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Abstract

Stress Related Factors of Physically Disabled Workers in Manufacturing Industry

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Objectives: This study was performed to measure the stress level of physically disabled workers, and to investigate the relationship between the stress dimensions and stress inducing factors of physically disabled workers in the Korean manufacturing industry.

Methods: The sample used in this study consisted of 341 physically disabled workers who had been working at companies in Seoul, Incheon, and Gyung-gi provinces. The Psycho-social Well-being Index (PWI), a modified version of Goldberg's 60-items of General Health Questionnaire (GHS), was used to measure the stress level. The following independent and moderate variables were designed for the same purpose. The independent variables were general and disability characteristics, workplace-related characteristics, and job stressor of the respondents. The other variables included organization-related stressors (social and family support) and person related stressors (needs and values, type A behavior pattern, locus of control and demographics), self-esteem and coping strategy. The collected data were analyzed using SAS version 6.12 program.

Results: Multiple logistic regression analysis showed that the significant variables on the stress level of physically disabled workers were poor self-perceived health status, low self-esteem, absence of regular exercise, physically disabled condition affecting work performance capability, dependent mobility at home, interpersonal conflict, role conflict and A type behavior pattern.

Conclusions: The results of this study suggest that appropriate health promotion program should be established and provided for reducing the stress of physically disabled workers in the manufacturing industry. In addition, various vocational programs for decreasing interpersonal and role conflicts should be developed.

Key Words: Stress, Physically disabled workers, Job stress

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 (McGrath, 1976). 가

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(McCandless, 1970).

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(adjusted odds ratio)

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가 Goldberg

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(Psychosocial 1.

Well-being Index : PWI)

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Table 1

45 가 56.6%, 가 43.4%

40 78.5%, 40

21.5% 66.8%

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Likert 4

67.2%,

(0-1-2-3)

가 52.%

PWI

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가

가

가 75.9%

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가 22

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11.7%

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Table 2

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가 가 25.2% ,
가 74.8% , (1~3) 85.9%

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Holmes Rahe(1967)

21.8% ,

가 42.6% .

가 91.7% ,

가

5.3%,

가 34%,

5.

가 22.9%,

가 5.6%,

PC/SAS 6.12 (SAS Institute

30.8%가

Inc, 1999)

가 28.8%

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Table 3 가

60.7%, , 가 39.3%

63.3%, 3

가 53.6%, 50

53.9%

(Multiple logistic regression analysis)

가 93.0% 50

가 47.2% , 80.3% . 가 40.5% , 91.2% , 가 59.2% , 75.6% . 80.6% .

Table 1. General characteristics of the physically disabled workers

Characteristics	Categories	N (%)	Characteristics	Categories	N(%)
Gender	male	193 (56.6)	Health status	good	259 (75.9)
	female	148 (43.4)		poor	82 (24.1)
Age	<40	268 (78.5)	Concern for health	yes	307 (90.0)
	40	73 (21.5)		no	157 (10.0)
Marital status	unmarried	228 (66.8)	Regular exercise	yes	40 (11.7)
	married	113 (33.2)		no	301 (88.3)
Education(year)	12	229 (67.2)	Smoking	no	253 (74.1)
	<12	112 (32.8)		yes	87 (25.9)
Residency	small city	164 (48.0)	Alcohol	no	156 (45.7)
	large city	177 (52.0)		yes	185 (54.2)
Family(person)	>3	189 (55.4)	Eating habit	regular	235 (68.9)
	3	152 (44.6)		irregular	106 (31.1)
Financial statue	rich	222 (65.1)	Health exam	yes	168 (49.2)
	poor	119 (34.9)		no	173 (50.8)

Table 2. Disability characteristics of the physically disabled workers

Variables	Categories	N(%)	Variables	Categories	N(%)
Cause of disability	congenital	86(25.2)	Shower/bathing	independent	307(90.0)
	acquired	255(74.8)		dependent	34(10.0)
Level of disability	mild (4~6)	48(14.1)	Shopping	independent	263(77.1)
	severe (1~3)	293(85.9)		dependent	78(22.9)
Inability in job	yes	74(21.8)	Mobility at work	independent	322(94.4)
	no	267(78.2)		dependent	19(5.6)
Need for assist equipment	yes	145(42.6)	Mobility at home	independent	319(93.5)
	no	196(57.4)		dependent	22(6.5)
License	yes	102(29.9)	Public transportation	independent	236(69.2)
	no	239(70.1)		dependent	105(30.8)
Acceptance of disability	yes	313(91.7)	Need medical assistance	yes	98(28.8)
	no	28(8.3)		no	243(71.2)
Toileting	independent	323(94.7)			
	dependent	18(5.3)			

2. Table 5
 가
 가 1.73
 Table 4
 63
 2.38
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 3.70
 232 (70.3%),
 109 (29.7%)
 44.73±12.17
 74.89±10.73
 PWI 54.34±18.31
 2.41
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 가 63
 Table 6
 , 63
 가 4.22
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Table 3. Work-related characteristics of the physically disabled workers

Variables	Categories	N(%)	Variables	Categories	N(%)
Finding employment	instrument	207(60.7)	Condition of employ	full time	274(80.3)
	self	134(39.3)		part time	67(19.7)
Changing job	no	126(63.3)	Living quarter	home	203(59.5)
	yes	215(36.7)		dormitory	138(40.5)
Employment period(year)	3	183(53.6)	Job satisfaction	yes	202(59.2)
	> 3	158(46.4)		no	139(40.8)
Size of the company(person)	>50	184(53.9)	Assistive device	yes	275(80.6)
	50	157(46.1)		no	66(19.4)
Position	management	26(7.0)	Treatment time	yes	311(91.2)
	blue collar	315(93.0)		no	30(8.8)
Salary(₩)	500,000	161(47.2)	Environmental satisfaction	yes	258(75.6)
	>500,000	180(52.8)		no	83(24.2)

Table 4. Means and standard deviation of Psychosocial Well-being Index (PWI) score

PWI score	N (%)	Mean	Std Dev
< 63	232 (70.3)	44.73	12.17
63	109 (29.7)	74.89	10.73
Total	341 (100.0)	54.34	18.31

1.76 , 가 3.60 , /
 3.15 3.05 ,
 가 1.78 . 가
 가 1.63 .

Table 5. Odds ratio of Psychosocial Well-Being Index(PWI) by general characteristics of physically disabled workers

Variables	Categories	N	OR (95% CI)
Gender	male	193	1.00
	female	148	1.44 (0.91-2.27)
Age (year)	< 40	268	1.00
	40	73	1.14 (0.65-1.97)
Marital status	unmarried	228	1.00
	married	113	1.42 (0.88-2.28)
Education (year)	12	229	1.00
	<12	112	1.73 (1.07-2.78)
Residency	middle/small city	164	1.00
	large city	177	1.41(0.89-2.24)
Religion	yes	237	1.00
	no	104	0.92(0.56-1.51)
Family	yes	152	1.00
	no	189	0.87(0.55-1.38)
Financial status	rich	222	1.00
	poor	119	2.38(1.48-3.81)
Health status	good	259	1.00
	poor	82	3.70(2.20-6.22)
Concern for health	yes	307	1.00
	no	34	0.74(0.33-1.65)
Regular exercise	yes	40	1.00
	no	301	2.41(1.03-5.65)
Smoking**	yes	86	1.00
	no	255	1.63(0.87-3.06)
Alcohol**	yes	185	1.00
	no	156	0.76(0.45-1.26)
Eating habit	regular	235	1.00
	irregular	106	1.37(0.84-2.22)
Health exam	yes	168	1.00
	no	173	1.09(0.69-1.72)

stress level divided into two groups

(low stress group : below 63 of PWI score. high stress group : above 63 of PWI score.)

** : adjusted by gender and age

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가 2.07

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Table 7
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3.34 , 가

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Table 6. Odds ratio of Psychosocial Well-being Index(PWI) by disability characteristics of physically disabled workers

Variables	Categories	N	OR (95% CI)
Cause of disability	congenital	86	1.00
	acquired	255	1.13(0.72-1.83)
Level of disability	mild (4-6)	48	1.00
	severe(1-3)	293	1.69(0.83-3.44)
Inability in job	no	267	1.00
	yes	74	4.22(2.46-7.24)
Need for assist equipment	no	207	1.00
	yes	134	1.76(1.11-2.80)
License	yes	102	1.00
	no	239	1.26(0.76-2.10)
Acceptance of disability	yes	313	1.00
	no	28	3.15(1.43-6.92)
Toileting	independent	323	1.00
	dependent	18	3.60(1.35-9.58)
Shower/bathing	independent	307	1.00
	dependent	34	3.05(1.48-6.27)
Cleaning the room	independent	309	1.00
	dependent	32	2.01(0.96-4.21)
Shopping	independent	263	1.00
	dependent	78	1.35(0.79-2.29)
Mobility at workplace	independent	322	1.00
	dependent	19	2.50(0.98-6.35)
Mobility at home	independent	319	1.00
	dependent	22	2.25(0.94-5.37)
Public transportation	independent	236	1.00
	dependent	105	1.78(1.10-2.89)
Need medical assistance	no	243	1.00
	yes	98	1.63(1.00-2.66)

stress level divided into two groups

(low stress group: below 63 of PWI score. high stress group: above 63 of PWI score.)

가 3.14 , 6)
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Table 7. Odds ratio of Psychosocial Well-being Index(PWI) by work-related characteristics of physically disabled workers

Variables	Categories	N	OR (95% CI)
Finding employment	instrument	207	1.00
	self	134	1.00(0.63-1.61)
Changing jobs	no	126	1.00
	yes	215	0.95(0.55-1.53)
Employment period (year)	3	183	1.00
	> 3	158	1.67(1.05-2.64)
Size of the company (person)	>50	180	1.00
	50	161	1.10(0.69-1.74)
Position	white collar	26	1.00
	blue collar	315	1.06(0.44-2.52)
Salary (₩)	500,000	184	1.00
	>500,000	157	1.10(0.69-1.74)
Condition of employ	full time	274	1.00
	part time	67	2.00(1.15-3.46)
Living quarter	home	203	1.00
	dormitory	138	1.11(0.69-1.76)
Job satisfaction	yes	202	1.00
	no	139	3.34(2.08-5.36)
Assistive device	yes	275	1.00
	no	66	1.62(0.93-2.83)
Treatment time	yes	311	1.00
	no	30	1.98(0.93-4.24)
Environmental satisfaction	yes	258	1.00
	no	83	2.07(1.24-3.46)

stress level divided into two groups
 (low stress group: below 63 of PWI score. high stress group : above 63 of PWI score.)

Table 8. Odds ratio of Psychosocial Well-being Index(PWI) by job stressor factors of physically disabled workers

Variables	Factors	Categories	N	OR (95% CI)
Physical environment related stressor		low	286	1.00
		high	55	3.14 (1.74-5.67)
Organization related stressor	supervisor	low	291	1.00
		high	50	3.30 (1.82-5.97)
	interpersonal relationship	low	323	1.00
		high	18	12.18 (3.44-43.05)
	shift work ⁺	low	319	1.00
		high	22	4.12 (1.77-9.60)
Job related stressors	boundary-spanning conflict ⁺	low	327	1.00
		high	14	14.2 (3.12-64.76)
	role ambiguity	low	310	1.00
		high	31	7.48 (3.22-17.38)
	role conflict	low	317	1.00
		high	24	2.80 (4.25-38.52)
role overload	low	324	1.00	
	high	17	4.22 (1.52-11.75)	

stress level divided into two groups

(low stress group : below 63 of PWI score. high stress group : above 63 of PWI score.)

⁺ : chi-square may not be a valid test

Table 9. Odds ratio of Psychosocial Well-being Index(PWI) by moderate variable factors of physically disabled workers

Variables	Factors	categories	N	OR (95% CI)
Extra organization related stressor	family ⁺	low	333	1.00
		high	8	3.67(0.86 -15.64)
	social support	low	203	1.00
		high	138	1.38(0.87 - 2.19)
Person related stressors	type A behavior pattern	low	307	1.00
		high	34	8.77(3.81 -20.14)
	needs and values	low	255	1.00
		high	86	0.89(0.52 - 1.52)
Locus of control	and demography ⁺	low	327	1.00
		high	14	8.56(2.33 -31.38)
Self-esteem		high	183	1.00
		low	158	3.96(2.43 - 6.43)
Coping strategies	avoid	low	203	1.00
		high	138	0.99(0.62 - 1.58)
	control	low	211	1.00
		high	130	2.25(1.41 - 3.59)

stress level divided into two groups

(low stress group : below 63 of PWI score. high stress group : above 63 of PWI score.)

⁺ : chi-square may not be a valid test

Table 10. PWI score on stress level for the selected variables of physically disabled workers

Variables	Parameter Estimate	Standard Error	Wald Chi-Square	Pr> Chi-Square	Standardized Estimate	Adjusted OR (95%CI)
Health status(poor)	1.935	0.695	7.752	0.005	0.371	6.92(1.77~27.05)
Regular ex.(do not)	1.132	0.567	3.980	0.046	0.201	3.10(1.02~9.44)
Inability in job(yes)	1.102	0.241	20.794	0.000	0.408	3.01(1.87~ 4.83)
Mobility at home (dependent)	1.129	0.540	4.367	0.036	0.153	3.09(1.07~8.92)
Self-esteem (low) Interpersonal	1.509	0.299	25.454	0.000	0.415	4.52(2.51~ 8.12)
relationship (high)	1.596	0.574	7.722	0.005	0.233	4.93(1.60~15.22)
Role conflict (high)	1.490	0.401	13.764	0.000	0.293	4.43(2.02~9.74)
Type of A behavior pattern	1.065	0.352	9.160	0.002	0.233	2.90(1.45~5.78)

stress level divided into two groups

(low stress group : below 63 of PWI score. high stress group: above 63 of PWI score.)

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