Research Article

Factors influencing finances, schedule, and health of family caregivers with hospitalized relatives in the USA

Pi-Ming Yeh*

School of Nursing and Health Professions, Missouri Western State University, USA

Abstract

Aim: The purpose of this study was to examine the factors influencing finances, schedule, and health of family caregivers with hospitalized relatives in the USA.

Methods: There were 123 family caregivers and 123 patients recruited from medical and surgical units in a Medical Center in the USA. The mean age of family caregivers was 54.80 years. The majority were female and married. The mean age of hospitalized patients was 65.68 years. About 52% of patients were diagnosed with Cancer and 48% with Chronic Diseases. A descriptive correlational research design was used. Data were collected using structured questionnaires. SPSS 23 was used to do the data analysis.

Results: The findings indicated that the following factors had statistically significant positive relationships with family caregiver burden: family caregiver's age, patient's total symptoms, patient's total activity of daily living (ADL) dependency, and lack of family support. The following factors had statistically significant negative relationships with family caregiver burden: psychological well-being, quality of caregiver-care receiver relationship, and knowledge of caregiving. According to the Multiple Regressions, the significant predictors of impact on finances of family caregivers were patient's total ADL dependency and health status after being a caregiver. The significant predictors of impact on schedule of family caregivers were patient's total symptoms, lack of family support, and knowledge of caregiving. The significant predictors of impact on health of family caregivers were family caregiver's age, patient's total symptoms, quality of caregiver-care receiver relationship, lack of family support, knowledge of caregiving, and health status after being a caregiver.

Conclusion: It is vital for nurses to assess family caregivers' needs and resources and the quality of the family caregiver-care receiver relationship in developing a plan of care that reduces family caregiver burden.

Introduction

In the USA, during 2000-2010, 25.6% of all households had at least one household member of any age with a disability or limitation [1]. There are 40.4 million family caregivers in the USA who take care of adults with age 65 years old or older. Forty-four percent of family caregivers take care of their parents. One in five of caregivers provide care on daily basis. Many family caregivers are juggling their own jobs with their caregiving responsibilities. Sixty-one percent of caregivers are employed, including nearly half who work full-time. In fact, about a quarter (23%) of adults ages 45 to 64 cares for an aging adult. Fifty-eight percent of family caregivers helped their parents with errands, housework or home repairs. Sixty-eight percent of family caregivers provide some emotional support to their parents at least sometimes. Eighty-eight percent of family caregivers feel it is rewarding to being a caregiver and only 32% feel stressful [2].

Twenty- two percent of caregivers feel their health have gotten worse as a result of caregiving. The longer a caregiver has been providing care, the more likely she or he is to report fair or poor health. Experiencing physical strain (32%) and emotional stress (46%) resulting from caregiving is common among higher-hour caregivers. Chronic or long-term conditions among care recipients seem to be particularly likely to cause emotional stress for caregivers, as about one out of every two caregivers of someone with a mental health issue (53%), Alzheimer's or dementia (50%), or a long term physical condition (45%) report feeling emotional stress [3]. About one in five caregivers reports experiencing financial strain (18%).

Few studies have examined family caregivers of patients with cancer and chronic illness in the hospital in the USA. Few studies examined the associations among the family caregivers' psychological well-being, the quality of the family caregiver-patient relationship, family support, caregiving knowledge, and patients' ADL dependency with the impact on family caregivers' finances, schedule, and health in the hospital in the USA.

Aim

The purpose of this study was to examine the factors influencing finances, schedule, and health of family caregivers with hospitalized relatives in the USA.

Theoretical framework

The theoretical framework used to guide this study is based on a modification of the Resiliency Model of Family Stress, Adjustment and Adaptation [4,5]. The resiliency model emphasizes family adaptation

and focuses on illness as a stressor affecting family life. In this study, patient's ADL dependence and symptoms are viewed as a stressor affecting family life. In the adaptation process, seven factors influence the caregiver's reaction: (1) Family caregiver's age, (2) Family caregiver's health status after being a caregiver, (3) the length of caregiving experiences, (4) family caregiver's psychological well-being, (5) caregiving knowledge of family caregivers, (6) family support, and (7) quality of the family caregiver-patient relationship. Family caregiver's psychological well-being and quality of family caregiver-patient relationship are elements of family appraisal. Caregiving knowledge is an element of problem solving and coping. Family support is viewed as an element of family resources and social support. In this study, impact on family caregiver's finances, schedule, and health are viewed as outcomes of family caregiver burden (Figure 1).

Research questions

1. What were the relationships between the main variables and the impact on family caregivers' finances, schedule and health, and family caregiver burden?

2. How much of family caregivers' finances, schedule, and health impacts were predicted by these main variables?

Background

Family caregiver burden

According to the review of literature, factors influencing family caregiver burden should be considered from multiple dimensions, including finances, schedule, and health strains. Financial strain is commonly reported by higher-hour caregivers [3]. Caregivers who live more than an hour away from their care receivers, report higher levels of financial strain (21%) [3]. Family caregivers pay the costs for patients, including medical care, long-term care, home care, and the loss of productivity [6-9].

About the schedule strain, six in 10 caregivers report having to make a workplace accommodation as a result of caregiving, such as cutting back on their working hours, taking a leave of absence, receiving a warning about performance or attendance, or other such impacts [3]. Yeh and Chang [5] indicated there was middle high level of impact on schedule (M=16.56, SD=4.40; Range 5-25) as being a caregiver. The family caregivers' work hours after taking care of

patients were significantly lower than before taking care of patients (t=-7.68, p<0.001) [5].

From the physical health perspective, caregiver muscle strain and back pain were common [7-10]. Some family caregivers have negative symptoms of mental health, for example, nervous, sad, blue, cannot relax, feeling crying, feeling something bad will happen, muscle pain, depression, and anger [7,10,11]. Family caregivers have also experienced social impact (e.g., divorce risk, changes in life style and job, isolation and loneliness) [7-11]. Therefore, based on the review of literature, family caregiver's burden includes finances, schedule, and health impacts.

Factors influencing impact on family caregiver's finances, schedule, and health

Patients' ADL dependency: Yeh and Chang [11] indicated that sacrifice and strain were significantly associated with patient's ADL dependency. Family caregivers whose patients' ADL dependency was increasing experienced a greater sacrifice and strain. Dependency and loss of control were also significantly associated with patient's ADL dependency. Family caregivers whose patients' ADL dependency was increasing experienced a greater feeling of care receivers' dependency and a greater loss of control [11]. Family caregiver burden was significantly associated with patients' ADL dependence [9].

Psychological well-being: Psychological well-being is an important internal resource to support family caregivers when they cope with their caregiving tasks and face their life issues. Yeh and Chang [11] indicated that embarrassment or anger were significantly associated with family caregivers' psychological well-being. Family caregivers who had better psychological well-being experienced a lower feeling of embarrassment or anger . Loss of control was also significantly associated with family caregivers' psychological well-being. Family caregivers who had better psychological well-being experienced lower loss of control [11]. Increasing psychological well-being significantly decreased the negative impact on family caregivers' health status among Taiwanese family caregivers [8].

Quality of relationship between family caregiver and care receiver: Yeh and Chang [11] indicated the following five factors: 1. sacrifice and strain, 2. inadequacy, 3. embarrassment or anger, 4. dependency, and 5. loss of control were significantly associated with quality of relationship between family caregivers and care receivers [11]. Family caregivers who had a better quality of relationship experienced lower sacrifice and strain and family caregivers felt they should be doing more for their relatives or they could do a better job in caring for their relatives [11]. Family caregivers experienced a lower feeling of embarrassment or anger and experienced lower perception of care receivers' dependency when they had better quality of family caregiver-patient relationship, therefore family caregivers experienced lower loss of control [11]. The quality of relationship between caregivers and care receivers could decrease the level of family caregiver burden [8,9] and the quality of relationship could be improved by communication skills [12] and filial obligation [13-15].

Caregiving knowledge: Family caregivers' knowledge of caregiving increased their caregiving mastery, self-efficacy, competence, and preparedness [16]. Yeh and Chang indicated the following two factors: 1. embarrassment or anger and 2. loss of control were significantly associated with caregiving knowledge [11]. Family caregivers who had more caregiving knowledge experienced a lower feeling of embarrassment or anger and experienced lower loss of control [11]. Family caregivers' knowledge contributes to better overall caregiving outcomes [17].
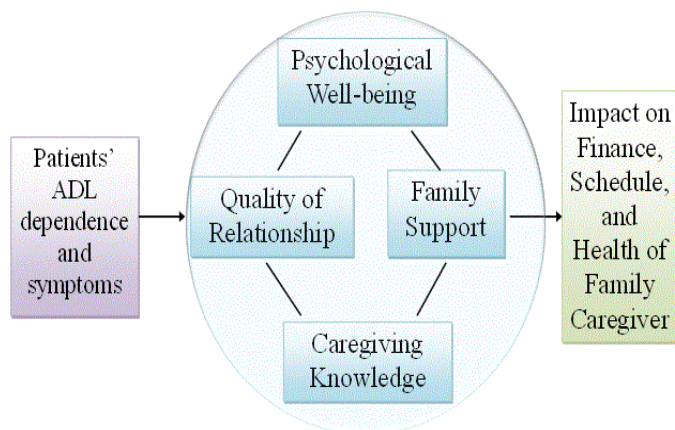
Theoretical Framework

Figure 1. A modification of the resiliency model of family stress, adjustment, and adaptation [4,5]

Family support: Family caregivers who share the role (respite caregivers) have significantly lower levels of family caregiver burden than sole caregivers [18]. Yeh and Chang indicated the following four factors: 1. sacrifice and strain, 2. embarrassment or anger, 3. dependency, and 4. loss of control were significantly associated with lack of family support. Family caregivers who lacked family support experienced a greater sacrifice and strain, a greater feeling of embarrassment or anger, a greater feeling of patients' dependency, and at the end they experienced a greater loss of control [11]. Family caregivers with high levels of emotional support exhibited a low level of depression [19], while lack of family support was found to predict significantly greater negative impact on family caregivers' health status [8,20] and family caregiver burden [9]. Therefore, lack of family support is an important factor of family caregiver burden [7-9,18].

Methods

Design

This was a descriptive, correlational research design to examine the relationships among caregiving knowledge, family support, quality of caregiver-care receiver relationship, and psychological well-being with the impact on family caregiver's finances, schedule, and health. The structured questionnaires were used to do the data collection.

Sample and Setting

A convenience sample of 123 primary family caregivers and 123 hospitalized patients diagnosed with cancer and chronic illness were recruited in the general medical rooms and cancer unit in a Medical Center in the USA. The sampling criteria for the primary family caregivers were as follows: (a) a minimum age of 18 years; (b) ability to read and write English; (c) assumption of primary responsibility for providing care to the patient in the hospital for at least 4 days per week and at least 4 hours per day; (d) ability to provide care for a patient diagnosed with cancer and chronic illnesses who needed assistance with at least one of the Activities of Daily Living (ADL).

Ethical considerations and Data collection

This study's IRB has been approved by the hospital and the university. The participants were recruited by the researcher in the unit according to sampling criteria. The researcher using inform consent explained the purpose of this study to the patients' family caregivers. If family caregivers were willing to participate, they were asked to sign the informed consent and to complete the questionnaires. The family caregivers returned the questionnaires to the researcher after they completed the questionnaires. They received an USD10 gift card in order to express thanks to them for participating in the study.

Data collection instruments

Four instruments were used to do the data collection in order to measure caregiving knowledge, psychological well-being of family caregivers, patients' ADL dependence, quality of caregiver-care receiver relationship, family support, and family caregiver burden including impact on finances, schedule and health. All instruments were selected according to their reliability and validity.

Caregiving Knowledge : The Family Caregiver Factor Inventory was developed by Shyu [21] for older adults' home health assessment including caregiver self-expectations, caregiving resources, caregiving task difficulty and caregiving knowledge subscales. The subscale of caregiving knowledge was used to measure the caregiver's knowledge level about how to take care of the care receiver. The coefficient of internal

consistency reliability was 0.91. Construct validity was examined by the confirmatory factor analysis. The result of factor analysis demonstrated an excellent overall fit. There are 7 items in this subscale. Participants were asked to rate each item on a five-point Likert scales ranging from 1=completely not understanding, to 5=understanding completely. The total score is 35, and the lowest possible score is 7. In this study, the internal consistency reliability was 0.916.

Psychological Well-Being Scale (PWBS): Ryff developed the 18 item PWBS that was used to measure family caregivers' psychological well-being [22]. There were six subscales: autonomy, environmental mastery, purpose in life, personal growth, positive relations with others, and self-acceptance subscales in this questionnaire. The items were scored on a six point Likert-type scale ranging from (1) strongly disagree to (6) strongly agree. Higher scores indicate better psychological well-being. The maximum total score is 108, and the minimum score is 18. Confirmatory factor analyses were used to examine the validity of the scale [23]. In previous research, this questionnaire had a good internal consistency reliability that Cronbach's alphas ranged from 0.83 to 0.91 [22]. The Cronbach's alpha was 0.819 in this study.

Index of ADL : Katz, Ford, Moskowitz, Jackson, and Jaffe [24] developed the Index of Activities of Daily Living (Index of ADL) was used to measure patients' activities of daily living dependency. Family caregivers reported the patients' ADL dependencies according to the five questions, such as getting in/out of bed, getting to/using toilet, getting dressed/undressed, eating, walking (from 1=no help needed to 4=cannot do it; alpha=0.90) [25]. The highest score is 20, and the lowest score is 5. Higher scores indicate higher patients' ADL dependency. The construct validity of the ADL index was examined by the sample of older people with chronic diseases [26]. In this study, the Cronbach's alpha was 0.929.

Caregiver Reaction Assessment (CRA): CRA was developed by Given, *et al.* [27] that includes 24 items and consists of the following five subscales: (a) Caregiver's Esteem, (b) Lack of Family Support, (c) Impact on Health, (d) Impact on Schedule, and (e) Impact on Finances. The CRA has been examined by rigorous psychometric tests including content validity, construct validity, exploratory validity, and confirmatory factor analysis. Family caregivers were asked to rate each item on a five-point Likert scale ranging from strongly agree (5) to strongly disagree (1).

The internal consistency reliability for each subscale has been examined based on a sample of 377 family caregivers of cancer or Alzheimer's patients revealed a high degree of reliability for each subscale with Cronbach's alphas ranging from 0.80 to 0.90 [27]. The Cronbach's alpha was 0.90 for Esteem Subscale, 0.85 for Lack of Support Subscale, 0.80 for Impact on Health Subscale, 0.82 for Impact on Schedule Subscale, and 0.81 for Impact on Finances Subscale [27].

Construct validity has been examined by the stable factor structures across comparison groups: diseases (Alzheimer's and cancer), patient-caregiver relationships (spouses vs. non-spouses), and three cross-sectional comparisons [27]. The construct validity was highly significant, large, and remarkably stable over time [27]. The construct validity of the CRA instrument also has been examined by the correlation between the CRA subscales and depression [27].

Family caregiver burden was measured by the total scores of the subscales of Impact on Finances (3 items), Impact on Schedule (5 items) and Impact on Health (4 items). Family caregivers were asked to rate each item on a five-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Higher scores indicate more family

caregiver burden and the range is 12-60. In this study, the coefficient of the internal consistency reliability was 0.79 for family caregiver burden in this study.

Quality of the relationships between family caregivers and patients was measured by Caregiver's Esteem Subscale. The items in the Caregiver's Esteem Subscale are related to the family caregivers' feeling about the caregiving tasks and the interaction between family caregivers and care receivers [27]. The Caregiver's Esteem Subscale contains seven items with a highest score of 35, and a lowest score of 7. Higher scores indicate better quality of relationship between family caregivers and patients. In this study, the coefficient of the internal consistency reliability was 0.812.

Lack of Support subscale was used to measure the support resources from relatives and friends. It includes five items. The highest score is 25, and the lowest score is 5. Higher scores indicate lower support resources. In this study, the coefficient of the internal consistency reliability was 0.819.

Data analysis

The analyses were conducted using the Statistic Package for the Social Sciences (SPSS) PC + Version 23.0 [28]. Descriptive statistics (mean, SD, range, frequency, and percent) were used to describe the study sample. Pearson-Product Moment Correlation and Stepwise Multiple Regression analyses were also used to answer the research questions this study.

Results

Descriptions of family caregivers

One-hundred and twenty-three family caregivers were recruited in this study. The age of family caregivers ranged from 18 to 85 years old with a mean age of 54.80 years (SD=15.32). The majority were female (n=92, 74.8%), and married (n=88, 71.5%). Seventy-seven family caregivers (62.6%) had a high school education and 28 family caregivers (22.7%) had a college or graduate school education. Sixty-four family caregivers (52%) had over than one year caregiving experiences. The majority of family caregivers believed in Jesus (n=99, 80.5%). The monthly income for 55 (44.7%) family caregivers was over than USD 1667.

Descriptions of patients

The age of patients ranged from 27 to 92 years with a mean age of 65.68 years (SD=14.09). The majority were male (n=67, 54.5%) and married (n=69, 56.1%). Twenty one patients (17.1%) were divorced and 20 (16.3%) were widowed. The diagnoses of patients included 64 (52%) cancer and 59 (48%) chronic diseases. The majority of patients had high school education 66 (53.7%). Total symptom ranged 0-14, and the patients had symptoms (M=4.71, SD=2.29). The top six symptoms that patients experienced included: fatigue (n=92, 74.8%), pain (n=89, 72.4%), loss of appetite (n=56, 45.5%), weight loss (n=55, 44.7%), low blood count (n=46, 37.4%), and Nausea Vomiting (n=40, 32.5%). The patients' ADL dependency ranged from 5 to 20 (M=9.68, SD=3.95) (Table 1).

Pearson Correlations between the main variables and the impact on family caregiver's finances, schedule, and health as well as family caregiver burden

Impact on family caregiver's finances

Impact on family caregiver's finances was significantly positive associated with patient's total ADL dependency (r=0.237, p≤0.01)

Table 1. Patients (*N*=123) and family caregiver (*N*=123) characteristics

Variables	Patients (27-92 years)		Family caregivers (18-85 years)	
	M	*SD*	*M*	*SD*
Age	65.68	14.09	54.80	15.32
Total Symptoms (0-14)	4.71	2.92		
Mobility (1-5)	3.54	1.29		
Total ADL	9.68	3.95		
	n	*%*	*n*	*%*
Gender				
Male	67	54.5	31	25.2
Female	56	45.5	92	74.8
Marital Status				
Single	10	8.1	14	11.4
Divorced	21	17.1	12	9.8
Separated	3	2.4	3	2.4
Widowed	20	16.3	6	4.9
Married	69	56.1	88	71.5
Education				
Elementary School and under	4	3.3	1	0.8
Middle School	15	12.2	5	4.1
High School	66	53.7	77	62.6
2 yr tech school	11	8.9	12	9.8
Undergraduate	22	17.9	17	13.8
Graduate school	5	4.1	11	8.9
Caregiving Experience				
Less than 1 month			12	9.8
Less than 1 year			47	38.2
Over 1 year			64	52.0
Religion				
Not religious			13	10.6
Buddhist			1	0.8
Believe in Jesus			99	80.5
Taoism			1	0.8
Other			9	7.3
You are care receiver's				
Friend			5	4.1
Son			9	7.3
Daughter			22	17.9
Husband			18	14.6
Wife			43	35.0
Daughter in law			3	2.4
Other relative			23	18.7

(Table 2). Family caregivers whose patients' ADL dependency was increasing experienced a greater impact on their finances.

Impact on family caregiver's schedule

The following factors had statistically significant positive relationships with impact on family caregiver's schedule: patient's total symptoms (r=0.302, p≤0.001) and lack of family support (r=0.417, p≤0.001) (Table 2). Family caregivers whose patients' total symptoms and who lack of family support were increasing experienced a greater impact on their schedule.

The following factors had statistically significant negative relationships with impact on family caregiver's schedule: psychological well-being (r=-0.222, p≤0.05), quality of caregiver-care receiver relationship (r=-0.208, p≤0.05), and knowledge of caregiving (r=-0.316, p≤0.001). Family caregivers who had better psychological well-

Table 2. Pearson correlation between main variables and family caregiver burden (*N*=123)

Variables	Family caregiver burden	Impact on finances	Impact on schedule	Impact on health
Family Caregiver's age	0.226*	0.136	0.100	0.302***
Patient's total symptoms	0.271**	0.064	0.302***	0.235**
Patient's total ADL	0.191*	0.237**	0.066	0.167
Psychological Well-being	-0.254**	-0.093	-0.222*	-0.264**
Quality of Relationship	-0.243**	0.014	-0.208*	-0.350***
Lack of Family Support	0.436***	0.108	0.417***	0.455***
Knowledge of Caregiving	-0.312***	-0.106	-0.316***	-0.351***

*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$ (*r* value in the table)

being, better quality of relationship, and more caregiving knowledge experienced lower impact on schedule (Table 2).

Impact on family caregiver's health

The following factors had statistically significant positive relationships with impact on family caregiver's health: Family Caregiver's age (*r*=0.302, $p \leq 0.001$), patient's total symptoms (*r*=0.235, $p \leq 0.01$) and lack of family support (*r*=0.455, $p \leq 0.001$). Family caregivers whose age and patients' total symptoms and who lack of family support were increasing experienced a greater impact on their health.

The following factors had statistically significant negative relationships with impact on family caregiver's health: psychological well-being (*r*=-0.264, $p \leq 0.01$)**,** quality of caregiver-care receiver relationship (*r*=-0.350, $p \leq 0.001$), and knowledge of caregiving (*r*=-0.351, $p \leq 0.001$). Family caregivers who had better psychological well-being, better quality of relationship, and more caregiving knowledge experienced lower impact on health (Table 2).

Family caregiver burden

The findings indicated that the following factors had statistically significant positive relationships with family caregiver burden: family caregiver's age (*r*=0.226, $p \leq 0.05$), patient's total symptoms (*r*=0.271, $p \leq 0.01$), patient's total activity of daily living (ADL) dependency (*r*=0.191, $p \leq 0.05$), and lack of family support (*r*=0.436, $p \leq 0.001$). Family caregivers whose age, patients' total symptoms, and patient's total ADL dependency and who lack of family support were increasing experienced a greater family caregiver burden.

The following factors had statistically significant negative relationships with family caregiver burden: psychological well-being (*r*=-0.254, $p \leq 0.01$)**,** quality of caregiver-care receiver relationship (*r*=-0.243, $p \leq 0.01$), and knowledge of caregiving (*r*=-0.312, $p \leq 0.001$). Family caregivers who had better psychological well-being, better quality of relationship, and more caregiving knowledge experienced lower family caregiver burden (Table 2).

Predictors of impact on family caregiver's finances, schedule, and health, as well as family caregiver burden

Predictors of impact on family caregiver's finances

Stepwise Multiple Regression was used to analyze how much impact on finances was predicted by the eight independent variables, including: family caregiver's age, patient's total symptoms, patient's total ADL, psychological well-being, quality of caregiver-patient relationship, lack of family support, knowledge of caregiving, and health status after being a family caregiver. The model variables accounted for 11.7% of the impact on finances variance. Higher scores of patient's total ADL dependency (β=0.215, $p \leq 0.05$) and lower scores of family caregiver's

health status (β=-0.249, $p \leq 0.01$) were found to predict significantly greater impact on family caregiver's finances (Table 3).

Predictors of impact on family caregiver's schedule

Stepwise Multiple Regression was used to analyze how much impact on schedule was predicted by the eight independent variables. The model variables accounted for 27.9% of the impact on schedule variance. Increasing patient's total symptoms (β=0.24, $p \leq 0.01$) and lack of family support (β=0.333, $p \leq 0.001$) were found to predict significantly greater impact on family caregiver's schedule (Table 3).

Predictors of impact on family caregiver's health

Stepwise Multiple Regression was used to analyze how much impact on health was predicted by the eight independent variables. As shown in Table 3, the model variables accounted for 47.5% of the impact on health variance. Increasing family caregiver's age (β=0.24, $p \leq 0.001$), the patient's total symptoms (β=0.19, $p \leq 0.01$), and lack of family support (β=0.312, $p \leq 0.001$) were found to predict significantly greater impact on family caregiver's health (Table 3).

Lower scores of quality of caregiver-patient relationship (β=-0.153, $p \leq 0.05$), lower scores of caregiving knowledge (β=-0.151, $p \leq 0.05$), and lower scores of family caregiver's health status (β=-0.261, $p \leq 0.001$) were found to predict significantly greater impact on family caregiver's health (Table 3).

Predictors of family caregiver burden

Stepwise Multiple Regression was used to analyze how much family caregiver burden was predicted by the eight independent variables. As shown in Table 3, the model variables accounted for 37.4% of the family caregiver burden variance. Increasing family caregiver's age (β=0.198, $p \leq 0.05$), the patient's total symptoms (β=0.218, $p \leq 0.01$), and lack of family support (β=0.349, $p \leq 0.001$) were found to predict significantly greater family caregiver burden. Lower scores of caregiving knowledge (β=-0.191, $p \leq 0.05$) and lower scores of family caregiver's health status (β=-0.168, $p \leq 0.05$) were found to predict significantly greater family caregiver burden (Table 3).

Discussion

Family caregivers

In this study, most of the family caregivers were females (*n*=92, 74.8%) and married (*n*=88, 71.5%), similar to the study in the Taiwan [5,10,11] and in the USA [7,9,10]. The average age of the family caregivers was 54.8 (*SD*=15.32) that is older than those in the Taiwan [5,8,10,11]. The majority of family caregivers were wives of patients (*n*=43, 35%) in this study, but in Taiwan, the majority family caregivers were daughters (*n*=50, 25%) [11]. This situation may be related to the culture differences. In Taiwan, it is the adult children's responsibility to take care of sick and old parents or to hire foreign laborers if they are not available to take care of their parents [5,11].

Predictors of impact on family caregiver's finances, schedule, and health

Impact on family caregiver's finances

In this study, according to the Multiple Regression, patient's ADL dependency and family caregiver's health status after being a caregiver were significant predictors of impact on finances (Table 3). Family caregivers whose patients' ADL dependency was increasing experienced a greater impact on their finances. This result is similar to

Table 3. Multiple regression of family caregiver burden with its predictors (*N*=123)

Variables	Family caregiver burden		Impact on finances		Impact on schedule		Impact on health	
	β	*t*	*β*	*t*	*β*	*t*	*β*	*t*
Family Caregiver's age	0.198	2.537*					0.240	3.350***
Patient's total symptoms	0.218	2.920**			0.240	3.059**	0.190	2.755**
Patient's total ADL			0.215	2.500*				
Quality of Relationship							-0.153	-2.034*
Lack of Family Support	0.349	4.542***			0.333	4.116***	0.312	4.134***
Knowledge of Caregiving	-0.191	-2.499*			-0.214	-2.667**	-0.151	-2.096*
Health Status After being a Family Caregiver	-0.168	-2.165*	-0.249	-2.887**			-0.261	-3.640***
	R^2= 0.374		R^2= 0.117		R^2= 0.279		R^2= 0.475	
	$F(df = 5,117)$=13.978***		$F(df=2,120)$=7.985***		$F(df=3,119)$=15.360***		$F(df=6,116)$=17.474***	

*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$ (*β* value in the table)

Yeh and Bull's study in 2012 in the USA [9], but it is different from the result of Yeh and Chang in 2012 in Taiwan [5]. There is no significant relationship between impact on family caregiver's finances and patient's total ADL dependency among Taiwanese family caregivers [5]. In this study, patient's ADL dependency is *M*=9.68, SD=3.95 and 95 (77.2%) family caregivers had monthly income over than USD 1000, but in the Taiwan, patient's ADL dependency is *M*=13.10, SD=5.38 and 91(45.5%) family caregivers had monthly income over than USD 1000. Although in the USA, patient's ADL dependency is lower and the family caregiver's income is higher than the Taiwanese family caregivers, they still have the impact on finances by the patient's ADL dependency. The possible reason is that the National Health Insurance in Taiwan covers a lot of medical treatment fee for patients, so decreases a lot of finance burden of family caregivers [29,30].

Impact on family caregiver's schedule

In this study, according to the Multiple Regression, the predictors of impact on schedule included patient's total symptoms, lack of family support, and caregiver's knowledge of caregiving (Table 3). Yeh and Chang [11] also indicated that lack of family support and patient's ADL dependency were significant predictors of impact on Taiwanese family caregiver's schedule [5]. Another USA study, Yeh and Bull [9] indicated the following predictors of impact on USA family caregiver's schedule, including patient's ADL dependency, coping strategies, lack of family support, quality of relationship, and care continuity [9]. The coping strategies are similar to the caregiver's knowledge of caregiving in this study to decrease the impact of family caregiver's schedule. Yeh and Chang indicated that lack of family support was significantly associated with the following feelings: 1. Sacrifice and strain, 2. embarrassment/ anger, 3. patients' dependency, and 4. loss of control [11].

Impact on family caregiver's health

In this study, increasing family caregiver's age, the patient's total symptoms, and lack of family support were found to predict significantly greater impact on family caregiver's health (Table 3). Lower scores of quality of caregiver-patient relationship, lower scores of caregiving knowledge, and lower scores of family caregiver's health status were found to predict significantly greater impact on family caregiver's health (Table 3). Yeh and Bull indicated the following predictors of family caregiver's burden: 1. Patient's ADL dependency, 2. Spiritual well-being, 3. Quality of relationship and 4. Lack of family support [9]. These two studies have the similar results, for example, quality of relationship and lack of family support. Lower quality of family caregiver- patient relationship and lack of family support not only increase the impact on family caregiver's health in this study, but

they are also related to the feeling of family caregivers, including 1. Sacrifice and strain, 2. Embarrassment/ anger, 3. Patients' dependency and 4. Loss of control [11].

Limitations

This study has three limitations that are important to consider in relation to the findings and implications for future research. First, the participants in this study were voluntary, so the results of this study can be used only among this population who are willing to share their experiences. Second, the sample was recruited from a hospital in the USA, so the generalizability of this study is limited. Third, the cross sectional design does not provide insights on the differences of the family caregiver reaction over time from hospital to community.

Conclusion

Based on the findings of this study, nurses should assess not only patients' ADL dependency and symptoms, but also the family caregivers' quality of relationship with patients, family support, and caregiving knowledge while the caregivers are providing care in the hospital and after discharge. In future research, these significant predictors in this study could be considered in the nursing care plans. It is important to develop the interventional nursing research to improve caregiving knowledge, quality of relationship between caregiver and care receiver, and family support in order to improve the impact on family caregivers' finances, schedule and health. A longitudinal research design will help the researchers to examine both cross sectional and long term effects of family caregivers' impacts and their related factors. Future studies might increase the sample size by recruiting participants from several hospitals and target more ethnically diverse populations. A larger sample size randomly drawn from these hospitals might comprise a sample representative of the population and increase the generalizability of the study findings.

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Conflict of interest

No conflict of interest has been declared by the author(s).

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