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Original Article

Communication, support and psychosocial work environment affecting psychological distress among working women aged 20 to 39 years in Japan

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Abstract: When compared with their older counterparts, younger women are more likely to have depressive symptoms because they more often experience interrupted work history and a heavy childrearing burden. The purposes of the present study were 1) to investigate the possible association of psychosocial work environment with psychological distress and 2) to examine the way by which communication and support in the workplace affect to psychological distress among young women. We studied 198 women aged 20 to 39 yr in a cross-sectional study. The Kessler Scale-10 (K10 Scale) was used to examine psychological distress. In employees who experienced interpersonal conflict, those who had little or no conversations with their supervisor and/or co-workers had a significantly increased risk of psychological distress (OR, 4.2), and those who received little or no support from their supervisor and/or co-workers had a significantly increased risk of psychological distress (OR, 3.8) compared to those who had more frequent communication and received more support. Harmonious communication in the workplace can help prevent psychological distress among employees, which in turn may enable them to be satisfied with their work.

Key words: Psychological distress, K10 scale, Work-related stress, Communication, Working women

Introduction

Depressive symptoms are a common health problem among working people. They can be a major cause of suicide and suboptimal work performance[1, 2]. Some studies have reported that workers with low job control[3–5], high job strain[6] and low levels of social support at work[3] had more depressive symptoms than employees who had greater job control, less work strain and more support.

The individual experience of psychological distress is associated with employment status. The estimated prevalence of mental disorders, including anxiety and major depressive disorders, is 1.8 to 3.1 times higher in the unemployed than in the employed[7–9]. Part-time work is associated with poor mental health among both men and women in Japan[10]. In 2011, women made up 42% of the labor force in Japan, and approximately 55% of employed women work part-time[11]. Among women, workers with job insecurity were more likely to have depressive symptoms[12, 13]. Furthermore, young age (under 45 yr old) was associated with increased depressive symptoms among female workers[14]. Hence, the risk of depression may be increased for young female workers, as unrelenting poverty and discrimination are believed to affect women more frequently than men[15]. In addition, women are usually in

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charge of the housework and care of family members. As a consequence, women who are in charge of the family and home experience greater adversity, including poverty, unemployment and an interrupted work history[16].

In recent years, the number of women leaving work because of pregnancy and/or childrearing has been increasing[11]; however, the proportion of women aged 15 yr or more in the labor force has remained steady in Japan[11]. Women who have preschool-aged children have a higher risk of mental health problems[17, 18]. Working women with young children may have to cope with a heavy workload at home, including housework and childrearing. The conflicts that women experience managing work and family life responsibilities may be related to their psychological distress[13]. It is imperative to understand the causes of stress among working women and find ways to provide support for women who work outside the home.

Despite considerable research demonstrating the association between psychological distress and individual psychosocial work environment (i.e., job overload, job control and interpersonal conflict), the way by which interpersonal conflict, communication and support in the workplace can affect the individual is not well understood among young working women. We take into account individual social background to keep up with changes in society around the young working women. To prevent psychological distress in young women, it is required to develop occupational health policy and interventions directed toward addressing the mental health for the workplace in the coming years.

The main purposes of the present study were 1) to investigate the possible association of psychosocial work environment with psychological distress and 2) to examine the way by which communication and support in the workplace affect to psychological distress among young women by using a path model.

Methods

Participants

This study was conducted as part of a survey of mental health status among employees of a bank, a steel company and a hospital in Nagasaki Prefecture, Japan, from December 2009 to February 2010. First, we received permission from the directors of all three workplaces to conduct the survey and recruited all employees to participate in the study. The self-administered questionnaire was distributed to 844 employees and 787 questionnaires were returned (response rate, 93.2%). Three hundred ninety-two out of 787 employees were women who had white-collar jobs, including office and professional work. After exclusion of questionnaires with missing or blank data for age or responses to the Kessler Scale-10 (K10 scale for assessing psychological distress), a total of 198 women aged 20 to 39 yr remained. Their mean age was 30.6 (standard deviation [SD], 5.4) yr. The present study was reviewed and approved in October 2009 by the institutional ethics committee of Nagasaki University School of Medicine. The purpose and ethical aspects of the present study were described at the beginning of the questionnaire, and all participants were given a cover letter accompanying the questionnaire explaining the purpose of the study and requesting voluntary participation. Agreement to complete and return the questionnaire was considered as consent given to participate in this study.

Questionnaire

Participants completed anonymous questionnaires that asked about their socio-demographic background (sex, age, marital status and the presence of children), living arrangements, the number of cohabiting family members, self-rated health, satisfaction with daily life and employment status.

The presence of children in the household was taken into account. Living arrangements were classified as follows: living alone, living with husband, living with parents or parents-in-law or other family members, living with parents and respondent's children (without husband), living with husband and children (nuclear family) and living with children (single-parent family). Respondents were asked about their satisfaction with daily life. Those answering "very satisfied" or "fairly satisfied" and "very unsatisfied" or "fairly unsatisfied" were classified as the "satisfied" and "unsatisfied" group, respectively, and "intermediate" was considered to be the "intermediate" group. Employment status included type of employment (full-time, part-time or other), working hours per day, frequency of paid vacation time and conversations with and support from their supervisor and/or co-workers. Respondents were asked about their frequency of conversations with and reception of support from their supervisor and/or co-workers, which were categorized as follows: "a lot," "some," "a little" or "none."

Psychological distress

Psychological distress was assessed using the K10 Scale developed by Kessler and colleagues[19]. The K10 is a 10-item scale that asks subjects to indicate how frequently they had experienced certain symptoms or feelings during

the past 30 d using a 5-point Likert scale: none of the time (0), a little of the time (1), some of the time (2), most of the time (3) or all of the time (4). The total score is the sum of all responses and ranges from 0 to 40. Higher scores reflect more severe psychological distress. A score of 15 or higher on the K10 indicates increased risk for clinical depression[20]. The reliability of the K10 was estimated with Cronbach's α of 0.93 or more[21, 22]. The area under the curve derived from receiver operating characteristic curve analysis of the Japanese version of the K10 was 0.94, so screening performance is essentially equivalent to that of the original English version[23].

Psychosocial work environment

Psychosocial work environment was assessed by the National Institute for Occupational Safety and Health Generic Job Stress Questionnaire (NIOSH-GJSQ). The NIOSH-GJSQ was developed to measure occupational stress and has acceptable reliability, with Cronbach's α coefficients ranging from 0.65 to 0.90[24]. The Japanese version of the NIOSH-GJSQ was developed as a convenient and reliable self-rating scale to screen for work-related stress[25]. It has demonstrated reliably high levels of internal consistency (Cronbach's α, 0.68–0.95)[26]. The items from the Japanese version of the NIOSH-GJSQ used in this study were: "job overload" (7 items, score range 0–7), "job control" (3 items, score range 0–3), "interpersonal conflict" (3 items, score range 0–3) and "job satisfaction" (2 items, score range 0–2). The proposed cut-off point score of each domain was as follows: 2 points or over for job control, 2 points or over for interpersonal conflict and 2 points or over for job satisfaction. Different cut-off point scores by sex were set for job overload: 6 points or over in men and 5 points or over in women.

Data analysis

The associations between the frequency of participants with high K10 scores and demographic, lifestyle, employment status and three work-related stress subscales (job overload, job control and interpersonal conflict) were analyzed. The chi-square test was used for nominal scale data such as marital status, while the Cochran-Armitage test was used for ordinal scale data such as self-rated health. Odds ratio with its confidence interval was calculated to evaluate the combined effect of "interpersonal conflict" and "conversations with supervisor and/or co-workers" and/or "support from supervisor and/or co-workers" on psychological distress. Path analysis was conducted to explore the role of social support in the workplace and communication with other workers in the structure by which psychosocial work environment factors affect to psychological distress. Figure 1 illustrates the hypothetical path model in this study. The fit of the path model was evaluated using the root mean square error of approximation (RMSEA) and comparative fit index (CFI). Path analysis was performed using Analysis of Moment Structures (AMOS).

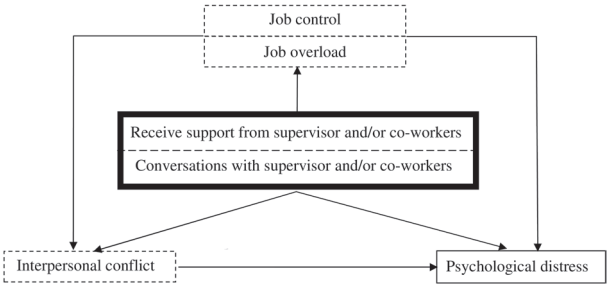

Fig. 1. The hypothetical path model of support from and conversations with supervisor and/or co-workers in contributing to the structure by which psychosocial work environment factors affect to psychological distress.

Solid lines: association paths; Dashed frames: psychosocial work environment factors; Bold frame: buffer factor; Solid frame: psychological reaction.

Results

Characteristics of participants

The characteristics of the participants are presented in Table 1. Among the 198 women, the mean age was 30.6 (SD, 5.4) yr, and approximately 70% of the participants were full-time workers and the rest were employed part-time. Of the 71 women (35.9%) who had children at home, 44% were employed full-time and the rest were part-time workers. The proportion of participants with psychological distress was 20.7%.

Psychological distress

Associations of socio-demographic and lifestyle factors, employment status and psychosocial work environment with psychological distress are shown in Table 2. In terms of psychosocial work environment, 130 employees (65.7%) had high job overload, 105 (53%) reported low job control and 36 (18.2%) had interpersonal conflict at work. Employees who were dissatisfied with daily life and those who had poor self-rated health had significantly higher psychological distress than those who were satisfied ($p<0.001$) and those who had good self-rated health ($p=0.004$), respectively. Those who were dissatisfied with

Table 1. Characteristics of the study participants

Characteristics	Female workers (N= 198)			
	Total sample		Childrearing women (n= 71)	
	Mean (SD)	n (%)	Mean (SD)	n (%)
Age, yr	30.6 (5.4)		34.6 (3.1)	
Marital status				
Married		79 (39.9)		61 (85.9)
Divorced		12 (6.1)		10 (14.1)
Never married		106 (53.5)		0 (0)
Unknown		1 (0.5)		0 (0)
Living arrangements				
Living alone		6 (3.0)		0 (0)
Parents or parents-in-law & other family members		127 (64.1)		22 (31.0)
Parents & children (without husband)		4 (2.0)		4 (5.6)
Husband & children (nuclear family)		39 (19.7)		39 (54.9)
Living with husband		15 (7.6)		0 (0)
Living with children (single-parent family)		6 (3.0)		6 (8.5)
Unknown		1 (0.5)		0 (0)
Number of family members in household (range)		2.9 (0–8)		3.4 (1–8)
Self-rated health				
Good		81 (40.9)		32 (45.1)
Intermediate		102 (51.5)		34 (47.9)
Poor		13 (6.6)		5 (7.0)
Unknown		2 (1.0)		0 (0)
Satisfaction with daily life				
Satisfied		71 (35.9)		30 (42.3)
Intermediate		79 (39.9)		23 (32.4)
Unsatisfied		48 (24.2)		18 (25.4)
Job satisfaction				
Satisfied		149 (75.3)		57 (80.3)
Unsatisfied		47 (23.7)		13 (18.3)
Unknown		2 (1.0)		1 (1.4)
Type of employment				
Employed full-time		138 (69.7)		31 (43.7)
Employed part-time		55 (27.8)		39 (54.9)
Other		4 (2.0)		1 (1.4)
Unknown		1 (0.5)		0 (0)
Working hours per day				
5–7.9		115 (58.1)		46 (64.8)
8 or more		83 (41.9)		25 (35.2)
Psychological distress				
Less		157 (79.3)		60 (84.5)
More		41 (20.7)		11 (15.5)

SD: standard deviation

their job were also more likely to have high psychological distress compared to those who were satisfied (42.6% vs. 14.1%; $p<0.001$). In addition, employees who experienced interpersonal conflict were more likely to have high psychological distress compared to those who did not experience interpersonal conflict ($p=0.001$). Lastly, employees who were raising children showed a non-significant tendency to have psychological distress compared with those who were not raising children (15.5% vs. 23.8%; $p=0.167$).

Table 2. Associations of socio-demographic characteristics, employment status and psychosocial work environment with psychological distress among female workers

Variables	Psychological distress		*p* value
	Less (n=157)	More (n=41)	
	n (%)	n (%)	
Marital status			
Married	68 (86.1)	11 (13.9)	0.068[a]
Divorced	9 (75.0)	3 (25.0)	
Never married	80 (75.5)	26 (24.5)	
Unknown	0 (0)	1 (100)	
Raising children			
Yes	60 (84.5)	11 (15.5)	0.167[a]
No	96 (76.2)	30 (23.8)	
Unknown	1 (100)	0 (0)	
Self-rated health			
Good	71 (87.7)	10 (12.3)	0.004[b]
Intermediate	78 (76.5)	24 (23.5)	
Poor	7 (53.8)	6 (46.2)	
Unknown	1 (50.0)	1 (50.0)	
Satisfaction with daily life			
Satisfied	63 (88.7)	8 (11.3)	<0.001[b]
Intermediate	67 (84.8)	12 (15.2)	
Unsatisfied	27 (56.3)	21 (43.8)	
Job satisfaction			
Satisfied	128 (85.9)	21 (14.1)	<0.001[a]
Unsatisfied	27 (57.4)	20 (42.6)	
Unknown	2 (100)	0 (0)	
Type of employment			
Employed full-time	104 (75.4)	34 (24.6)	0.108[a]
Employed part-time	48 (87.3)	7 (12.7)	
Other	4 (100)	0 (0)	
Unknown	1 (100)	0 (0)	
Working hours per day			
5–7.9	95 (82.6)	20 (17.4)	0.176[a]
8 or more	62 (74.7)	21 (25.3)	
Frequency of paid vacation time			
Very often & Fairly often	45 (83.3)	9 (16.7)	0.189[b]
Sometimes	83 (79.8)	21 (20.2)	
Rarely & No	28 (71.8)	11 (28.2)	
Unknown	1 (100)	0 (0)	
Frequency of conversations with supervisor and/or co-workers			
A lot	21 (91.3)	2 (8.7)	0.063[b]
Some	57 (80.3)	14 (19.7)	
A little	76 (76.0)	24 (24.0)	
None	0 (0)	1 (100)	
Unknown	3 (100)	0 (0)	
Receive support from supervisor and/or co-workers			
A lot	19 (86.4)	3 (13.6)	0.307[b]
Some	52 (80.0)	13 (20.0)	
A little	82 (78.1)	23 (21.9)	
None	1 (50.0)	1 (50.0)	
Unknown	3 (75.0)	1 (25.0)	
Job overload			
Low	56 (83.6)	11 (16.4)	0.275[a]
High	100 (76.9)	30 (23.1)	
Unknown	1 (100)	0 (0)	
Interpersonal conflict			
Less	133 (83.6)	26 (16.4)	0.001[a]
More	21 (58.3)	15 (41.7)	
Unknown	3 (100)	0 (0)	
Job control			
High	78 (83.9)	15 (16.1)	0.135[a]
Low	79 (75.2)	26 (24.8)	

[a]χ^2 test excluding unknown category

[b]Cochran-Armitage test excluding unknown category

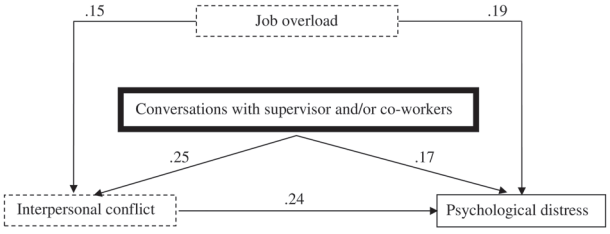

Fig. 2. Path model of conversations with supervisor and/or co-workers in contributing to the structure by which psychosocial work environment factors affect to psychological distress.
Values presented are standardized regression coefficients for the path significant at the $p \leq 0.05$ level. Paths not significant at the $p \leq 0.05$ level are not shown. Solid lines: association paths; Dashed frames: psychosocial work environment factors; Bold frame: buffer factor; Solid frame: psychological reaction.

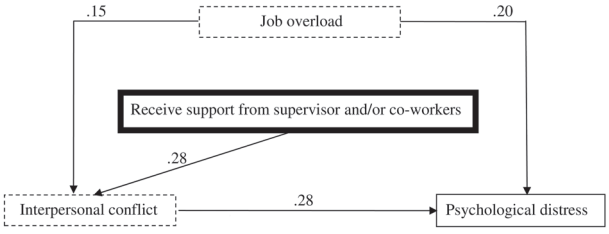

Fig. 3. Path model of support from supervisor and/or co-workers in contributing to the structure by which psychosocial work environment factors affect to psychological distress.
Values presented are standardized regression coefficients for the path significant at the $p \leq 0.05$ level. Paths not significant at the $p \leq 0.05$ level are not shown. Solid lines: association paths; Dashed frames: psychosocial work environment factors; Bold frame: buffer factor; Solid frame: psychological reaction.

Table 3 shows the odds ratios (OR) and 95% confidence intervals (95% CI) for the association between conversations and/or support and interpersonal conflict with psychological distress. In the first model, the workers who had little or no conversations with their supervisor and/or co-workers and had interpersonal conflict had a significantly increased risk of psychological distress (OR, 4.18; 95% CI, 1.65–10.58) compared to those who had a lot or some conversations with their supervisor and/or co-workers and less interpersonal conflict. In the second model, the workers who received little or no support from their supervisor and/or co-workers and had interpersonal conflict had a significantly increased risk of psychological distress (OR, 3.83; 95% CI, 1.51–9.73) compared to those who had a lot or some support from their supervisor and/or co-workers and did not report interpersonal conflict. Finally, in the third model, the workers who had interpersonal conflict and had little or no conversations with their supervisor and/or co-workers and received little or no support from their supervisor and/or co-workers also had an increased risk of psychological distress (OR, 3.26; 95% CI, 1.21–8.83).

The contribution of social support in the workplace and conversations with other workers to the structure by which psychosocial work environment factors affect to psychological distress

Figure 2 shows the path model of conversations with an employee's supervisor and/or co-workers contributing to the structure by which psychosocial work environment factors affect to psychological distress. The fit of the path model was acceptable, with an RMSEA of 0.052 and a CFI of 0.988. Similarly, Fig. 3 shows the path model of support from an employee's supervisor and/or co-workers contributing to the structure by which psychosocial work environment factors affect to psychological distress. The fit of the path model was acceptable, with an RMSEA of 0.006 and a CFI of 1.000.

Discussion

One of the aims of the present study was to examine the structure by which communication and support in the workplace affect to psychological distress among young women. We hypothesized that the direct path from psychosocial work environment (job control, job overload and interpersonal conflict) to psychological distress could be constrained by including the path structure of communication and support in the workplace as buffer factors. The Path model results of the present study revealed that job overload and interpersonal conflict heavily influenced psychological distress. In addition, support from and conversations with their supervisor and/or co-workers were an effective buffer of the effect of interpersonal conflict on psychological distress. Although the degree of work-related stress is linked to whether the individual has a choice in assuming roles and responsibilities in the workplace, our hypothetical model suggests that communication and support in the workplace may be related to managing emotional stress and may contribute to positive working conditions such as safety management and high productivity.

Consistent with prior research findings, the risk of psychological distress was significantly increased in employees who had few conversations with and/or received little support from their supervisor and/or co-workers[27, 28].

Table 3. Association between conversations and/or support and interpersonal conflict with psychological distress

	Model 1-Conversations with supervisor and/or co-workers		Model 2-Support from supervisor and/or co-workers	
	"A lot or some"	"A little or none"	"A lot or some"	"A little or none"
Interpersonal conflict				
Less	1.00	1.05 (0.45–2.43)	1.00	0.80 (0.34–1.89)
More	2.06 (0.36–11.68) *1	4.18 (1.65–10.58)	1.89 (0.33–10.73)	3.83 (1.51–9.73)
	Model 3-Combination of conversation with support from supervisor and/or co-workers			
	Both conversation and support "A lot or some"	Conversation "A lot or some", Support "A little or none"	Conversation "A little or none" Support "A lot or some"	Both conversation and support "A little or none"
Interpersonal conflict				
Less	1.00	Not calculated*3	0.346 (0.04–2.91)	0.972 (0.40–2.38)
More	Not calculated*2	4.15 (0.53–32.31)	4.15 (0.53–32.31)	3.26 (1.21–8.83)

*1Odds ratio (95% confidence interval). *2There were no subjects who had a combination of interpersonal conflict (More) and psychological distress (Present). *3There were no subjects who had a combination of interpersonal conflict (Less) and psychological distress (Present).

In this study, we considered that having conversations with a supervisor and/or co-workers is one of the first steps in supporting employees. Social support consists of instrumental support, such as the introduction of flexible working hours and work sharing arrangements[29, 30], and emotional support, such as a good support network, the allowance of observance of religious practices and a supportive attitude from the employer[31, 32]. Irrespective of the amount of support, the intrinsic value of the support may be determined by the individual's psychological well-being or feelings about it. If the recipients of the support do not feel positive about it (i.e., are not satisfied with the support or experience increased stress or distress), even though it is based on friendship, it may be meaningless to the recipient. Some studies have reported that workers who are supported by colleagues and their supervisor show decreased psychological distress[33–36]. McKee-Ryan and colleagues[37] also reported that social support and satisfaction contribute to psychological well-being. Consequently, mental health conditions and feelings of stress in workers are not determined solely by the amount of job demands, interpersonal conflict or the level of job control. It is important to have harmonious communication in the workplace to prevent psychological distress among employees, which in turn may enable them to be satisfied with their work.

In the present study, the proportion of workers who experienced psychological distress was about two times higher in full-time workers (24.6%) than in part-time workers (12.7%), although the difference was not statistically significant. Consistent with prior research findings, we considered that full-time workers were more likely to experience more stress related to work and family than part-time workers[38]. The family-to-work emotional disturbance may have an impact on psychological distress with support and communication in the workplace, can also contribute to psychological distress depending on a worker's psychosocial work environment.

Our study has several limitations. First, since the study was cross-sectional, the relationships found cannot be interpreted as causal. Second, the scales of conversations with and support from supervisor and/or co-workers were evaluated by using the single questions modified from items in the Japanese version of the NIOSH-GJSQ. The validation study to assess reliability and validity of the scales would be needed. Third, although the association between interpersonal conflict and psychological distress emerged as an important variable in the present study, this cannot be generalized to Japanese working women because the participants were only young women (20 to 39 yr of age). Lastly, the present study does not take into account family responsibilities, social relationships outside of work or social support from family that may affect or moderate psychological distress. Further studies are needed to take these factors into consideration.

Despite these limitations, our study provides information on the associations of psychological distress in those who spoke rarely with their supervisor and co-workers and/or those who received little support from their supervisor and co-workers.

Conclusions

In the present study, employees who experienced interpersonal conflict and had little or no support from and/or conversations with their supervisor and/or co-workers had increased risk of psychological distress. As work takes up

a large part of life, we consider that each employee needs to enhance her work and/or life satisfaction and establish a good support network in the workplace in order to prevent interpersonal conflict and other work-related stress.

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