

Mental Health in Workplaces in Taipei

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Objective: The aims of the present study were to show employee's mood disturbance and to determine if further intervention program is needed. **Methods:** We used a purposeful sampling procedure to select participants from 26 companies classified as smoke-free workplaces between 2007 and 2008. We interviewed the participants with a structured questionnaire of background information and the Brief Psychiatric Symptom Rating Scale. **Results:** Study results from logistic regression showed that being younger in age and having longer working hour per week were significantly associated with greater likelihood of having mood disturbance. **Conclusion:** Our study results gave evidence that younger age and long working hours were related to employees' mental health. We suggest that the workplace needs to provide further intervention program in Taipei City.

Key words: C-BSRS, mood disturbances, mental health, workplaces
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Introduction

World Health Organization (2001) reported that depression, cancer, and AIDS will be the major diseases to cause disability. Depression is expected to be the second leading cause of disability worldwide in 2020 [1] and the cost related to depression would be high. A study [2] assessed the economic impact of depression at about \$51.5 billion in the United States of America in 2000 due to absenteeism from work and losing productivity. WHO revealed that depression is the leading cause of disability as measured by years lived with disability (YLD) and the fourth leading contributor to

the global burden of disease (the disability-adjusted life year, DALY) in 2000 (www.who.int/mental_health). By the year 2020, depression is projected to reach the second place of the ranking of DALYs calculated for all ages and both sexes. Today, depression is already the second cause of DALYs in the age category 15-44 years for both sexes.

Mood disturbance is an important issue in the workplace. Mood disorders which are outside the bounds of normal fluctuations from sadness to elation, have the potential to cause severe consequences for morbidity and mortality. Mental health problems, such as depression, anxiety, substance abuse and stress, are common, affecting in-

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dividuals, their families and co-workers, as well as the broader community. Increasing evidence exists to show that both the content and context of work can play a role in developing mental health problems in the workplace.

Using depression as an example, people with serious depression are much less likely to be employed and to stay employed tend to lose productivity. Then, there is the cost to the society of providing, for example, incapacity and unemployment benefits, particularly in rich developed countries [3]. They have a direct impact on workplaces through increased absenteeism, reduced productivity, and increased costs.

Companies have taken various measures to minimize the problem relating to mental illness such as screening, organizational intervention, and stress management program [4]. Screening for depression can identify some emotionally distressed employees and improve their labor outcomes in workplaces, particularly when screening is followed by adequate treatment and follow-up [5,6]. Hence, the aims of the present study were to show employees' mood disturbance and to determine if further intervention program is required.

Methods

Study participants

We used a purposeful sampling procedure to select participants from 26 companies classified as smoke-free workplaces between 2007 and 2008. Eleven of the companies were considered large (300 or more employees), 7 medium-size (100–299 employees), and 8 small (less than 100 employees). The study was conducted from June 1 to August 31, 2008. The main study objectives and study procedures were explained to public health nurses in the study training meeting. Before completing the questionnaires, participants were

given an orientation of the study by public health nurses.

This study was approved by the Taipei Health Bureau Workplace Health Promotion Advisory Committee, and permission was obtained from the Taipei Health Bureau Advisory Committee. To meet the criteria of research ethics, we gave the results of mood disturbance evaluation collectively at company level feedback to the companies for further intervention and/or assistance programs. To protect the personal privacy, we gave individual data to the employee himself or herself if requested.

The 4849, 805 and 302 questionnaires were distributed to the employees of large, medium-size, and small company, and their response rates were 98.2%, 90.6% and 91%, respectively. We collected 5,794 questionnaires totally, of them, 2,598 (44.8%) employees did not complete questionnaire. Finally, we had 3,196 (55.2%) employees who completed questionnaires for further analyses.

Measures

The self-administered questionnaire consisted of background variables and psychiatric assessment to collect data about mood disturbance.

Background information included gender, age, educational level, marital status, working hours per week, and job seniority. Chinese Brief Psychiatric Symptom Rating Scale (C-BSRS) comprises five symptom items selected from the 50-item Psychiatric Symptom Rating Scale. The items were rated on five-point Likert scale, ranging from strongly disagree to strongly agree, and coded from 0 to 4, correspondingly. Each C-BSRS item has its highest correlation with the subscale score representing the corresponding dimension: anxiety, depression, hostility, interpersonal sensitivity, and additional symptoms. In previous stud-

ies summarized by Lee et al. (2003) [7], the internal consistency coefficients (Cronbach's alpha) for the C-BSRS ranged from 0.77 to 0.90. In this study, we chose 5 as the cut-off score for mental disturbance cases as suggested by Lee et al. (2003) [7]. Specifically, respondents with C-BSRS scores of 6 or more were categorized as mentally disturbed and coded as 1; those scored 5 or less than 5 were categorized as mentally healthy with the coding of 0.

Statistical analyses

In this study, we used Statistical Package for Social Science for windows (version 17.0) software (SPSS, Chicago, Illinois, USA). We used student's *t*-test and Chi-square test to compare the differences between groups with continuous and categorical variables, respectively. The logistic regression was then performed to determine whether significant bivariate variables were associated with mental disturbance. The reference group was the sample of C-BSRS score under 6.

The differences between groups were considered significant if *p*-value were smaller than 0.05.

Results

Table 1 lists background information and the status as shown in C-BSRS scores. Table 2 shows the association of mental disturbances and background factor using logistic regression analysis.

Discussion

In our study, the employees having mood disturbance was younger in age and having longer working hours per week than the other group on C-BSRS (Table 2). Specifically, employees having greater likelihood of having mood disturbance

were more likely to be younger and to work over 45 hours per week (Table 2). Some studies have found similar results that younger employees scored higher than older employees on mood disturbances [8]. We suggest that the lesser seniority and younger employees facing the competitiveness of enterprises can result in the mood disturbances.

We confirmed several other studies that employees who worked more than 45 hours per week have higher scores than those working less than 45 hours a week on mood disturbance [9]. Over work in terms of long hours is a risk factor in previous studies. In Taiwan, the number of hours employees work (average 180.3 hours/month in 2007 and 191.6 hours/month in 2009) has been growing rapidly. How working long hours leads to increased anxiety and depression? We contend that working overtime could lead to increased "wear and tear," or that individuals with characteristics predisposing to anxiety and depression are more likely to take jobs requiring long work hours. In 2009, an Australian study [9] showed that working long hours, enduring psychological stress and coping with high client expectations, performing euthanasia, experiencing compassion fatigue and burnout are all factors that increase the risk of suicide for some professions.

Our study results showed employees' mood disturbances, suggesting the employers to establish the further intervention program for promoting mental health. Mental health in the workplace is a complex issue for employees and the employers. Knowledge about the effectiveness of interventions is indispensable to changing these figures and improving employees' mental health. Such knowledge can lead to reduced number of workdays missed because of work-related illnesses, and lower health insurance costs [10].

Table 1. Bivariate analysis of background information and the status of mental disturbance using the C-BSRS scores

Items	BSRS (< 6) (n = 1866)		BSRS (>= 6) (n = 1330)		Total (N = 3196)		χ^2
	n	%	n	%	n	%	
Sex							0.363
Male	689	36.9	505	38.0	1194	37.4	
Female	1177	63.1	825	62.0	2002	62.6	
Marital status							19.459***
Single	419	23.6	378	29.7	797	26.2	
Married	1298	73.2	854	67.1	2152	70.6	
Divorced	37	2.1	35	2.7	72	2.4	
Widowed	20	1.1	6	0.5	26	0.9	
Education							13.841**
Junior school or less	32	1.7	15	1.1	47	1.5	
High school	409	22.0	235	17.7	644	20.3	
College	1220	65.7	901	68.1	2121	66.7	
Above graduate	195	10.5	173	13.1	368	11.6	
Company size							4.882
Large	1568	84.0	1097	82.5	2665	83.4	
Medium-size	206	11.0	143	10.8	349	10.9	
Small	92	4.9	90	6.8	182	5.7	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t test
Age	47	10.88	44.01	10.54	45.88	10.85	-8.2***
Seniority	13.57	13.29	11.63	10.76	12.76	12.33	-4.545***
Working hours per week	44.68	8.11	47.14	9.72	45.7	8.89	7.243***

Note: The sum of items does not equal the total number of items because of missing values. When test assumptions were violated, Fisher's exact test was used.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Abbreviations: BSRS = Brief Psychiatric Symptom Rating Scale; S.D. = standard deviation.

This study has the first noteworthy limitation. This study had high non-completion rate (44.8%) in questionnaires. The non-completion bias could be due to the unclear explanations of study purposes, causing participants not willing to fill in questionnaire, and to have the fear of disclosing mood disturbance. Further study is suggested to enhance the interviewers' training to communicate more effectively with employees before the study. Another limitation of this study

is that we only used BSRS scale and did not combine with other measurement tools or clinical data for comparison. The mental health evaluation needs to be divided into two steps: the first step is to use appropriate screening tool and cases scoring more than the cut-off points are referred to psychiatrists for further evaluation and treatment.

The determinants of mental health in workplaces are multiple and complicated. The variables used in our study to predict variances of mood dis-

Table 2. Associations of the mental disturbance and background factors using the logistic regression analysis

Items	Odds Ratio	95% C.I.
Education		
Above graduate school	1.317	0.681 - 2.547
College	1.278	0.681 - 2.399
High school	1.110	0.583 - 2.113
Junior school or less (reference group)		
Marital status		
Married	1.119	0.910 - 1.377
Divorced	1.579	0.954 - 2.616
Widowed	0.599	0.232 - 1.545
Single (reference group)		
Age	0.972***	0.962 - .981
Seniority	1.001	0.994 - 1.008
Working hours per week	1.031***	1.022 - 1.040
Cox & Snell R ² = 0.39, Nagelkerke R ² = 0.52, Overall Percentage = 61%		

Note: The reference group was the sample of C-BSRS score under 6. *** $p < 0.001$.

turbance were too few to understand what contribute to the mental health in workplaces. As for the C-BRSR score of demonstrating to the respondents in physiological state, it is needed for further in-depth discussion. The influence of employees' mental health varied as a function of the nature of their job, working hour, other health conditions and various socioeconomic factors.

Our study results showed that overtime workers had significantly higher likelihood of mental health disorders compared with those working normal hours, and that younger age was a significantly important factor contributing to the mood disturbances on C-BSRS in workplace. Based on our results, we suggest that the mental health consultations and training programs are needed to be provided to employees regularly in the workplaces. Many workplace health promotion programs have been implemented in recent years in Taipei City. But, many organizations still cannot establish a clear communication channel and encour-

age employees who are mentally disturbed to voluntarily seek help or to identify colleagues whom they perceive as having mental health issues. Organizations can use a perceived checkup system to help employees understand their perceived health issues.

Clinical Implications

Our study results provided evidence that younger age and long working hours were related to employees' mental health. The mental health is an important issue in the workplace and primary care setting. The practitioners need to be sensitive to these issues, provide support, and become a patient advocate.

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