Original Article

Concept of family in patients with chronic disease living alone and its relationship to self-care ability, social support, and QOL

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Abstract

This study was carried out to clarify the concept of family in patients with chronic disease living alone and its relationship to self-care ability, social support, and QOL.

The subjects were 75 patients with chronic disease living alone. The survey items were formulated based on the concept of family in patients with chronic disease living alone, and the relationships between it and self-care ability, social support, and QOL as elements associated with treatment. We conducted questionnaire surveys, principal component analysis, cluster analysis, Spearman's rank correlation coefficient, and multiple regression analysis etc.

As a result, we extracted two components of family concept in patients with chronic disease living alone. The 1st component of the family concept is "an existence that makes patients aware that they are undergoing treatment alone and feel distant from their families," and the 2nd component of the family concept is "an existence of family that patients express their feelings about," were apparent as concepts of family for patients with chronic disease living alone.

These components revealed a relationship to self-care ability and social support, patients who showed a high 1st component, had a weak ability in the self-care ability of "acquiring effective support," and there was a tendency toward not receiving support; and patients who showed a high 2nd component had a strong ability to "acquire effective support," and there was a tendency to receive such support. From the above, it can be conceived that concept of family in patients with chronic disease living alone is related to self-care ability and social support, which is in turn related to treatment, that a way of thinking can be inferred to gain the ability to acquire efficient support through an understanding of the concept of family by patients living alone, and that these findings serve as a new perspective for nursing intervention.

Furthermore, these components revealed a relationship to QOL, SF-36 sub-concept "general health" is predictable from the 1st and 2nd component scores using the multiple regression equation. There is a correlation between concept of family and QOL, and nursing support that makes practical use of the concept of family has the potential to increase QOL. The usefulness of recognizing feelings toward family as support, not trying too hard alone, focusing on 1st component and 2nd are suggested as a new nursing perspective.

The results of this study provide a new perspective for nursing support that aims to combine treatment and the ensuring of QOL for patients living alone.

Key words

living alone, patients with chronic disease, family, social support, quality of life

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Introduction

Recent years have seen an increasing number of patients with chronic disease, including many conditions such as malignant neoplasms and life-style related diseases. It is said that self-care and family support are important in the medical treatment of such patients, especially those who require lifelong treatment, which by definition includes aspects of lifestyle such as eating.

Meanwhile, according to the 2011 National Livelihood Survey, 25.2% of all households in Japan consist of people living alone[1]. This reality highlights the need to consider afresh strategies to support the medical treatment of patients with chronic disease living alone.

It is reported in documentation abroad relating to the subject of living alone that depression, perception of health, and self-esteem affect QOL and satisfaction with life in the elderly[2,3]. In Japan as well the majority of research has targeted elderly individuals living alone. Such research includes the characteristics of social activities for elderly individuals who require support[4] the characteristics of elderly women living independently[5], the trend towards research on elderly at home[6], support for isolated elderly individuals according to whether or not they live alone, and psychological health[7]. Furthermore there are reports on the conditions required to enable patients with chronic disease to live alone on an ongoing basis[8-10]. As the above indicates, the majority of research relating to individuals living alone has targeted the elderly, and research relating to patients living alone consists mainly of studies on their continuation of a lifestyle incorporating treatment.

In general, family is often defined as two or more people, and it is perceived as a kind of structure or function. Therefore, patients living alone are thought of as not having family in their lives. No studies have been published to date on the perception of family among patients living alone or the influence of family on such patients. In short, there is an absence of studies on the concept of family from the perspective of patients living alone. This study focuses on patients with chronic disease living alone with an emphasis on how patient perception of relationships and the concept of family in particular might be put to

practical use in the support of medical treatment.

During the study we first focused on diabetes, and those patients requiring lifelong treatment - treatment for a chronic disease that includes aspects of their lifestyles such as eating. Previous research[11] targeting patients with diabetes provided a qualitative and inductive clarification of the meaning of family to patients living alone. The results revealed that patients recognize the existence of family within their own minds, and based on that recognition, they establish a complex sense of distance between family, including psychological and relational distances. Furthermore, it was clarified that distance with family supported the treatment associated with the lifestyles of individuals living alone. The results indicated that the existence of and distance from family are key points in care intervention for patients living alone.

Therefore, this research was carried out to provide quantitative clarification of the influence of the concept of family on patients with chronic disease living alone to enable healthcare providers to offer effective support for treatment incorporated in one's lifestyle with the aim of ensuring patient quality of life (QOL).

The outcomes of this study made it possible to comprehend the relationship between the concept of family and other factors associated with the lifestyle during treatment of individuals living alone. We consider this will provide a fresh perspective that can be put to practical use in nursing support to achieve a balance between treatment involving one's lifestyle and the guarantee of QOL in modern society.

The aims of this research are:

1. To clarify quantitatively the concept of family in patients with chronic disease living alone
2. To clarify the relationships between concept of family and self-care ability, social support and QOL

Operational definitions of terminology

In this paper chronic disease refers to diabetes, kidney disease, heart disease (excluding malignant neoplasms and mental disease) etc., which require treatment that involves the patient's lifestyle, such as eating. A patient with chronic disease refers to a patient with one of the aforementioned diseases and for whom life-long daily self-care relating to one's

lifestyle during treatment is required.

The definition of family[12] differs depending on the field of study, such as the legal view of family as "relationship by blood or marriage," the sociological view of family as "a group of people living together," the psychological view of family as "a group who share strong bonds," and the nursing care view of family as "two or more members who have a basic relationship and who are conscious of being family"[13].

In this paper family means someone considered as such by a patient living alone. This is an individual or individuals whose presence is felt in the patient's heart, and an individual or individuals in relation to whom the patient establishes a complex sense of distance, including psychological and relational distances.

Method

1. Subjects

The conditions for subject selection were chronic disease, living alone, and ongoing outpatient care from a medical facility. Exclusion criteria were non–independence in care, and inability to visit the hospital alone. As age showed no influence on perception of family in our previous research, it was not listed as an exclusion criterion.

2. Data collection

Subjects were introduced by doctors, nurses and registered dieticians from one university hospital facility cooperating with the research. The researcher provided a description of the purpose of the research, etc. and a request for participation in the research both verbally and in writing. Survey forms were issued to subjects who gave consent, and collected via return envelope at a later date. Furthermore, receipt of a reply was interpreted as consent to participate the research.

3. Data collection period

February 2009 to October 2012

4. Survey contents

The survey items below were formulated based on the concept of family in patients with chronic disease living alone, and the relationships between it and self-care ability, social support, and QOL as elements associated with the lifestyle during treatment of

individuals living alone.

1) Questionnaire on the concept of family in patients with chronic disease living alone

The questionnaire was created in reference to the qualitative and inductive research results drawn from our previous research. Twenty-one items were created and drafted from twenty items in seven categories from the previous research. Items included, "You decide the distance between you and your family by yourself" and "The existence of family in your heart." A 6-point Likert scale was used with answer choices being "Completely agree," "Mostly agree," "Slightly agree," "Slightly disagree," "Mostly disagree," and "Completely disagree." The applicability of the questionnaire was confirmed on six patients with chronic disease. Ease of understanding and response was confirmed with a pretest. Content validity was discussed professionals in the field of nursing care for chronic diseases. The written expression of the questions was only slightly modified so as not to change nuance from the previous research. The rating marks were reversed at the time of analysis for items that varied in assessment of the influence on treatment incorporated in lifestyle.

2) Self-care Agency Questionnaire (SCAQ)

The SCAQ is a scale developed at Honjo to measure self-care ability in patients with chronic disease[14]. Reliability and validity are verified through 29 items created to reflect the characteristics of Japanese people and people with chronic disease (Four framework concepts - A: 10 items on the acquisition and continuation of health management, B: 7 items on physical conditioning, C: 7 items on concern over health management, D: 5 items on acquiring effective support). A 5-point Likert scale was used for the answers, with 1 – 5 points per item, from which the score can be calculated; however it was characterized by the absence of a standard.

3) Social support scale for patients with chronic disease

The social support scale was developed by Kim et al. to measure social support with regard to patients with chronic disease[15]. Reliability and validity are verified through 20 items (Two sub-concepts - Factor 1: 12 items on emotional support in daily life, Factor 2: 8 items on behavioral support with regard to the

disease). A 4-point Likert scale was used for the answers, with 1 – 4 points per item, from which a total score of 20 – 80 can be calculated.

4) QOL Scale (SF-36: MOS 36-item short form health survey)

The SF-36 is a comprehensive scale developed by Fukuhara et.al to measure health-related QOL[16-18]. In SF-36 version 2, reliability and validity are verified through the 36 items, including one item on self-reported health transition added to the eight health concept (10 items on physical functioning, 4 items on role-physical, 2 items on bodily pain, 5 items on general health, 4 items on vitality, 2 items on social functioning, 3 items on role-emotional, 5 items on mental health). The raw score is converted using a scoring algorithm to within a range of 0-100, and a subscale score can be calculated.

5. Basic information

Age, gender, occupation, reason for living alone, disease, and treatment details were ascertained as background for the participants.

6. Method of analysis

1) Concept of family: Principal component analysis and cluster analysis were used.

2) Basic information: The unpaired t-test was used to determine data for each scale (concept of family, SCAQ, social support scale, and SF-36).

3) Relationship between concept of family and self-care ability, social support, and QOL: The relationships between concept of family and SCAQ, social support scale, SF-36 were each calculated using Spearman's rank correlation coefficient. With regard to concept of family and QOL, the mean value of each cluster in the correlated SF-36 sub-concepts was compared. Furthermore, multiple regression analysis that used the stepwise selection method (including the basic information of age, gender, occupation, and reason for living alone) was performed to calculate the coefficient of determination. Statistical processing was done using SPSS 17.0J for Windows with a level of significance of 5%.

7. Ethical considerations

This research was performed in accordance with the standard research ethics of the Japanese Nursing Association's Ethical Guidelines for Nursing Research, and received approval from the Medical Ethics Committee of Kanazawa University (approval number 179).

The researcher provided verbal and written descriptions to the subjects individually, beginning with the purpose and methods of the research, and the introduction procedures. A request for subject participation in the research was made, and consent was obtained upon collection of the anonymous questionnaires at a later date via return envelope. Furthermore, scales were used after receiving permission from the creator or copyright organization.

Results

1. Characteristics of the participants

Requests for participation in the research were made to 85 patients, 75 of which were collected (88.2% retrieval rate). The participants were 43 males and 32 females aged from 23 to 86 (average age 61.23 ± 16.77). The details are shown in Table 1.

Table 1. Characteristics of the participants

n=75

Characteristics	Number of respondents	Rate(%)
Age mean ± SD (years)　61.23 ± 16.77		
20~59	25	33.3
60~69	21	28.0
70~79	22	29.3
80~	7	9.3
Gender		
Male	43	57.0
Female	32	43.0
Occupation		
Yes	24	32.0
No	51	68.0
Reason for living alone		
Divorce and bereavement	46	61.0
Single	29	39.0
Disease（Multipul answers）		
Diabetes	66	88.0
Kidny disease	8	10.6
Heart disease	18	24.0
Others	20	26.6
Treatment details (Multipul answers)		
Diet	58	77.3
Internal use	48	64.0
Self-injection	38	50.6
Exercise	22	29.3

SD:Standard deviation

2. Concept of family in patients with chronic disease living alone

Principal component analysis was performed for concept of family using 19 question items, removing the two items relating to attributes from the 21 question items created in the previous research. Eigenvalues greater than 1 were extracted for the 1st to the 4th components. Fourteen items were adopted for the 1st and the 2nd components, the principal component analysis of which was a cumulative contribution ratio of 47.84% (Table 2). The 1st component (10 items) is described as "an existence that makes patients aware that they are alone in the treatment incorporated in their lifestyle and feel distant from their families," and the 2nd component (4 items) as "an existence of family that patients express their feelings about."

For the 1st and 2nd components, non-hierarchical cluster analysis was performed based on the principal component score. The results could be classified into 4 clusters. The scatter plot is shown in Figure 1.

3. Basic data on concept of family in patients with chronic disease living alone, self-care ability, social support, and QOL regarding the basic information

The basic data and results of the unpaired t-test are shown in Table 3. There was a significant difference between some of the items of concept of family, SCAQ and SF-36 for age and occupation. A considerable difference was also seen between some of the sub-items of SF-36 for gender. A further significant difference was evident between some of the items of concept of family and social support scale for the reason for living alone.

4. Relationship between concept of family in patients with chronic disease living alone and self-care ability, social support, and QOL

The results of Spearman's rank correlation coefficient are shown in Table 4. Regarding the scale interval between the SCAQ and the social support

Table 2. Factor loadings of Questionnaire on the concept of family in patients with chronic disease living alone

n=75

	Question items	Factor loading	
		1st PC	2nd PC
Q13	I have decided to continue living alone and am ready to do so.	**.677**	.058
Q3	Although I remember my family fondly, they are already a thing of the past.	**.674**	.176
Q15	I believe that I must do everything that is necessary to live myself.	**.654**	.289
Q4	I contact my family when I need to; but they all have their own families, so I feel they are different from who I am now.	**.644**	.286
Q5	Although I am alone now, I believe there is a possibility to live with my family again.	**.639**	− .209
Q6	I think I will continue to be alone and not live with my family.	**.638**	.134
Q14	Although I am alone now, there is a possibility that I may live with my family again; so I don't know whether I will continue to live alone.	**.581**	− .269
Q11	I think receiving treatment while having a chronic disease is something I must do by myself.	**.522**	.251
Q12	I think receiving treatment while having a chronic disease is something I am doing by myself at the moment.	**.520**	.260
Q20	I feel that treatment for chronic disease related to living alone (meal regimens and taking medicine) is a part of life and not a big deal.	**.450**	.383
Q9	Because I have memories of my family I think I can keep on going alone.	− .276	**.836**
Q8	Because my family is one that I could be proud of, I think I can keep on going alone now.	− .340	**.753**
Q10	I think that the reason I am here now is thanks to my family.	− .264	**.726**
Q7	I feel that I can keep going on alone because of the existence of my children.	− .147	**.598**
	Eigenvalues	3.938	2.760
	Contribution ratio（%）	28.127	19.716
	Cumulative contribution ratio（%）	28.127	47.844

Principal component analysis PC:principal component
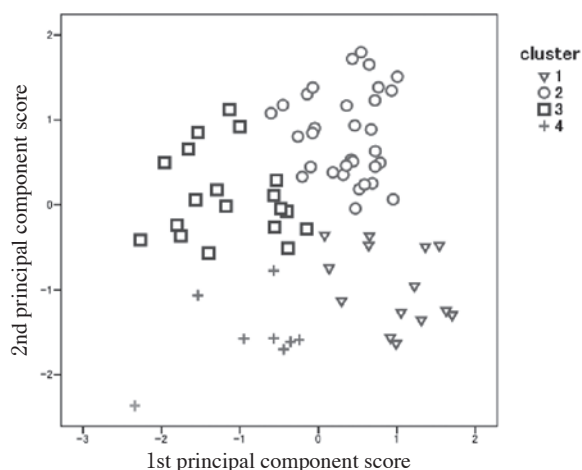Measure of specimen validity of KMO .704 Significance probability .000

Figure 1. Scatter plot of the non-hierarchical cluster analysis

scale, correlation was found between SCAQ concept D "acquiring effective support" and the total score of each sub-concept of the social support scale. Regarding the scale intervals between the SCAQ, the social support scale and SF-36, a weak correlation was found between some sub-items.

The relationships between concept of family and self-care ability, social support, and QOL are shown below.

1) Relationship between concept of family and self-care ability and social support

For principal component score and the SCAQ, SCAQ concept D "acquiring effective support"

Table3. Basic data on concept of family in patients with chronic disease living alone, self-care ability, social support, and QOL regarding the basic information

Item	Mean(SD)	Age			Gender			Occupation			Reason for living alone		
		>=65	<65	p	Male	Female	p	Yes	No	p	Single	Divorce and bereavement	p
Concept of family	n=75	37	38		43	32		24	51		29	46	
1st PC total score (10 item)	46.1(9.9)	47.4(10.0)	44.7(9.9)	n.s	47.3(8.6)	44.4(11.5)	n.s	42.7(9.2)	47.7(10.0)	.042	45.1(9.3)	46.6(10.4)	n.s
2nd PC total score（4 item）	15.4(6.0)	17.3(5.9)	13.6(5.7)	.008	14.5(6.1)	16.8(5.8)	n.s	14.0(5.4)	16.1(6.3)	n.s	12.1(5.6)	17.5(5.3)	.000
Self-care ability:SCAQ	n=75	37	38		43	32		24	51		29	46	
A : Acquisition and continuation of health management	35.9(6.9)	37.8(7.7)	34.2(5.7)	.024	36.1(7.6)	35.8(6.1)	n.s	33.6(5.6)	37.0(7.3)	.043	35.(5.7)	36.5(7.6)	n.s
B : Physical conditioning	27.1(5.0)	28.9(4.3)	25.2(5.2)	.001	26.5(5.1)	27.8(4.9)	n.s	25.0(5.4)	28.0(4.7)	.015	26.0(4.8)	27.7(5.2)	n.s
C : Concern over health management	30.8(4.0)	31.5(3.7)	30.1(4.1)	n.s	30.1(4.2)	31.6(3.6)	n.s	29.9(4.5)	31.2(3.7)	n.s	30.3(4.1)	31.1(3.9)	n.s
D : Acquiring effective support	16.4(5.4)	17.2(5.4)	15.6(5.2)	n.s	15.4(4.9)	17.7(5.7)	n.s	15.8(4.3)	16.7(5.8)	n.s	15.5(4.8)	16.9(5.6)	n.s
Total : 29 items total	110.1(15.7)	115.4(15.4)	105.0(14.4)	.003	108.1(16.4)	112.9(14.5)	n.s	104.3(13.9)	112.9(15.9)	.025	106.9(13.4)	112.2(16.8)	n.s
Social support:Social Support scale	n=75	37	38		43	32		24	51		29	46	
Ⅰ : Emotional support in everyday life	30.3(9.7)	31.3(10.1)	29.3(9.4)	n.s	28.7(8.9)	32.4(10.5)	n.s	29.6(9.2)	30.6(10.0)	n.s	27.2(9.1)	32.2(9.6)	.027
Ⅱ : Behavioral support with regard to the disease	13.9(5.0)	14.7(5.7)	13.1(4.2)	n.s	13.2(4.4)	14.9(5.6)	n.s	13.7(4.0)	14.0(5.5)	n.s	12.8(4.2)	14.6(5.4)	n.s
Total : 20 items total	44.2(13.7)	46.0(14.7)	42.4(12.6)	n.s	41.8(12.3)	47.3(15.0)	n.s	43.3(12.1)	44.6(14.5)	n.s	40.0(12.5)	46.8(13.9)	.034
QOL:SF-36	n=74	36	38		42	32		23	51		28	46	
Self-reported health transition	3.5(1.1)	3.4(1.1)	3.5(1.1)	n.s	3.5(0.9)	3.4(1.2)	n.s	3.6(1.0)	3.4(1.1)	n.s	3.6(1.0)	3.4(1.1)	n.s
Physical functioning	75.3(22.7)	69.2(23.5)	81.1(20.5)	n.s	79.8(23.0)	69.4(21.2)	n.s	88.9(11.0)	69.1(24.0)	.000	80.4(22.6)	72.2(22.5)	n.s
Role physical	68.8(32.3)	65.3(35.7)	72.0(28.8)	.023	78.3(28.9)	56.3(32.6)	.003	77.7(29.7)	64.7(32.8)	n.s	72.1(30.2)	66.7(33.7)	n.s
Role emotional	70.1(31.3)	66.2(36.5)	73.7(25.4)	n.s	78.4(25.6)	59.1(34.9)	.008	80.8(23.4)	65.2(33.3)	.046	75.6(25.0)	66.7(34.3)	n.s
Bodily pain	74.6(33.3)	71.9(34.7)	77.2(32.2)	n.s	79.4(30.6)	68.4(36.0)	n.s	80.7(29.1)	71.9(35.0)	n.s	75.4(33.2)	74.2(33.7)	n.s
Vitality	52.3(21.5)	52.8(24.5)	51.8(18.7)	n.s	55.1(20.9)	48.6(22.2)	n.s	56.0(18.2)	50.6(22.9)	n.s	49.6(20.1)	53.9(22.5)	n.s
Mental health	61.9(22.1)	62.2(23.7)	61.6(20.8)	n.s	64.5(20.5)	58.4(24.0)	n.s	67.4(16.2)	59.4(24.1)	n.s	60.2(22.9)	62.9(21.8)	n.s
Social functioning	73.8(26.9)	76.4(24.4)	71.4(29.2)	n.s	78.6(27.1)	67.6(25.8)	n.s	76.1(27.9)	72.8(26.7)	n.s	70.1(31.4)	76.1(23.8)	n.s
General health	39.9(21.0)	42.5(22.8)	37.4(19.1)	n.s	42.0(19.8)	37.0(22.4)	n.s	40.7(17.5)	39.5(22.5)	n.s	38.6(20.5)	40.7(21.4)	n.s

SD:Standard deviation PC:principal component Mean(SD) t-test unpaired p=p-value n.s=not significant

Table 4. Relationship between concept of family in patients with chronic disease living alone and self-care ability, social support, and QOL

	Principal Component score (n=75)		SCAQ (n=75)					Social Support scale (n=75)			SF-36 (n=74)								
	1st	2nd	A	B	C	D	Total	I	II	Total	Self-reported health transition	Physical functioning	Role physical	Role emotional	Bodily pain	Vitality	Mental health	Social functioning	General health
Principal component score 1st	1.000																		
2nd	-.008	1.000																	
SCAQ A : Acquisition and continuation of health management	.071	.170	1.000																
B : Physical conditioning	.088	.207	.449**	1.000															
C : Concern over health management	-.019	.225	.448**	.539**	1.000														
D : Acquiring effective support	-.522**	.304**	.282*	.329**	.348**	1.000													
Total : 29 items total	-.120	.295*	.766**	.770**	.751**	.641**	1.000												
Social Support scale I : Emotional support in everyday life	-.500**	.246*	.160	.160	.110	.669**	.361**	1.000											
II : Behavioral support with regard to the disease	-.374**	.243*	.182	.045	.096	.475**	.274*	.721**	1.000										
Total : 20 items total	-.495**	.268*	.176	.140	.118	.640**	.354**	.969**	.858**	1.000									
SF-36 Self-reported health transition	.137	-.169	-.320**	-.034	-.140	-.153	-.224	-.178	-.291*	-.226	1.000								
Physical functioning	.009	-.018	.037	-.319**	.040	-.133	-.099	-.036	.205	.032	-.229*	1.000							
Role physical	-.003	-.117	.087	-.100	.064	-.262*	-.052	-.244*	-.073	-.205	-.268*	.429**	1.000						
Role emotional	-.005	.080	.106	-.039	.168	-.116	.050	-.095	.134	-.034	-.179	.477**	.762**	1.000					
Bodily pain	-.145	.003	.184	.000	.247*	.166	.187	.075	.049	.064	-.221	.294*	.537**	.562**	1.000				
Vitality	-.034	.155	.190	.055	.216	.125	.200	.129	.269*	.178	-.327**	.511**	.376**	.572**	.549**	1.000			
Mental health	-.163	.175	.081	-.070	.073	.100	.070	.062	.289*	.130	-.315**	.496**	.378**	.569**	.512**	.807**	1.000		
Social functioning	-.014	.190	.123	.029	.088	-.041	.058	.007	.042	.023	-.077	.262*	.485**	.488**	.485**	.405**	.437**	1.000	
General health	-.293*	.291*	.310**	.011	.108	.257*	.222	.132	.192	.167	-.514**	.355**	.338**	.279*	.433**	.462**	.516**	.429**	1.000

Spearman rank-correlation coefficient *p<.05 **p<.01
concept of family: principal component score in Questionnaire of family concept, self-care ability:scores of sub-concepts and total in SCAQ, social support:scores of sub-concepts and total in social support scale, QOL:subscale scores in SF-36v2
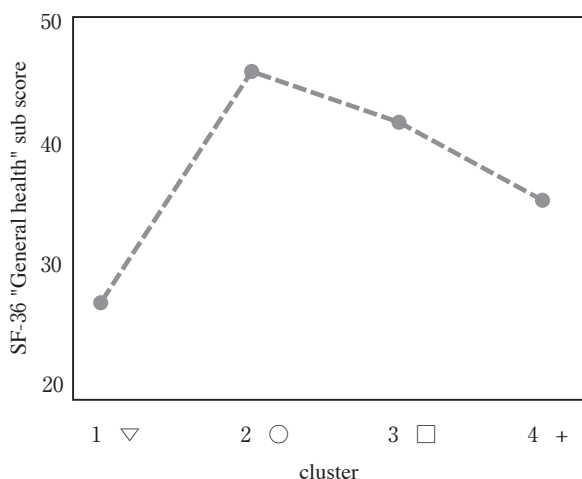
Figure 2. SF-36 sub-concept "general health" subscale score average value for each cluster

Table 5. Results of Multiple regression analysis

n=74

	β
1st PC score	- .261 *
2nd PC score	.295 **
Multiple correlation coefficient (R)	.396
Determination coefficient (R^2)	.157

PC : Principal component　　　　　　*p<.05　**p<.01
β : Standard partial regression coefficient
QOL : SF-36 sub-concept "General health"
　　= -5.441 × 1st PC score + 6.248 × 2nd PC score + 39.774

showed negative correlation with the 1st component score, and SCAQ concept D "acquiring effective support" and the SCAQ 29 item total showed positive correlation with the 2nd component score.

For principal component score and social support scale, Factor 1 "emotional support in daily life," Factor 2 "behavioral support with regard to the disease," and the total score showed negative correlation with the 1st component score and positive correlation with the 2nd component score.

2) Relationship between concept of family and QOL

The relationship between concept of family and QOL was analyzed by means of Spearman's rank correlation coefficient, multiple regression analysis and the average subscale score for the SF-36 sub-concept "general health" regarding each cluster.

Correlation was found only between the principal component score and SF-36 sub-concept "general health"; namely, a negative correlation with the 1st component, and a positive correlation with the 2nd component score. No correlation was found with the other sub-concepts.

For SF-36 sub-concept "general health" subscale score average value for each cluster (Figure 2), the high clusters 2 and 3 for the 2nd component showed a positive trend in figure 1.

In order to examine whether or not individual scores of the 1st and 2nd component would significantly predict SF-36 sub-concept "general health," multiple regression analysis using the forward-backward

stepwise selection method (including the basic information of age, gender, occupation, and reason for living alone) (R^2=0.157) was performed with SF-36 sub-concept "general health" subscale score as the predictor variable, and the 1st and 2nd component scores as the explanatory variable. Variables for the basic information of age, gender, occupation, and reason for living alone were excluded.

Results revealed that the 1st component (β =-0.261, P<0.05), and 2nd component (β =0.295, P<0.01) both became significant explanatory variables, and a coefficient of determination (R^2=0.157) was calculated (Table 5). Furthermore, the following prediction formula was composed: SF-36 sub-concept "general health" = -5.441 × 1st component score + 6.248 × 2nd component score + 39.774

Discussion

1. The significance of the 14 items that show the concept of family in patients with chronic disease living alone

The 14 question items in this study that show the concept of family in patients with chronic disease living alone, written inductively from the results of our previous research, redefine the position of the existence of family for patients living alone. These 14 items are a contraction of the 1st component "an existence that makes patients aware that they are alone in the treatment incorporated in their lifestyle and feel distant from their families" and the 2nd component "an existence of family that patients express their feelings about" that show the concept of family for patients living alone. Items in the questionnaire ask such things as the sense of distance between and existence of family, and thoughts towards living alone and treatment associated with lifestyle, items that until

now have not been included as questions for patients living alone[19]. And yet through this questionnaire, the 1st component being the way in which distance with family is created, the 2nd component being the existence of family, a concept considered essential in our previous research, have been shown quantitatively as framework concepts.

Furthermore, it has become apparent that the concept of family can be described by the 1st and 2nd components. In addition, by using these two components, the fact that classification was possible in four clusters also became apparent. These results can be put to practical use in the future as key points for patient understanding, and become a new perspective for nursing care in patient treatment incorporated in lifestyle.

2. Relationship between concept of family in patients with chronic disease living alone and self-care ability and social support

It has been reported that there is a relationship between the self-care agency and the health of patients[20]. The self-care ability of "acquiring effective support" is the ability to secure someone who will support the patient's health management, and the ability to gain effective support. Alternatively, social support is accepting support from relationships with other people as a general way of thinking[21]. It has also been reported that the quality of social support relates to patterns of exchanging social support and social support network[22].

Although there were significant differences in concept of family, self-care ability, social support for the basic information of age, occupation, and reason for living alone, no significant differences were seen for gender. In the over 65 year old age group, self-care ability and the 2nd principal component total score for concept of family were high. In patients who were working, self-care ability and the 1st principal component total score were low. In unmarried patients, social support and the 2nd principal component total score were also low. We consider that these results, which have not previously been reported on, can be included in assessment and nursing care as a characteristic of patients with chronic disease living alone.

With regard to this study, the 1st and 2nd

components had a correlative relationship with the self-care ability of being able to secure support and receive social support. In other words, if the 1st component of "an existence that makes patients aware that they are alone in the treatment incorporated in their lifestyle and feel distant from their families" is high, the ability to receive efficient support may be weak, and there is a possibility that support is not being received. On the other hand, if the 2nd component of "an existence of family that patients express their feelings about" is high, it can be thought that the patient has the ability to receive efficient support and that there is the possibility that he or she is receiving support when required.

Until now, healthcare providers have tried to organize support systems for patients living alone beyond that of family support. However, according to the results of this study, it is apparent that people low in the 1st component and high in the 2nd component have a tendency toward self-care ability, support and QOL. In short, patients living alone who are in control of their treatment incorporating their lifestyle have an appropriate sense of distance from family and resolution to do things alone, and it is thought that they have gained a new perspective as people who can express their feelings toward their family.

From the above, it can be conceived that concept of family in patients with chronic disease living alone is related to self-care ability and social support, which is in turn related to treatment, that a way of thinking can be inferred to gain the ability to acquire efficient support through an understanding of the concept of family by patients living alone, and that these findings serve as a new perspective for nursing intervention.

In the results of this study, from the 2nd component of "an existence of family that patients express their feelings about," it has become evident that not limited to support from others, but through feelings towards family as memories of their existence, there is potential for an increase in the ability to acquire support, and potential for this to lead to gaining support. Recognition that patient feelings towards family can also be seen as support is of benefit in supporting treatment incorporated in one's lifestyle from an emotional aspect.

Through this study, it is thought that not allowing

the 1st component to become high and raising the 2nd component, in other words, by not trying too hard alone but receiving support when necessary, and being able to recognize that feelings toward family are support, serve as strength in continuing treatment associated with lifestyle while living alone.

With respect to nursing care, in addition to self-care support the following was newly confirmed: healthcare providers respect the way in which patients live alone, the ability to acquire effective support is improved, and the recognition of patient feelings towards family leads to the recognition of feelings as support, which leads patients to draw on their own strength.

3. Possible uses of concept of family for treatment incorporated in lifestyle and ensuring QOL for patients with chronic disease living alone

In previous studies, it has been reported that there is a relationship between QOL and physical activity level[23], social support and QOL of the patient[24], and QOL and depression. Furthermore, by understanding the variables associated with the QOL of individuals, nurses are able to coordinate intervention to improve their QOL[25].

Through this study we have obtained the following results. Regardless of the somewhat low coefficient, there is the correlative relationship between concept of family and QOL. Although the quality of each cluster is as yet not clear, the high score cluster of the 2nd component resulted in a tendency toward a high mean value for SF-36 sub-concept "general health." Despite the fact that the coefficient of determination was somewhat low, through multiple regression analysis SF-36 sub-concept "general health" is predictable from the 1st and 2nd component scores using the multiple regression equation, excluding gender and age as explanatory variables. However, as there were significant differences in the QOL sub-concepts of role-physical, role-emotional, and physical functioning for the basic information of age, gender, occupation, it is necessary to continue to study this area in the future as an aspect of nursing care.

There is a correlation between concept of family and QOL, and nursing support that makes practical use of the concept of family has the potential to increase QOL. The results of this study provide a new perspective for nursing support that aims to combine treatment associated with lifestyle and the ensuring of QOL for patients living alone.

4. Limits of this research

The number of subjects in this study was 75 individuals from one facility. Therefore, the conclusions may not apply to all patients with chronic disease living alone. It will be necessary to perform further studies on these results, on control patients with chronic diseases other than those living alone.

Conclusion

1. The 1st component "an existence that makes patients aware that they are alone in the treatment incorporated in their lifestyle and feel distant from their families," and the 2nd component "an existence of family that patients express their feelings about," were apparent as concepts of family for patients with chronic disease living alone.

2. From the viewpoint of the relationship between concept of family and self-care ability and social support, patients who showed a high 1st component, had a weak ability in the self-care ability of "acquiring effective support," and there was a tendency toward not receiving support; and patients who showed a high 2nd component had a strong ability to "acquire effective support," and there was a tendency to receive such support.

3. From the viewpoint of the relationship between concept of family and QOL, SF-36 sub-concept "general health" is predictable from the 1st and 2nd component scores using the multiple regression equation.

4. The usefulness of recognizing feelings toward family as support, not trying too hard alone, focusing on 1st component and 2nd are suggested as a new nursing perspective.

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慢性疾患をもつ1人暮らし患者にとっての家族の概念とセルフケア能力、ソーシャルサポート、QOLの関係性

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要　　旨

慢性疾患をもつ一人暮らし患者にとっての家族の概念と、セルフケア能力、ソーシャルサポート、及びQOLとの関係を明らかにすることを目的に、75名に質問紙調査を行い、主成分分析、相関分析、重回帰分析等により統計学的に分析を行った。

慢性疾患をもつ一人暮らし患者にとっての家族の概念は、14項目の設問により2つの主成分で示すことが可能であり、第1主成分「1人での療養生活に覚悟や距離感を感じる存在である家族」、第2主成分「何かの時に想う叙情的な家族の存在」の2つの主成分が明らかになった。家族の概念とセルフケア能力、ソーシャルサポートの間に相関関係があり、第1主成分が高いとセルフケア能力の「有効な支援の獲得」の力が弱くサポートを受けない傾向、第2主成分が高いと「有効な支援の獲得」の力が高くサポートも受けている傾向があった。また家族の概念とQOLの間に相関関係があり、重回帰式により2つの主成分得点からSF-36のサブ概念「全体的健康感」によるQOLが予測可能であった。

以上より、第1主成分、第2主成分の高低によりセルフケア能力「有効な支援の獲得」やソーシャルサポートを推測出来ること、第1主成分、第2主成分を新たな看護ケアの視点とし、患者が一人で頑張りすぎず、家族の存在や家族を想うこともサポートであると認識していけるような、家族の概念を活用した看護支援により、QOLをより良好に出来る可能性が示唆された。