Research Note

Cross-sectional study on the factors related to anxieties and problems of patients discharged from the general hospital after a year

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Abstract

The aim of this study was to investigate "anxieties and problems of patients discharged from the hospital" and to consider high quality community care system and program of discharge planning among patients at home. The study population were 94 persons at home who were discharged from general hospital six month to one year and belonged to the home-care service management organization. The study design was a cross-sectional study with a mail survey. The results indicated that the independent associated factors with "anxieties and problems of patients discharged from the hospital" were subjective symptoms (p<0.05), daily activities influenced by subjective symptoms (p<0.001), and home care service satisfaction (p<0.01). These results suggest that discharge planning system and program under the cooperation between clinical medicine and community health, should do foresee patient status that discharged within a year from hospital.

　目的は、医療機関退院1年後における医療ニーズを有する在宅療養者の不安及び関連要因を把握することである。対象は、わが国の全国居宅介護支援事業所（療養通所介護事業所併設）4カ所の登録利用者全数のうち、対象基準（年齢：40歳以上、医療機関退院後：3カ月以上1年以内）を満たす者（全数）120名のうち、自由意志による調査応諾者94名（有効回答率：78.3％）である。方法は、無記名式質問紙調査（郵送法）であり、調査項目は、基本属性、在宅療養者の不安・困り事（永田尺度）、自覚症状、医療処置、ADL、サービス利用状況、サービス満足度である。調査の結果、対象は、平均年齢79.2±8.8歳、男性31.9％であった。在宅療養の不安は、低群n＝29（30.8％）、中群n＝33（35.1％）、高群n＝33（35.1％）であり、基本属性の要因を調整しても不安の高い群では他の群に比して有意に自覚症状があり（p<0.05）、自覚症状による日常生活影響があり（p<0.001）、在宅サービス満足度が低く（p<0.01）、介護者の主観的健康度が低かった（p<0.05）。患者の退院後1年以内にそのニーズを明確にし、ニーズに沿った在宅ケア体制の基盤を地域ケアシステムにおける地域保健医療福祉の協働のもとに整備することが必要である。

Introduction

Hospital readmission shortly after discharge is increasingly recognized as a marker of inpatient quality of care and a significant contributor to rising healthcare costs. National policies for shortening hospital stays and enhancing homecare therefore have been promoted especially in Japan. Since the number of patients who need medical care at home is expected to increase dramatically, establishing high quality of community care systems and discharge programs are an urgent needs for assuring the quality of life of patients and their family with medical needs[1)-3)].

Mamon.et.al. indicates that patients have a wide variety of problems after discharge such as limited self-care ability, housekeeping, decreased mobility, difficulty in following prescriptions, and difficulty in using appliances [4)]. Some screening tool for discharge planning and comprehensive discharge planning program have been developed[1-7)], however, most of those studies were conducted in in-patient settings. Some researchers focused on patients' life after their discharge, but only descriptive studies for the general elderly patients discharged immediately after were reported so far[8,9)]. In order to establish high quality community care system, it is necessary to quantitatively evaluate the objective and subjective status of the patients with medical needs, including symptoms and living conditions and clarify the professional care needs in their home, for a certain period of time after the discharge[9)].

It is known that objective and subjective symptoms that are not apparent at immediately after discharge become appearance as expanding of activities of living at home discharged from hospital and stayed at home for a certain period of time, especially after discharge within a year. Then, it is important that clarify care needs of patient at suitable time and it is desirable for QOL of patients and their family to prevent for readmission and social hospitalization. Boter H.et.al clarifies that patients experience problems for a certain period of time after discharge, and suggested that the most important needs for patients after discharge are related to the expected recovery time and what the normal recovery signs are[9)]. Greg has also found that after leaving the hospital, nearly two-thirds of Medicare beneficiaries hospitalized for acute ischemic stroke either died or were re-hospitalized within a year. The findings point out an opportunity for more quality of care initiatives to improve stroke care from pre-discharge to post-discharge, especially in transitioning to home [10)]. Moreover, Lolita has found that problems encountered during process of transition from hospital back to the community can lead to unplanned readmission and emergency department visits. It is important for care managers to be able to identify patients susceptible to difficult transition and to understand strategies to reduce risk of unplanned hospital readmission [11)].

Previous studies are suggestive to significance of needs assessment at suitable time points, but hospital readmission have focused on specific conditions or populations and needs of related factors patients with medical needs who discharged from hospital and stayed at home for a certain period of time, especially within one year, have not been clear yet. Thus, it is immediately needed to confirm the status of patients with medical needs who discharged from hospital and stayed at home for a certain period of time, especially one year discharge after hospital which should have been an organization of professional care in the community, such as care management, service-use, and so on.

The purpose of this study is to investigate factors related to anxieties and problems of patients who were discharged from the hospital after a year, who registered on the certified home-visit nursing care station with intensive day service ('Ryoyo Tusho Kaigo' in Japanese) using a modified questionnaire developed by Nagata et al.(2007), forward high quality community care system and program of discharge planning for patients and families with medical needs in the future community health nursing.

Methods

Study population and design

The study was conducted at 4 home-visiting nurse stations in Tokyo and Ehime which nationally registered as the home-visit nursing care organization with intensive day care service ('Ryoyo Tusho Kaigo' in Japanese). Inclusion criteria of participants were; discharged from general hospital six month to one year before; received homecare service regularly from the home-visiting nursing stations.

The study was a cross-sectional design and a questionnaire was distributed to eligible persons between October 11 to November 11, 2008. All participants provided written consent when they agreed to fill in the questionnaire. Of the all subjects, 94 (78.3%) persons consented to participate to the research and successfully answered the questionnaire. Thus, the valid subjects (response rate) of this study were 94 (78.3%) persons.

The protocol was reviewed and approved by the Institutional Review Board of The Yokohama City University, Faculty of Medicine, School of Nursing (0930-053270).

Dependent variable

The dependent variable was "anxieties and problems", a newly developed scale by Nagata & Murashima [8]. The scale is comprised of 17-items, three-grade rating system in four categories; (i) service use ; (ii) daily life ; (iii) responses to diseases/treatment ; and (iv) medical treatment. In the present study, it was modified from the original three-grade rating to two-grade (yes/no) because of the recommendation of the original authors. Thus, the total point of the modified scale ranges from 0 to 17 points, with higher scores indicating severer anxieties and problems.

Independent variable

The independent variables were basic- characteristics such as age, gender, living status, disease, disorder, care need certification in and care giver's status and physical and psychosocial characteristics: subjective symptoms; medical treatment; extended activities of daily living (ADL); social network; formal service use and the home care service satisfaction.

Extended ADL was measured by The Extended ADL Scale [12] consisted of 10 basic ADL items (Feeding, Moving from wheelchair to bed and return, Personal toilet, Getting on and off toilet, Bathing self, Walking on level surface, Ascend and descend stairs, Dressing, Controlling bowels, and Controlling bladder), which was based on the Barthel Index, and five instrumental ADL items (Using public transportation, Preparing meals, Shopping for daily necessities, Paying bills, and Managing deposits), which was based on The Tokyo Metropolitan Institute of Gerontology index (TMIG index).

Social network was measured by The Lubben Social Network Scale [13] (LSNS) and the LSNS consisted of 10 items (Number seen monthly, Frequency of social contact, Number feel "close to" with Family and Friends networks respectively, Has a confidant, Is a confidant, Relies upon and helps others, Living arrangements of Interdependent social supports) and the score is obtained from an equally weighted sum of ten items, each of which range in value from 0 to 5. All ten items are highly inter correlated (Cronbach's alpha in this study= 0.70) . The reliability (Cronbach's alpha= 0.82; interrater-reliability=0.96) and the validity (positive correlation social support, r=.86, p<0.01) of the Japanese version of this study was conformed. The total LSNS scores can range from 0 to 50, with higher scores indicating more frequent social networks.

Home care service satisfaction was asked by visual analogue scale (rating scale: 1:unsatisfactory; 2:somewhat satisfactory; 3:satisfactory 4:very satisfactory).

Analysis

Descriptive statistics were used for demographic data and physical and psychosocial characteristics. The total points of "anxieties and problems" score were divided into three groups; low, moderate and high group. The analysis of variance (ANOVA) was used to clarify correlation between each dependent variable and the three groups. The statistical significance level was set at p=0.05. Analysis was conducted by Statistical Package for Social Science (SPSS) version 16.0 for Windows.

Ethics

The purpose and methods of this study were informed to the subjects by mail, and they showed one's consent by answering questionnaire by mail. The questionnaire was an unsigned form, so that any private information of each subject was not identified at all. This study received the approval of the Institutional Review Board of The Yokohama City University, Faculty of Medicine, School of Nursing (0930-053270).

Results

Characteristics of participants

The characteristics of participants are shown in Table 1 and 2. The mean age $\pm$SD was 79.2$\pm$8.8 years old. Thirty (31.9%) participants were males. Forty-one (45.6%) lived with the spouse, thirty-two (35.6%) lived with the child couple, while seventeen (18.9%) lived alone. The diseases of participants were cerebrovascular disease, dementia, and diabetes and so forth. Seventy-one (77.2%) participants had some disorders, which affect on their daily life, such as paralysis, speech, visual, cognitive, and hearing. Eighty-one (89.0%) participants needed the long-term care insurance. The mean score of extend ADL$\pm$SD was 5.0$\pm$3.9. Seventy-seven (81.9%) participants had plural subjective symptoms, such as constipation, feeling dizzy, forgetfulness, and fear of insecurity. Also, forty-two (56.8%) participants had daily the influence of daily activities by subjective symptoms. The medical treatments were treatment of bed-sore, treatment of urostomy and stoma, oxygen therapy and inhalation.

The mean score of LSNS scale $\pm$SD was 17.2$\pm$7.3. The service uses of participants were welfare equipment-use, home visiting nursing, home help service and so on. The mean score $\pm$SD of home care service satisfaction was 3.2 $\pm$0.5.

Table 1. Basic characteristics of participants　　　　n=94

	n or Mean±SD	% or (range)
Age (yrs)	79.2±8.8	(55.0-98.0)
Gender		
Male	30	31.9
Female	61	64.9
Missing	3	3.2
Living Status		
With spouse	41	45.6
With child couple	32	35.6
Living Alone	17	18.9
Disease (plural answers)		
Cerebrovascular disease	34	43.6
Dementia	21	26.9
Diabetes	21	26.9
Heart failure	9	11.5
Others	45	57.8
Disorder (plural answers)	71	77.2
Paralysis	56	78.9
Speech	20	28.2
Visual	18	25.4
Cognitive	14	19.7
Hearing	12	16.9
Care need Certification in		
The Long-Term Care Insurance	81	89.0
Level of Support Need	9	9.9
Level of care	1	1.1
Specified Disease Group in The Long-Term Care Insurance	4	4.3
Caregiver (plural answers)		
Child or grand child	41	47.7
Spouse	36	41.9
Son or daughter-in-low	13	15.1
Sibling	5	5.8
Other	8	9.3
Alternative	50	53.2
Care giver (yes)	80	85.1
Care giver's Living status		
Live together	66	82.5
Live apart	14	17.5
Care giver's subjective health		
No problem	33	41.8
Some problem	36	45.6
Much problem	10	12.7

Table 2. Physical and psychosocial characteristics of participants

n=94

	n or Mean±SD	% or (range)
Extended ADL (score)	5.0±3.9	(0−12.0)
Subjective symptoms (plural answers)	77	81.9
Constipation	30	39.0
Feeling dizzy	30	39.0
Forgetfulness	29	37.7
Irritation	28	36.4
Dysphasia	23	29.9
Insomnia	23	29.9
Edema	22	28.6
Cough or Sputum	21	27.3
Chest Pain	14	18.2
Short of breath	14	18.2
Appetite loss	9	11.7
Diarrhea	8	10.4
Others	17	22.1
The influence of daily activities by subjective symptoms	42	56.8
Medical treatment (plural answers)	23	24.5
Treatment of bed-sore	8	34.8
Treatment of urostomy and stoma	5	21.7
Oxygen Therapy	4	17.4
Inhalation	3	13.0
LSNS (score)	17.2±7.3	(0−50.0)
Service use (plural answers)		
Welfare equipment	54	57.4
Home visiting nursing	46	51.1
Home help	41	45.6
Day service	41	45.6
Repair home	22	24.4
Day care	21	23.3
Short stay	20	22.2
Home visiting rehabilitation	15	16.7
Home visiting medicine	15	16.7
Home Care Service Satisfaction (score)	3.2±0.5	(0−4.0)

ADL: activities of daily living LSNS : The Lubben Social Network Scale

"Anxieties and problems" status

The "anxieties and problems" status are shown in Table 3. Completely respondents were 85 patients (n=85). The total point of "anxieties and problems" was divided into three quintiles as the high group (n=23), the moderate group (n=33), and the low group (n=29) of "anxieties and problems". ANOVA showed that three groups of "anxieties and problems" had a significant effect on the total points, service use, daily life, and responses to diseases /treatment respectively (p<0.001).

Correlations between "anxieties and problems" divided into three and associated factors

The results of the correlations between three groups and basic-characteristics are shown in Table 4. ANOVA or χ^2-test showed that three group of "anxieties and problems" had

Table 3.　Distribution of the "anxieties and problems" in the three quintiles group (score)

	Low group n＝29	Moderate group n＝33	High group n＝23	p-value
Total Points	1.2±1.2	5.0±0.8	9.7±2.2	***
Category of Service use	0.1±0.2	0.4±0.5	1.1±0.9	***
Category of Daily life	0.3±0.4	1.9±1.0	3.5±1.1	***
Category of Responses to diseases/treatment	0.7±0.7	2.1±1.1	3.8±1.1	***
Category of medical treatment	0.0	0.0±0.1	0.6±0.6	ns

ANOVA　　　*. $p < 0.05$,　***. $p < 0.001$　ns: not significant

Table 4.　Correlation between the three quintiles group and basic-characteristics

	Low group n＝29 （%）	Moderate group n＝33 （%）	High group n＝23 （%）	p-value
Age (yrs)	80.1±10.4	78.4±7.8	80.4±8.5	n.s
Gender				
Male	8 (28.6)	10 (31.2)	6 (26.1)	n.s
Female	20 (71.4)	22 (66.8)	17 (73.9)	
Living Status				
With spouse	11 (39.3)	15 (46.9)	9 (40.9)	
With child couple	13 (46.4)	9 (28.1)	9 (40.9)	n.s
Living Alone	4 (14.3)	8 (25.0)	4 (18.2)	
Disease (plural answers)				
Cerebrovascular disease	10 (41.7)	9 (33.3)	11 (57.9)	
Dementia	7 (29.2)	6 (22.2)	5 (26.3)	n.s
Diabetes	5 (20.8)	9 (33.3)	6 (31.6)	
Disorder (plural answers)	19 (65.5)	26 (81.2)	20 (87.0)	
Paralysis	13 (68.4)	22 (84.6)	16 (80.0)	
Speech	7 (36.8)	5 (19.2)	6 (30.0)	n.s
Visual	6 (31.6)	5 (19.2)	4 (20.2)	
Cognitive	5 (26.3)	1 (3.8)	3 (15.2)	
Hearing	4 (21.1)	5 (19.2)	3 (15.0)	
Care need Certification in				
The Long-Term Care Insurance	27 (93.1)	26 (81.2)	22 (95.7)	
Level of Support Need	2 (6.9)	6 (18.8)	0	n.s
Level of care	0	0	1 (4.3)	
Specified Disease Group in The Long-Term Care Insurance	1 (3.4)	1 (3.4)	2 (8.7)	n.s
Caregiver (plural answers)				
Child or grand child	15 (53.6)	17 (56.9)	8 (40.4)	
Spouse	7 (25.0)	13 (43.3)	11 (55.0)	
Son or daughter-in-low	5 (17.9)	1 (3.3)	5 (25.0)	†
Sibling	2 (7.1)	1 (3.3)	1 (5.0)	
Other	1 (3.6)	6 (20.0)	0	
Alternative Care giver(yes)	18 (62.1)	17 (53.1)	11 (50.0)	
Care giver's Living status				
Live together	23 (85.2)	21 (75.0)	16 (88.9)	n.s
Live apart	4 (14.8)	7 (25.0)	2 (11.1)	
Care giver's subjective health				
No problem	13 (52.0)	13 (48.1)	6 (31.6)	
Some problem	11 (44.0)	12 (44.0)	7 (36.8)	†
Much problem	1 (4.0)	2 (7.4)	6 (31.6)	

ANOVA　or χ^2-test(Fisher's Exact Test)　　†: $p < 0.1$　　n.s : not significant
ADL:activities of daily living　　LSNS:The Lubben Social Network Scale

Table 5.　Correlation between the three quintiles group, and physical and psychosocial characteristic

	Low group n＝29 (%)	Moderate group n＝33 (%)	High group n＝23 (%)	p-value
Extended　ADL（score）	4.8 ± 4.4	5.7 ± 3.4	4.0 ± 3.1	n.s
Subjective symptoms (plural answers)	20 (69.0)	27 (81.8)	22 (95.7)	*
Constipation	6 (30.0)	14 (51.9)	7 (31.8)	
Feeling dizzy	7 (35.0)	10 (37.0)	9 (40.9)	
Forgetfulness	10 (50.0)	10 (37.0)	8 (36.4)	
Irritation	4 (20.0)	10 (37.0)	9 (40.9)	
Dysphasia	3 (15.0)	9 (33.3)	9 (40.9)	
Insomnia	2 (10.0)	9 (33.3)	8 (36.4)	
Edema	5 (25.0)	8 (29.6)	7 (31.8)	n.s
Cough or Sputum	3 (15.0)	6 (22.2)	8 (36.4)	
Chest Pain	1 (5.0)	8 (29.6)	4 (18.2)	
Short of breath	2 (10.0)	5 (18.5)	6 (27.3)	
Appetite loss	0	3 (11.1)	5 (22.7)	
Diarrhea	2 (10.0)	3 (11.1)	2 (9.1)	
Others	1 (5.0)	6 (22.2)	7 (31.8)	
The influence of daily activities by subjective symptoms	4 (22.2)	13 (52.0)	18 (81.8)	***
Medical treatment (plural answers)	7 (24.1)	6 (18.8)	7 (31.8)	
Treatment of bed-sore	4 (57.1)	1 (16.7)	2 (28.6)	
Treatment of urostomy and stoma	1 (14.3)	1 (16.7)	2 (28.6)	n.s
Oxygen Therapy	0	3 (50.0)	1 (14.3)	
Inhalation	2 (28.6)	0	0	
LSNS（score）	14.8 ± 6.9	17.8 ± 6.9	19.5 ± 7.7	n.s
Service use (plural answers)				
Welfare equipment	12 (42.9)	23 (71.9)	13 (56.5)	
Home visiting nursing	15 (53.6)	15 (46.9)	11 (47.8)	
Home help	11 (39.3)	16 (56.5)	13 (56.5)	
Day service	13 (46.4)	14 (43.8)	9 (39.1)	
Repair home	4 (14.3)	10 (31.2)	6 (26.1)	n.s
Day care	6 (21.4)	6 (18.8)	7 (30.4)	
Short stay	7 (25.0)	5 (15.6)	6 (26.1)	
Home visiting rehabilitation	3 (10.7)	6 (18.8)	3 (13.0)	
Home visiting medicine	6 (21.4)	4 (12.5)	3 (13.0)	
Home Care Service Satisfaction (score)	3.5 ± 0.5	3.3 ± 0.5	3.0 ± 0.5	**

ANOVA　or　χ^2-test(Fisher's Exact Test)　*：p＜0.05　**：p＜0.01 ***：p＜0.001　　n.s : not significant

an effective tendency on the care giver and care giver's subjective health (p<0.1).

　The results of the correlations between three group and physical and psychosocial characteristics are shown in Table 5. ANOVA or χ^2-test showed that three groups of "anxieties and problems" had a significant effect on the participants with subjective symptoms (p<0.05), the influence of daily activities by subjective symptoms (plural answers) (p<0.001), and home care service satisfaction (p<0.01). That is, the high group of "anxieties and problems" had more subjective symptoms, influence of daily activities by subjective symptoms, and dissatisfaction for home care service than the other groups.

Discussion

　The primary findings of the study were that "anxieties and problems" of the patients discharged from hospital within a year, who registered on the certified home-visit nursing care station with intensive day service ('Ryoyo Tusho Kaigo' in Japanese) were quantitatively identified, and they were associated with post-discharge "the existence of subjective symptoms", "the influence of daily activities by subjective symptoms" and "home care service satisfaction". That is, the subjects of the high group of "anxieties and problems" had more subjective symptoms, influence of daily activities by

subjective symptoms, and dissatisfaction for home care service than the other groups.

Hospital discharge and the transition home are critical processes in the trajectory of acute care. It implies that subjective symptoms and the influence of daily activities by subjective symptoms that are not fully apparent at the time of the discharge time point, and they may emerge as serious problems as the daily living activities and role of the patients and their family is expanded gradually at home. The outcomes of "the existence of subjective symptoms", "the influence of daily activities by subjective symptoms" may be attributed in part to inadequate pre-discharge, preparation, lack of patient and family readiness, poor discharge transition coordination, and unsuccessful coping with the demands of self-management at home. Therefore discharge care planning for the patients who need medical care at home may have been inferred through proxy measures such as feeling prepared, knowledge, or the occurrence of post-discharge difficulties with activities of daily living, medication and pain management, health maintenance, emotional adjustment, burden to family caregivers, and access to health and social services [14]. From a standpoint of "home care service satisfaction", the program and system of discharge care planning also may recommend high quality care management practices that facilitate successful discharge transitions[15)16)]. It is important for care managers to be able to identify patients susceptible to difficult transition and to understand strategies to reduce risk of unplanned hospital readmission and sustainability for home care. And the cooperation and collaboration between community health nursing and clinical nursing should be indispensable to support patient and their families for the time from pre-discharge to post-discharge based on the community.

The present study has some limitations. First, because, almost subjects were elderly people, the results in this study may not be necessarily generalized. Second, causal relationships between the factors and "anxieties and problems" were unclear due to the use of a cross-sectional design. And lastly, although this study examined the total point of "anxieties and problems", related factors may be different from each categories of "anxieties and problems".

In spite of some limitations, however, this study has originality of two points. First, it has evaluated the "anxieties and problems" of the patients discharged from hospital three months to a year, who registered on the certified home-visit nursing care station with intensive day service ('Ryoyo Tusho Kaigo' in Japanese). Second, it has clarified that the relevant factors of "anxieties and problems"; subjective symptoms, the influence of daily activities by subjective symptoms, and home care service satisfaction. Further research is needed to enlarge sample size and to investigate associated factors with each category "anxieties and problems", and to develop of interventional program and system for this population that impact post-discharge health outcomes, optimize the discharge process for all patients and families, and create interventions tailored to patients' needs in order to prevent potentially avoidable readmissions.

Acknowledgments

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