Chula Med J Vol. 55 No. 2 March-April 2011

Factors affecting depression in workplace: Marital status, BMI, stress level, work duration, job pattern, and daytime sleepiness

Kittipong Kongsomboon*

Kongsomboon K. Factors affecting depression in workplace: Marital status, BMI, stress level, work duration, job pattern, and daytime sleepiness. Chula Med J 2011 Mar - Apr; 55(2): 117 - 26

Background : *It has been reported that Thai people have high prevalence of depression in workplace. Its impact is highest on individual-level effect of work performance. Employers who identify the risk factors and promote effective treatment may improve both the clinical and corporate outcomes.*

Objective : *To determine risk factors of personnel's depression of the Faculty of Medicine of Srinakharinwirot University, consisted of career group, gender, age group, marital status, underlying disease, BMI, work time, work duration, sleep duration, excessive daytime sleepiness, job pattern, and stress level.*

Design : *Cross-sectional study*

Material and Method : *Staff and officers of the Faculty of Medicine, Srinakharinwirot University were recruited by sampling. The sample size was 740 or 65% of the entire faculty. The questionnaires were composed of general demographic data and self-report problems in workplace, the diagnostic screening test for depression in Thai population from the Ministry of Public Health, Suanprung Stress Test from Suanprung Hospital in Thailand, and Epworth sleepiness scale.*

*Department of Preventive and Social Medicine, Faculty of Medicine, Srinakharinwirot University

The data were collected from May to July, 2009. Categorical variables were analyzed using the Chi-square test. The author identified significant explanatory variables through bivariate analysis between depression and other factors then multivariate analysis by logistic regressions. A two-tailed p-value of less than 0.05 was considered significantly.

Results : *The prevalence of depression was 18.7%. The logistic regression demonstrates the odds ratio of married status = 1.92(95%CI = 1.17-3.15) to single status: nurses = 1.86(95%CI = 1.12-3.10) to doctors: high to severe stress = 22.5(95%CI = 5.39-93.99) to low to moderate stress, and work above 3 years = 0.57(95%CI = 0.34-0.95) to work within 3 years.*

Conclusion : *The depression in the workplace is related to career, marital status, high to severe stress, and work duration within the first 3 years. The employer should improve welfare adequate to the employee's need and make the informational support network for their personnel in order to allow them to gain maturity in their career path which includes the care of their family life.*

Keywords : *Depression, workplace, personnel*

Reprint request: Kongsomboon K. Department of Preventive and Social Medicine, Faculty of Medicine, Srinakharinwirot University, 62 Moo 7 Rangsit-Nakhonnayok Road, Ongkharak, Nakhonnayok 26120, Thailand.

Received for publication. March 20, 2010.

กิตติพงษ์ คงสมบูรณ์. ปัจจัยที่ก่อให้เกิดภาวะซึมเศร้าในที่ทำงาน: ลักษณะงาน ระดับความเครียด ดัชนีมวลกาย และความง่วงในเวลากลางวัน คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ. จุฬาลงกรณ์เวชสาร 2554 มี.ค. – เม.ย.;55(2): 117 – 26

บทนำ : *คนไทยมีความชุกของภาวะซึมเศร้าในที่ทำงานค่อนข้างสูง ซึ่งเกิดผลกระทบต่อประสิทธิภาพในการทำงาน นายจ้างควรพยายามหาปัจจัยเสี่ยงที่ก่อให้เกิดภาวะซึมเศร้าแล้วดำเนินการ แก้ไขปัจจัยเสี่ยงนั้น เพื่อลดผลกระทบต่อตัวผู้ป่วยและผลกระทบต่อองค์กร*

วัตถุประสงค์ : *เพื่อหาปัจจัยเสี่ยงต่อภาวะซึมเศร้าของบุคลากรคณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ได้แก่ อาชีพ, เพศ, กลุ่มอายุ, สถานะสมรส, โรคประจำตัว, ดัชนีมวลกาย, เวลาในการทำงาน, อายุงาน, ระยะเวลาการนอน, ความง่วงในตอนกลางวัน, ลักษณะงาน, และระดับความเครียด*

ชนิดของการวิจัย : *การวิจัยเชิงวิเคราะห์ แบบภาคตัดขวาง*

วัสดุและวิธีการ : *สุ่มเลือกบุคลากรคณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ จำนวน 740 คนคิดเป็นร้อยละ 65 เก็บข้อมูลในช่วงเดือนพฤษภาคม ถึงเดือนกรกฎาคม 2552 โดยใช้แบบคัดกรองภาวะซึมเศร้าของกรมสุขภาพจิต (Health-Related Self-Reported Scale) แบบวัดความเครียดของโรงพยาบาลสวนปรุง และแบบวัดความง่วง (Epworth sleepiness scale) นำข้อมูลมาวิเคราะห์หาความสัมพันธ์ระหว่างข้อมูลเชิงคุณภาพด้วย Chi-square test และวิเคราะห์สหสัมพันธ์ด้วย Logistic regression ทดสอบสมมติฐานแบบสองทางด้วยค่า $p < 0.05$*

ผลการศึกษา : *ความชุกของภาวะซึมเศร้าในบุคลากรพบร้อยละ 18.7 เมื่อวิเคราะห์ด้วย Logistic regression พบค่า Odds ratio ดังนี้ บุคลากรที่มีสถานะภาพสมรส = 1.92(95%CI = 1.17-3.15) เทียบกับสถานะภาพโสด, กลุ่มอาชีพพยาบาล = 1.86(95%CI = 1.12-3.10) เทียบกับแพทย์, ความเครียดระดับสูงถึงรุนแรง = 22.5(95%CI = 5.39-93.99) เทียบกับความเครียดระดับต่ำถึงปานกลาง, และอายุงานเกิน 3 ปี = 0.57(95%CI = 0.34-0.95) เทียบกับอายุงานไม่เกิน 3 ปี*

สรุป : *ภาวะซึมเศร้าในที่ทำงานสัมพันธ์กับอาชีพพยาบาล, บุคลากรที่แต่งงานแล้ว, ผู้มีความเครียดระดับสูงถึงรุนแรง, และอายุงานไม่เกิน 3 ปี ผู้บริหารควรเพิ่มสวัสดิการให้ตรงตามความต้องการของพนักงาน และการพัฒนาเครือข่ายระบบสารสนเทศ เพื่อช่วยให้การทำงานมีประสิทธิภาพ รวมทั้งคำนึงถึงปัญหาทางครอบครัวของบุคลากรด้วย*

คำสำคัญ : *ภาวะซึมเศร้า, สถานที่ทำงาน, บุคลากร.*

The prevalence of depression of Thai people age 45 years old and over is 29.2 % and increases with age.[1] In the workplace of Taipei, Taiwan is as high as 25.4 %.[2] Depressed personals have impact on the workplace such as lack of continuity in work, absentee, stigma and disclosure in the workplace, and have interpersonal problems at work.[3] Depression has the largest individual-level effect on work performance, compared to other health problems.[4] Employers who are aware of these problems, may set a systematic program to identify depression with risk factors and promote effective treatment. This program will improve not only clinical outcomes but also corporate outcome.[5] The improvement does not differ based on whether they are treated in a primary or specialty care setting.[6] The return on investment in terms of recovered hiring, training and salary costs from treatment of depressed personals has a positive consequence.[7]

Many factors are associated with depression of personnel in their workplace. One environmental factor is stress from work and family roles or the lack of social support that affects depression in different genders.[8,9] The effect of job strain from contact with patients such as dentists and nurse's aides predisposes to depression[10,11] and job strain may be hazardous condition as automotive assembly workers.[12] The job that generates low income may associate with depression due to job insecurity.[13] The insecurity has the same effect as nurses working in private hospitals.[14] The career maturity or job experience is related to personnel's mental health, so newcomers always need supervisors or co-workers as well as time to gain job experience.[15] One individual factor is the sleep duration: both short and long durations of sleep were associated with depression. Being single and working long hours were related to shorter sleep. Being younger and having lower levels of physical activity were related to longer sleep.[16] Another factor is chronic illnesses or having underlying diseases which led to lower psychological well-being.[17] Decrease of these risk factors, both in the workplace and in the individual levels, is therefore imperative for the improvement of the well-being of the personnel as well as corporate outcome.

The objective of the present study is to determine risk factors of the depression of the personnel in the workplace of the Faculty of Medicine, Srinakharinwirot University, consisted of career group, gender, age group, marital status, underlying disease, BMI, work time, work duration, sleep duration, excessive daytime sleepiness, job pattern, and stress level.

Materials and Methods

Study population

All personals from the Faculty of Medicine, Srinakharinwirot University were selected for evaluation. The study design was cross-sectional. The total personals were 1,133 but the response rate was 740 or 65%. This project was approved by the Ethics Committee of the Faculty of Medicine, Srinakharinwirot University.

Study definition

Three tools were used in this study. First was the diagnostic screening test for depression in the Thai population: a Health-Related Self-Reported (HRSR) Scale from the Department of Mental Health, Ministry of Public Health, Thailand was used in the

study. Cronbach's Alpha Reliability Coefficient of this test is 0.91. This instrument's interpretation of depressive scores are as followed: a score of 25 or more but less than 30 is defined as a stressful situation, depressive mood, or other psychological problem, and the patient / subject should seek early treatment and a score of 30 or more is defined as major depression. The author defines depression as depressive score of 25 or more that included stress situation, depressive mood, or other psychological problems and major depression.

The second tool was the Suanprung stress test from Suanprung Hospital, Thailand. This test was used to evaluate stress. Cronbach's Alpha Reliability Coefficient of this test is more than 0.7. This test interprets stress scores as followed: a score of 0 to 23 is defined as mild stress; a score of 24 to 41 is defined as moderate stress; a score of 42 to 61 is defined as high stress; and a score of 62 or more is defined as severe stress. The author defines stress score into two categories. One is mild to moderate stress and the other one is high to severe stress.

The last tool was the Epworth sleepiness scale (ESS) = a questionnaire for measuring daytime sleepiness, which was helpful in diagnosing sleep disorders.[18] The subjects were asked to rate of sleepiness on a scale of increasing probability from 0 to 3 in eight different situations.[18] The total scores of 0–9 are considered to be normal while the total score of 10-24 is considered as excessive daytime sleepiness.[18] The definition of sleep deprivation refers to a night time sleep of less than 7 hours as recommended by the National Sleep Foundation of the United States.[19]

The body mass index (BMI) is classified by the Ministry of Public Health, Thailand as followed: BMI < 18.5 = underweight; BMI 18.5 – 22.9 = normal; BMI 23 – 24.9 = risk of becoming overweight; BMI 25 – 29.9 = obesity type 1; and BMI >30 = obesity type 2. This study defines the term "overweight" for the subject with BMI > 23. This includes risk of becoming overweight, both obesity type 1 and obesity type 2.[20]

The job pattern was divided to two categories: one was the job that needed contact with patients, e.q., at IPD or at OPD and the other was the job that did not need to contact with patients,e.q., laboratory officers or office workers. The career groups in this study were doctors, nurses, scientists, officers, and workers. The work duration represented the time that personal started to work in this workplace until at present. The author categorized to two categories: one was time duration within 3 years and the other one was time duration over 3 years.

The self-report problems in the workplace were management problems, co-worker problems, and inadequate welfare. The score for each problem was as followed: 3 = high concern; 2 = moderate concern; and 1 = some concern but not serious.

Data collection

The questionnaire was composed of four parts. The first part inquired general demographic data and self-report problems in the workplace. The second part composed of the diagnostic screening test for depression in Thai population: Health-Related Self-Reported (HRSR) Scale from Department of Mental Health, Ministry of Public Health, Thailand. The third part was composed of Suanprung Stress Test from Suanprung Hospital, Thailand. And the fourth part composed of Epworth Sleepiness Scale. The data

were collected from May to July, 2009 and the questionnaire did not identify personals' identity.

Statistical analysis

Categorical variables were analyzed using Chi-square test. As for binary response variables, the author first identified significant explanatory variables through bivariate analysis between depression and other variables such as career, gender, age groups, marital status, underlying disease, BMI, work time, sleep duration, daytime sleepiness, job pattern and stress level then multivariate analysis by logistic regressions, respectively. A two-tailed p-value of less than 0.05 was considered significant.

Results

Careers were related to depression significantly ($p < 0.05$). Personnel who had depression worked with patient contact, had high to severe stress, had underweight to healthy weight, worked within 3 years, and had daytime sleepiness ($p < 0.05$). The other factors consisted of gender, age group, marital status, underlying disease, work time and sleep duration were not related to the depression of the personnel ($p > 0.05$). (Table 1)

Personnel who were married had depression 1.95 times of those who were single. Nurses were 1.86 times more depressed than doctors. Personnel who had high to severe stress were 22.5 times more depressed than those who suffered mild to moderate stress. Personnel who worked < 3 year were 1.75 times more depressed than those who worked for more than 3 years. (Table 2)

The self-report problem of the co-worker problem and inadequate welfare in the workplace had significant correlation to depressive level. The co-worker problem had negative correlation but inadequate welfare had positive correlation. (Table 3)

Discussion

The bivariate analysis demonstrated that gender, marital status, age group, underlying diseases, work time, and sleep duration were not related to depression of the personnel but marital status may be related to depression significantly if the samples were selected only single and married status (Table 1). The prevalence of depression of the personnel was 18.7% lower than a study of Wangtongkum, et al. and a study of Lee, et al.[1,2] In the previous study, it was showed that depression increased with age[1] and some studies show that woman were more depressed than men but in this study, there were not statistical significance. The multivariate analysis demonstrated the relationship between depression of personnel and marital status, career group, stress level, and work duration (Table 2). Married personnel were more depressed than those who were single. In a study of Ertel, et al., married personnel had factors that led to stress both in workplace and in family life especially when they had children.[21] In a study of Boya, et al. and Wang, et al., the perception of job insecurity and low control in the workplace were associated with depression, and had the strongest impact on those who had impaired family life.[14,22] These may be due to the fact that workers were 2.12 times more depressed than doctors, and if the sample size is increased the difference may be more significant (Table 2). Nurses were 1.86 times more depressed than doctors. The

Table 1. Characteristic of personals with bivariates analyzed between depression and other factors: career group, gender, age group, marital status, underlying disease, work time, work duration, sleep duration, job pattern, stress level, BMI and daytime sleepiness.

Factors		Depression* (%)		p-value
		No	Yes	
Career groups:	Doctor	38(92.7)	3(7.3)	0.001
	Nurse	160(74.4)	55(25.6)	
	Scientist	56(87.5)	8(12.5)	
	Officer	288(84.2)	54(15.8)	
	Worker	34(68)	16(32)	
Gender:	Male	103 (78.6)	28 (21.8)	0.394
	Female	491 (81.8)	109 (18.2)	
Age group:	20 – 29 years	320 (78.2)	89 (21.8)	0.172
	30 – 39 years	207 (84.8)	37 (15.2)	
	40 – 49 years	48 (82.8)	10 (17.2)	
	50 – 59 years	9 (90)	1 (10)	
Marital status:	Single	263 (84.6)	48 (15.4)	0.068
	Married	205 (75.9)	65 (24.1)	
	Divorce	4 (80)	1 (20)	
	Widow	1 (100)	0 (0)	
Underlying disease:	No	439 (81.3)	101 (18.7)	0.870
	Yes	73 (82)	16 (18)	
Work time:	< 8 hours	440 (80.7)	105 (19.3)	0.194
	> 8 hours	113 (85.6)	19 (14.4)	
Work duration:	< 3 years	296 (78.5)	81 (21.5)	0.007
	> 3 to 20 years	221 (87)	33 (13)	
Sleep duration:	< 7 hours	92 (85.2)	16 (14.8)	0.665
	> 7 hours	430 (83.5)	85 (16.5)	
Job pattern:	No patient contact	224 (88.2)	30 (11.8)	<0.001
	Patient contact	369 (77.5)	107 (22.5)	
Stress level:	Mild to moderate	241 (98.8)	3 (1.2)	<0.001
	High to severe	361 (72.8)	135 (27.2)	
BMI:	Underweight to normal	451 (78.6)	123 (21.4)	<0.001
	Overweight	151 (91)	15 (9)	
Daytime sleepiness:	No	399 (85.3)	69 (14.7)	<0.001
	Yes	203 (74.6)	69 (25.4)	

*Prevalence of depression was 18.7%

Table 2. Odds ratio (OR) of factors affected to depression by logistic regression: marital status, career group, job pattern, stress level, BMI, work duration, and daytime sleepiness.

Factors		OR	p-value	95% Confidence interval
Marital status:	Single	1		Reference group
	Married	1.95	0.009	1.18 – 3.22
Career group:	Doctor	1		Reference group
	Nurse	1.86	0.017	1.12 – 3.10
	Worker	2.12	0.065	0.95 – 4.70
Stress level:	Mild to moderate	1		Reference group
	High to severe	22.5	<0.001	5.39 – 93.99
BMI:	Underweight to normal	1		Reference group
	Overweight	0.53	0.095	0.25 – 1.12
Work duration:	< 3 years	1		Reference group
	> 3 to 20 years	0.57	0.030	0.34 – 0.95
Daytime sleepiness:	No	1		Reference group
	Yes	1.52	0.099	0.92 – 2.49

Table 3. Correlation between self-report problems in the workplace (co-worker, management, and welfare) and depressive level (no depression, depressive mood, and major depression).

Self-report problems	Spearman' rho	p-value
Co-worker	-0.1246	0.0026
Management	-0.0748	0.0696
Welfare	0.1606	0.001

reasons of this might be the effect of stress from their job which required contact with patients[10,11] and the career immaturity or less job experience that they need supervisors or advice from co-workers including time to gain job experience.[15] A study of Shields, et al. showed that depression from stress among personnel of different genders may be different; depression of men was caused by job strain whereas depression in women was caused by personal stress. However, both could be improved by co-worker support.[23] The personals' perception of the workplace problems found that inadequate welfare had positive association to depressive level but co-worker problem had negative association (Table 3). Depressed personnel did not pay attention to their co-workers but they paid attention to their inadequate

welfare. In this study, the employer might give welfare inadequately so that it effected to personnel's depression. Therefore, the employer should manage welfare to improve the financial situation of employee in need and may also strive to improve their employment chances and many other aspects of their lives including sometimes their mental health.[24] Moreover, the work duration was related to career maturity. Newcomers, who had less career maturity, would have mental health problems such as depression, self-esteem, psychosomatic symptoms, and work motivation. A study of Kawai, et al. showed that the informational support networks in the workplace would help the newcomers to gain career maturity, cultivate work motivation and establish good relationship to their superiors and co-workers.[15]

In conclusion, depression in the workplace is related to nurses, married personnel, high to severe stress, and work duration within the first 3 years. The employer should improve welfare adequate to the employee's need and make the informational support network for their personnel to gain career maturity. In addition, the employer should also take care of their family life especially those who have children.

Acknowledgements

The author acknowledges for grant from the Faculty of Medicine, Srinakharinwirot University and for participation from all personals in the Faculty of Medicine, Srinakharinwirot University.

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