

✧ RESEARCH PAPER ✧

Self-management in older patients with chronic illness

Robyn Gallagher RN BA (Psych) MN PhD

Associate Professor, Chronic and Complex Care, Faculty of Nursing, Midwifery and Health, University of Technology, Sydney, Australia

Judith Donoghue RN PhD

Adjunct Professor, Faculty of Nursing, Midwifery and Health, University of Technology, Sydney, Australia

Lynn Chenoweth RN DRec BA MA (Hons) GCert Tch/Lrn MAdEd PhD

Professor of Aged and Extended Care Nursing, Director, Health and Ageing Research Unit, South-Eastern Sydney and Illawarra Area Health Service, and Faculty of Nursing, Midwifery and Health, University of Technology, Sydney, Australia

Jane Stein-Parbury RN PhD

Professor of Mental Health Nursing, Mental Health Nursing Professorial Unit, South-Eastern Sydney and Illawarra Area Health Service, Faculty of Nursing, Midwifery and Health, University of Technology, Sydney, Australia

Accepted for publication December 2007

Gallagher R, Donoghue J, Chenoweth L, Stein-Parbury J. *International Journal of Nursing Practice* 2008; 14: 373–382
Self-management in older patients with chronic illness

Chronic illness causes the majority of disease burden and health costs in developed countries; however, this could be substantially reduced by optimal patient self-management. This study examined the levels of self-management in patients ($n = 300$) with chronic illness (chronic heart failure, chronic respiratory disease, Parkinson's disease and chronic schizophrenia) of moderate severity who had experienced an illness exacerbation in the last month. Patient's perceptions of self-efficacy in relation to their self-management and their sense of coherence were also assessed at baseline and 1 month later. No changes occurred in self-perceptions or self-management from baseline to follow-up. Patients at risk of poor self-management included people with low self-efficacy, poor sense of coherence, older age and a primary diagnosis of chronic schizophrenia. As self-efficacy is the only predictor known to be amenable to intervention, self-efficacy enhancing support should be promoted.

Key words: chronic illness, older, self-efficacy, self-management.

INTRODUCTION

Chronic illness is the most common cause of premature mortality in Australia and is estimated to cause 80% of

the total burden of disease, mental problems and injury¹ and almost 70% of total health expenditure.² The illness burden and costs are expected to increase further as the prevalence of chronic illness increases with age and Australians are living longer.³ However, it has been estimated that 70–80% of people living with chronic illness could reduce the illness burden and costs by appropriate self-management because of associated decreases in hospital admissions, disease progression and

Correspondence: Robyn Gallagher, Chronic and Complex Care, Faculty of Nursing, Midwifery and Health, University of Technology, Sydney, PO Box 123 Broadway, NSW, Australia. Email: Robyn.Gallagher@uts.edu.au

the development of other conditions.⁴ Consequently, self-management has been recognized as a priority by the Federal Government in the National Chronic Disease Strategy for Australia.⁵

LITERATURE REVIEW

The key feature of self-management of chronic illness is that people participate effectively in managing their own health care on an ongoing basis.⁵⁻⁷ Optimal self-management requires that the person understands the illness and manages their care, including taking medications and participating in decision-making with their health providers regarding their illness. Additionally, people must manage the impact of the chronic illness on their daily life, maintain their general health and avoid risk factors for other illnesses, for example, eating a healthy diet and participating in regular exercise. Finally, although chronic illnesses could differ markedly in presenting signs and symptoms, the key aspects of self-management are similar across different illnesses.^{6,7} This could be particularly relevant for older people with long-term conditions, who have often developed multiple illnesses with overlapping symptoms.

Understanding of the underlying processes that influence self-management is an important prerequisite to the development of interventions. One influential factor is the individual's confidence or belief that they have the capacity to undertake the complex behaviours required for self-management.⁸ Within social cognitive theory, this belief or expectation is labelled as self-efficacy and it explains the development and maintenance of behaviours over time in response to situational demands.⁹ That is, people who believe they are able to perform a task are more likely to try the task and overcome their fear of failing at the task, whereas people who do not believe in themselves will tend to avoid the task. The influence of self-efficacy on chronic illness self-management has been confirmed in many chronic illness populations including many diseases such as cardiac,⁹⁻¹² schizophrenic,¹³ Parkinson's¹⁴ and chronic lung.^{12,15,16}

Self-efficacy is particularly important to understand because it has proven amenable to intervention.¹⁷ Importantly self-efficacy is also influenced by the individual's belief that their behaviours will influence the outcome, for example, in chronic illness, that their self-care activities will lessen or prevent illness exacerbations and hospital admissions. However, in many chronic illness conditions the most ideal self-management will not result in com-

plete disease and symptom control, so that illness exacerbations and hospital admissions could still occur.¹⁸ Depending on the strength of the individual's existing self-efficacy, it would be expected that an illness event could result in a temporary decline in self-efficacy, which could then effect self-management.¹⁹ However, no published research was located.

Self-efficacy and outcome expectations are specific to the domain investigated in this instance chronic illness management. It is likely that more enduring personality characteristics also influence people's overall motivation to stay healthy and the coping behaviour they demonstrate in relation to their chronic illness as they grow older. One such characteristic is their orientation to life, described by Antonovsky (1993) as a sense of coherence (SOC), a pervasive feeling of confidence that life and life's demands are comprehensible, meaningful and manageable. An individual with a strong SOC is more likely to judge a situation as controllable and to select appropriate management strategies.²⁰ Although the association between SOC and health is fairly well-established, it has not been well-investigated in chronic illness.²¹ However, SOC has been found to predict function and pain,²² quality of life,²³ fatigue and uncertainty²⁴ and overall health²⁵ in specific chronic illnesses.

Therefore the aims of this study were to describe self-management in older patients with chronic illness who have had a recent illness or exacerbation to identify the patients at risk of poor self-management and to determine the relative influence of self-efficacy and SOC.

METHOD

The study used a prospective and descriptive design, and was set in the South-Eastern Sydney and Illawarra Area Health Service in Australia. Approval for the study was gained from both the human research ethics committees of both the health service and the affiliated university before commencing. The research conforms to the provisions of the Declaration of Helsinki 1995. As the intention of the study was to examine self-management in older chronic illness patients generally, four relatively diverse chronic illness groups were selected. These illnesses were chronic heart failure (CHF), chronic respiratory disease (CRD), Parkinson's disease (PD) and chronic schizophrenia (CS). Sampling was stratified to ensure that each chronic illness group was adequately represented. This study was a component of a larger project, which examined several self-care behaviours in chronic illness over time.

Patients were included in the study if they were (i) aged over 55 years; (ii) residing at home; (iii) able to read and respond to questionnaires written or spoken in English; (iv) able to participate in the symptom monitoring component of self-management; and (v) having moderate severity of illness. Moderate severity was classified in (i) CHF patients as New York Heart Association class II or III using the Specific Activity Scale;²⁶ (ii) CRD patients as scores ranging 15–50 on the subscale of the St George Respiratory Questionnaire;²⁷ (iii) PD patients as Grade 2–3.5 on the Unified Parkinson's Disease Rating Scale;²⁸ and (iv) CS patients as a score of >50 on the Global Assessment of Functioning.²⁹ Patients were considered ineligible for the study if they had been admitted to hospital for their study illness more than once in the previous 3 months.

INSTRUMENTS

Partners in Health Scale

General self-management was assessed using the Partners in Health Scale.³⁰ The scale consists of 11 items addressing different aspects of self-care for their disease including: disease-related knowledge, sharing in decisions, taking medications, understanding of and ability to monitor symptoms and respond to symptoms changes, and making and keeping appointments. Importantly, the scale addresses generic self-management for chronic illness in contrast to specific disease requirements. Patients rated their abilities for each item using a Likert-type scale from 0 (very good) to 8 (poor). Scores were summed for a total ranging from 0 (very good self-management) to 88 (poor self-management). The scale has been used in several chronic illness populations³⁰ and proved reliable in our study with Cronbach's Alpha coefficient of 0.92 on both occasions.

Self-Efficacy for Managing Chronic Disease Scale

Confidence in ability to manage chronic illness was assessed using a modification of the Self-Efficacy for Managing Chronic Disease Scale (Lorig *et al.* 1996).³¹ The scale consists of six items addressing different components of self-management such as fatigue, discomfort and emotional distress. The scale addresses self-efficacy for generic chronic illness rather than specific disease management. Patients responded to items using a Likert-type scale from 1 (not at all confident) to 10 (totally confident). Responses were summed and a mean score created ranging from 1

(low self-efficacy) to 10 (high self-efficacy). The scale had been developed and tested in several diverse chronic illness groups including the four illness groups in this study (Lorig *et al.* 2001).³² The scale is reported to be valid and reliable (Cronbach's Alpha coefficient 0.89) with similar levels of reliability in our study (Cronbach's Alpha coefficient 0.92 for both assessments).

The SOC

Global orientation to life as the basis for successful coping was assessed using the SOC scale.²⁰ This scale assesses people's disposition towards perceiving their world and lives as comprehensible, manageable and meaningful. The scale is composed of 29 questions and patients respond using a seven-point semantic differential scale with two anchoring phrases. Thirteen items are reversed to reduce response-set bias. Responses are summed to achieve a score ranging from 29 (poor SOC) to 203 (strong SOC). This scale has been used extensively internationally in many different languages and settings and is reported to be reliable with Cronbach's Alpha ranging between 0.74 and 0.91²⁰ and valid in people with chronic illness²² including older people with chronic illness.³³ In our study the SOC proved reliable with a Cronbach's Alpha coefficient of 0.92 at baseline and 0.91 at follow-up.

Health status was assessed using the Self-Rated Health Scale used in the National Health Interview Survey conducted by the United States Census Bureau. This is a single-item scale and people respond using a five-point semantic differential from excellent (score 1) to poor (score 5). The scale has been used extensively in the chronic illness population.^{32,34}

Socio-demographic and clinical data were collected during patient interview and from the medical chart using a checklist. Clinical data included self-reported illnesses and number of hospitalizations in the previous 12 months.

PROCEDURE

Eligible patients were recruited during a hospital admission or following an illness exacerbation at home using a variety of strategies appropriate to their primary diagnosis and methods used to follow-up. Patients with CHF and CRD were recruited either during admission to hospital or when they attended disease-specific rehabilitation and support programmes during follow-up. Patients with PD were recruited when they attended hospital outpatient clinics or when they responded to a mail out to the PD support group during follow-up. Patients with CS were

identified and recruited through case managers providing follow-up care from community mental health centres.

Following recruitment and provision of informed consent, clinical data were collected from patients' medical records. Patients were then interviewed at home using the survey schedule and a checklist for additional demographic information. The interviews usually lasted 45 min. Interviews with CS patients were attached to case manager visits, so the case manager was present. When patients had difficulty filling in the questionnaires themselves due to fine motor coordination or occasionally with understanding the survey questions, the research assistant provided help. Follow-up interviews were conducted 4–5 weeks following baseline interviews.

Recruitment procedures resulted in 337 patients being approached and 37 refusing study entry, 17 (CHF), 8 (CRD), 9 (PD) and 4 (CS) from each primary diagnosis category. Feeling overwhelmed was the most frequent reason given for refusal to join the study. A total of 300 patients participated in the study, with participants per primary diagnosis category specifically, 62 (CHF), 78 (CRD), 75 (PD) and 85 (CS). Between the baseline and follow-up 19 participants were lost to follow-up or withdrawn from the study due to death, hospital admission or nursing home placement.

DATA ANALYSIS

Frequencies, percentages, means, standard deviations (SD) and medians have been used to describe the data. As comorbidities were frequent and overlapping, a count of comorbidities was used. Comparison of self-management, self-rated health, self-efficacy and SOC were conducted using paired *t*-tests. Predictors of self-management (Partners in Health) were determined by using backwards hierarchical multiple regression analysis. This method of analysis was selected because it produces the most parsimonious model and accommodates complex and potentially interrelated variables. Three models were developed: one each for self-management at baseline and follow-up using concurrent measures of self-rated health, self-efficacy and SOC and one for self-management at follow-up using these variables measured at baseline to determine the relative predictive influence. The variables of age, gender, marital status, primary diagnosis, length of time with primary diagnosis, number of hospital admissions for primary diagnosis in the last year and number of comorbidities were also included.

Comparisons between primary diagnostic categories were determined using ANOVA with *post hoc* tests using Tukey's *B*-test. All analyses were conducted using the SPSS version 14 (SPSS Inc, Chicago, IL, USA).

The sample size was calculated to allow sufficient power for the multiple regression analyses using these variables. The general rule used was that a sample 10–15 times the number of independent variables is required for multiple regression analysis.³⁵ In total each analysis included a total of 12 continuous and dichotomized variables, meaning that a sample of 180 was needed. As it was anticipated that 15% of the sample would be lost from the initial recruitment to the final interview, it was necessary to recruit 211 patients to achieve an adequate sample size. It was also anticipated that primary diagnosis was an important variable to be included in the analysis, recruitment continued until each primary diagnosis group achieved 20% of the sample. This proportion was reached when the sample size was 300.

RESULTS

Patients in the study were elderly, with an average age of 70.53 years (SD 10.28), with approximately half married (51%) and female (50.7%) as detailed in Table 1. Concurrent illnesses were common, with 31% having more than two diagnoses in addition to their primary diagnosis. Most patients (68.5%) had had their primary diagnosis for more than 5 years. Hospital admissions were common for illness exacerbations, with 42% having a hospital admission in the past year.

As illustrated in Table 2, the average patient rated their overall health as good (3.19) with an average global orientation to life score (132.28) which was lower than the normal range for normal for their age equivalents.²⁰ They had moderately high levels of self-efficacy for managing their illness (6.42) and had moderate to good levels of self-management of this illness (mean 23.99). There was no change in any of these perceptions according to time since their illness exacerbation or hospital admission.

The independent predictors of self-management at baseline included their primary diagnosis, length of time diagnosed, age, SOC and self-perceived health and efficacy for managing their illness, accounting for 46% of the variance in self-management (Table 3). The patients with the worst self-management were older and had worse self-rated health, primary diagnosis of CS, a more recent diagnosis, worse SOC and poorer self-efficacy for managing their illness. There was also a trend towards men

having better self-management. With the exception of self-rated health and gender, the model developed for self-management at follow-up identified the same predictors in the same pattern as the baseline model (Table 4). This model accounted for 45% of the variance in self-management at follow-up. A final model was developed

to determine whether self-perceptions related to health and self-management could predict subsequent self-management (Table 5). This model predicted 36% of the variance in self-management at follow-up and baseline self-efficacy and SOC were identified as significant predictors.

As primary diagnosis proved to be the strongest predictor of self-management, univariate analysis was used to determine the extent of the differences and whether the differences were significant (Table 6). Patients with CS had significantly worse self-management scores than patients with any other primary diagnosis, with the biggest difference occurring with patients with CRD, whose self-management scores were two times better than CS.

DISCUSSION

In this group of older patients with chronic illness of moderate severity self-management was reported to be moderate to good and similar to a previous report of patients with chronic illness.³⁰ This similarity occurred despite our sample being older and the criterion of a recent exacerbation or hospital admission. However, this does not mean that age could not have an effect, as within the sample the oldest patients had poorer self-management. In patients with chronic illness increasing age has been associated with reduced motivation,²⁴ an important component of learning and maintaining self-care.³⁶ Unless the older person perceives a need to change long-held beliefs and self-care approaches, they could be reluctant to alter their behaviour.

It is likely that the relatively high level of self-management in our study reflects the recruitment methods, which included recruiting patients attending specific chronic illness support programmes. Another explanation is that most participants had had their illness for more than 5 years, and over that time had developed

Table 1 Sample characteristics ($n = 300$)

Characteristic	Mean or Median	SD or Range
Age, years	70.35	10.28
Education, years	10.75	3.1
Concurrent illnesses (number)	2	0–7
	(<i>n</i>)	(%)
Male	(148)	(49.7%)
Married	(153)	(51%)
Employed	(13)	(4.3%)
English speaking background	(249)	(83%)
Primary diagnosis		
Chronic schizophrenia	(85)	(28%)
Chronic respiratory disease	(78)	(26%)
Parkinson's disease	(75)	(25%)
Chronic heart failure	(62)	(21%)
Length of time diagnosed [†]		
<1 year	(34)	(11.3%)
2–4 years	(54)	(17.9%)
5–10 years	(64)	(21.3%)
11–20 years	(45)	(15%)
>20 years	(97)	(32.2%)
At least one hospital admission this year for primary diagnosis	(127)	(42%)

[†]Some data missing.

Table 2 Self-perceptions related to health and disease management over time

Characteristic (scoring system)	Baseline ($n = 300$)		Follow-up ($n = 281$)		<i>P</i> level Paired <i>t</i> -test
	Mean	(SD)	Mean	(SD)	
Self-rated health 1 (excellent)–5 (poor)	3.19	(1.09)	3.18	(1.04)	0.94
Sense of coherence 29 (low)–203 (high)	132.28	(25.04)	133.57	(24.08)	0.16
Self-efficacy 1 (not confident)–10 (totally confident)	6.42	(2.21)	6.50	(2.13)	0.39
Self-management 0 (good)–80 (poor)	23.93	(16.17)	23.01	(15.84)	0.25

Table 3 Predictors of self-management at baseline in older patients with chronic illness (model $F = 26.81$, $P = 0.000$, $R^2 = 0.46$)

Characteristic	Beta coefficient	95% confidence interval	Standardised beta coefficient	<i>P</i>
CRD diagnosis	-25.17	(-30.87-19.46)	-0.68	0.000
CHF diagnosis	-23.94	(-30.71-17.17)	-0.60	0.000
PD diagnosis	-14.58	(-19.91-9.25)	-0.39	0.000
Male	-2.81	(-5.70-0.09)	-0.09	0.057
Time diagnosed	-2.14	(-3.49-0.80)	-0.18	0.002
Self-efficacy	-1.51	(-2.30-0.71)	-0.27	0.000
Sense of coherence	-0.17	(-0.25-0.10)	-0.21	0.000
Self-rated health	2.65	(0.96-4.34)	0.18	0.000
Age	0.31	(0.13-0.50)	0.20	0.001

CRD, chronic respiratory disease; CHF, chronic heart failure; PD, Parkinson's disease.

Table 4 Predictors of self-management at follow-up using concurrent perceptions in older patients with chronic illness (model $F = 30.12$, $P = 0.000$, $R^2 = 0.45$)

Characteristic	Beta coefficient	95% confidence interval	Standardised beta coefficient	<i>P</i>
CRD diagnosis	-18.09	(-23.32-12.86)	-0.50	0.000
CHF diagnosis	-15.61	(-21.97-9.26)	-0.40	0.000
PD diagnosis	-12.65	(-17.88-7.42)	-0.35	0.000
Time diagnosed	-1.90	(-3.26-0.54)	-0.17	0.006
Follow-up self-efficacy	-2.45	(-3.29-1.62)	-0.27	0.000
Follow-up sense of coherence	-0.20	(-0.28-0.12)	-0.33	0.000
Age	0.27	(0.08-0.45)	0.17	0.004

CRD, chronic respiratory disease; CHF, chronic heart failure; PD, Parkinson's disease.

resilient self-management strategies, including methods to manage setbacks such as illness exacerbations. This possibility is further supported by the apparent lack of impact on self-management and other self-perceptions related to their illness, as no change occurred in these characteristics as time passed since their illness exacerbation or hospital admission. Furthermore, the patients who had been diagnosed with their illness longer proved to have better self-management.

Most of the patients in our study would have experienced illness exacerbations several times and managed them sufficiently well enough to enhance their feelings of self-efficacy. Indeed, self-efficacy levels in our study were relatively high and similar to a sample of younger patients

who had completed a self-management programme for chronic illness in the USA.^{32,34} Furthermore, self-efficacy in the current study predicted both concurrent and future self-management. As Bandura explains, people with stronger self-efficacy heighten and sustain their efforts in the face of setbacks, rather than being diminished.⁹ Patients with long-term illnesses have incorporated many appropriate responses into their lives to manage the fluctuating nature of their illness. This study therefore confirms the value of self-efficacy enhancing interventions to promote chronic illness self-management. Many of these interventions have been developed and proven effective, including generic chronic illness programmes.¹⁷ However, our results suggest that these programmes

Table 5 Predictors of self-management at follow-up using baseline perceptions in older patients with chronic illness (model $F = 21.13$, $P = 0.000$, $R^2 = 0.36$)

Characteristic	Beta coefficient	95% confidence interval	Standardised beta coefficient	P
CRD diagnosis	-15.19	(-20.78-9.61)	-0.41	0.000
CHF diagnosis	-11.55	(-18.49-4.61)	-0.30	0.001
PD diagnosis	-8.07	(-13.61-2.52)	-0.23	0.005
Time diagnosed	-1.27	(-2.74-0.20)	-0.11	0.090
Baseline self-efficacy	-1.74	(-2.60-0.89)	-0.24	0.000
Baseline sense of coherence	-0.20	(-0.28-0.11)	-0.31	0.000
Age	0.21	(0.01-0.41)	0.13	0.040

CRD, chronic respiratory disease; CHF, chronic heart failure; PD, Parkinson's disease.

Table 6 Comparison of self-management by primary diagnosis category

Characteristic	CHF ($n = 62$)	CRD ($n = 78$)	PD ($n = 75$)	CS ($n = 85$)	F , d.f., P *
Self-management					
Mean (SD)	19.67 (13.68)	15.35** (13.62)	26.18 (18.54)	33.46*** (12.23)	22.96, 3297, 0.000
0 (good)-88 (poor)					

*ANOVA with Tukey *post hoc*; ** $P < 0.00$ for CRD to PD; *** $P < 0.00$ for CS to all other diagnostic categories. CRD, chronic respiratory disease; CHF, chronic heart failure; PD, Parkinson's disease; CS, chronic schizophrenia.

might not be as directly applicable for groups that incorporate CS patients.

Despite acceptable levels of self-management overall, some participants had lower scores, most often in patients with CS. This occurred despite accounting for many of the factors that might differentiate CS patients from other participants, including age, gender, length of time diagnosed and marital status. Subsequent investigation showed that CS patients' participation in self-management might differ to the other study participants. Most CS patients were individually case-managed, consequently, medication compliance and appointments were in reality closely supervised by the case managers rather than being self-managed. With some CS patients this was because they were on involuntary orders to comply with medications.

Medications and appointment making and keeping are important components of self-management, and are therefore incorporated into the Partners in Health measure of self-management used in the study. Addition-

ally, oversight of these components by health professionals might also have consequences for other aspects of self-management, including knowledge level and capacity to share in decision-making. These differences are important because they mean that generic chronic illness self-management programmes such as the Stanford Self-Management Program³⁷ led by Lorig and the Flinders Model of Chronic Condition Self-Management³⁸ led by Battersby might need adaptation to incorporate CS patients. This is an important finding, as our study was unusual in that we incorporated patients with chronic mental health problems, which we have not seen reported previously. Interestingly, when the Flinders model was tested on patients with mental health problems, the sample was entirely patients with mental health problems and did not include other primary diagnoses.³⁹ Another explanation is that although all patients in the sample were determined to have a moderate severity of disease, it is possible that the criteria used were not equivalent across different diseases. This is an important issue to address in

future research, particularly if resilient self-management is the focus.

An important component of resilient self-management is that the patient has a strong SOC.²¹ Our study confirmed that SOC is predictive of current and future self-management. Along with the self-efficacy developed over several years of living with a chronic illness, SOC is a resource with which to manage the stressors of life these older patients must face.^{40,41} The development of these resources into resilience is important because these older adults with several comorbid conditions must adapt in the context of significant adversity, and resilience is not a character trait but a process that can be promoted at any stage in an individual's life.⁴² Although it is difficult to make comparisons, as anticipated, the mean SOC score was similar to published norms for people with a chronic condition such as cerebral palsy²⁰ and lower than healthy age equivalents.³³ It is not clear whether SOC can be developed or enhanced and this is worthy of further investigation. However, self-efficacy has been demonstrated to be amenable to intervention as discussed previously, and interventions that foster resilience are being trialed in chronic illness.⁴³

LIMITATIONS

There is a potential that the instruments used to determine moderate severity of illness did not, in reality, result in participants being recruited who had similar levels of illness from all four primary diagnoses included in the study. Also, all instruments depended on self-report so it can't be presumed that the relationships observed reflect self-management measured by other methods. Finally, it might be that conducting baseline interviews at 1 month after hospital discharge meant that any changes in self-efficacy and self-management had already occurred in the 4 weeks that had lapsed.

CONCLUSIONS AND IMPLICATIONS

Patients with chronic illness of moderate severity living in the community with support report moderately good self-management despite a recent illness exacerbation. Although patients with chronic illness have multiple conditions, it can't be presumed that patients with mental health problems such as CS will have similar needs. There is a need to examine whether the support that patients with CS receive contributes to self-management. Future research needs to focus on developing interventions that promote self-efficacy and account for patient's approach

to life as these factors influence self-management. Younger patients with a more recent chronic illness diagnosis are particularly in need of support for self-management.

ACKNOWLEDGEMENTS

The authors acknowledge the financial support provided for the study by the Nurses and Midwives Board of New South Wales and the University of Technology, Sydney, who provided grants for the study to be conducted.

REFERENCES

- 1 Australian Institute of Health and Welfare (AIHW). *Chronic Diseases and Associated Risk Factors in Australia*. Canberra: AIHW, 2002.
- 2 Australian Institute of Health and Welfare. *Health System Expenditure of Diseases and Injuries in Australia 2000–2001*, 2nd edn. Health and Welfare Series No 21, AIHWC Cat No HWE-28. Canberra: AIHW, 2002.
- 3 Australian Institute of Health and Welfare. *Australia's Health 2004*. Canberra: AIHW, 2004.
- 4 UK National Health Service (NHS). *National Primary and Care Trust Development Program, 2004*. Available from URL: <http://www.natpact.nhs.uk/cms/336>. Accessed 9 June 2006.
- 5 National Health Priority Action Council (NHPAC). *National Chronic Disease Strategy*. Canberra: Australian Government Department of Health and Ageing, 2006.
- 6 Lorig KR, Holman H. Self-management education. history, definition, outcomes, and mechanisms. *Annals of Behavioral Medicine* 2003; **26**: 1–7.
- 7 Flinders Human Behaviour & Health Research Unit. *What is self-management? 2004*. Available from URL: <http://som.flinders.edu.au/FUSA/CCTU/What%20is%20Self%20Management.pdf>. Accessed 11 September 2007.
- 8 Holman HR, Lorig K. Perceived self-efficacy in self-management of chronic disease. In: Schwarzer RE (ed.). *Self-Efficacy: Thought Control of Action*, vol. xiv. Washington, DC: Hemisphere Publishing Corp, 1992; 305–323.
- 9 Bandura A. Self-efficacy. In: Ramachaudran VS (ed). *Encyclopaedia of Human Behaviour*, vol. 4. New York: Academic Press, 1994; 71–81.
- 10 Joeekes K, Van Elderen T, Schreurs K. Self-efficacy and overprotection are related to quality of life, psychological well-being and self-management in cardiac patients. *Journal of Health Psychology* 2007; **12**: 4–16.
- 11 Clark NM, Dodge JA. Exploring of self-efficacy as a predictor of disease management. *Health Education and Behavior* 1999; **26**: 72–89.
- 12 Arnold R, Ranchor AV, Dojonste M *et al*. The relationship between self-efficacy and self-reported physical functioning

- in chronic obstructive pulmonary disease and chronic heart failure. *Behavioural Medicine* 2005; **31**: 107–115.
- 13 Ventura J, Nuechterlein KH, Subotnik KL, Green MF, Gitlin MJ. Self-efficacy and neurocognition may be related to coping responses in recent-onset schizophrenia. *Schizophrenia Research* 2004; **69**: 343–352.
- 14 Fuji C, Aoshima T, Sato S, Mori N, Ohkoshi N, Oda S. Nippon Kosy Eisei Zasshi. *Japanese Journal of Public Health* 1997; **44**: 817–826.
- 15 Scherer Y, Bruce S. Knowledge, attitudes and self-efficacy and compliance with medical regimen, number of emergency department visits, and hospitalizations in adults with asthma. *Heart and Lung* 2001; **30**: 250–257.
- 16 Scherer Y, Schmieder L. The role of self-efficacy in assisting patients with chronic obstructive pulmonary disease to manage breathing difficulty. *Clinical Nursing Research* 1996; **5**: 343–355.
- 17 Marks R, Allegrante J, Lorig K. A review and synthesis of research evidence for self-efficacy-enhancing interventions for reducing chronic disability: Implications for health education practice (part II). *Health Promotion and Practice* 2005; **6**: 148–156.
- 18 Rapley P, Fruin D. Self-efficacy in chronic illness: The juxtaposition of general and regimen specific efficacy. *International Journal of Nursing Practice* 1999; **5**: 209–215.
- 19 Clark N, Gong M, Kaciroti N. A model of self-regulation for control of chronic disease. *Health Education and Behaviour* 2001; **28**: 769–782.
- 20 Antonovsky A. The structure and properties of the sense of coherence scale. *Social Science and Medicine* 1993; **6**: 725–733.
- 21 Eriksson M, Lindstrom B. Antonovsky's sense of coherence scale and the relation with health: A systematic review. *Journal of Epidemiology and Community Health* 2006; **60**: 376–381.
- 22 Veenstra V, Moum T, Reysamb E. Relationships between health domains and sense of coherence: A 2-year cross-lagged study in patients with chronic illness. *Quality of Life Research* 2005; **14**: 1455–1465.
- 23 Motzer S, Stewart B. Sense of coherence as a predictor of quality of life in persons with coronary heart disease surviving cardiac arrest. *Research in Nursing and Health* 1996; **19**: 287–298.
- 24 Falk K, Swederg K, Gaston-Johansson F, Ekman I. Fatigue is a prevalent and severe symptom associated with uncertainty and sense of coherence in patients with chronic heart failure. *European Journal of Cardiovascular Nursing* 2007; **6**: 99–104.
- 25 Caap-Ahlgren M, Dehlin L. Sense of coherence is a sensitive measure for changes in subjects with Parkinson's disease during 1 year. *Scandinavian Journal of Caring Sciences* 2004; **18**: 154–159.
- 26 Goldman L, Hashimoto B, Cook E, Loscalzo A. Comparative reproducibility and validity of systems for assessing cardiovascular functional class: Advantages of a new Specific Activity Scale. *Circulation* 1981; **64**: 1227–1234.
- 27 Jones PW, Quirk FH, Baveystock CM. The St Georges Respiratory Questionnaire. *Respiratory Medicine* 1991; **85**: 25–31.
- 28 Fahn S, Elston RLL, Members of the UPDRS Committee. Unified Parkinson's Disease Rating Scale. In: Fahn S, Marsden CD, Goldstein M, Calne DB (eds). *Recent Developments in Parkinson's Disease*, vol. 2. New York: Macmillan Healthcare, 1987; 153–163.
- 29 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 4th edn. Washington, DC: American Psychiatric Press, 1994.
- 30 Battersby M, Ask A, Reece M, Marwick M, Collins J. The Partners in Health Scale: Development and psychometric properties of a generic assessment scale for chronic condition self-management. *Australian Journal of Primary Health* 2003; **9**: 41–52.
- 31 Lorig K, Stewart A, Ritter P, González V, Laurent D, Lynch J. *Outcome Measures for Health Education and Other Health Care Interventions*. Thousand Oaks, CA: Sage Publications, 1996.
- 32 Lorig K, Sobel D, Stewart A *et al.* Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: A randomized trial. *Medical Care* 1999; **37**: 5–14.
- 33 Nesbitt B, Heidrich S. Sense of coherence and illness appraisal in older women's quality of life. *Research in Nursing and Health* 2000; **23**: 25–34.
- 34 Lorig K, Ritter P, Stewart A *et al.* Chronic disease self-management program: 2-year health status and health care utilization. *Medical Care* 2001; **39**: 1217–1223.
- 35 Peduzzi P, Concato U, Kemper E, Holford T, Feinstein A. A simulation study of the number of events per variable in multiple regression analysis. *Journal of Clinical Epidemiology* 1996; **49**: 360–374.
- 36 Rankin S, Stallings P. *Patient Education: Principles and Practice*, 4th edn. Philadelphia, PA: Lippincott, 2001.
- 37 Stanford Patient Education Research Centre. *Chronic disease self-management program*. Available from URL: <http://patienteducation.stanford.edu/programs/>. Accessed 30 November 2007.
- 38 Flinders Human Behaviour & Health Research Unit. The 'Flinders Model' of chronic condition self-management. Available from URL: http://som.flinders.edu.au/FUSA/CCTU/self_management.htm. Accessed 27 September 2007.
- 39 Lawn S, Battersby MW, Pols RG, Lawrence J, Parry T, Urukalo M. The mental health expert patient: Findings from a pilot study of a generic chronic condition self-management programme for people with mental illness. *International Journal of Social Psychiatry* 2007; **53**: 63–74.

-
- 40 Ekman I, Fagerberg B, Lundman B. Health-related quality of life and sense of coherence among elderly patients with severe chronic heart failure in comparison with healthy controls. *Heart and Lung* 2002; **31**: 94–101.
- 41 Surtees P, Wainwright N, Luben R, Khaw K, Day N. Sense of coherence and mortality in men and women in the EPIC-Norfolk United Kingdom prospective cohort study. *American Journal of Epidemiology* 2003; **159**: 1202–1209.
- 42 Gillespie BM, Chaboyer W, Wallis M. Development of a theoretically derived model of resilience through concept analysis. *Contemporary Nurse* 2007; **25**: 124–135.
- 43 Bradshaw BG, Richardson GE, Kumpfer K *et al.* Determining the efficacy of a resiliency training approach in adults with type 2 diabetes. *Diabetes Education* 2007; **33**: 650–659.

Copyright of International Journal of Nursing Practice is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.