

Burnout of Nurses and Doctors in Niigata Prefecture, Japan

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Summary. To facilitate the treatment and prevention of burnout in nurses and physicians, a survey on the social background and stress-coping styles involved in this syndrome was performed. (1) Nurses in a pre-burnout state were often married, in managerial positions, working at large hospitals, and were likely to take “challenging”, “seeking help”, and “diversion”, but were unlikely to take “resignation”, “taking it out on others”, or “seeking treatment” as stress-coping styles. (2) Doctors in a pre-burnout state were unlikely to show “challenging”, a task-orientated coping style, and were likely to show “taking it out on others”, emotion-orientated coping. (3) This survey revealed that the stress-coping style is a major factor of burnout in nurses and doctors. The contents of task-orientated coping differed between nurses and doctors. “Taking it out on others”, emotion-orientated coping, was observed in common.

Key words — Burnout, stress coping style, medical workers, task-orientated coping, emotion-orientated coping, avoidance-orientated coping.

INTRODUCTION

With the progression of the aging of society, medicine is becoming more intensive and technology-dependent, and nurses and doctors appear to be exposed to excessive stress in clinical situations. Medical workers under stress are incapable of consistently providing good medical services to patients and are likely to make

errors. This situation aggravates mental and physical fatigue, which serves as a new stressor, and may eventually lead to burnout syndrome. The dictionary defines the verb “burnout” as “to fail, wear out, or become exhausted by making excessive demands on energy, strength, or resources.” Since around 1970, many investigators including Freudenberger¹⁾, Maslach²⁾, and Pines et al.³⁾ analyzed such burnout cases.⁴⁻⁹⁾ In Japan, there have been many reports on burnout syndrome in professionals such as nurses and teachers including those of Inaoka et al.¹⁰⁻¹³⁾, Munakata et al.¹⁴⁾, Chikazawa¹⁵⁾, Kushitani et al.¹⁶⁾, Nomura¹⁷⁾ and Yamamoto et al.¹⁸⁾. Inaoka et al.¹³⁾ reported that burnout syndrome was observed in 20-30% of Japanese nurses. Weber et al.⁴⁾ also reported that burnout results from complicated interactions between work/society and an individual. Furthermore, Chikazawa¹⁴⁾, Kushitani et al.¹⁵⁾, Nomura¹⁶⁾, Jaracz et al.⁵⁾, and Arts et al.⁶⁾ analyzed the relationship between the burnout score and stress-coping style in nurses and home helpers. However, while there have been reports on the burnout and stress-coping style of doctors, the relationship between the burnout score and stress-coping style has not been reported.

In this study, we evaluated our hypothesis that burnout is caused by interactions among stressors, social background (e.g., age, marriage, career history, managerial position, and workplace characteristics), and stress-coping style.

In these circumstances, we performed this study to clarify the social background factors and stress-coping styles that affect burnout of nurses and doctors and utilize this knowledge for the treatment and prevention

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of burnout.

Subjects and Methods

The subjects were 440 nurses at Niigata University Medical & Dental Hospital, 2,142 nurses at hospitals in Niigata prefecture, 200 doctors at Niigata University Medical & Dental Hospital, 350 doctors at hospitals in Niigata City, and 150 doctors in Niigata City's clinics. These subjects were surveyed anonymously using the following questionnaires.

The questionnaire concerning social background consisted of 5 investigation items: Age, marital state, place of work, career history, and managerial positions.

The burnout score was measured using a scale that Inaoka¹⁰⁾ prepared by translating and modifying the burnout scale of Pines et al.³⁾. A score of 2.9 or less on this scale was judged to be healthy, 3.0-3.9 to be a pre-burnout state, and 4.0 or above as a burnout state (Table 1).

Stress coping was evaluated using the Showa University Coping Behavior Questionnaire by Miyaoka¹⁹⁾ which divides the stress-coping style into 6 factors: "Challenging", "seeking help", "resignation", "diversion", "taking it out on others", and "seeking treatment" (Table 2).

The questionnaire was mailed. The Data were obtained between April 1998 and July 2005.

All statistical analyses were performed using Microsoft Office Excel 2003 and SPSS11.0 for Windows. The burnout scores of the nurses and doctors were compared by the t-test, and the relationships among the burnout score, social background, and stress-coping style were examined using the Bonferroni's multiple comparison or the Pearson product-moment correlation coefficient. Then, linear correlation analysis was performed by the forced entry method using the burnout score as the dependent variable. If there were defects in the data of any factor, the score of the subject concerning the factor was eliminated from the analysis.

Table 1. A Self Diagnosis Instrument

People can compute their burnout score by completing the following questionnaire.

How often do you have any of the following experiences?

Please use the scale:

1: Never 2: Once in a great while 3: Rarely 4: Sometimes 5: Often 6: Usually 7: Always

- | | | | |
|---------------------------------|-----------------------|---|--------------------------------|
| 1. Being tired. | 2. Feeling depressed. | 3. Having a good day. | 4. Being physically exhausted. |
| 5. Being emotionally exhausted. | 6. Being happy. | 7. Being "wiped out." | 8. Feeling "burned out." |
| 9. Being unhappy. | 10. Feeling rundown. | 11. Feeling trapped. | 12. Feeling worthless. |
| 13. Feeling weary. | 14. Being troubled. | 15. Feeling disillusioned and resentful about people. | |
| 16. Feeling weak. | 17. Feeling hopeless. | 18. Feeling rejected. | 19. Feeling optimistic. |
| 20. Feeling energetic. | 21. Feeling anxious. | | |
-

Computation of score:

Add the value you wrote next to the following items: 1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21 (A) ____.

Add the values you wrote next to the following items: 3, 6, 19, 20 (B) ____, subtract (B) from 32 (C) ____.

Add A and C (D) ____.

Divide D by 21 _____. This is your burnout score.

Table 2. Six factors of stress-coping style

Subjects	Contents
(1) Challenging (positive coping based on reality) : the 19 items	Talking actively with people related to situation. Considering the situation to be an opportunity to acquire new techniques or abilities.
(2) Seeking help : 14 items	Talking to people unrelated to situation.
(3) Resignation (negative escapism) : 14 items	Persuading oneself that time will solve the problem. Persuading oneself that the matter is not everything that one lives for.
(4) Diversion (positive venting of emotion) : 19 items	Chatting with friends. Taking leave.
(5) Taking it out on others (negative venting of emotion) : 5 items	Taking it out on the family. Taking it out on things.
(6) Seeking treatment	Taking drugs such as tranquilizers. Undergoing counseling.

RESULTS

Questionnaires could be recovered without entry defects from 2,001 (77.5%) of the 2,582 nurses and 405 (57.9%) of the 700 doctors.

Five hundred and sixty nurses (28.0%) and 84 doctors (20.7%) were diagnosed to have burnout. The mean burnout score was 3.31 ± 1.19 points in the nurses and 3.03 ± 0.92 points in the doctors, with a significant difference ($p < 0.05$) on the t-test (Table 3). No significant gender difference was observed in the mean burnout

score between 98 male nurses (3.37 ± 0.16 points) and 1,903 female nurses (3.30 ± 1.20 points) ($p = 0.16$) or between 345 male doctors (3.00 ± 0.49 points) and 60 female doctors (3.18 ± 0.13 points) ($p = 0.16$). The nurses were predominantly females, and the doctors were predominantly males. In some hospitals, the nurses were all females, and the doctors were all males. One prefectural hospital, which was a single-department hospital specializing in psychiatry, was excluded from analysis. The scores of the 5 factors of stress-coping style other than "seeking help" were higher in the nurses than in the doctors (Table 3).

Table 3. The burnout scores and stress coping styles (Nurses and Doctors)

	Nurses	Doctors	P
Burnout score	3.31 ± 1.19	3.03 ± 0.92	*
Stress coping style			
Challenging	29.16 ± 5.10	27.55 ± 5.72	*
Seeking help	9.55 ± 2.06	9.68 ± 2.54	*
Resignation	15.34 ± 2.88	11.62 ± 2.92	*
Diversion	29.56 ± 5.67	18.55 ± 5.83	*
Taking it out on others	19.29 ± 5.14	7.43 ± 2.50	*
Seeking treatment	17.24 ± 4.93	6.20 ± 1.95	*

Values are expressed as the mean \pm SD. * $p < 0.05$

(1) Nurses

As shown in Table 4, all social background factors, i.e., managerial position, place of work, age, career history and were found to exert significant effects on burnout by the t-test and Pearson's correlation analysis. All 6 factors of stress-coping style affected burnout.

As a result of linear regression analysis by the forced entry method using the burnout score as the dependent variable, the multiple coefficient of determination (R^2) was 0.423, and the marital state, managerial position, place of work, and the 6 factors of stress-coping style ("challenging", "seeking help", "resignation", "diversion", "taking it out on others", and "seeking treatment") were all related to burnout (Table 5).

Table 4. All social background factors of the Nurses (the t-test, Bonferroni's correlation and Pearson's correlation)
The t-test

Marital state	Single	Married	P
	3.34±1.28	3.29±1.15	0.4
Managerial position	+	-	
	3.21±1.26	3.45±1.06	*

Bonferroni's multiple comparison

Place of work	Palce of work	The mean value difference	
Niigata University hospital	The large prefectural hospitals	- 2.047194118	*
Niigata University hospital	The middle-sized or small hospitals	- 1.939631336	*
The large prefectural hospitals	The middle-sized or small hospitals	0.107562782	

Pearson's correlation

	Pearson coefficient of correlation	P
Age	0.111	*
Career history	0.138	*
Stress coping style		
Challenging	0.276	*
Seeking help	- 0.152	*
Resignation	0.223	*
Diversion	0.314	*
Taking it out on others	0.481	*
Seeking treatment	0.554	*

Values are expressed as the mean±SD. *p<0.05

Table 5. Result of linear correlation Analyses (Nurses)

	β	t	P
Age	- 0.014	- 0.408	0.684
Marital state	- 0.081	- 4.127	*
Career history	- 0.007	- 0.195	0.846
Managerial position	0.045	2.317	0.21
Place of work			
Niigata University hospital	- 1.049	- 15.754	*
The large prefectural hospitals	0.097	2.751	0.006
The middle-sized or small hospitals	0.041	1.298	0.194
Stress coping style			
Challenging	0.114	6.038	*
Seeking help	0.039	1.975	0.048
Resignation	- 0.053	- 2.692	*
Diversion	0.096	4.472	*
Taking it out on others	- 0.287	- 7.086	*
Seeking treatment	- 0.269	- 4.583	*

Values are expressed as the mean \pm SD. * p <0.001

(2) Doctors

As shown in Table 6, the t-test and Pearson's correlation coefficient indicated that burnout was related to marital state, managerial position, place of work, age, career history and 3 factors of the stress-coping style ("challenging" and "taking it out on others").

When linear regression analysis by the forced entry method was performed using burnout as the dependent variable, the multiple coefficient of determination (R^2) was 0.223, which was lower than the value in the nurses. Burnout was related to "challenging" and "taking it out on others" among the factors of stress-coping style (Table 7).

Table 6. All social background factors of the doctors (the t-test, Bonferroni's correlation and Peason's correlation)
The t-test

Marital state	Single	Married	P
	3.36±0.94	2.95±0.90	*
Managerial position	+	-	
	2.94±0.88	3.15±0.97	*

Bonferroni's multiple comparison

Place of work	Palce of work	The mean value difference	P
Niigata University hospital	The city hospitals	- 0.161321195	
Niigata University hospital	Clinics	0.241853408	
The city hospitals	Clinics	0.403174603	*

Peason's correlation

	Peason coefficient of correlation		P
Age	- 0.203	*	
Career history	- 0.178	*	
Stress coping style			
Challenging	- 0.301	*	
Seeking help	0.1		0.45
Resignation	0.005		0.998
Diversion	0.43		0.39
Taking it out on others	0.341	*	
Seeking treatment	0.106		0.33

Values are expressed as the mean±SD. *p<0.05

Table 7. Result of linear correlation Analyses (Doctors)

	β	t	P
Age	- 0.088	- 0.836	0.404
Marital state	- 0.098	- 1.666	0.096
Career history	- 1.09	- 1.095	0.274
Managerial position	0.096	1.38	0.168
Place of work			
Niigata University hospital	- 0.11	- 0.165	0.869
The city hospitals	0.093	1.38	0.168
Clinics	0.046	0.605	0.546
Stress coping style			
Challenging	- 0.271	- 5.676	*
Seeking help	0.014	0.267	0.79
Resignation	0.001	0.019	0.985
Diversion	- 0.01	- 0.028	0.978
Taking it out on others	0.278	4.985	*
Seeking treatment	0.13	0.258	0.797

Values are expressed as the mean \pm SD. * p <0.05

DISCUSSION

Since excessive stress in the workplace damages workers' health, there have been a number of reports on burnout observed under stressful situations or studies concerning its management.¹⁻²⁸⁾

Inaoka et al.¹⁰⁻¹³⁾ reported that the psychological and human-relationship environment of the workplace is a major factor involved in nurses' burnout. Yamamoto et al.¹⁸⁾ also observed that nurses' burnout is affected by the stress of work, stress of life including living with the family, and social support, and Bauer et al.⁷⁾ reported that marriage, which is a kind of social support, had the greatest effect on teachers' burnout.

In this study, we evaluated our hypothesis that burnout is caused by interactions among stressors, social background (e.g., age, marriage, career history, managerial position, and workplace characteristics), and stress-coping style. Burnout was observed more frequently in nurses than in doctors, similarly to the results reported by Munakata et al.¹⁴⁾ Chikazawa¹⁵⁾ observed that workplace characteristics markedly affect the stress-coping style and burnout in a report entitled, "Factor analysis concerning burnout of nurses". According to the results of our present study, a

workplace effect, i.e., the burnout score was high in nurses working at large prefectural hospitals, was observed. However, social background did not affect the burnout score in doctors. This suggests that the burnout score is affected by factors other than those included in the questionnaire.

Also, authors including Chikazawa¹⁵⁾, Kushitani et al.¹⁶⁾, Nomura¹⁷⁾, Jaracz et al.⁵⁾, and Arts et al.⁶⁾ reported that the burnout score was affected by the stress-coping style. Particularly, Chikazawa¹⁵⁾ analyzed the stress-coping style by classifying it into task-orientated coping, emotion-orientated coping, and avoidance-orientated coping.

Our study also revealed an effect of the stress-coping style on the burnout score of medical workers. However, the stress-coping styles related to the burnout score differed between nurses and doctors.

(1) Nurses

Inaoka et al.¹²⁾ reported that 20-30% of nurses were burned-out. In this study, also, this value was 27.6%. More specifically, married nurses, nurses working at large prefectural hospitals, and those in managerial positions were more likely to be burned-out. Yamamoto et al.¹⁸⁾ reported that burnout is affected by the stress of

work, stress of life, and social support. According to our results, burnout appeared to be affected by marriage, which is a kind of social support, and the workplace environment, which is a part of work stress. Studies on burnout to date have not classified the facilities into university hospitals, large hospitals, and middle-sized or small hospitals. Large hospitals are considered to treat more patients in serious conditions and to demand a higher quality and greater quantity of work from staff than middle-sized or small hospitals. While university hospitals also have many patients in serious conditions, they also have many doctors, particularly residents.

Thus, the hospital size and the number of doctors are considered to affect nurses' burnout.

Jaracz et al.⁵⁾ and Chikazawa¹⁵⁾ observed that task-orientated coping had no effect on burnout but that emotion-orientated coping and avoidance-orientated coping promoted burnout. Kushitani et al.¹⁶⁾ and Nomura¹⁷⁾ reported that burnout was related to poor task-orientated coping and poor emotion-orientated coping. According to our survey, nurses who have difficulty in resorting to "taking it out on others" and "resignation" as emotion-orientated coping, were more unlikely to develop burnout. Our results also suggested that nurses who tend to select "challenging" as task-orientated coping are at one higher risk of burnout, consistent with the reports by Kushitani et al.¹⁶⁾ and Nomura.¹⁷⁾ In addition, nurses tended to select avoidance-orientated coping of "diversion" and to select another mode of avoidance-orientated coping, i.e., "seeking treatment", in agreement with the reports of Jaracz et al.⁵⁾ and Chikazawa¹⁵⁾.

The results of our study suggest that task-orientated coping may promote burnout, unlike previous reports. Disappointment at the outcomes of stress coping by "challenging" or "seeking help" may have induced burnout. Also, while Chikazawa¹⁵⁾ lumped "diversion" and "seeking treatment" together and reported them as avoidance-orientated coping, we analyzed them separately in this study. As a result, we found that "diversion" and "seeking treatment" promote burnout.

These results suggest that many nurses who are burned-out are unmarried and occupy unmanagerial positions at large hospitals, and that they tend to resort to "challenging", "diversion", "resignation", "taking it out on others", and "seeking treatment".

(2) Doctors

Studies on nurses' work-related stress began in the 1970s in the United States and other countries, yielding many reports^{3,6,10-18,20)}. However, studies concerning doctors have been few, with only those by Walter et al.²¹⁾, Davidson et al.²²⁾, and Shattner²³⁾ being known. Concerning the relationship between burnout and the

stress-coping style, there have been reports in nurses but not in doctors.

Shattner²³⁾ reported that more than 10% of general practitioners felt work stress, and Weber et al.⁴⁾ reported that the prevalence of burnout among doctors and dentists was 10% or higher. In our present survey, 14.5% of the doctors were burned-out, similarly to the above reports. Munakata et al.¹⁴⁾ reported that burnout is observed frequently in doctors in their 30s, with a career history of 6-9 years, working at national or local public hospitals, and not occupying managerial positions. In contrast, we found no social background factors that affected burnout. This discrepancy may be related to the fact that the subjects of Munakata et al.¹⁴⁾ were all hospital doctors not including practitioners. Also, social factors not evaluated in this study, e.g., specialties, may have affected the results.

According to our survey, burned-out doctors tended not to select "challenging", which is a mode of task-orientated coping, but to show "taking it out on others", which is a mode of emotion-orientated coping. Avoidance-orientated coping exerted no effect on burnout.

(3) Differences in the results between nurses and doctors

Concerning gender differences, Nancy et al.²⁴⁾ reported that emotion-orientated coping is observed more frequently in females than in males. In this survey, the scores of "taking it out on others" and "resignation", which are modes of emotion-orientated coping, were significantly higher in nurses than in doctors, and nurses in a pre-burnout state more often showed "challenging", which is an active mode of task-orientated coping, but doctors showed an opposite tendency. These results may also be related to gender differences and differences in work contents, but there is no relevant literature.

In this study, a comparison of burnout and the 6 factors of stress-coping style between male nurses and male doctors by the t-test indicated a significantly higher prevalence of burnout among nurses. Concerning the stress-coping style, the score of "challenging" was significantly higher in the doctors, but those of the other 5 factors were significantly higher in the nurses. The comparison of burnout and the 6 factors of stress-coping style between male and female doctors by the t-test indicated that burnout was more frequent in the female doctors. Concerning the stress-coping style, the scores of "challenging" and "seeking treatment" were significantly higher in the female doctors, but those of the other factors were significantly higher in the male doctors. These results suggest that the differences between the nurses and doctors may be explained by

gender differences and differences in work contents.

CONCLUSION

- (1) Nurses in a pre-burnout state or a burnout state were often unmarried, without managerial positions, working at large hospitals, and were likely to take “challenging”, “diversion”, “resignation”, “taking it out on others”, and “seeking treatment” as stress-coping styles.
- (2) Doctors in a pre-burnout state or a burnout state were unlikely to show “challenging”, a task-orientated coping style, and were likely to show “taking it out on others”, emotion-orientated coping.
- (3) This survey revealed that the stress-coping style is a major factor of burnout in nurses and doctors. The contents of task-orientated coping differed between nurses and doctors. “Taking it out on others”, emotion-orientated coping, was observed in common.
- (4) Avoidance of “taking it out on others”, emotion-orientated coping, is considered to be important for the prevention of burnout.

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