

Effects of job stress and emotional labor on depression in call-center workers

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Abstract: The purpose of this study was to investigate the effects of job stress and emotional labor on depression among call center workers. Data collection was conducted from October 2 to October 30, 2023. The subjects were 175 workers at a large IT call center located in Seoul, Korea. Data was analyzed using SPSS version 23.0. As for data analysis, differences in job stress, emotional labor, and depression were analyzed using t-test and ANOVA. Pearson's correlation coefficient was used to determine the correlation between job stress, emotional labor, and depression. Finally, multiple regression analysis was conducted on factors affecting depression. As a result of this study, the factors affecting call center workers' depression were the number of family members living together ($t=-2.650$, $p=0.009$), job stress ($t=3.743$, $p<0.001$), and emotional labor ($t=2.064$, $p=0.041$), ($F=10.306$, $p<0.001$). In other words, the greater the number of call center workers' family members living with, the lower the level of depression, the higher job stress and the higher the emotional labor, the higher the level of depression. In conclusion, workplaces should conduct a full survey on the level of job stress and emotional labor to reduce the level of depression among call center workers. In addition, measures are needed to reduce job stress, and depending on the results, professional counseling and healing programs are needed for workers who complain of mental illness.

Keywords: Call-center, Depression, Emotional labor, Job stress, Workers.

1. Introduction

A call center is defined as an ICT-based workplace that provides services to customers located in remote locations through electronic media. Customer services provided at these businesses include inquiry consultation, billing, sales, technical advice, reservations, time planning, complaint handling, account management, etc [1]. The number of call center companies in Korea has tripled from 581 in 2006 to 1,750 in 2022, and the number of workers has more than doubled from 33,000 in 2006 to 80,000 in 2022[2,3].

The work of a call center can be classified by the nature of the work performed as follows. Inbound calls are a business method in which a counselor provides related services in response to a call from a customer, and outbound calls are a business method in which a counselor attempts to make a call to a customer and provides a certain service and is a mixture of the above two. It's a brand called [1]. Call centers are increasing every year to ensure corporate profits and customer convenience. However, workers suffer from human rights violations due to electronic surveillance and performance, as well as emotional labor and stress, and are subject to various health threats such as depression, which are continuously studied [2, 4, 5].

Emotional labor is the fulfillment of the expression rules required by an organization through artificial behaviors such as suppressing, exaggerating, masking, or modifying emotions [6]. Call center workers are a representative group of 'emotional labor' workers. Although call centers are a non-face-to-face service category, they must interact with customers. This is because one must control one's emotions within the process of communicating with customers, and only acceptable emotional expressions perform acceptable labor [6,7].

In Korea, the Occupational Safety and Health Act stipulates measures for customer service workers to prevent health problems caused by customers' verbal abuse, assault, or other acts that cause physical or mental pain beyond the appropriate range [8]. In addition, job stress management guidelines for call center workers are established as a guide [9]. However, in previous studies, emotional labor and job stress were found to be high due to the work characteristics and job demands of call center workers [10-12]. Workers were complaining of various health disorders, including physical symptoms, including musculoskeletal symptoms, and mental symptoms, including depression [2,11]. In addition, the conflict between the emotions that emotional labor workers experience internally during the work process and the emotions that must be revealed according to job demands, that is, emotional dissonance, can be a factor that causes depressive symptoms [13].

It was found that workers' emotional labor and job stress also influenced workers' turnover intention [12,14].

The purpose of this study is to determine the impact of job stress and emotional labor on depression among call center workers.

The specific objectives are as follows.

- First, identify the general characteristics of the subject.
- Second, identify differences in job stress, emotional labor, and depression levels according to the subject's general characteristics.
- Third, identify the correlation between job stress, emotional labor, and depression.
- Fourth. Identify factors affecting depression among call center workers.

2. Research Methods

2.1. Research Design

This study was a descriptive research study conducted to determine the impact of job stress and emotional labor on depression among call center workers.

2.2. Data Collection

The subjects of this study are 186 workers with more than one year of employment at a large IT company call center located in Seoul, Korea, and the survey period is from October 2, 2023, to October 30, 2023. After explaining the purpose of the study to the subjects', written consent was obtained. In the research consent form, the researcher's research purpose was explained and the process of disposing of the survey after use was explained. A small gift was provided upon completion of the research survey. The survey method was conducted using a self-administered structured questionnaire. The final number of surveys collected was 180, and excluding the surveys of 5 people with multiple missing values, a total of 175 surveys were subject to final analysis.

2.3. Data Analysis Method

The collected data was analyzed using the IBM SPSS 23.0 version program. First, frequency analysis was conducted to determine the general characteristics of the study subjects. Second, the differences in job stress, emotional labor, and depression according to the general characteristics of the study subjects were analyzed using t-test and ANOVA, and Scheffé's test was performed as a post-hoc test. Third, Pearson's correlation coefficient was performed to determine the correlation between the subjects' job stress, emotional labor, and depression. Fourth, to analyze the factors influencing the subject's job stress and emotional labor on depression, a multiple regression analysis was conducted with the depression variable as the dependent variable.

3. Research Questionnaire

3.1. Job Stress

The job stress measurement tool used was the shortened form (KOSS-SF) of the Korean Occupational Stress Scale (KOSS) [15]. The job stress measurement tool consists of 7 factors: 4 questions about job demands, 4 questions about job autonomy, 3 questions about relationship conflict, 2

questions about job instability, 4 questions about organizational system, 3 questions about inappropriate compensation, and 4 questions about workplace culture. It consists of a total of 24 questions. All questions are on a 4-point scale, and some questions were reorganized into reverse questions. A higher score means higher job stress. In this study, Cronbach's alpha value was 0.791.

3.2. Emotional Labor

In this study, the Korean Emotional Labor Scale (K-ELS) was used [16]. The items measuring emotional labor include 5 questions about the demands and regulations of emotional regulation, 3 questions about overload and conflict in customer service, 6 questions about emotional dissonance and damage, 3 questions about organizational surveillance and monitoring, and 7 questions about organizational support and protection system. It was composed of a total of 5 factors. It consists of 24 questions. Each question is on a 4-point scale, and the 7 questions about 'organizational support and protection system' were reorganized as reverse questions. A higher score means higher emotional labor. In this study, Cronbach's alpha value was 0.869.

3.3. Depression

The depression measurement tool used was the Korean version of the Center for Epidemiological Studies-Depression Scale (CES-D) [17], which was standardized in Korean [18]. There are a total of 20 questions, and each question is given a score of 0-3 points, and 4 questions were reorganized as reverse questions. The score is judged as 0 to 15 points as normal, 16 to 20 points as mild depression, 21 to 24 points as moderate depression, and 25 to 60 points as severe depression. In this study, Cronbach's alpha value was 0.892.

4. Results

4.1. General Characteristics of Research Subjects

As a result of the analysis, the proportion of female workers was high, with 129 women (73.7%) and 46 men (26.3%). The age group was 27 people (15.4%) in their 20s, 54 people (30.9%) in their 30s, 79 people (45.1%) in their 40s, and 15 people (8.6%) in their 50s or older. The average age of the study subjects was 39 years old, with the minimum being 21 years and the maximum being 60 years. Marital status was single 89 people (50.9%) and married 86 people (49.1%). The number of family members living together was 78 (44.6%) with 1 to 2 people, 62 (35.4%) with 3 or more people, and 35 (20.0%) with no family members. Marital status was single 89 people (50.9%) and married 86 people (49.1%). The number of family members living together was 78 (44.6%) with 1 to 2 people, 62 (35.4%) with 3 or more people, and 35 (20.0%) with no family members. Regarding educational background, 71 people (40.6%) had a high school diploma or less, 58 people (33.1%) had an elementary school graduate, and 46 people (26.3%) had a college graduate or higher. 114 people (65.1%) had no religion, and 61 people (34.9%) had religion. As for the position, 148 people (84.6%) were employees and 27 people (15.4%) were team leader level or higher. The work part was inbound, 79 people (45.1%), outbound, 74 people (42.3%), and blending, 22 people (12.6%). As for tenure, 60 people (34.3%) were 5 to 10 years, 43 people (24.6%) were 10 years or more, 41 people (23.4%) were 3 to 5 years, and 31 people (17.7%) were 1 to 3 years. The average monthly income was 2 to 3 million won or less for 86 people (49.1%), more than 3 million won for 48 people (27.4%), and 2 million won or less for 41 people (23.4%) (Table 1).

Table 1.
General characteristics of research subjects (N=175).

Characteristics	Categories	N	%
Gender	Male	46	26.3
	Female	129	73.7
Age (Year)	20 ~ <30	27	15.4
	30 ~ <40	54	30.9
	40 ~ <50	79	45.1
	>50	15	8.6
Marital status	Single	89	50.9
	Married	86	49.1
Family living together	None	35	20.0
	1~2people	78	44.6
	3 or more people	62	35.4
Education	≤ High school graduate	71	40.6
	College graduate	58	33.1
	≥University graduate	46	26.3
Religion	Have	61	34.9
	Don't have	114	65.1
Position	Employee	148	84.6
	≥Team leader	27	15.4
Work part	Inbound	79	45.1
	Outbound	74	42.3
	Blending	22	12.6
employed period (Years)	<1 ~ <3	31	17.7
	3 ~ <5	41	23.4
	5 ~ <10	60	34.3
	>10	43	24.6
Monthly income (Won)	>2,000,000	41	23.4
	2,000,000~ <3,000,000	86	49.1
	>3,000,000	48	27.4
Total		175	100.0

4.2. Differences in Job Stress, Emotional Labor, and Depression Levels According to The Subject's General Characteristics

The study subjects' job stress averaged 32.07 points (standard deviation: 7.36, 95%CI: 30.97-33.17), emotional labor averaged 35.47 points (standard deviation: 10.19, 95%CI: 33.95-36.99), and depression averaged 16.03 points. (Standard deviation: 9.14, 95%CI: It was found to be 14.67-17.39). The difference in job stress according to the subject's general characteristics was statistically significant in the number of family members living together, with no family members living together (34.17 ± 7.94), 3 or more people (32.85 ± 6.13), and 1 to 2 people (30.50 ± 7.73), was highest in that order ($F=3.666$, $p=0.028$). Marital status and number of cohabiting family members were statistically significant differences in the level of depression according to the subject's general characteristics. Regarding marital status, single people (17.67 ± 10.22) had higher levels of depression than married people (14.33 ± 7.56) ($t=2.470$,

$p=0.015$). The number of family members living together was highest in the following order: no family members (21.86 ± 10.98), 1 to 2 people (14.64 ± 8.49), and 3 or more people (14.48 ± 7.47) ($F=9.804$, $p<0.001$) (Table 2).

Table 2.

Differences in job stress, emotional labor, and depression levels according to the subject's general characteristics (N=175).

Variable	Categories	Job stress		Emotional labor		Depression	
		M $\pm$ SD	t or F(p)	M $\pm$ SD	t or F(p)	M $\pm$ SD	t or F(p)
Gender	Male	32.67 $\pm$ 6.94	0.649 (0.517)	36.20 $\pm$ 9.93	0.562 (0.575)	14.22 $\pm$ 7.40	-1.779 (0.078)
	Female	31.85 $\pm$ 7.51		35.21 $\pm$ 10.31		16.67 $\pm$ 9.63	
Age(year)	20 ~ <30	29.67 $\pm$ 7.48	1.535 (0.207)	35.30 $\pm$ 10.34	1.226 (0.302)	16.56 $\pm$ 8.32	0.242 (0.867)
	30 ~ <40	31.65 $\pm$ 8.55		34.04 $\pm$ 9.99		16.69 $\pm$ 10.12	
	40 ~ <50	32.99 $\pm$ 6.76		35.71 $\pm$ 10.71		15.41 $\pm$ 8.93	
	>50	33.07 $\pm$ 4.50		39.67 $\pm$ 7.01		16.00 $\pm$ 8.54	
Marital status	Single	31.55 $\pm$ 8.43	-0.947 (0.345)	35.94 $\pm$ 9.93	0.626 (0.532)	17.67 $\pm$ 10.22	2.470* (0.015)
	Married	32.60 $\pm$ 6.06		34.98 $\pm$ 10.49		14.33 $\pm$ 7.56	
Family living together	None	34.17 $\pm$ 7.94 ^a	3.666* (0.028) a>ab	37.09 $\pm$ 9.96	0.642 (0.527)	21.86 $\pm$ 10.98 ^a	9.804*** (<0.001) a>b
	1~2people	30.50 $\pm$ 7.73 ^{ab}		34.73 $\pm$ 10.42		14.64 $\pm$ 8.49 ^b	
	3 or more people	32.85 $\pm$ 6.13 ^b		35.48 $\pm$ 10.09		14.48 $\pm$ 7.47 ^b	
Education	$\leq$ High school graduate	31.68 $\pm$ 7.11	0.849 (0.429)	34.55 $\pm$ 9.59	0.963 (0.384)	15.79 $\pm$ 9.15	0.573 (0.565)
	College graduate	33.09 $\pm$ 6.64		36.97 $\pm$ 9.99		17.02 $\pm$ 9.25	
	$\geq$ University graduate	31.39 $\pm$ 8.52		35.00 $\pm$ 11.31		15.15 $\pm$ 9.06	
Religion	Have	32.26 $\pm$ 7.30	0.254 (0.800)	34.15 $\pm$ 10.60	-1.256 (0.211)	15.82 $\pm$ 10.74	-0.204 (0.839)
	Don't have	31.96 $\pm$ 7.42		36.18 $\pm$ 9.94		16.14 $\pm$ 8.14	
Position	Employee	32.22 $\pm$ 7.52	0.620 (0.690)	35.97 $\pm$ 10.22	1.518 (0.131)	16.44 $\pm$ 9.30	1.395 (0.165)
	$\geq$ Team leader	31.26 $\pm$ 6.45		32.74 $\pm$ 9.76		13.78 $\pm$ 7.98	
Work part	Inbound	31.57 $\pm$ 7.67	0.496 (0.610)	37.30 $\pm$ 10.17	2.900 (0.058)	16.42 $\pm$ 8.55	0.963 (0.384)
	Outbound	32.72 $\pm$ 7.15		34.53 $\pm$ 10.40		16.36 $\pm$ 10.05	
	Blending	31.68 $\pm$ 7.05		32.05 $\pm$ 8.50		13.50 $\pm$ 7.90	
Employed period(years)	<1 ~ <3	29.74 $\pm$ 10.01	1.547 (0.204)	33.74 $\pm$ 9.77 $\pm$	0.698 (0.554)	18.00 $\pm$ 9.35	1.013 (0.388)
	3 ~ <5	31.73 $\pm$ 6.63		34.61 $\pm$ 9.73		14.63 $\pm$ 7.51	
	5 ~ <10	33.08 $\pm$ 7.44		36.70 $\pm$ 11.25		16.60 $\pm$ 8.85	
	>10	32.65 $\pm$ 5.19		35.81 $\pm$ 9.44		15.14 $\pm$ 10.67	
Monthly income(won)	>2,000,000	30.93 $\pm$ 8.17	0.666 (0.515)	34.76 $\pm$ 9.67	0.212 (0.809)	18.39 $\pm$ 8.86	2.171 (0.117)
	2,000,000~<3,000,000	32.31 $\pm$ 7.67		35.42 $\pm$ 10.75		15.80 $\pm$ 8.40	
	>3,000,000	32.60 $\pm$ 5.97		36.17 $\pm$ 9.74		14.42 $\pm$ 10.35	

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$, ANOVA 사후검정(a, b)은 Scheffé's test를 시행함.

4.3. Correlation Between Job Stress, Emotional Labor, and Depression

Depression had a significant positive correlation with job stress ($r=0.314$ $p<0.001$) and emotional labor ($r=0.246$, $p=0.001$), but the correlation was weak with r values ranging from 0.2 to 0.4. In addition, emotional labor also showed a significant positive correlation with job stress ($r=0.304$, $p<0.001$), but the r value was 0.2~0.4, showing a weak correlation (Table 3).

Table 3.

Correlation between job stress, emotional labor, and depression.

Variable	Job stress $r(p)$	Emotional labor $r(p)$	Depression $r(p)$
Job stress	1		
Emotional labor	0.304***	1	
Depression	0.314***	0.246**	1

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

4.4. Factors Affecting the Subject's Depression

The tolerance limits were all calculated to be 0.839~0.903, which was above 0.1, and the Variance Inflation Factor (VIF) values were all lower than 10, so there was no problem with multicollinearity. The Durbin-Watson value was 2.175, which was close to 2, so the residuals were independent and had no autocorrelation, so the multiple regression model was appropriate. Factors affecting depression were the number of family members living together ($t=-2.650$, $p=0.009$), job stress ($t=3.743$, $p<0.001$), and emotional labor ($t=2.064$, $p=0.041$) ($F=10.306$, $p<0.001$). Factors affecting depression were the number of family members living together ($t=-2.650$, $p=0.009$), job stress ($t=3.743$, $p<0.001$), and emotional labor ($t=2.064$, $p=0.041$) ($F=10.306$, $p<0.001$). In other words, the greater the number of family members living together, the lower the level of depression, and the higher the job stress, the higher the level of depression. And the higher the emotional labor, the statistically significantly higher the level of depression (Table 4).

Table 4.

Factors affecting the subject's depression.

Variable	Depression						
	B	SE	β	t	p	Tolerance	VIF
Constant	9.029	3.882	-	2.326	0.021	-	-
Marital status	-2.173	1.369	-0.119	-1.587	0.114	0.839	1.192
Family living together	-2.480	0.936	-0.198	-2.650**	0.009	0.846	1.182
Job stress	0.338	0.090	0.272	3.743***	<0.001	0.898	1.114
Emotional labor	0.134	0.065	0.149	2.064*	0.041	0.903	1.108

$R=0.442$, $R^2=0.195$, Adj $R^2=0.176$, $F=10.306$, $p<0.001$, Durbin-Watson=2.175

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

5. Discussion

This study was conducted to determine the impact of call center workers' job stress and emotional labor on depression and to provide basic data for improving workers' work environment and workplace health promotion projects. The research results are discussed as follows.

The differences according to major variables and work characteristics are as follows. There were no differences in job stress, emotional labor, and depression according to position, work part, tenure, or average monthly income. However, among the general characteristics, those without family members

living with them had high levels of job stress and depression. This was the same result as previous research showing that the unmarried group and the group without dependents suffered more job stress overall [10]. In previous studies, private call centers report that job stress is high in 'organizational system' and 'inappropriate compensation' because the organization is not systematic, and compensation is inadequate [19]. Another study [10] showed that the group without dependents had high job stress in terms of 'organizational system' and 'inadequate compensation.' This job stress appears to have a positive effect on depression [20], which explains why depression was high in the unmarried group with high job stress and in the group without family members living together.

Results show that job stress has a negative impact on the mental well-being of working adults, and that social support plays an important role in this relationship. This highlights the important role of support from colleagues and supervisors at work as social support, which can help reduce job stress and improve mental well-being [21]. Another study showed that, especially in terms of social support, spouses providing more social support and interacting with children more contributed to lowering job stress [22].

This job stress was related to turnover intention in previous studies. In a study of call center workers, the risk ratio of being in the group with high turnover intention significantly increased among those who lived alone, those with low support from superiors, and those with low support from colleagues [23]. In addition, there was a positive relationship between job stress and job performance, and there was also a positive relationship between job stress and turnover intention [24].

The number of workers experiencing job stress at work due to excessive emotional labor, workplace violence, and job insecurity is increasing. To reduce stress factors, improving workers' social support has been shown to be effective [25]. In previous studies, it has been shown that call center workers' emotional labor and job stress increase the level of depression, and it has been suggested that stress management at the organizational level should be prioritized to reduce the emotional labor and job stress levels of counselors [20].

Based on the above research results, the company should provide the following social support system.

Based on the above research results, the company should provide the following social support system.

First, conduct a complete survey on job stress and emotional labor. Second, the company establishes a grievance committee for workers. Third, the company needs to operate management programs such as establishing a communication channel and operating a mentor program to establish an in-house support system for workers. Additionally, companies need to create conditions such as flexible working hours and adjustment of working hours to establish a social support system outside of the workplace, such as joining various clubs.

6. Conclusion

As a result of the study, factors affecting depression among call center workers were the number of family members living together, job stress, and emotional labor. The greater the number of family members living together, the lower the level of depression. The higher the job stress and the higher the emotional labor, the higher the level of depression.

The limitations of this study are as follows.

First, since it was targeted at a single workplace rather than a complete survey of call centers, follow-up research such as a complete survey of workplaces is needed to supplement the results. Second, there are differences in the level of job stress and depression depending on the number of family members living together, so it is necessary to compare these in the future and study the influencing factors according to demographic and social changes.

Acknowledgment:

This research was supported by Kyungdong University Research Fund, 2024.

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