

What makes you good and happy? Effects of internal and external resources to adaptation and psychological well-being for the disabled elderly in Taiwan

Hui-Chuan Hsu* and Ho-Jui Tung

*Department of Health Care Administration, Asia University,
Taichung, Taiwan, Republic of China*

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Aim: This study explored the effect of internal adaptation and external resources to psychological well-being for the disabled elderly.

Methods: Data were collected by face-to-face interviews with physically disabled elderly people, including the institutional and community-based long-term care service users in middle Taiwan. The number of persons interviewed was 563, of whom 505 completed the survey and met the disability criteria. Path analysis was applied. Internal resources (coping strategies and self-management of health) and external resources (social support and environmental support) were hypothesized to be related to difficulty in adapting to disability, and had a further impact on depressive symptoms and life satisfaction.

Results: Acceptance–action coping strategies were beneficial in the adaptation process and in psychological well-being, and self-management of health was positively related to successful adaptation. Social support and environmental support were beneficial to adaptation and psychological well-being, although the effects were modest. In general, the effect of internal resources was larger than the external resources to adaptation and psychological well-being.

Conclusion: Positive coping and self-management as well as the use of external resources are positive indicators of successful adaptation to disability. The disabled elderly should be encouraged to take a positive attitude toward disability, and external resources should also be built up to support them.

Keywords: adaptation; coping; disability; environmental support; self-management

Introduction

Physical disability is commonly seen among older people due to frailty, disease, or injury. Disability may affect psychological health and the subjective sense of well-being (Ku, McKenna, & Fox, 2007; Taylor & Lynch, 2004). However, some disabled older adults with chronic conditions still report a high degree of quality of life (Pennex et al., 1998; Strawbridge, Wallhage, & Cohen, 2002). The reason that some elderly can adapt to disability and maintain a high degree of psychological well-being is worth exploring. The relationship between health stress and psychological well-being has been explored in the past, and internal/psychological/personal resources as well as external/social/environmental resources are seen as important mediators or moderators for adaptation to stress, and also show their effects on mental health or psychological well-being (Barrera, Toobert, Angell, Glasgow, & Mackinnon, 2006; Boerner, 2004; Clark et al., 1991; Desmond & McLachlan, 2006; Glasgow, Toobert, Barrera, & Strycker, 2005; Hertz & Anschutz, 2002; Holahan & Moos, 1991; Jilcott, Laraia, Evenson, Lowenstein, & Ammerman, 2007; Kahana, Kahana, & Young, 1987; Lawton, 1985; Pearlin, Menaghan, Lieberman, & Mullan, 1981; Pollard & Kennedy, 2007). Some of these resources can possibly be changed

or reinforced, such as self-management, coping strategies, and some external resources.

Although there have been findings about the relationships of internal and external resources to psychological well-being, there are some gaps in the research. First, most of the studies focused only on patients with certain diseases and emphasized medical management. However, adjusting to disability in daily life is challenging for the disabled elderly, and it is necessary to explore the manner of their adaptation and also their psychological well-being and some related factors. Second, there was a little attempt to compare the effects of internal and external resources and verify the complex mechanism of multiple resources through which psychological well-being is reached. In this study, we would like to establish whether it is internal or external resources that have the larger effect on psychological well-being and adaptation to disability. Some background and a conceptual framework are therefore needed. In particular, we are interested in resources that are changeable, and thus in findings that may offer some useful suggestions for further intervention. In this study, we shall explore the relationship of internal and external resources both to the psychological well-being of the disabled elderly and to the way they adapt to disability.

*Corresponding author. Email: gingerhsu@seed.net.tw

Literature review and conceptual framework

Physical disability is one of the major stressors for the elderly. Four central components to adapt to the stress of physical disability and the results of psychological well-being are focused in this study: coping, self-management, social support, and environmental supports.

Coping strategies, adaptation to disability, and psychological well-being

According to the stress theory of Pearlin et al. (1981), coping is a major mediating resource to adaptation. Adaptation to disability covers several dimensions of life in the aged, such as personal care, in-home and community mobility, work, social life, and family relationships (Gignac, Cott, & Badley, 2000; Heim, Valach, & Schaffner, 1997). Many studies focus on the psychological impact of disability and the effects of coping strategies. Active, problem-focused, engagement coping strategies showed a positive effect on psychological well-being, such as better mental status, higher morale, or fewer depressive symptoms (Boerner, 2004; Desmond & McLachlan, 2006; Kahana et al., 1987; Pollard & Kennedy, 2007; Yang, Brothers, & Andersen, 2008). Acceptance coping is related to better life satisfaction and fewer depressive symptoms (Anderson, Vogel, Chlan, & Betz, 2008; Elfström, Rydén, Kreuter, Persson, & Sullivan, 2002; Tolman, Hill, Kleinschmidt, & Greeg, 2005). Seeking-support coping was related to lower depressive symptoms and higher life satisfaction (Anderson et al., 2008; Desmond & MacLachlan, 2006). In the contrast, disengagement coping, such as avoidance, distancing, or denial showed a negative effect on psychosocial adaptation and mental health (Desmond & MacLachlan, 2006; Martz, Livneh, Priebe, Wuermsler, & Ottomanelli, 2005; Yang et al., 2008). Since different kinds of coping strategies would bring about different effects and impacts to adaptation and psychological well-being, we hypothesize that positive coping strategies (acceptance and action, seeking support) have a positive relationship to adaptation, whereas negative coping strategies (venting and avoidance) show a negative relationship to adaptation. In addition, positive coping strategies are related to less depressive symptoms and higher life satisfaction, while the negative coping would be related to more depressive symptoms and less life satisfaction.

Self-management of health, adaptation to disability, and psychological well-being

Self-management of health was derived from social cognitive theory, needs the ability to manage tasks of to reduce impact of disease on physical health, and requires the ability to cope with psychosocial problems generated by health problems (Clark et al., 1991). Self-management and self-care behaviors are found to be related to psychological well-being.

Many self-management education or intervention programs have been conducted for selected chronic disease patients. Some programs showed their benefits on physical function, distress, psychosocial function, and self-efficacy (Carrington et al., 2008; Clark et al., 1991; Lee, Packer, Tang, & Girdler, 2008), but systematic review found that the effects were moderate (Warsi, Wang, LaValley, Avorn, & Solomon, 2004), and that the research was usually conducted for people who have a specific chronic disease rather than a disability. Hertz and Anschutz (2002) found that higher perceived potential for self-care action (enactment of autonomy) was associated with higher life satisfaction. Psychological well-being is also related to the self-evaluation of psychological status, such as self-confidence, self-esteem, sense of control, and self-efficacy; and such potential for self-care action comes from the knowledge and resources of self-care. Holahan and Moos (1991) found that personal resources, such as self-confidence and easygoingness, are helpful in coping and reduce depression. In Yang's (2006) study, psychological resources (the sense of control and self-esteem) mediated the effects of disability on increments in depressive symptoms. Self-efficacy, or the perception of independence, were also suggested to be factors in a change of lifestyle and showed a marked effect on disability (Gignac et al., 2002). From the previous evidence, we hypothesize that self-management is related to less adaptation difficulties and depressive symptoms, as well as higher life satisfaction. Besides, self-management is an ability related to coping process (Clark et al., 1991), thus we hypothesize that self-management shows its effect through coping strategies to psychological well-being.

Social support, adaptation, and psychological well-being

General social support has been found to alleviate distress, to reduce depressive symptoms, and to facilitate adjustment to pain (Chokkanathan, 2009; López-Martínez, Esteve-Zarazaga, & Ramírez-Maestre, 2008; Raichle, Hanley, Jensen, & Cardenas, 2007; Strating, Suurmeijer, & van Shuur, 2006). Schulz and Decker (1985) found that people who had strong social support were satisfied with their social contacts, and felt they had control of their lives, had greater well-being, life satisfaction, and fewer depressive symptoms. Ducharme (1994) found that spousal social support may have an effect on internal and external coping, and this kind of support also directly and indirectly influences life satisfaction through cognitive reframing coping. Yang (2006) used path analysis to look at how the process of functional disability amplifies depressive symptoms through perceived social support and psychological resources. Perceived social support (availability of a confidant and the satisfaction that support brings) ameliorated the effects of disability on increments in depressive symptoms. Another explanation of the effect of social support was that social support can

increase proactive coping, which may help the disabled elderly to deal more effectively with stress (Fiskensbaum, Greenglass, & Eaton, 2006). It means that social support may be related to the use of coping strategies too. Thus, we propose that social support have direct and indirect effects through coping strategies to reduce adaptation difficulties and depressive symptoms, and increase life satisfaction.

Environmental support, adaptation to disability, and psychological well-being

From the perspective of environmental gerontology, Lawton (1985) indicated that getting to know the environment and environment change is an active process of cognitive restructuring, and such cognitive behavior is a mode of coping with stress. In this study, environmental support refers to the functional support of various kinds that facilitates adaptation to disability and fosters healthy aging. Such support would come from health education, social networks, the prevailing systems of health care and social assistance, assistive devices or technology, and the community and community organizations (Infeld & Whitelaw, 2002; Vincent et al., 2007). Glasgow, Strycker, Toobert, and Eakin (2000) propose a social-environmental support pyramid model and address the influence not only of close relationships but also of context and culture, including workplace, media, public policy, neighborhood, and community. In the past studies, social-ecological resources are found to be beneficial to change health behaviors or to self-manage them (Barrera et al., 2006; Glasgow et al., 2005; Jilcott et al., 2007). Besides, specific assistance from medical professionals, such as assistive devices and health education, is also found to be helpful in managing health problems. The use of assistive devices was found to reduce dependence on personal assistance (Hoenig, Taylor, & Sloan, 2003). Shimbo et al. (2004) found the following to be associated with higher health-related quality of life for patients with Parkinson's disease: education about the condition and pathophysiology of the disease, the effective therapy, adverse reaction, publicly available financial and social resources, and rehabilitation activities. Based on the theory of environmental gerontology and the previous empirical findings, we propose that environmental support has direct effects to reduce adaptation difficulties, and indirect cognitive effects to adaptation through the use of coping strategies and through the ability of self-management.

In this study, we propose that these four components have effects on the adaptation of disability and further have impact on psychological well-being. The four central components, i.e., coping strategies, self-management, social support, and environmental supports are hypothesized to be related to the ability to adaptation difficulties. Besides, self-management and environmental supports are cognitive behaviors responding to the stress of disability, and social

support provides both emotional and instrumental resources. Therefore, we propose that self-management, social support, and environmental supports are mediated through individual's coping process to show their indirect effects on adaptation and psychological well-being. We define self-management of health and coping strategies as internal resources, while external resources are the social and environmental support that allows people to adapt to disability.

Methods

Data and samples

Data were collected by face-to-face interviews with disabled elderly people in institutional and community-based long-term care. We contacted all the registered long-term care institutions (including nursing homes, foster homes, long-term care institutions, and veterans' homes) and their adult day-care apartments as well as the rehabilitation departments of hospitals in three counties of middle Taiwan. Thirty-six institutions participated in the survey. Eligibility was restricted to those who lived in these institutions or used the adult day-care or regular rehabilitation outpatient service; those having difficulty with any activity of daily living (ADL) or institutional activity of daily living (IADL) for 3 months or longer; and those willing to participate in the survey and able to respond by themselves. In total, 563 persons were interviewed, 505 of whom completed the survey and met the eligibility criteria; the completion rate was 89.7%. Before the survey was conducted, the proposal was approved by the Institutional Review Board, and all participants signed an informed consent form. All the interviewers were also trained by standardized interview training to improve the interview quality, and they also signed a data protection consent form to protect the privacy of the participants. The characteristics of the samples are shown in Table 1.

Measures

Outcome variables

Psychological well-being. This was defined as emotional health (depressive symptoms) and subjective well-being (life satisfaction). Depressive symptoms were measured by the Center for Epidemiologic Studies Depression Scale (CES-D). The original version was a 20-item scale CES-D (Radloff, 1977), which has been proved to show good sensitivity and specificity compared with diagnoses by the American Psychiatric Association's Diagnostic and Statistics Manual (DSM) criteria. In this study, the 10-item version was applied (Kohout, Berkman, Evans, & Huntley, 1993). Life satisfaction was measured by the Life Satisfaction Rating (LSR) (Neugarten & Havighurst, 1961). Each item was answered by yes/no (score 1/0), and the total score was from 0 to 10.

Table 1. Demographic characteristics of the samples.

Characteristics	Persons	Percentage
Age (years)		
60–64	33	6.5
65–69	36	7.1
70–74	55	10.9
75–79	99	19.6
80–84	134	26.5
85+	148	29.3
Gender		
Female	264	52.3
Male	241	47.7
Marital status		
Married or living together	112	22.2
Never married	51	10.1
Divorced or separated	46	9.1
Widowed	295	58.5
Disability number in ADLs		
None	62	12.3
1–2	150	29.5
3 or more	293	58.0
Cognitive function (SPMSQ)		
Score 0–6 (moderately to severely impaired)	271	53.7
Score 7–10 (intact or mildly impaired)	234	46.3
Living status		
In the institutions	444	87.9
In the community	61	12.1

Note: $N=505$; SPMSQ, short portable mental status questionnaire.

Adaptation difficulty for disability. This was selected and modified from the Psychosocial Adjustment to Illness Scale (PAIS) (Derogatis, 1986). Since the participants were disabled elderly and most of them lived in institutions, only five dimensions of the items were selected: health care, domestic environment, extended family relationships, social environment, and psychological distress; in total, 18 items were selected. The participants were asked to rate the impact of physical disability to all the items, scored from 0 to 3, indicating no impact or even improvement, a little impact, some impact, and great impact. The higher score meant that the disability impact was higher, which meant greater difficulty in adaptation. Cronbach's alpha of the scale was 0.688.

Internal resources

Coping strategies. Despite several scales, based on different conceptual models of coping, measuring coping styles and coping strategies have been developed in the literature. However, some commonalities can be found across these different coping scales. In our study, coping strategies were measured by the Brief COPE scale (Carver, 1997). Each item was scored from 1 to 4 – doing this not at all, a little bit, a medium amount, or a lot. Factor analysis was used to explore the multiple dimensions of coping strategies.

Besides, some of the items in Brief COPE scale were little related to other items and less suitable for the participants (such as using alcohol or drugs), some items were deleted from our analysis. After factor analysis of the scale, three factors were found and the factor scores were used in this article. The three factors (coping strategies) and their items included: acceptance–action coping (trying to come up with what to do; learning to live with it; taking action; accepting the reality; looking for something good; and turning to activities to take the mind off the difficulties); venting–avoiding coping (blaming myself; complaining things to venting away unpleasant feelings; refusing to believe; giving up the attempt to cope; thinking hard about what action to take; and expressing negative feelings); and seeking–support coping (getting emotional support; getting comfort and understanding; and getting help and advice).

Self-management of health. This was measured by four items about personal action from the Chronic Illness Resources Survey (Glasgow et al., 2000, 2005). We selected the personal action items named as the self-management of health, and oriented the questions to the management of physical disability rather than of chronic illness. The participants were asked about the degree they focused on the things they did well to manage their disability; how they were doing in accomplishing disability management goals; how they arranged their schedule so they could more easily do the things they needed to do for the disability; and how much importance they put on managing things for the disability. Each item scored from 1 (not at all) to 5 (a great deal). The scores of the items were summed.

External resources

Social support. Here social support is defined as general emotional support from social networks. Four items were used to measure social support: satisfied about family/friends' care; able to count on family/friends when ill; satisfied with the economic support from family/friends; and family/friends come to consult about problems. Each item was scored 1–5 and the total scores were summed.

Environmental support. The items were from the Chronic Illness Resources Survey (Glasgow et al., 2000, 2005) and the questions were modified to ask how the environmental support helped in their management of 'disability.' The participants were asked about the different resources they might use to manage their physical disability. The 17 items used to evaluate these dimensions were the subscales about health care (four items), friends/family (four items), neighborhood (four items), media/policy (three items), and organizations (two items). Each item scored from 1 (not at all) to 5 (a great deal).

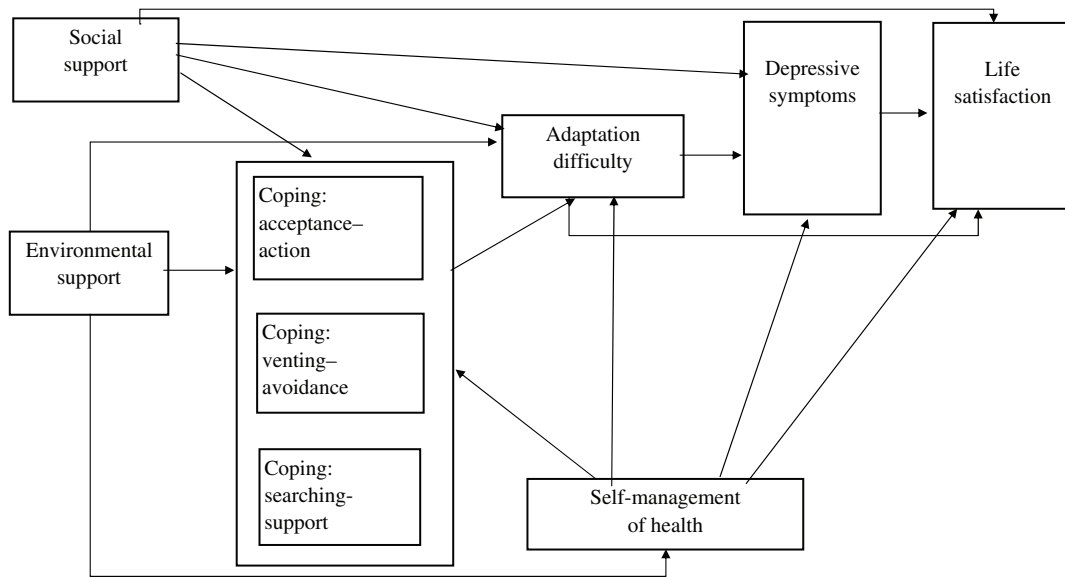


Figure 1. The conceptual framework of external and internal resources to adaptation and psychological well-being.

Table 2. Standardized coefficients of path analysis.

Coefficients	Self-management	Coping: acceptance-action	Coping: venting-avoidance	Coping: seeking-support	Adaptation difficulties	Depressive symptoms	Life satisfaction
Social support	–	0.032**	–0.027*	–0.054***	–0.140	–0.203**	0.076**
Environmental support	0.221***	0.013**	–0.004	–0.025***	–0.094*	–	–
Coping: acceptance-action	–	–	–	–	–1.722***	–0.130	0.114
Coping: venting-avoidance	–	–	–	–	3.147***	2.262***	–0.541***
Coping: seeking-support	–	–	–	–	0.791	0.342	–0.228*
Self-management	–	0.077***	0.034**	–0.017	–0.227	0.035	0.054**
Adaptation difficulty	–	–	–	–	–	0.161***	–0.029**
Depressive symptoms	–	–	–	–	–	–	–0.105***

Notes: $\chi^2 = 8.379$, $df = 9$ ($p = 0.496$), $RMSEA = 0.0$, $NFI = 0.995$, and $CFI = 1.000$.

* $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

In order to simplify the model, the exogenous variables (such as age, gender, physical disability degree, marital status, and living status) were excluded from the conceptual model.

Analysis

The conceptual framework was analyzed by the structural equation model, because we would like to verify our conceptual framework of the mechanism of internal and external resources to adaptation and psychological well-being, and test the hypotheses of the direct and indirect relationships between the variables. We used path analysis to compare the direct, indirect, and total effects of the resources to adaptation and psychological well-being. The path analysis conceptual model was hypothesized according to the four

hypotheses described earlier, and the demographics were added to the model as additional exogenous variables (Figure 1). Data were analyzed by SPSS 15.0 and Lisrel 8.8.

Results

Table 2 shows the coefficients of path analysis. The overall model fit was good, with $\chi^2 = 8.379$ ($df = 9$), $RMSEA = 0.0$, $NFI = 0.9995$, and $CFI = 1.000$. Among the three outcome variables, more adaptation difficulties were related to more depressive symptoms ($\beta = 0.161$) and mildly related to lower the life satisfaction ($\beta = -0.029$). And the disabled elderly who had more depressive symptoms had lower life satisfaction ($\beta = -0.105$).

Internal resources: Coping strategies and self-management of health

The elderly who used acceptance–action coping had lower adaptation difficulty ($\beta = -1.722, p < 0.001$), but the acceptance–action coping was not significantly related to depressive symptoms ($\beta = -0.130, p > 0.05$) and life satisfaction ($\beta = 0.114, p > 0.05$). Those who used the venting–avoidance coping strategies showed a strong effect on more adaptation difficulties ($\beta = 3.147, p < 0.001$), more depressive symptoms ($\beta = 2.262, p < 0.001$), and were related to less life satisfaction ($\beta = -0.541, p < 0.001$). And those who used seeking-support coping strategies were modestly related to less life satisfaction ($\beta = -0.228, p < 0.05$), but not significantly related to adaptation difficulty and depressive symptoms.

The disabled elderly who evaluated themselves with better self-management of health were more likely to use acceptance–action coping ($\beta = 0.077, p < 0.001$) and also a little more venting–avoidance coping ($\beta = 0.034, p < 0.01$), but self-management was not related to the use of seeking-support coping. Self-management of health was related to better life satisfaction ($\beta = 0.054, p < 0.01$), but not significantly related to adaptation difficulty and depressive symptoms.

External resources: Social support and environmental support

The disabled elderly who perceived more social support were more likely to use acceptance–action coping ($\beta = 0.032, p < 0.01$), and were less likely to use venting–avoidance coping ($\beta = -0.027, p < 0.05$) and seeking support ($\beta = -0.054, p < 0.001$). The disabled elderly who had more social support were related to less depressive symptoms ($\beta = -0.203, p < 0.01$) and

higher life satisfaction ($\beta = 0.076, p < 0.01$) but not related to adaptation difficulties.

Environmental support was significantly related to better self-management ($\beta = 0.221, p < 0.001$). Besides, environmental supports had little positive association with acceptance–action coping ($\beta = 0.013, p < 0.01$) and small negative association with seeking-support coping ($\beta = -0.025, p < 0.001$), but was not at all related to venting–avoidance coping. This suggested that more external support resources might help the disabled elderly to have better ability of self-management of health and to use acceptance–action coping, but to make less use of seeking-support coping. Environmental support was also significantly related to lower difficulties in adaptation ($\beta = -0.094, p < 0.05$).

Compare effects of internal and external resources

The direct, indirect, and total effects of the four components to adaptation difficulties and psychological well-being are shown in Table 3. Regarding the three coping strategies, the effect of acceptance and action coping was related to lower adaptation difficulties (effect = $-1.722, p < 0.001$), and in a small degree to less depressive symptoms (effect = $-0.408, p > 0.05$) and higher life satisfaction (effect = $0.206, p < 0.001$). The venting–avoidance coping largely increased adaptation difficulty (effect = $3.147, p < 0.001$) and depressive symptoms (effect = $2.770, p < 0.001$), and modestly decreased life satisfaction (effect = $-0.921, p < 0.01$). The effect of seeking-support coping was mild in the three outcomes. Seeking-support coping modestly increased the difficulties of adaptation (effect = $0.791, p > 0.05$) and depressive symptoms (effect = $0.469, p > 0.05$), and reduced little life satisfaction (effect = $-0.299, p < 0.01$). The other internal resource was self-management of health. The effect of

Table 3. Effects of internal and external resources to adaptation difficulty and psychological well-being for the disabled elderly.

Resources	Outcome								
	Adaptation difficulties			Depressive symptoms			Life satisfaction		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
<i>External resources</i>									
Social support	-0.140	-0.181**	-0.322*	-0.203**	-0.135**	-0.339***	0.076**	0.075***	0.151***
Environmental support	-0.094*	-0.112***	-0.206***	-	-0.030	-0.030	-	0.029***	0.029***
<i>Internal resources</i>									
Coping: acceptance–action	-1.722***	-	-1.722***	-0.130	-0.278**	-0.408	0.114	0.092*	0.206
Coping: venting–avoidance	3.147***	-	3.147***	2.262***	0.508***	2.770***	-0.541***	-0.380***	-0.921**
Coping: seeking-support	0.791	-	0.791	0.352	0.128	0.469	-0.228*	-0.072*	-0.299**
Self-management	-0.227	-0.039	-0.265*	0.035	0.018	0.054	0.054**	-0.004	0.051

Notes: The effects of external resources to self-management and coping strategies are omitted. * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

self-management of health may reduce the difficulty in adaptation (effect = -0.265 , $p < 0.05$), but is not significantly related to depressive symptoms (effect = 0.054 , $p > 0.05$) and increased life satisfaction (effect = 0.051 , $p > 0.05$).

External resources showed significant effects to adaptation and psychological well-being, although the effects were modest. Social support showed its effect in relation to lower adaptation difficulty (effect = -0.322 , $p < 0.05$), fewer depressive symptoms (effect = -0.339 , $p < 0.001$), and higher life satisfaction (effect = 0.151 , $p < 0.001$). The effect of environmental support reduced the difficulties of adaptation (effect = -0.206 , $p < 0.001$), reduced depressive symptoms (effect = -0.030 , $p > 0.05$), and increased life satisfaction (effect = 0.029 , $p < 0.001$).

The values of the effects in two types of resources were summed up from Table 3. The absolute values of the total internal resource effects (including coping strategies and self-management of health) to the outcome variables were 5.945 to adaptation, 2.885 to depressive symptoms, and 1.477 to life satisfaction. The absolute effects of external resources, i.e., social support and environmental supports, to the outcomes were 0.528 to adaptation, 0.369 to depressive symptoms, and 0.180 to life satisfaction. The results indicated that the internal resources had larger associations than the external resources with adaptation and psychological well-being.

Discussion

This study explored the relationships of internal and external resources to adaptation to disability and psychological well-being by path analysis among the disabled elderly in Taiwan. Regarding internal resources, the acceptance–action coping was positively associated with adaptation and psychological well-being, and self-management of health showed a modest effect on coping strategies and life satisfaction. Regarding external resources, social support was positively related to adaptation and psychological well-being, but the effect of environmental support was weak. Overall, the internal resources showed greater association with adaptation and psychological well-being than the external resources did.

Internal resources to adaptation and psychological well-being

The acceptance–action and seeking-support coping strategies showed a positive association with adaptation and life satisfaction, consistent with past research findings (Anderson et al., 2008; Desmond & MacLachlan, 2006; Elfström et al., 2002; Tolman et al., 2005). However, the relationships of acceptance–action and seeking-support coping to depressive symptoms were not significant. This result suggests that changing coping strategies may help the elderly to

adapt to their disabled life but it is unable to promote mental health. Besides, the effect of seeking-support coping was relatively modest. It is possible that the use of seeking-support coping may represent the lack of ability to adapt the disability. The venting–avoidance coping strategies were related to poor adaptation, more depressive symptoms, and less life satisfaction, consistent with past findings (Desmond & MacLachlan, 2006; Martz et al., 2005; Yang et al., 2008). It means that venting–avoidance coping is not a good strategy for encouraging the disabled elderly. For the elderly who have a tendency to venting or avoidance about their disability, we should carefully monitor their mental health, and provide them with assistance to adapt to their disability in daily life.

The self-management of health only showed its slight association with higher life satisfaction, which was consistent with Hertz and Anschutz (2002). The self-management of health was the personal action that people manage about their disability, and is related to better self-efficacy or self-confidence in managing disability. However, we did not find the significant relationship between self-management and adaptation or depression as previous studies (Gignac et al., 2002; Holahan & Moos, 1991; Yang, 2006). In addition, the self-management of health was also related to better positive coping and getting more environmental resources. Thus the disabled elderly who have more environmental support would help them have better ability of self-management, and thus they would cope with disability with a positive attitude and manage their health. The knowledge and skill of self-management will be directly beneficial to the disabled elderly in dealing with their daily stress and promoting their resilience to the disabled life.

External resources to adaptation and psychological well-being

Social support was found to be related to lower depressive symptoms, and higher life satisfaction, which was consistent with the previous findings (Chokkanathan, 2009; López-Martínez et al., 2008; Raichle et al., 2007; Schulz & Decker, 1985; Strating et al., 2006). Social support was also found to be related to use acceptance–action coping rather than venting–avoidance or seeking support. This means that social support may provide the strength and ability for the elderly to accept and manage the situation of disability. When receiving more social support, the disabled elderly would use less negative coping strategies, or would not have to seek support.

Another interesting finding also arose from the study results. None of the internal resources was significantly beneficial to lower depressive symptoms, but social support had such an effect. This suggests that personal coping strategies and better self-management of health would help to adapt to disability. Nevertheless, the elderly still need external resources to

promote mental health, and not depend solely on their own resources. In particular, Taiwanese elderly depend on social relations more than western people do, and thus social support is even more critical for Taiwanese disabled elderly to adjust their lives and promote their mental health.

The environmental support in this study was ecologically and specifically indicated to the management of disability. The result indicated that environmental support was slightly related to coping strategies, and it reduced the difficulty of adaptation, consistent with our hypothesis and similar to the previous studies (Barrera et al., 2006; Glasgow et al., 2005; Jilcott et al., 2007). Although the environmental support does not arise from personal behavior, it is related to the context and the culture about how people deal with the disability issue. The fact that the effect of the environmental support to coping was significant but very modest indicates that providing more environmental support does not ensure better coping. The result suggests that the coping strategies are internalized, and the use of environmental support depends on how disabled elderly cope with disability. However, more environmental support did help with health care, family relationship, social life, domestic life, and distress. So, in general, more environmental resources can provide support and help in these dimensions of daily life if the disabled elderly would like to use them.

Limitations

There are some aspects that can be improved in the future studies. First, the data were cross-sectional, and thus the causal relationship was not strongly confirmed. However, the outcome variables were measured according to the time of investigation, and the internal resources and external resources were measured according to a period of time in the past. Therefore, the causal relationship was not violated to the time order. A longitudinal study might be done in the future to verify the causal relationships. Second, the data were collected from the long-term care institutions and rehabilitation outpatient departments. The samples were those who used some types of formal services, and thus the results may not be generalized to all the community-dwelling elderly. Community-based surveys are suggested. Third, due to the limited sample size, the latent variable model was not applied. Instead, only path analysis was applied for the data analysis. Larger sample size and better measurements are suggested in the future research.

Conclusions

We examined the effects of internal and external resources for the disabled elderly, and found that positive coping strategies, self-management of health, social support, and environmental support should be encouraged and promoted. In all, our finding indicates

that the internal and external resources associate with both the adaptation to disability and to psychological well-being. To show their effect, however, the internal resources may show a larger association with adaptation and well-being than that of external resources. However, another possibility that internal resources are more important among this sample of elders is because few formal external resources are available for the elderly in Taiwan or, the existing external resource programs are just not well developed. It is suggested that more attention should be directed to make more external resources available for the disabled elderly. Even more important is that the disabled elderly should be motivated and encouraged to take a positive attitude toward disability in old age.

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