Self-Care Responses to Illness of Patients with Various Cancer Diagnoses

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The purpose of this study was to examine the relationship between self-care responses and variables concerning health status, disease and treatment, socioeconomic resources, demographic characteristics, and health beliefs in a heterogeneous sample of 227 cancer patients referred to home care. Data were collected prior to discharge from the hospital using the OARS Functional Assessment Questionnaire, the Karnofsky Performance Status, the Multidimensional Health Locus of Control Scale, and the Preference for Participation in Care Tool. The results indicated that the variables related to health status, disease and treatment were highly correlated with self-care behavior (SCB), and to a lower extent to self-care preference (SCP). Karnofsky performance status, cancer-related impairments, perceived physical health, and stage of disease were identified as significant predictors of SCB explaining 57% of the variance. Age, gender, education, live-in resources, and perceived mental health were dominant predictors of SCP explaining only 17% of the variance. Further research endeavors should investigate other models that might prove to be better predictors of SCP.

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The assessment of patient's self-care ability in response to illness has become an important concern in the organization and delivery of health care services. Due to the continuous reduction of hospital beds in acute care units, patients are being discharged with high levels of dependency (1). The shift of treatment from inpatient settings to outpatient or home-based settings has raised high demands on patient's self-care capabilities. Patients and families have taken increasing responsibility for the physical and emotional care at home (2). Due to financial and economic pressure, lay involvement in health care is expected to grow. In recent years, social scientists and health professionals have shown an increasing research interest in self-care response to illness (3–6).

Definition of self-care

Self-care is defined as "...unorganized health activities and health related decision making by individuals, families, neighbours, friends, colleagues at work, etc..." (7). While some researchers consider self-care and professional care as contrasting behavior (4, 8), Dean's concept of self-care includes the interaction with health professionals (9). With regard to chronic illnesses, self-care reflects an active participation in the recovery process which takes place in cooperation with health professionals. This concept of self-care focuses on aspects of disease management involving lay care activities as well as professional care (10).

Barofsky (11) distinguishes four types of self-care behavior: a) regulatory self-care (e.g. personal hygiene, sleeping); b) preventive self-care (e.g. exercise, dieting); c) reactive self-care (e.g. self-treatment as a response to symptoms); and d) restorative self-care (e.g. compliance with professional care and treatment). The current study focuses primarily on regulatory self-care (activities of daily living) and on restorative self-care (medications). Self-care in the context of cancer management usually continues after hospitalization with varying amounts of outpatient or home care assistance from health professionals. The linkage between self-care and professional care is required, as both are inter-related components of the health care system (10).

Self-care research has been conducted in different areas. Early studies were related to lay treatment (12–15), self-medication (16, 17), and preventive health behavior (18–20). Later studies focused on health beliefs (21), health economics (22), discrepancies between health professionals and patients view of self-care (23), and self-care responses to chronic illnesses (3, 5, 6, 24).

Self-care constitutes a major component in the treatment of common diseases. The efficiency of self-care is influenced by a person's physical health, psychosocial factors,

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and economic resources (24). Previous research identified physical performance as a significant predictor of self-care (3, 6, 25). Empirical results regarding sociodemographic characteristics as correlates of self-care are inconsistent. Green (25) found a strong relationship between education, socioeconomic status and self-care. Dodd & Dibble (6) reported that a higher level of education predicted a greater ability to engage in self-care. In contrast, Dean et al. (3) found weak correlations between education, income and self-care responses to common illnesses. Social support assumed major importance for self-care response to illness (24). However, gender and marital status were not related to self-care behavior.

Several investigators have studied the influence of health beliefs on health maintenance behavior, self-care and decision-making (21, 26). According to the results of some studies, locus of control variables correlated weakly with preventive health practices such as smoking, alcohol consumption, exercise (21), self-care including self-medication (10), and the decision to contact health professionals (27). The findings indicated that self-care behavior is determined by a person's health status and perceived seriousness of symptoms rather than by general health beliefs. Calnan (21) concluded that the concept of locus of control might be more successful in explaining individual responses to illness than preventive health behavior.

Conceptual model

Based on previous research, a conceptual model for explaining self-care was formulated (Fig. 1). This model suggests that patients' self-care responses vary depending on their perception of health status, experience of disease and treatment, socioeconomic resources, demographic characteristics, and health beliefs. Physical condition has been identified as the major determinant of self-care by several investigators (6, 28). A patient's health perception is highly affected by disease and treatment-related factors. For example, individuals with chronic conditions who experience a high number of symptoms and impairments related to cancer will view themselves in poor health and thus, limit their ability for self-care. On the other hand, patients who perceive their physical or mental health to be good, or who experience only mild cancer-related impairments will be able to perform self-care activities independently. Variables related to health status (perceived physical health, perceived mental health, comorbidity status, physical performance) and disease and treatment experience (cancer stage, disease related impairments, medication taken, complexity of care) were thought to be indicators that might influence both the decision to participate in care as well as the actual execution of self-care tasks.

Socioeconomic resources have been considered as potential determinants of self-care by several researchers. Bisno and Richardson (29) reported that patients who experienced negative social interactions and financial problems were dissatisfied with self and vulnerable to depression. Two variables, live-in resources and income were selected for the model.

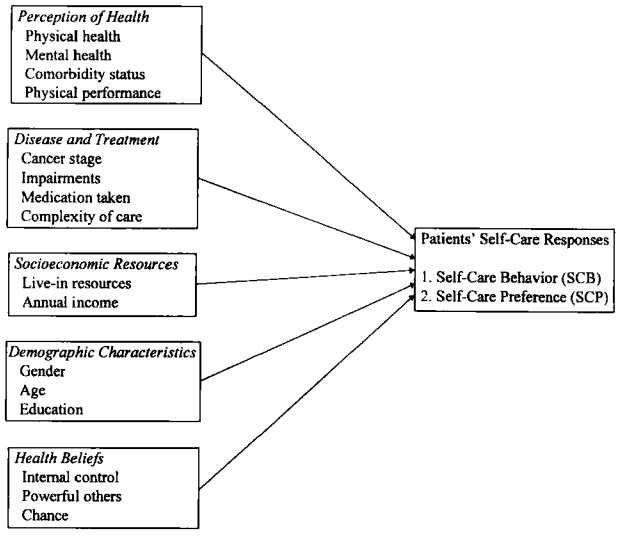

Fig. 1. Conceptual model of self-care.

Demographic characteristics were included, because of the evidence that factors such as gender, education, and age are associated with health-related behaviors (30, 31). Gender differences in health status and in illness-related behavior are evident (24, 32, 33). Women have higher morbidity rates, higher levels of self-care, and are more likely to consult health professionals than men (22). White et al. (34) reported a significant association between low levels of education and cognitive impairments in the elderly. Haug et al. (27) found that the elderly experience more severe symptoms than younger individuals.

Finally, health beliefs were included in the model as cognitive determinants of self-care. According to the theoretical concept, patients with internal locus of control orientation are more positive towards self-treatment and more likely to assume care responsibilities for themselves than patients with external control orientation (35).

The aim of the study was to describe the predictive value of variables related to health status, disease and treatment, socioeconomic resources, demographics, and health beliefs in determining self-care responses of patients with cancer after hospital discharge.

MATERIAL AND METHODS

This report is part of a larger study concerning the complexity of home care for a heterogeneous sample of patients with cancer. Patients were recruited from 10 hospitals within different geographic areas of Los Angeles. They were eligible for the study if they a) were ready for discharge with a physician's referral to home care, b)

required at least one high technology home care procedure, c) spoke English, and d) consented to participate. Data were collected in the hospital during the discharge period. Trained research assistants administered a battery of questionnaires. Information related to disease and treatment was obtained from patient records.

Measures and variables

The variables analyzed in this study derived from the OARS Multidimensional Functional Assessment Questionnaire (OMFAQ) (36); the Karnofsky Performance Status (KPS) (37); the Multidimensional Health Locus of Control scale (MHLC) (38); and the Preference for Participation in Care Tool (PPCT), which was developed by the investigators. Table 1 represents the measures and operational definition of the variables used in the study.

Self-care responses. Two components of self-care responses were examined: self-care behavior (SCB) reflecting the ability to perform daily self-care activities, and self-care preference (SCP) referring to a patients's preference for self-care decisions and actions, rather than relinquish those to family or friends. SCB was measured using the OMFAQ subscale activities of daily living (ADL), which contains two subsets of questions related to a person's ability to to perform self-care. The first set includes 6 physical care items measuring the ability to eat, dress, care for appearance, get in and out of bed, bathe, control bladder and bowel functions. The second set refers to instrumental care assessing the extent to which patients can independently use the telephone, walk, shop, prepare meals, perform housework, handle money, take medications, and go to work. The responses were coded as '3' if patients were able to perform the self-care tasks independently, '2' if they needed some assistance, and '1' if they were completely unable to perform care independently. The score ranged from 14–42 with higher scores indicating more independence in ADL. The measure for SCP derived from the PPCT. This instrument was designed to measure patient preference for self-care in terms of decision-making and physical care. The subscale for cognitive control which measures a person's decision to take care of him/herself or have family or relatives do so was used. The scale consists of four visual analogue items ranging from 0 to 100. Higher scores indicated more decision-making by family or friends, lower scores indicated more decision-making by the patient. The internal consistency was 0.71 (Cronbach's Alpha).

Health status. The assessment of health status relied on four variables: patient perceived physical health, patient

Table 1

Measures and operational definitions of variables

Variables	Instruments	Operational definition	Range
Self-care responses			
Self-care behavior (SCB)	OMFAQ Subscale	Activities of daily living	14–42[a]
Self-care preference (SCP)	PPCT Subscale	Cognitive control	0–100[b]
Health status			
Perceived physical health	OMFAQ Subscale	Physical health	1–10[c]
Perceived mental health	OMFAQ Subscale	Mental health	1–10[a]
Comorbidity status	OMFAQ Single item	Number of comorbid illnesses	0–14
Physical performance	KPS	Performance Status	0–100[a]
Disease and treatment			
Cancer stage	Medical Records	Metastasis/no metastasis	
Disease-related impairments	OMFAQ Single item	Number of impairments	0–15
Medication taken	OMFAQ Single item	Number of medication taken	0–15
Complexity of care	Nurse Rating	Number of care problems	0–20
Socioeconomic resources			
Economic resources	OMFAQ Subscale	Annual income	0–4[a]
Social resources	OMFAQ Subscale	Number of family members	0–9
Demographic characteristics			
Gender, Age, Education			
Health beliefs			
Internal control	MHLC Subscale		6–36[d]
Powerful others	MHLC Subscale		6–36[e]
Chance	MHLC Subscale		6–36[e]

[a] higher score means better health or functioning.
[b] higher score means greater decision-making by the family versus the patient.
[c] higher score means poorer health or functioning.
[d] higher score means more internal control beliefs.
[e] higher score indicates more external control beliefs.

perceived mental health, comorbidity status, and physical performance. The OMFAQ provided subscale scores for perceived physical and perceived mental health with a range from 1 to 10. Higher physical health scores indicated poorer health (more health problems), whereas higher mental health scores indicated better emotional functioning. The comorbidity score was based on a single OMFAQ item asking patients about their comorbid conditions experienced currently and/or in the past six months. The number of illnesses, as well as the extent of illness interference with ADL were added to create the comorbidity score. Scores ranged from 0 to 14 with higher scores indicating a higher level of comorbidity. Assessment of physical performance was based on the widely used KPS scale (37). This expert rating quantifies a patient's ability to function on a scale from zero (lowest functioning) to 100 (highest functioning).

Disease and treatment-related variables. Four variables measured the disease and treatment status: cancer stage, disease-related impairments, medication, and complexity of care. Data concerning diagnosis was obtained from medical charts. Stage was used as a dichotomous variable. Clinical staging was based upon the TNM classification system (39). The sample was divided into patients having metastatic cancer (high stage) and cancer without metastasis (low stage). The score for disease-related impairments was based on a single OMFAQ item which reflected the number of impairments caused by cancer and its treatment (e.g. colostomy). Scores range from zero to 15. The score for medication taken was created in the same way (range 0–15). Complexity of care was generated by the number of general, eliminative, skin, oral, chest, digestive, cardiovascular and neuromuscular problems identified by an oncology nurse as requiring care in the home (range 0–20).

Socioeconomic resources and demographics. The measure of economic resources was based on the total annual family income with scores ranging from zero (lowest level of income) to four (highest level of income). The measure of social resources was based on patients live-in resources (number of persons living in one household). Gender, age (actual age in years) and years in education were included as common sociodemographic characteristics.

Health beliefs. The MHLC scale was used to measure a patient's perception of control over health or disease states (38). The MHLC consists of three subscales: Internal Control, Powerful Others, and Chance. Each scale contains six items scored on a 6-point scale, ranging from 'strongly agree' to 'strongly disagree'. The theoretical concept is based on the assumption that individuals who feel control over their own health are more likely to carry out health-related activities, whereas those who believe in powerful others (e.g. health professionals) will be less likely to participate actively in care (21).

Statistical analysis. Descriptive statistics were used to analyze the demographic and clinical characteristics of the sample. Correlation coefficients were calculated to determine the strength of relationships among variables. Multiple regression analyses were performed to identify predictors of self-care. For this procedure, the two self-care responses (SCB, SCP) were treated as dependent variables. Variables in the conceptual model (health status, disease-related variables, socioeconomic resources, demographics, health beliefs) were used as predictors. The independent variables were entered blockwise into the regression model. This strategy permitted the assessment of the explanatory power of each set of variables. All statistical procedures were carried out using the SAS software (40).

RESULTS

During the study 359 patients were recruited. In 46 of these cases hospital staff did not recommend including the patient into the study, 45 patients did not consent, 25 patients felt too ill to complete the questionnaires, and 16 declined for other reasons. A sample of 227 subjects participated in the study. There were no differences regarding

Table 2

Demographic and medical characteristics of the sample (n = 227)

	n	%
Gender		
Female	162	72
Male	65	28
Age (mean 59 years; SD 14)		
<45 years	33	15
45–65 years	109	48
>65 years	84	37
Education		
High school or less	108	49
College graduate	94	41
Postgraduate	25	10
Social resources (number of family members)		
None	34	15
One	129	57
Two	45	20
Three	19	8
Economic resources (annual income in US $)		
<$9 999	61	30
$10 000–29 999	83	40
$30 000–44 999	21	10
$45 000–59 999	19	9
$ > 60 000	23	11
Site of cancer		
Breast	77	34
Genito-urinary	59	26
Colo-rectal	44	19
Head and neck	14	6
Lung	13	6
Hematologic	6	3
Other diagnoses	14	6
Stage		
Low (no metastasis)	149	68
High (metastasis)	78	32

sociodemographic characteristics between patients who consented and those who were not eligible or refused consent. However, there were more patients with lung cancer and less patients with breast cancer among those who refused. In Table 2 demographic characteristics of the study participants are shown.

The sample comprised 72% female and 28% male patients with cancer. The average was 59 years; almost half of the subjects were between 45 and 65 years of age, more than one-third were over 65 years of age. Subjects were equally likely to have college/high school degree or less. The majority had at least one or more persons living in the same household. Their annual income ranged from about $10 000 to over $60 000. Patients were diagnosed with various kinds of cancer, of which breast (34%), genito-urinary (26%), and colo-rectal cancer (19%) were the most common. More than two-thirds of the subjects had no metastasis (68%), whereas about one-third (32%) were diagnosed with advanced metastatic disease. Patients were treated with cytostatic drugs (curative 28%, palliative 25%), radiotherapy (curative 17%, palliative 13%), surgery (17%) or a combination of therapies.

Relationship between self-care responses and independent variables

Table 3 shows the relationship between self-care responses and variables related to health status, disease and treatment, socioeconomic resources, demographic characteristics and health beliefs. The results show that the independent variables were more strongly related to SCB than to SCP. Out of 16 variables, 10 were significantly correlated with SCB, whereas only 7 variables were significantly correlated with SCP ($p < 0.05$). The correlation coefficients for the relationship between SCB and variables representing patients' health status (perceived mental health, perceived physical health, comorbidity, and KPS) ranged from $r = 0.21$ to $r = 0.77$. Except for mental health, all the correlations reached a significance level of $p < 0.001$.

The correlations between the four measures of health status and SCB were statistically significant. Good mental health, a small number of physical problems, a low level of comorbid conditions, and a high level of physical performance were associated with the ability to execute daily self-care tasks independently. Health status variables were associated with SCP in the other direction, indicating that patients with perceived poor mental health, high comorbid conditions and poor physical performance were less likely to prefer to make self-care decisions themselves. Instead, they preferred that family and friends make the decisions regarding their physical care.

Consistent negative relationships were found between variables related to disease and SCB, indicating that individuals with advanced cancer stages, high levels of physical impairment, high complexity of care, and more medications were less likely to be able to perform daily self-care activities. Medication taken was positively correlated to SCP. The more medications an individual took, the lower the SCP, and the higher the preference for family or friends to control care decisions.

Live-in resources were negatively correlated to SCB, but positively to SCP. Patients with fewer live-in resources were more likely to execute self-care tasks, whereas those with more social resources preferred greater family involvement in care decisions.

Among the set of sociodemographic attributes, gender was significantly correlated with SCB but not with SCP, indicating that females were more likely to perform self-care tasks than men. Age was not associated with either SCB or SCP. A significant inverse relationship was found between education and SCB, meaning that patients with less education preferred to rely on the judgment of their family.

The weakest correlation coefficients were found between health beliefs and the two measures of self-care. None of the associations between the three locus of control dimensions and self-care measures were significant, except the health beliefs dimension 'chance'. This control orientation was significantly related to SCP.

Table 3

Correlation between self-care behavior/preference, health status, disease and treatment related variables, socioeconomic resources, demographics, and health beliefs (n = 227)

	Self-care behavior	Self-care preference
Health status		
Patient perceived mental health	0.21*	−0.22*
Patient perceived physical health	−0.42***	0.05 NS
Comorbidity status	−0.24***	0.12*
Karnofsky Performance Status	0.77***	−0.17*
Disease and treatment related variables		
Medication taken	−0.30***	0.12*
Physical impairments	−0.41***	0.06 NS
Cancer stage	−0.24***	0.01 NS
Complexity of care	−0.40***	0.07 NS
Socioeconomic resources		
Social resources	−0.18**	0.23**
Economic resources	0.03 NS	0.10 NS
Demographics		
Gender	0.19*	−0.09 NS
Age	−0.05 NS	0.09 NS
Education	0.07 NS	−0.21*
Health beliefs		
Internal control	0.13 NS	−0.09 NS
Powerful others	0.07 NS	0.10 NS
Chance	0.01 NS	0.15*

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.
NS not significant.

Table 4

Multiple regression analysis for variables

Variable	B	SE B	β	B	SE B	β
Block: Health status						
Perceived mental health	−0.04	0.18	−0.01	0.03	0.18	0.01
Perceived physical health	−0.54	0.15	−0.19*	−0.43	0.16	−0.15*
Comorbidity status	0.03	0.11	0.01	−0.17	0.13	0.07
Karnofsky Performance Status	0.29	0.02	0.68*	0.26	0.02	0.61*
Block: Disease and treatment related variables						
Medication taken				−0.11	0.10	−0.06
Physical impairments				−0.25	0.13	−0.10
Cancer stage				−0.93	0.54	−0.08
Complexity of care				−0.17	0.12	−0.07
Block: Socioeconomic resources						
Social resources						
Economic resources						
Block: Demographics						
Gender						
Age						
Education						
Block: Health beliefs						
Internal control						
Chance						
Powerful other						
R-square		0.57			0.60	
F-overall		68.77			34.96	
Significance (model)		$p < 0.001$			$p < 0.001$	

* $p < 0.05$

Finally, the correlation between SCB and SCP was $r = -0.15$, which indicates that the two types of self-care responses are widely independent constructs (not shown in table).

Predictors of self-care behavior

Separate multiple regression analyses were conducted using SCB and SCP as outcome variables. The same set of independent variables was used for both models. The variables were entered in blocks. Table 4 shows the result of the regression model with SCB as the dependent variable. For each block of variables the unstandardized coefficient (B), the standard error (SE B), the beta coefficients (β), the explained variance (R-square) and the F-value are presented. The first block, comprising health related variables, explained most of the variance (57%). Perceived physical health and the KPS were significantly related to the ability to execute self-care tasks. Once health status was taken into account, the following three blocks (variables related to disease, socioeconomic resources and demographics) explained an additional 5% of the variance in SCB (62%). When, in the next step, health beliefs were included in the model, the amount of variance explained dropped from 62% to 60%. The results clearly showed that most of the variance was explained by variables related to health status. The KPS emerged as the dominant predictor for SCB. Eliminating KPS, the amount of variance explained by the total model decreased to 35% (not shown in the table). In order to identify the factors that accounted for the most variance of SCB a stepwise regression was performed with the same set of predictors (criterion for entry $\geqslant 0.15$). Four variables, KPS, physical impairments, perceived physical health, and stage of cancer, were selected by the stepwise procedure, accounting for 57% of the variance (Table 5).

To explain SCP the same regression analyses was performed. Table 6 shows the result of the regression model with SCP as the dependent variable. The overall model explains only a total of 20% of the variance in SCP. Health status, disease and treatment-related variables were poor predictors of SCP (7% variance explained). When socioeconomic resources were entered, the model explained 12%

Table 5

Stepwise regression analysis for variables predicting self-care behavior (n = 227)

Variable	B	SE B	β
Karnofsky Performance Status	0.23	0.02	0.60***
Physical impairments	−0.30	0.12	0.14*
Perceived physical health	−0.31	0.14	−0.12*
Cancer stage	−0.03	0.51	−0.10*

$R^2 = 0.57$ ($p < 0.001$)

All variables in the model are significant at the 0.15 level.

predicting self-care behavior (n = 227)

B	SE B	β	B	SE B	β	B	SE B	β
0.09	0.18	0.03	0.09	0.18	0.03	0.14	0.18	0.05
−0.33	0.16	−0.12*	−0.36	0.16	−0.13*	−0.33	0.16	0.13*
0.15	0.13	0.07	0.24	0.14	0.11	0.19	0.13	0.09
0.24	0.02	0.60*	0.24	0.02	0.60*	0.22	0.02	0.58*
−0.10	0.10	−0.06	−0.11	0.19	−0.06	0.15	0.10	−0.10
−0.28	0.13	−0.12*	−0.25	0.13	−0.11*	−0.27	0.13	−0.13*
−1.37	0.54	−0.13*	−1.17	0.55	−0.11*	−0.79	0.54	−0.08
−0.13	0.12	−0.06	−0.12	0.12	−0.05	0.02	0.12	0.01
−0.35	0.30	−0.06	−0.51	0.32	−0.08	−0.45	0.31	−0.08
−0.03	0.12	−0.01	−0.06	0.13	−0.03	−0.13	0.12	−0.06
			0.63	0.60	−0.05	0.060	0.58	0.06
			−0.03	0.02	−0.08	−0.01	0.02	−0.04
			0.14	0.14	0.05	0.28	0.14	0.11*
						0.02	0.05	0.02
						0.06	0.04	0.08
						−0.01	0.05	−0.01
	0.61			0.62			0.60	
	27.47			21.69			14.89	
	$p < 0.001$			$p < 0.001$			$p < 0.001$	

variance. Further, when including demographics the variance explained increased to 19%. Surprisingly, none of the three dimensions of health beliefs, entered last, contributed significantly to the variance explained. The predictive value of locus of control for SCP is as low as for SCB. Demographic characteristics accounted for the most variance in explaining SCP. However, variables related to physical health had no significant impact. Table 7 shows the result of the stepwise regression model. The five strongest predictors selected were education, live-in resources, age, perceived mental health, and gender explaining only 17% of the variance in SCP.

DISCUSSION

After hospitalization, cancer patients undertake a number of self-care activities to attain independence in daily living. This paper investigated the determinants of self-care behavior and preference of cancer patients in the home setting. The results demonstrate strong correlations between variables related to physical health, physical performance, disease related variables and behavioral aspects of self-care. These associations were further analyzed and supported in the regression models, where physical factors emerged as the dominant predictors of self-care behavior. Factors associated with physical health apparently determine the broad range of patients' functioning and well-being after discharge from hospital. The patient rating of physical health as well as the KPS, rated by the interviewer, had the highest impact within the model. The KPS was identified by others as a significant predictor of self-care (6). In contrast to Dodd & Dibble (6) who found that patients with low KPS scores performed more self-care activities, this study revealed a positive relationship between the two factors. Similar to others, stage of cancer was found to be a significant predictor that affects patients' ability to engage in self care (41).

Health status and disease-related variables in this study were better correlates of behavioral self-care than of decision-making aspects of self-care. None of the variables representing physical health and disease experience were related to a person's SCP.

Social resources were identified as the most important predictor of SCP. This result indicated that patients with more live-in resources preferred to rely on the judgments of their family rather than on their own decisions about self-care. In this study, a significant negative relationship between live-in resources and SCB was found, indicating that patients with fewer live-in resources were more likely to perform self-care tasks. As Dodd & Dibble (6) concluded, lower levels of support necessarily mobilize more self-care activities.

Demographic variables were more important for SCP than for SCB. Education, for example, had a major impact on decision-making regarding physical care. Patients with high levels of education preferred to make decisions by

Table 6

Multiple regression model for variables predicting

Variable	B	SE B	β	B	SE B	β
Block: Health status						
Perceived mental health	−2.47	0.95	−0.21*	−2.24	−1.01	−0.19*
Perceived physical health	−0.04	0.79	−0.11	−1.18	−0.90	−0.12
Comorbidity status	0.59	0.59	0.07	−0.57	0.70	0.07
Karnofsky Performance Status	−0.21	0.11	−0.14	−0.17	0.12	−0.12
Block: Disease and treatment related variables						
Medication taken				0.26	0.55	0.04
Physical impairments				0.12	0.76	0.01
Cancer stage				−0.05	3.05	−0.00
Complexity of care				−0.06	0.67	0.01
Block: Socioeconomic resources						
Social resources						
Economic resources						
Block: Demographics						
Gender						
Age						
Education						
Block: Health beliefs						
Internal control						
Chance						
Powerful other						
R-square		0.07			0.07	
F-overall		3.69			1.48	
Significance (model)		$p < 0.05$			$p < 0.05$	

* ($p < 0.05$)

themselves than to have others make the decisions related to self-care. Corresponding with this result, Segal & Goldstein (10) found that a high level of formal education was directly related to the tendency to self-treatment in common symptoms of illnesses. Age and gender were not correlated to SCB and not highly correlated to SCP although both were selected as significant predictors in the stepwise regression for SCP. The relationship between demographic variables and self-care needs further investigation.

Finally, health locus of control was thought to be an indicator of the person's preference for decision-making in terms of physical care. However, the assumption that health beliefs are related to self-care was not supported. This is consistent with the results of a large community survey conducted by Calnan (21), who found weak relationships between internal locus of control and three different types of health-related behavior. Health beliefs, as measured by the MHLC scale, apparently have very limited influence on health behavior, health-related decision making (24) as well as on self-care responses as shown in this study.

Further research endeavors should investigate other models that might prove to be better predictors of SCP. Perhaps, studies of self-efficacy might prove to be productive.

Table 7

Stepwise regression model for variables predicting patients self-care preference (n = 227)

Variable	B	SE B	β
Perceived mental health	−1.70	0.84	0.15*
Social resources	5.65	1.65	0.27***
Gender	−4.32	2.91	−0.11
Age	0.27	0.10	−0.21**
Education	−1.53	0.72	−0.16*

$R^2 = 0.17$ ($p < 0.001$)

All variables in the model except gender are significant at the 0.15 level.

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patients self-care preference (n = 227)

B	SE B	β	B	SE B	β	B	SE B	β
−1.91	−0.10	−0.17*	−1.78	0.98	−0.14	−1.74	−1.01	−0.15
−1.17	−0.87	−0.12	−0.87	0.86	−0.09	−0.75	0.91	−0.08
0.44	0.71	0.06	−0.31	0.75	−0.04	−0.22	0.76	−0.03
−0.07	0.12	−0.05	−0.07	0.12	0.05	−0.04	0.12	0.03
0.72	0.61	0.11	0.86	0.60	0.14	1.06	0.61	0.16
0.26	0.75	0.03	0.09	0.73	0.01	0.02	0.73	0.00
−0.77	2.99	−0.02	2.27	2.96	−0.06	−3.48	3.01	−0.09
−0.41	0.65	−0.05	−0.48	0.65	−0.06	−0.58	0.65	−0.07
4.81	1.61	0.23*	5.98	1.71	0.29*	5.89	1.73	0.28*
−0.98	0.68	−0.12	−0.76	0.70	−0.10	−0.85	0.72	−0.11
			−5.55	3.20	0.14	−6.15	3.21	−0.15
			0.23	0.12	0.18*	0.21	0.12	0.16
			−1.51	0.77	−0.15	−1.60	0.80	−0.16*
						−0.29	0.25	−0.09
						−0.08	0.24	−0.03
						−0.01	0.26	−0.00
	0.12			0.19			0.20	
	2.27			2.82			2.41	
	$p<0.05$			$p<0.05$			$p<0.05$	

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