3)	896 (28.5)	
	<50 h per wk	1,645 (71.8)	544 (23.8)	101 (4.4)	680 (29.7)	868 (37.9)	742 (32.4)	
	≥50 h per wk	1,354 (68.4)	555 (28.1)	69 (3.5)	428 (21.6)	825 (41.7)	725 (36.7)	

were in the ‘Always Engaging with Complaints’ (OR: 4.13, 95% CI: 1.99–8.60) and ‘Always Suppressing Emotion’ (OR: 2.33, 95% CI: 1.33–4.08) groups were more likely to experience depression and anxiety disorder compared to those in the ‘Rarely Engaging with Complaints’ and ‘Rarely Suppressing Emotion’ groups in men. In women, people who were in the ‘Always Engaging with Complaints’ (OR: 3.98, 95% CI: 2.07–7.66) and ‘Always Sup-

pressing Emotion’ (OR: 2.83, 95% CI: 1.67–4.77) groups were more likely to experience depression and anxiety disorder compared to those in the ‘Rarely Engaging with Complaints’ and ‘Rarely Suppressing Emotion’ groups. The ORs for the mental health problem of depression and anxiety disorder increased with the level in which workers had to Engage with Complaints and Suppress Emotion: all *p*-values for that trend were below 0.05 for both genders.

Table 3. Odds ratio (OR) with 95% confidence interval (95% CI) of experiencing mental health problem of depression and anxiety disorder

	Men, OR (95% CI)			Women, OR (95% CI)		
	Crude	Model I	Model II	Crude	Model I	Model II
Engaging with Complaints						
rarely	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
sometimes	2.27 (1.43–3.61)	2.18 (1.36–3.48)	2.30 (1.44–3.67)	2.22 (1.45–3.38)	2.32 (1.52–3.56)	2.16 (1.40–3.32)
always	4.05 (1.95–8.40)	3.81 (1.83–7.96)	4.13 (1.99–8.60)	4.83 (2.54–9.18)	4.69 (2.46–8.94)	3.98 (2.07–7.66)
<i>p</i> -values for trend	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Suppressing Emotion						
rarely	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
sometimes	1.64 (0.94–2.87)	1.67 (0.95–2.93)	1.65 (0.94–2.91)	1.20 (0.68–2.13)	1.25 (0.70–2.21)	1.23 (0.69–2.18)
always	2.20 (1.27–3.83)	2.24 (1.29–3.91)	2.33 (1.33–4.08)	2.70 (1.62–4.52)	2.86 (1.70–4.82)	2.83 (1.67–4.77)
<i>p</i> -values for trend	0.005	0.004	0.003	<0.001	<0.001	<0.001

Model I: adjusted for age, income level, and education level

Model II: model I + adjusted for current job satisfaction, and working hours per week

Next, we analyzed the combined effects of two job characteristics—‘Engaging with Complaints’ and ‘Suppressing Emotion’—on mental health problems. We estimated the risk of mental health problems for eight groups, assigning the ‘Rarely Engaging with Complaints+Rarely Suppressing Emotion’ group as the control group. The ORs (95% CIs) of depression or anxiety disorder were 2.14 (0.27–16.86) in the ‘Rarely Suppressing Emotion+Always Engaging with Complaints group’ and 1.92 (0.89–4.13) in the ‘Always Suppressing Emotion+Rarely Engaging with Complaints’ groups, respectively, for men. The OR (95% CI) of depression and anxiety disorder in the ‘Always Suppressing Emotion+Always Engaging with Complaints’ group was 8.37 (3.01–23.27) for men. The ORs (95% CIs) of depression and anxiety disorder were 2.65 (0.58–11.98) in the ‘Rarely Suppressing Emotion+Always Engaging with Complaints’ group, and 1.70 (0.86–3.25) in the ‘Always Suppressing Emotion+Rarely Engaging with Complaints’ group, respectively, for women. The OR (95% CI) of depression and anxiety disorder was 7.73 (3.12–19.17) in the ‘Always Suppressing Emotion+Always Engaging with Complaints’ group for women. All *p*-values for the combined effects of the two job characteristics, Engaging with Complaints and Suppressing Emotion, on the experience of depression and anxiety symptoms were statistically significant ($p < 0.05$).

Discussion

Our nationwide cross-sectional study analyzed the association between experiencing of depression and anxiety symptoms and the job characteristics of Engaging with Complaints and Suppressing Emotion among service workers. The frequency at which employees Engage

with Complaints and Suppress Emotion were incrementally related to the OR for having experience of depression and anxiety symptoms in both genders, even after controlling for age, income, education level, job satisfaction, and working hours per week. Furthermore, we found dose-response associations between experience of depression and anxiety symptoms and the level of Engaging with Complaints and Suppressing Emotion for both genders. Simultaneous exposure to Engaging with Complaints and Suppressing Emotion also carried high odds of experiencing of depression and anxiety symptoms.

The first definition of emotional labor was provided by Hochschild, who described cognitive, bodily, and expressive components¹¹. Simply, emotional work can be defined as a job that requires workers to display organizationally required emotions toward customers at a workplace³. Sometimes, workers experience discrepancies between their felt emotions and the organizationally required emotions. In certain situations, some workers can modify their felt emotions into organizationally required emotions, so-called deep acting¹², but other workers cannot. In other situations, workers just try to fake their emotions while suppressing their actual emotions, so-called surface acting¹². Deep acting and surface acting are the most important components of emotional labor. Generally, surface acting is more hazardous to workers’ health than deep acting¹². Hence, our questions, “I manage upset customers or patients” and “I have to suppress my emotions during work” represent a somewhat hazardous context of emotional work, particularly among workers engaged in surface acting. Using those questions, we found a strong relationship between Engaging with Complaints and Suppressing Emotion and the experience of depression and anxiety symptoms among service workers.

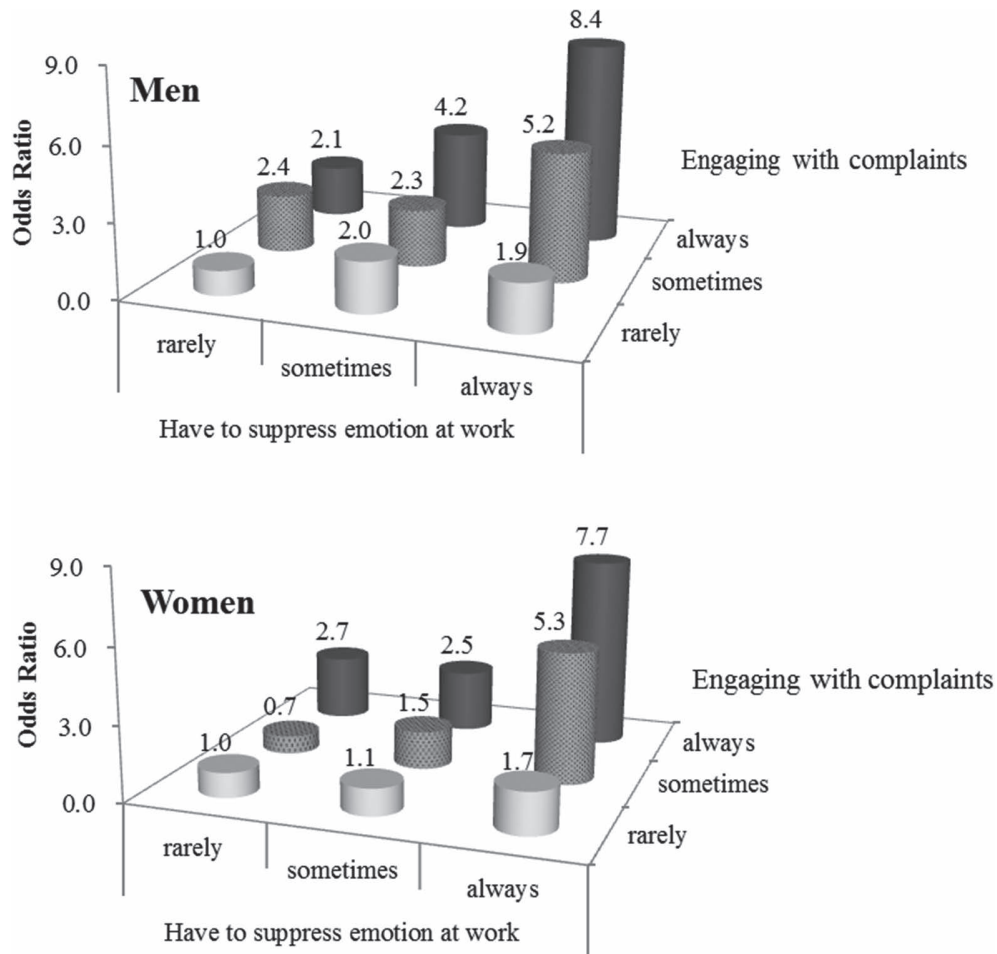


Fig. 2. Combined effects of ‘Engaging with Complaints’ and ‘Suppressing Emotion’ on experience of depression and anxiety symptoms.
p-values for interactions were below 0.05 for both genders.

Engaging with and managing complaining customers are stressful job demands for service workers. An increasing number of suicides among Korean service workers¹³⁾ and high suicide mortality in other countries¹⁴⁾ reflect how much service workers suffer from stressful events related to experience of depression and anxiety symptoms. Workplace violence is the most severe stressful event experienced by service workers¹⁵⁾, and it is also related to depression and anxiety¹⁶⁾. Our current study demonstrates that Engaging with Complaints is related to experience of depression and anxiety symptoms. Furthermore, that relationship shows a dose-response relationship.

A study from 347 call center workers in the United Kingdom reported that emotional labor intensity is related to emotional exhaustion. Furthermore, lack of job control and supervisory support moderated the association between emotional labor and well-being¹⁷⁾. Emotional demand, including suppressing emotion, has also been

related to numerous other health outcomes in various studies. A prospective study from the United States, the General Social Survey–National Death Index cohort, followed 729 people who reported emotional suppression levels on the job¹⁸⁾. After 12 yr, that cohort had experienced 111 deaths. High levels of emotional suppression showed a 1.35- and 1.70-times higher risk of death over all causes and cancer mortality, respectively¹⁸⁾. Research has also shown that suppressing emotion can affect cognitive function¹⁹⁾. It is well known that the emotional demands of job stress can cause emotional dissonance, exhaustion, and burnout^{4, 20, 21)}. Emotional dissonance and burnout are also related to symptoms of depression²²⁾. In the same context, our study shows a significant relationship between suppressing emotion and experience of depression and anxiety symptoms.

Biological mechanisms might mediate the association between suppressing emotion and experience of depres-

sion and anxiety symptoms. Psychosomatic theory, including neuroendocrine deregulation and autonomic nervous system disruption, suggests possible mechanisms for the effects of emotional suppression on various diseases²³). Recently, functional neuroimaging studies have shown that suppressing emotion changes the neural activity in brain lesions, enhances the response of skin conductance, and increases adrenocorticotrophic hormone levels²⁴). The hypothalamic-pituitary-adrenocortical axis is one of the main mechanisms in the relationships between emotion, stress, and physical responses that include the endocrine system²⁵). In summary, suppressing emotion can disrupt the stress response mechanism in ways related to experience of depression and anxiety symptoms. Hence, the biological plausibility of a link between suppressing emotion and experience of depression and anxiety symptoms supports our current results.

In the current study, certain demographic characteristics are more likely to Always Engage with Complaints or Suppress Emotion in the workplace (Table 2). These results suggest that certain job characteristics relate to the high intensity of emotional labor. For example, the highest proportion of Always Engaging with Complaints was shown in the highest income level ($\geq 3,000,000$ Won) of both genders, high school education of men, and university education of women. Lack of job satisfaction of both genders also relates to Always Engaging with Complaints. Always Suppressing Emotion was highest in the university education and highest income groups for both genders. Furthermore, long working hours per week was also related to Always Suppressing Emotion in both genders.

Simultaneous exposure to Engaging with Complaints and Suppressing Emotion showed greater odds than the sum of the odds of each exposure, and the *p*-values for interaction were below 0.05. The odds of simultaneous exposure (8.4 in men, 7.7 in women) were also greater than the multiplicative odds of Engaging with Complaints (2.1 in men, 2.7 in women) and Suppressing Emotion (1.9 in men, 1.7 in women), as shown in Fig. 2. Thus, additive relationships of experience of depression and anxiety symptoms are present with simultaneous exposure. Engaging with Complaints can mean emotional demand to manage customers, and Always Suppressing Emotion can mean lack of control. Hence, the serious interactive relationship between Engaging with Complaints and Suppressing Emotion might be supported by a job demand-control model²⁶). Therefore, to prevent experience of depression and anxiety symptoms among service workers, employers should reduce levels of both Engaging with Complaints

and Suppressing Emotion.

Limitations

Several limitations should be addressed when interpreting our results. The cross-sectional study design is our main limitation, and this experimental design precludes us from determining a causal direction experience of depression and anxiety symptoms and Engaging with Complaints and Suppressing Emotion. Furthermore, patients with depression often suppress their own negative and positive emotions²⁷). Multi-dimensional concepts of suppressed emotion must be considered, along with the different emotions that must be suppressed in different workplaces, such as kindergartens, restaurants, banks, hotels, police offices, call centers, and hospitals. For example, research among police service workers reported that they needed to suppress actual emotions such as anger, abhorrence, and sadness²⁰). Furthermore, some research has shown that suppression of anger is related to exhaustion, but suppression of happiness is not²⁰). In our study, we have no information regarding the variety of suppressed emotion. Stress among service workers could also be caused by poor work conditions, including lack of control, social supports, or rewards, as well as by workers' capacity or characteristics, such as motivation and emotional intelligence²⁸). To identify depression and anxiety disorder, we used self-reported questionnaires. Because the mental health problem was not confirmed by a physician, there could have been misclassifications. Hence, there were might be underestimation for odds of mental disorder in current study.

We have no data regarding whether experience of depression and anxiety symptoms lead to early retirement (the health worker effect), because our study used a cross-sectional design. In addition to the health worker effect, the relatively low rate of using health care services for mental disorders might have caused an underestimate of the association between emotional demand and the experience of depression and anxiety symptoms. Although we controlled for the potential confounding factors of age, education, income level, working hours, and general job satisfaction, prospective studies with a more comprehensive design are needed to elucidate the association between experience of depression and anxiety symptoms and the job characteristics of Suppressing Emotion and Engaging with Complaints among service workers.

Our nationwide cross-sectional study showed that experience of depression and anxiety symptoms are incrementally related to the frequency at which employees need to

Engage with Complaints and Suppress Emotion among Korean customer service workers. Those associations remained significant after adjusting for potential confounding factors and show a dose-response relationship with the level of each job characteristic. We also found synergic relationships between depression and anxiety disorder and simultaneous necessities to Engage with Complaints and Suppress Emotion. This result suggests that reducing both those job characteristics is needed to prevent experience of depression and anxiety symptoms among customer service workers.

Conflict of Interest Statement

All authors have approved the manuscript and agree with submission to your esteemed journal. There are no conflicts of interest to declare.

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