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Physical and mental health status of staff working for people with intellectual disabilities in Taiwan: Measurement with the 36-Item Short-Form (SF-36) health survey

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ABSTRACT

Little explicit attention has been given to the generic health profile of staff working for people with intellectual disability in institutions. This study aimed to provide a profile of physical and mental health of staff working in disability welfare institutions, and to examine the possible demographic and organizational factors that explain an association with their health. A cross-sectional questionnaire survey was conducted to analyze 1243 staff (76% response rate) working in 24 institutions in Taiwan. The 36-Item Short-Form (SF-36) Taiwan version was used to measure their generic health status. The mean of Physical component scores (PCS) was slightly higher than Mental component scores (MCS) (50.83 vs. 45.12). With regard to each dimension among PCS, the mean score of Physical functioning (PF) was 57.14 (S.D. = 5.93), Role limitations-physical (RP) was 49.88 (S.D. = 9.69), Bodily pain (BP) was 52.14 (S.D. = 8.09) and General medical health (GH) was 51.50 (S.D. = 8.28). Among the

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MCS, Vitality (VT) was 46.19 (S.D. = 6.71); Social functioning (SF) was 46.44 (S.D. = 7.58); Role limitations-emotional (RE) was 47.30 (S.D. = 11.89) and Mental health (MH) was 43.58 (S.D. = 8.81). We found the generic health of staff working for people with intellectual disabilities were significantly lower in PCS and MCS than the Taiwan general population. Influences of staff's demographic and organizational characteristics on their health were also analyzed in the content.

This study highlights the authorities and service providers need to continue to develop their awareness and understanding of the experiences that their staff encounters in the organizations, so that they can receive resources to support their positive health in working for people with intellectual disabilities.

1. Introduction

Many studies have focused on the state of health and quality of life of family caregivers who look after people with disabilities (Brown, Anand, Fung, Isaacs, & Baum, 2003; Dyson, 1997; Jokinen & Brown, 2005; Schalock et al., 2002; Schulz, 2000; Schulz & Beach, 1999; Schulz, O'Brien, Bookwala, & Fleissner, 1995; Summers et al., 2005). People with disabilities are more prone than the general population to particular health problems (Lin et al., 2007, 2006; Loh et al., 2007), their caregivers experienced a high prevalence of depression, burden and psychological distress (Olsson & Hwang, 2001). These stressors are directly related to health status, presence of behavioral and memory problems of the disabled people they cared for (Pearlin, Mullan, Semole, & Skaff, 1990; Schofield, Murpphy, Herrman, & Sing, 1997; Schulz, 2000; Schulz et al., 1995; Seoud et al., 2007). Browne and Bramston (1998) found that families with a member with a disability reported significantly greater stress and as the stress increased the quality of life decreases.

Besides the informal caregivers in the families, institutional staffs are among the most important assets in the provision of services and account for the large expenditure to people with intellectual disabilities (Jenkins, Rose, & Lovell, 1997; Rice & Rosen, 1991). The literature on staffing issues and staff stress in particular is growing rapidly, probably because this is considered to be an important variable in determining staff performance (Rose, 1999). Much of these literatures to date have concentrated on examining the elements which can contribute to or ameliorate stress (Corrigan, 1993; Hastings, 2002; Rose, 1993; Rose, Jones, & Fletcher, 1998; Stenfert-Kroese & Fleming, 1992), such as challenging behavior of people with intellectual disabilities as a significant source of work-related stress of staff working in intellectual disability services (Hastings, 2002; Mitchell & Hastings, 2001). Consequently, staff stress has been found to be associated with intended turnover and absenteeism from the service organization (Hatton & Emerson, 1993; Rose, 1995; Razza, 1993) and has serious implications for staff well-being, for their clients and for services (Rose, 1995; Hastings, 2002).

Little explicit attention has been given to the generic health profile of staff working for people with intellectual disability in institutions. Staff in institution supports and services for people with intellectual disabilities should be targeted with respect to ameliorating their negative and strengthening their positive health status. Therefore, the aims of the present study was to provide a profile of physical and mental health of staff working in disability welfare institutions, and to examine the possible demographic and organizational factors that may explain an association with their health.

2. Method

This study employed a cross-sectional questionnaire survey "2006 National Survey on Health Status and Working Stress among Institutional Staff Working for People with Intellectual Disabilities in Taiwan". The studies entire population was composed of 7466 staff who was working in all 244

registered intellectual disability institutions at the end of year 2005 in Taiwan (Ministry of the Interior, 2006). Participants were stratified by geographic area and selected systematically according to the proportion of the institutions in each area for the study. We mailed the consent letter to the institutions for the survey. The details of our sampling procedure are presented elsewhere (Lin et al., in press).

The survey materials included an invitational letter, the 36-Item Short-Form (SF-36) and a demographic and institutional characteristic questionnaire. Originally, the SF-36 is a short form measure of generic health status in the general population and it is designed for self-administration. From the 36 items, eight health profiles are derived from summarized scores. Four health profiles cover Physical component scores (PCS), including Physical functioning (PF), Role limitations-physical (RP), Bodily pain (BP) and General medical health (GH). The other four profiles are Mental component scores (MCS), and include Vitality (VT), Social functioning (SF), Role limitations-emotional (RE), and Mental health (MH). All dimensions are independent of each other. Scores for all dimensions are expressed on a scale 0–100, where higher scores indicate better health and well-being (Ware, 1993). It has been translated into the Chinese language in Taiwan and the norms of the SF-36 Taiwan version which can serve as a valuable reference for future comparisons (Tseng, Lu, & Tsai, 2003). The authors have received the approval from professor Jui-Fen R. Lu, Department of Health Care Management, Chang Gung University, to use the SF-36 Taiwan version in this study.

Data were collected by a questionnaire that was completed through the mail by the institutional staff from 1 December 2005 to 28 February 2006. A total of 1629 protocols were distributed to staff among 24 institutions in Taiwan, 1243 valid questionnaires were returned, with a response rate of 76%. The data were entered into a database and analyzed using SPSS 11.0 software.

3. Results

3.1. Respondent characteristics

The characteristics of the staff in the sample, more female than male (81.1% vs. 18.9%) and their average age was 38.61 years. They worked 45 h per week and averaged 6.5 years of work experience in the institution. Most of the respondents were first-line staff, and nearly 60% finished college or university education. Thirty-four and eight tens percent of the staff were unmarried. In the previous employment experience, more than 80% of the respondents reported that the present job was his/her first job in their working career. In term of the in-job training, 78.6% felt it was adequately, 15.7% felt it was inadequate and 5.7% did not have in-job training (Lin et al., in press).

3.2. Distribution of physical and mental component scores

We used mean, minimum/maximum values and standard deviations to describe the general health status of staff working for people with intellectual disabilities. The mean scores of the PCS, MCS and each dimension are presented in Table 1. The mean of PCS was slightly higher than MCS (50.83 vs. 45.12). With regard to each dimension among PCS, the mean score of PF was 57.14 (S.D. = 5.93), RP was 49.88 (S.D. = 9.69), BP was 52.14 (S.D. = 8.09) and GH 51.50 (S.D. = 8.28). Among the MCS, VT was 46.19 (S.D. = 6.71); SF was 46.44 (S.D. = 7.58); RE was 47.30 (S.D. = 11.89) and MH was 43.58 (S.D. = 8.81).

Tables 2 and 3 showed the gender difference in physical and mental component scores. Men were statistical higher in PCS mean score than women ($P = 0.001$). However, the MCS mean score was not significantly different by gender.

3.3. Influence of staff's characteristics on their health

A one-way ANOVA and *t*-test were used to compare the means separately for each characteristic. In-job training experience and gender of the staff were found to affect the PCS, while education, marital status, religious status and in-job training experience characteristics were found to affect the MCS statistical significantly (Tables 4 and 5). In a further analysis of the relationship of staff

Table 1
The health profile of the respondents in SF-36

Component	*N*	Min.	Max.	Mean	S.D.
PCS	1222	19.21	62.18	50.83	7.67
PF	1240	17.29	57.14	52.71	5.93
RP	1231	27.95	56.24	49.88	9.69
BP	1240	19.93	62.75	52.14	8.09
GH	1238	25.39	70.35	51.50	8.28
MCS	1224	7.98	65.86	45.12	10.73
VT	1231	26.54	61.66	46.19	6.71
SF	1236	19.14	57.14	46.44	7.58
RE	1232	23.74	55.34	47.30	11.89
MH	1239	11.82	64.07	43.58	8.81

Notes: Physical component scores (PCS); Physical functioning (PF); Role limitations-physical (RP); Bodily pain (BP); General medical health (GH); Mental component scores (MCS); Vitality (VT); Social functioning (SF); Role limitations-emotional (RE); Mental health (MH).

demographic characteristics and PCS/MCS in Scheffe's post test, the results showed that that those staff expressed with no or adequately in-job training were more likely to report higher scores in PCS/MCS than those people who felt inadequately in-job training. Male staff has higher scores on the PCS than females. The relationship between education and MCS, showed that the higher educational level the lower in MCS score. Married staff reported lower MCS scores than others. Staff who indicated they were Buddhists reported higher MCS scores than those who indicated no specific religion.

3.4. Relation between institutional characteristic and staff's health

Institutional characteristics were used to analyze their relation to the staff's health. We found the factor of institutional ownership effected the PCS ($P = 0.001$). Staff working in private institutions have higher PCS scores than staff in private institutions, while staff working in a medium or small size of institution tended to report better PCS than persons working in a large institution ($P = 0.002$). With regard to the past performance record of the institution, superior institutions performance did not effect PCS ratings (Table 6).

Table 2
The health profile of the respondents in SF-36 by gender

Gender	Component	*N*	Min.	Max.	Mean	S.D.
Male	PCS	232	23.96	61.01	52.39	7.41
	PF	234	31.97	57.14	53.81	5.24
	RP	232	27.95	56.24	50.66	9.63
	BP	234	29.35	62.75	54.13	8.04
	GH	234	31.23	59.32	46.37	6.27
	MCS	232	9.29	63.65	45.96	10.46
	VT	234	30.12	70.35	52.25	8.38
	SF	234	19.14	57.14	47.51	7.60
	RE	232	23.74	55.34	47.71	11.73
	MH	234	14.09	64.07	43.72	9.09
Female	PCS	986	19.21	62.18	50.48	7.69
	PF	1001	17.29	57.14	52.45	6.06
	RP	995	27.95	56.24	49.68	9.70
	BP	1001	19.93	62.75	51.71	8.01
	GH	992	26.54	61.66	46.20	6.79
	MCS	987	7.98	65.86	44.95	10.76
	VT	999	25.39	70.35	51.33	8.22
	SF	997	19.14	57.14	46.19	7.56
	RE	995	23.74	55.34	47.21	11.93
	MH	1000	11.82	64.07	43.58	8.71

Table 3
The relationship between generic health and the gender ($N = 1243$)

Component	N	Mean	S.D.	t-test	P value
PCS				3.418	0.001
Male	232	52.39	7.41		
Female	986	50.48	7.69		
MCS				1.287	0.198
Male	232	45.96	10.46		
Female	987	44.95	10.76		

Table 4
Relationship of staff demographic characteristics and the PCS ($N = 1243$)

Characteristic	N	Means	S.D.	Statistics	P value	Scheffe's post test
Job category				1.913(F)	0.148	
1. Administration	148	51.42	7.37			
2. First-line carers	872	50.50	7.79			
3. Other	167	51.54	7.49			
Education				0.363(F)	0.696	
1. Junior high and below	141	51.03	7.26			
2. Senior high school	346	51.12	7.43			
3. College and up	724	50.72	7.81			
Marital status				2.547(F)	0.079	
1. Married	423	50.16	7.83			
2. Unmarried	692	51.16	7.55			
3. Other	91	51.40	7.68			
Religious status				1.507(F)	0.198	
1. Buddhism	374	50.91	7.80			
2. Dao	237	51.31	7.54			
3. Christian/Catholic	152	49.48	7.61			
4. No specific	367	50.80	7.61			
5. Other	55	51.44	7.73			
Employment experience				1.383(F)	0.251	
1. No, first job	987	987	50.92			
2. Yes, same field	146	146	50.00			
3. No, different field	74	74	51.70			
In-job training				6.119(F)	0.002	1 > 3
1. No	68	53.00	6.05			2 > 3
2. Yes, adequate	938	50.97	7.64			
3. Yes, inadequate	189	49.42	8.16			
Gender				3.418(t)	0.001	
Male	232	52.39	7.41			
Female	986	50.48	7.69			

Notes: F (ANOVA test); t (t-test).

The institutional characteristics' impact on the MCS showed in Table 7, those factors of ownership (private higher than public) and accreditation record (good or below higher than superior) of the institution had a significant effect on MCS ($P < 0.001$). The work setting also played a key role on MCS. Staff working in northern Taiwan reported higher MCS scores than their southern or eastern counterparts ($P = 0.017$).

4. Discussion

This study was the first paper to examine generic health status of staff working in disability welfare institutions in Taiwan. With regard to health status measurement of the staff working for people with

Table 5
Relationship of staff demographic characteristics and MCS ($N = 1243$)

Variable	N	Means	S.D.	Statistics*	P value	Scheffe's post test
Job category				4.186(F)	0.027	
1. Administration	147	46.69	9.90			
2. First-line carers	872	44.47	10.99			
3. Other	168	46.35	10.15			
Education				21.335(F)	<0.001	1 > 3
1. Junior high and below	142	48.97	9.46			
2. Senior high school	348	46.84	10.11			
3. College and up	721	43.62	10.97			
Marital status				33.649(F)	<0.001	2,3 > 1
1. Married	425	41.90	11.11			
2. Unmarried	688	46.57	10.19			
3. Other	93	49.17	9.51			
Religious status				4.128(F)	0.003	1 > 4
1. Buddhism	370	46.06	10.54			
2. Dao	241	45.67	10.65			
3. Christian/Catholic	154	46.35	11.22			
4. No specific	365	43.28	10.48			
5. Other	55	45.45	11.13			
Employment experience				0.035(F)	0.965	
1. No, first job	988	45.14	10.82			
2. Yes, same field	146	45.31	10.53			
3. No, different field	73	44.90	10.59			
In-job training				10.238 (F)	<0.001	1 > 3
1. No	69	46.77	9.50			2 > 3
2. Yes, adequate	938	45.61	10.53			
3. Yes, inadequate	188	41.91	11.92			
Gender				1.287(t)	0.198	
Male	232	45.96	10.46			
Female	987	44.95	10.76			

* Statistics: F (ANOVA test); t (t-test).

intellectual disabilities, we used the SF-36 Health Survey to examine their health profile. Comparing the Taiwan national norms of SF-36 (Lin, 2003), we found the generic health of staff working for people with intellectual disabilities was significantly lower in PCS and MCS than the general population ($P < 0.001$) (Table 8). It was of not that these results were different from the US national norms of aged 55–64 years (Ware, Kosinski, & Keller, 1994). Our PCS mean scores were higher than the US mean data (45.0 ± 11.6) and our MCS mean scores were lower than Ware et al. (50.6 ± 10.2l). The possible reason might be age related. Our sample tended to be younger than their US counterparts.

Within the components of SF-36 in the study, most dimensions such as BP ($P < 0.001$), GH ($P < 0.001$), VT ($P = 0.07$), SF ($P < 0.001$) and MH ($P < 0.001$) were significant lower than the scores in Taiwan general population. The dimensions of RP and RE were not statistical different from the general population. However, there was only one dimension - RF in the study sample illustrated significantly higher than Taiwan general population ($P < 0.001$). Generic health status of staff working in disability institutions therefore appears to be threatened in. The health and social welfare authorities should consider initiating appropriate individual or corporate health promotion strategies to improve positive health for this group of people. With regard to the influence of personal characteristics on staffs' health, gender significantly effected PCS. Our findings replicate Chen, Ryan-Henry, Heller, and Chen (2001), who found that personal factors such as marital status and education did not significantly influence caregiver's health.

In-job training was correlated with PCS and MCS, particular for those who felt inadequate. These individuals were inclining to express poor health in physical or mental health mean scores. Thus, further investigations of appropriate in-job training in institutions are needed.

Table 6
Relationship of institutional characteristics and PCS of the staff ($N = 1243$)

Characteristic	N	Means	S.D.	Statistics	P value	Scheffe's post test
Setting location				2.400 (F)	0.091	
1. North	377	51.17	7.08			
2. Central	441	51.17	7.82			
3. South and East	404	50.15	7.99			
Ownership				−3.212(t)	0.001	
1. Public	509	49.98	8.36			
2. Private	713	51.44	7.07			
Accreditation				−3.137(t)	0.002	
1. Superior	427	49.82	8.26			
2. Good and below	735	51.32	7.23			
Setting size[a]				−2.399(t)	0. 017	
1. Large	1056	50.66	7.86			
2. Medium/Small	166	51.95	6.19			

[a] Setting size presents the numbers of persons with ID in institution; large: ≧100 persons, medium: 50–99 persons, small: <50 persons.

Table 7
Relationship of institutional characteristics and MCS of the staff ($N = 1243$)

Characteristic	N	Means	S.D.	Statistics	P value	Scheffe's post test
Setting location				4.096(F)	0.017	
1. North	377	46.36	10.62			1 > 3
2. Central	442	44.91	10.59			
3. South and East	405	44.20	10.92			
Ownership				−4.083(t)	<0.001	
1. Public	509	43.62	11.26			
2. Private	715	46.19	10.22			
Accreditation				−4.492(t)	0.264	
1. Superior	426	43.15	11.20			
2. Good and less	737	46.12	10.24			
Setting size[a]				−1.117(t)	<0.001	
1. Large	1057	44.99	10.89			
2. Medium/Small	167	45.98	9.69			

[a] Setting size presents the numbers of persons with ID in institution; large: ≧100 persons, medium: 50–99 persons, small: <50 persons.

Other organizational characteristics such as ownership, setting location, accreditation performance and size played vital influences on staff's health. This factor has not previously been assessed. However, many studies have described institutional characteristics and were a moderating factor for staff health. The general organization of work and an individual's position within the hierarchy effect staff's stress (Allen, Pahl, & Quine, 1991; Elliott & Rose, 1997).

Hatton et al. (1999) found that around one-third of staff working in adult services experience stress at levels indicative of the presence of a mental health problem. The staff working in institutions often felt more anxious with the challenges behaviors of people with intellectual disabilities. Staff also reported feeling significantly less support and lower job satisfaction (Jenkins et al., 1997). The factor most often rated by staff as a significant source of stress was the challenging behaviors of people with intellectual disabilities (Bersani & Heifetz, 1985; Male & May, 1997; Rose et al., 1998). Rose, Horne, Rose, and Hastings (2004) analyzed staff's emotional reactions to challenging behaviors experienced in caring for people with intellectual disabilities. Significant correlations were found between negative emotional reactions to challenging behavior and emotional exhaustion and depersonalization burnout. Therefore, the staff more frequently reported using adaptive strategies than maladaptive ones to cope with aggressive behavior of people with intellectual disabilities (Mitchell & Hastings, 2001).

Table 8
Comparison of generic health status between this study and the Taiwan's general population

Component	This study			Taiwan's general[a]			*t*-test	*P* value
	N	Mean	S.D.	*N*	Mean	S.D.		
PCS	1222	50.83	7.67	1303	52.53	6.90	−7.736	<0.001
PF	1240	52.71	5.93	1342	51.95	6.15	4.533	<0.001
RP	1231	49.88	9.69	1349	49.63	9.57	0.897	0.37
BP	1240	52.14	8.09	1349	53.02	8.15	−3.838	<0.001
GH	1238	51.50	8.28	1342	46.94	8.79	−3.914	<0.001
MCS	1224	45.12	10.73	1303	46.39	6.95	−4.130	<0.001
VT	1231	46.19	6.71	1346	52.13	7.95	−2.716	0.007
SF	1236	46.44	7.58	1334	47.88	7.30	−6.684	<0.001
RE	1232	47.30	11.89	1338	47.20	11.63	0.302	0.763
MH	1239	43.58	8.81	1346	45.13	8.84	−6.178	<0.001

[a] Data source: Lin (2003).

Three main limitations need to be considered in interpreting the findings presented here. First, the SF-36 scale is too generic to pinpoint specific ill-health issue. Second, the possible influence of staff's health—the demographic and organizational factors in this study are relatively one-dimensional and should be multidimensional across a number of aspects in the further study. Those dimension such as the caregiver's health status, their family income and the level of severity of the intellectual disability maybe the strongest predictors of caregivers quality of life (Chou, Lin, Chang, & Schalock, 2007). Finally, the cross-sectional nature of the study does not make it possible to ascertain the direction of the relationships. However, the study by accessing this available population that was willing to provide full information of physical and mental health, the researchers were able to provide some good preliminary data for the further quality of life research for staff working for people with disabilities. Finally, the study suggests that staff play a key role in the lives of people with intellectual disabilities and policies need to be developed that are responsive to the health needs of staff who working in institutions.

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