Short Report

Survey on Occupational Dysfunction of Rehabilitation Staff in a General Hospital

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Abstract

In this study, we investigated occupational dysfunction among healthcare workers working in a general hospital. We surveyed 82 rehabilitation staff based on the Classification and Assessment of Occupational Dysfunction (CAOD) and estimated the latent rank to evaluate the severity of occupational dysfunction. The results demonstrated that 38 of the 75 participants who responded to the CAOD had a latent rank of 3 or higher, indicating that they had some form of occupational dysfunction. Participants who exhibited a latent rank of three or higher provided feedback to alleviate their occupational dysfunction. Occupational dysfunction has been suggested to be an aggravating factor in job stress. Understanding the occupational dysfunction of healthcare workers and attempting to overcome it is critical for managing their mental health problems.

1. Introduction

In recent years, the number of mental and physical health problems among workers has been increasing. In a survey on the mental health of workers, the percentage of workers who answered that they felt highly stressed in their current work or job life was as high as 58.0%[1]. In addition, the number of industrial accident claims for mental disorders in 2020 was 2,060 and has reportedly been increasing for the last seven years[1]. Therefore, mental health problems among workers in Japan remain at a high level, and addressing this issue entails designing more effective measures.

Occupational dysfunction has recently attracted attention as one of the causes of mental health problems among workers[2-4]. Occupational dysfunction is defined as the inability to perform activities of daily living that are of value to the individual[5].

Akiyama and Kyougoku reported that the prevalence of occupational dysfunction among 744 male and female workers aged 35 years and older in the information and communication equipment manufacturing industry was approximately 36%[2]. Miyake et al. reported that the prevalence of occupational dysfunction among healthcare workers was 75%[3]. These results suggest that even healthy workers suffer from occupational dysfunction. Further, a study on the relationship between occupational dysfunction and job stress among healthcare workers suggested that occupational dysfunction is an aggravating factor of job stress[4]. In other words, occupational dysfunction may precede and exacerbate job stress. Although the concept of occupational dysfunction is not commonly known, it is important to evaluate preventive

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measures against mental health problems among workers.

We conducted a survey on occupational dysfunction among healthcare workers working in a general hospital, based on which, in this study, we focus on occupational dysfunction and discuss the significance of understanding its status among healthcare workers.

2. Methods

2.1 Ethics statement

This study was conducted after obtaining approval from the ethical review of the Kawasaki University of Medical Welfare (No. 20-100) and the ethical review of the participants' institution (No. 2021-002). The institution was selected based on significant sampling, and the study instructions and survey forms were sent to the representatives of the institution. Consent for the study was reflected in the participants' returning the survey form. The survey period was April to May 2021.

2.2 Participants

The participants included rehabilitation department staff working in a general hospital in Okayama Prefecture. The total number of participants was 82, including 36 physical therapists, 35 occupational therapists, and 11 speech therapists.

2.3 Questionnaire

Classification and Assessment of Occupational Dysfunction (CAOD)[6,7] was used as the questionnaire. The CAOD contains 16 items related to r factors: occupational imbalance, occupational deprivation, occupational alienation, and occupational marginalization[6]. Occupational imbalance (4 items) is a state in which the meaning, time, and type of balance regarding occupation are biased[6]. Occupational deprivation (3 items) is a state in which occupation cannot be enabled or engaged suitably because of external factors. Occupational alienation (3 items) is a state in which meaning cannot be felt in occupation[6]. Occupational marginalization (6 items) is a state in which occupation cannot be enabled or engaged appropriately because of the gap between the recognition of individuals and others[6]. The CAOD is scored on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree)[6] and can be used to estimate the latent rank[7]. The severity of the latent rank is based on a scale of 1-5, with latent ranks 1, 2, 3, 4, and 5 representing no problem, appearance of difficulty in daily life, mild occupational dysfunction, moderate occupational dysfunction, and severe occupational dysfunction, respectively[7]. A latent rank of 3 or more indicates that the participant suffered from some form of occupational dysfunction[7].

2.4 Statistical analysis

We investigated the status of occupational dysfunction among participants by estimating the latent rank using the CAOD. Before calculating the latent rank, the following preliminary analyses were conducted:

(1) Verification of the structural validity of the CAOD: To confirm whether the CAOD could be measured appropriately for the subjects of this study.

(2) Confirmation of the unidimensionality of the CAOD: This was confirmed because the estimation of the latent rank requires that the unidimensionality of the scale be maintained.

2.4.1 Calculation of descriptive statistics

The mean and standard deviation of the number of years of experience were calculated. The frequencies and percentages of gender and job categories were calculated. The normality test for CAOD was performed using the Kolmogorov-Smirnov test.

2.4.2 Verification of the structural validity

The factor structure of CAOD was verified using confirmatory factor analysis for ordered categorical data. A robust weighted least squares factoring method with missing data was used as the estimation method[8]. The confirmatory factor analysis model fit was assessed using the comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). The critical values of the CFI and TLI were both greater than .90. Diagnostic values of RMSEA ranging from 0.08 to 0.10 indicate a modest fit, whereas those less than 0.08, reflect a good fit[9].

2.4.3 Confirmation of unidimensionality

The unidimensionality of CAOD was confirmed using the total polyserial correlation coefficient (PCC) and internal consistency. A PCC value > 0.2 is considered the standard for demonstrating item validity[10]. Internal consistency of the CAOD was confirmed by the α and ω coefficients of all the CAOD items, with α and ω coefficients of 0.8 or higher being considered good. The ω coefficient is a method to estimate reliability from factor loading in factor analysis models and has been recommended in recent years[11].

2.4.4 Estimation of the latent rank of the CAOD

To estimate the latent rank of the CAOD, a file containing the item category reference profile of the CAOD (https://mutsumiteraoka.blogspot.com/) was downloaded and used. The estimation setting comprised a stepwise model, the number of latent ranks was set to five, and no prior distribution or monotonically increasing distribution constants were imposed. The rank membership profile shows the probability of belonging to each rank of an individual. The rank with the highest affiliation probability among ranks 1 to 5 is the current potential rank of the individual.

HAD version 17.1 [http://norimune.net/had] was used to calculate descriptive statistics and confirm the internal consistency. Mplus version 7.2 (https://www.statmodel.com) was employed for structural validity, while Eametrika (version 5.5; http://www.rd.dnc.ac.jp/~shojima/exmk/index.htm) was used to calculate PCC and estimate the latent rank of the CAOD.

3. Results

3.1 Characteristics of the participants

Of the 82 participants, 75 responded to the questionnaire (92% response rate). The mean number of years of experience of participants was 7.4 ± 6.0 years, with a maximum of 34 years. The normality of the CAOD was observed. The details of the results are presented in Tables 1 and 2.

Table 1　Characteristics of the participants (n = 75)

	Characteristics	Mean (SD)	Total N	%
Years of experience		7.4 (6.0)		
Gender	Male		28	37.3
	Female		46	61.3
	Third gender		1	1.3
Job category	Physical therapist		33	44.0
	Occupational therapist		32	42.7
	Speech therapist		10	13.3

Table 2　Descriptive statistics of the CAOD

Questionnaire	Factor	Mean (SD)	Skewness	Kurtosis	Normality
CAOD	Occupational imbalance	13.09 (5.27)	-0.13	-0.99	**0.12**
	Occupational deprivation	8.73 (4.33)	0.54	-0.20	**0.12**
	Occupational alienation	8.27 (4.14)	0.47	-1.03	**0.18**
	Occupational marginalization	13.03 (5.27)	0.60	-0.35	**0.10**
	Total score	43.12 (16.24)	-0.05	-1.03	**0.08**

Bold underlines indicate that normality was observed.

3.2 Verification of the structural validity

The CAOD reproduced the existing factor structure. The model fit indices were CFI = 0.982, TLI = 0.978, RMSEA = 0.084.

3.3 Confirmation of unidimensionality

The PCC values were 0.2 or higher for all the items, thereby meeting the criteria. The α and ω coefficients were 0.938 and 0.940, respectively. Thus, the unidimensionality of the CAOD was confirmed.

3.4 Estimation of the latent rank of the CAOD

Figure 1 depicts the frequency of each job category in latent ranks 1 to 5. Thirty-seven participants (49.4%) and thirty-eight participants (50.6%) had latent ranks of 1 or 2, and 3 or more respectively. Table 3 lists the participants' rank membership profiles, which illustrate the establishment of latent rank affiliation. The rank with a higher affiliation probability value is the rank of the participants. ID24 (latent rank 1) and ID37 (latent rank 2), ID55-58 (latent rank 3), and ID65 (latent rank 4) had approximately 40% of the affiliations with a larger rank. In contrast, ID74-75 (latent rank 5) had approximately 40% affiliation with rank 4.
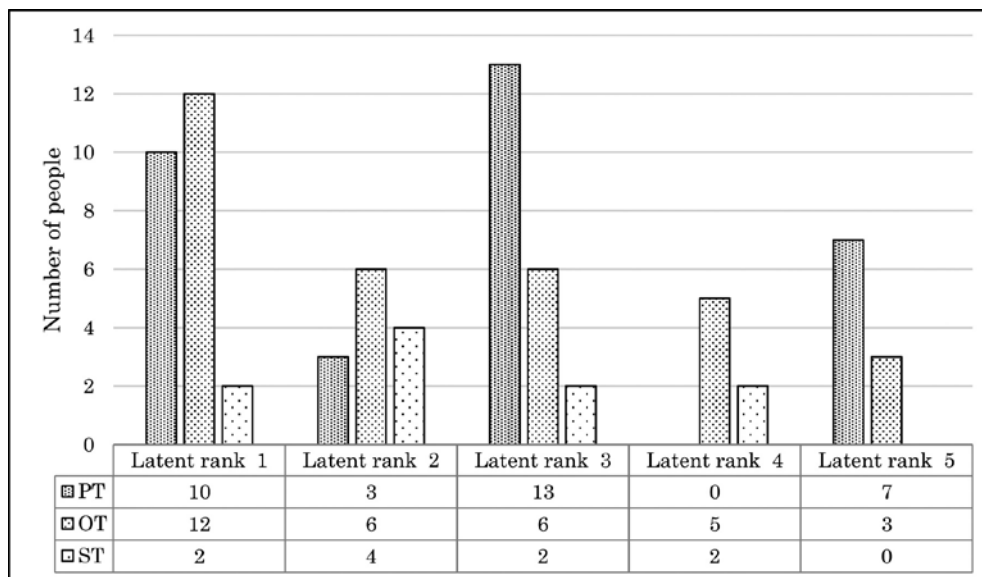

	Latent rank 1	Latent rank 2	Latent rank 3	Latent rank 4	Latent rank 5
PT	10	3	13	0	7
OT	12	6	6	5	3
ST	2	4	2	2	0

Figure 1　Number of people in each latent rank in the job category

4. Discussion

The results of this study demonstrated the usefulness of CAOD and its significance in assessing occupational dysfunction among healthcare workers.

CAOD evaluates whether an individual can appropriately perform important life activities[6]. Calculating the total score of the four factors of the CAOD helped identify the following conditions: (1) time is consumed by specific life activities and important life activities are not performed; (2) important life activities are lost because of external factors; (3) rewarding life activities are not evident; and (4) meaningful life activities are not recognized by others[6]. Therefore, providing advice tailored to each individual's condition based on their factor scores is possible. Although the details are not described in this study, we added advice to the evaluation results obtained and provided feedback to each participant. For example, participant A (physical therapist) had a total score of 51 on the CAOD, with a particularly high factor score for occupational imbalance. The following feedback was provided to A: "It seems that your work-life balance is poor because of your busy work schedule. To cope with this high occupational imbalance, you may want to prioritize your work and consider requesting a colleague for help so that you do not have to complete

Table 3 Estimation of the latent rank of the CAOD

Latent rank	ID	Rank membership profile				
		Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
	1	0.999	0.001	0.000	0.000	0.000
	2	0.999	0.001	0.000	0.000	0.000
	3	0.999	0.001	0.000	0.000	0.000
	4	0.999	0.001	0.000	0.000	0.000
	5	0.998	0.002	0.000	0.000	0.000
	6	0.998	0.002	0.000	0.000	0.000
	7	0.998	0.002	0.000	0.000	0.000
	8	0.998	0.002	0.000	0.000	0.000
	9	0.998	0.002	0.000	0.000	0.000
1	10	0.997	0.003	0.000	0.000	0.000
	11	0.994	0.006	0.000	0.000	0.000
	12	0.975	0.025	0.000	0.000	0.000
	13	0.974	0.026	0.000	0.000	0.000
	14	0.972	0.028	0.000	0.000	0.000
	15	0.951	0.049	0.000	0.000	0.000
	16	0.936	0.064	0.000	0.000	0.000
	17	0.933	0.067	0.000	0.000	0.000
	18	0.896	0.104	0.000	0.000	0.000
	19	0.883	0.116	0.000	0.000	0.000

Latent rank	ID	Rank membership profile				
		Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
	38	0.000	0.055	0.923	0.021	0.000
	39	0.000	0.039	0.917	0.044	0.000
	40	0.001	0.089	0.870	0.040	0.000
	41	0.001	0.070	0.857	0.072	0.000
	42	0.001	0.099	0.840	0.059	0.000
	43	0.001	0.078	0.828	0.093	0.001
	44	0.000	0.046	0.825	0.127	0.001
	45	0.004	0.244	0.738	0.015	0.000
	46	0.005	0.224	0.707	0.063	0.001
3	47	0.000	0.005	0.667	0.323	0.004
	48	0.008	0.324	0.663	0.005	0.000
	49	0.000	0.009	0.650	0.331	0.010
	50	0.010	0.340	0.644	0.006	0.000
	51	0.012	0.333	0.636	0.018	0.000
	52	0.010	0.292	0.633	0.065	0.001
	53	0.008	0.353	0.627	0.013	0.000
	54	0.016	0.394	0.585	0.004	0.000
	55	0.001	0.046	0.519	0.412	0.022
	56	0.000	0.007	0.517	0.449	0.027

ID	Rank					
20		0.855	0.144	0.000	0.000	0.000
21		0.789	0.209	0.001	0.000	0.000
22		0.681	0.316	0.003	0.000	0.000
23		0.636	0.361	0.003	0.000	0.000
24		0.511	0.484	0.005	0.000	0.000
25		0.082	0.756	0.162	0.000	0.000
26		0.210	0.748	0.043	0.000	0.000
27		0.127	0.723	0.150	0.000	0.000
28		0.234	0.688	0.077	0.000	0.000
29		0.172	0.688	0.140	0.000	0.000
30		0.253	0.687	0.059	0.000	0.000
31	2	0.227	0.667	0.105	0.001	0.000
32		0.275	0.660	0.065	0.000	0.000
33		0.344	0.640	0.016	0.000	0.000
34		0.334	0.627	0.039	0.000	0.000
35		0.324	0.626	0.049	0.000	0.000
36		0.055	0.609	0.309	0.026	0.001
37		0.035	0.522	0.436	0.006	0.000

ID	Rank					
57		0.000	0.001	0.513	0.475	0.011
58		0.000	0.010	0.498	0.464	0.028
59		0.000	0.000	0.123	0.780	0.097
60		0.000	0.001	0.267	0.660	0.072
61		0.000	0.000	0.041	0.619	0.340
62	4	0.000	0.001	0.133	0.614	0.252
63		0.000	0.006	0.333	0.574	0.088
64		0.000	0.000	0.075	0.546	0.379
65		0.000	0.000	0.022	0.528	0.451
66		0.000	0.000	0.000	0.069	0.930
67		0.000	0.000	0.000	0.075	0.924
68		0.000	0.000	0.001	0.090	0.909
69		0.000	0.000	0.001	0.113	0.886
70	5	0.000	0.000	0.002	0.177	0.821
71		0.000	0.000	0.008	0.270	0.722
72		0.000	0.000	0.005	0.282	0.714
73		0.000	0.000	0.005	0.304	0.690
74		0.000	0.000	0.019	0.412	0.569
75		0.000	0.000	0.011	0.441	0.547

This table presents the latent ranks of all participants (n = 75). The rank membership profile indicates the affiliation probability, and the rank with the highest affiliation probability is the latent rank of the individual.

the work alone." Thus, CAOD can be used to screen for individual occupational dysfunction. In addition, the CAOD results can be used to estimate latent rank. The participants' rank membership profile revealed that several people had a high affiliation probability of a latent rank one notch higher than that estimated. This result indicates that the affiliation probability to a one-notch higher latent rank will increase as long as the participants' current status continues. Thus, the rank membership profile enables the determination of the degree of need for treatment of occupational dysfunction, thereby preventing the severity of occupational dysfunction.

Finally, the significance of assessing occupational dysfunction among healthcare workers was discussed. Studies on mental health problems among healthcare workers have indicated that occupational dysfunction is one of the factors that aggravate job stress[4]. The current study suggests that participants with a latent rank of three or more may experience job stress as well as occupational dysfunction. Worsening job stress among healthcare workers is associated with higher incidences of burnout and depression, suggesting the need to adopt suitable measures against occupational dysfunction related to job stress.

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