An Experimental Study of the Effects of Supportive Nursing* Intervention on Family Support Behavior and Sick Role Behavior

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1. Overview

Need for the study

In view of individuals, regions, and nations, the increase of interest in health education requires effective strategies and evaluations which aid this clients in inproveing their health conditions through active changes.

Until recenty only pamphlets and mass-communication conveyed health education information. These information-providing strategies are not sufficient. Preferably more synthetic strategies are required in which an individual can be considered as a part of his environment. This research has put its emphasis on the development and evaluation of nursing intervention strategies which can increase compliance with medical recommendation and regimens for the patients with diseases involving chronic conditions and extended care. The devices for encouraging these patients to adhere to continuous treatment are modifying the patients' education and are increasing amount of support from the providers and family members.

Patients with chronic diseases have role problems that can be distinguished into two factors: Firstly, the disease can be controlled but complete recovery is impossible; therefore, life-long self-care is stressed. Secondly, even though a chronic disease, does not induce symptoms continously, the treatment and self-care must be consistent. The factors above mentioned cause chronic disease patients to deviate from their sick role patterns and thus delay the recovery and aggravate the disease. Since non-compliance behavior and discontinuance of treatment are the greatest problems facing chronic disease patients, there is an increase in the research confirming the factors related to the sick role behavior discontinuance. Therefore, there is also an increase in demand for research connected with promoting the sick role behavior in terms of chronic and long term conditions.

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Research for sick role behavior has approached the problems broadly covering the epidemiological, demographical, and psychosocial phenomenona. Only a few studies have attempted to provide the basis for nursing intervention.

The study on patient education related to the deviations in sick role behavior requires an analysis of the factors influencing the sick role behavior. It also demands the modification of the Health Belief Model for compliance of the medical regimen and recommendation. The modification of the health belief model, in view of providing for the care of chronic disease patients, forebodes the necessity of supportive and educative nursing intervention in terms of the patients' education and the consolidation of functions, supported by the constituents of the patients' self-care system, the care providers and family.

Among the chronic diseases, The prevalence of T.B. patients in Korea was 2.4% in 1980 and recently the number has increased to 852 thousand. The early stages of T.B. have no specific symptoms, but as it becomes chronic or extended, the physical invasion can be fatal. The supportive system of T.B. which consisted of health personnel, family, and close associates, has the peculiar characteristic that both the nurse and the family tend to care for chronically ill patients more carelessly than for the acute patients. Close associates of T.B. patients consider the disease incurable or contagious, so they tend to avoid the patients rather than support them. As a result, the patient becomes isolated from the social network of his society and his family. It also evokes a conflict between the normal role and the sick role. Finally it causes the patients to relinquish their sick role.

Kasl, in his experimental research, reports that among T.B. patients, the noncompliance patients have conspicuous marks of social isolation. Health can be recovered through direct treatment and information provided by doctors or nurses, but what is more important is the support acquired through interaction between the health personnel and the patient's family.

With an interest in family support which is a factor influencing the sick role behavior, this research has contrived a nursing strategy which is a supportive nursing intervention for the sick role behavior. This strategy provides supportive nursing intervention for both patients and family members to increase support for the patients. An attempt of this study is to present a tentative plan of nursing for chronically ill and extended care patients to actively participate in the long term nursing plan. Another plan provides for supportive nursing intervention which can increase the sick role behavior through the patient-nurse relationship by stimulating the functions both of the family system and nursing system.

Purpose of the study

The intent of this study is; to seek for nursing strategies that can improve the sik role behavior by providing supportive nursing intervention for noncompliant patients who are easily found in clinical situations, and to analyze the effects of social support of nurse and family who are the primary sources of influencing the sick role behavior of chronically ill patients.

The general purpose is to measure and evaluate the possibilities of increasing compliance

of sick role behavior through supportive nursing intervention. The specific objectives to be achieved are as follows:

1) Determine the factors influencing the sick role behavior and degree of its influences.
2) Determine the effects of supportive nursing intervention on sick role behavior.
3) Determine the effects of supportive nursing intervention on family support.
4) Determine the relation between family support and the sick role behavior.

Hypothesis

The hypothesis stated for this study is as follows:

1) Supportive nursing intervention will increase the sick role behavior.
2) Supportive nursing intervention will increase family support.
3) If the degree of family support rises, the degree of sick role behavior will also increase.

2. Summary of Theoretical Background of the Study

The nurse, one of the care providers and the significant family members increases the sick role behavior. Through this increased compliance behavior, the nurse and family members function as the client's supporting system which is the basis of his social support. This social support of the client also gives a positive influence on the health outcome.

Since the client's role behavior is determined by his beliefs, the theoretical background based on the client's health belief model, which describes his health behavior, is selected. Especially,, the sick role behavior of the client is selected because he is a patient who has to behave according to the medical regimens and recommendations derived from the diagnosis.

Since the client's perception of his disease and of his compliance behavior and the interaction between client and his environment are considered to be important elements. The compliance behavior is motivated through the social support and the social influence which increases the quality of mutual interaction. Also, the locus of control, which is a character of patients, is deeply related to the patients compliance behavior. The internal locus of control is reported to be effective on the health behavior of the patients, and since the external locus of control is effective in learning, the character variables interpretate the behavior of the patient.

Therefore, the supportive interaction variables and the personality variables are inserted into a particular model.

The nurses and family members maintain dynanic interaction with the patients as an open system. They also maintain continuous exchanges of energy, information, and matter with the environment, and make variations on the purpose of the system. The environment and the client, as a supporting foundation, interact dynamically to give emotional and practical aid to the vital energy which is lacking in T.B. patients and chronically ill patients who are socially isolated. Expecially, the supportive nursing intervention, which emphasises

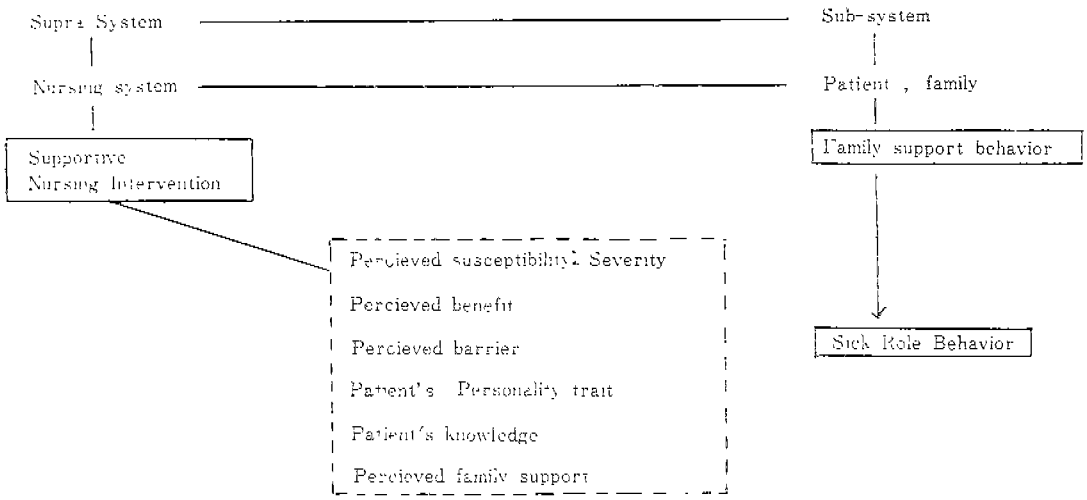
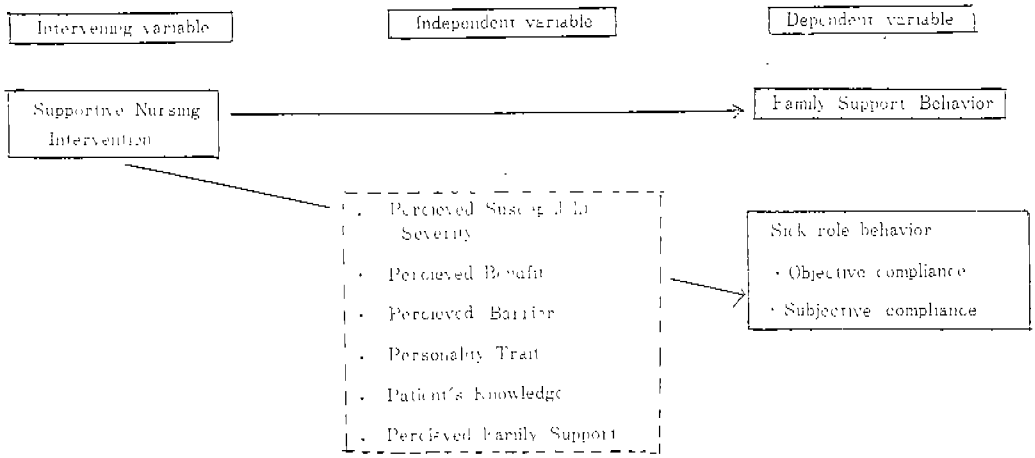


Figure 1) The Theoretical Framework of the Study



(Figure 1) Operationalized Model for Variables

education and support of nurses, leads to a variation of health behavior.

3. Methodology and Procedures

The subjects, consisting of 87 tuberculosis patients who were registered in the tuberculosis clinic in a Seoul City District Public Health Center and their significant family membres, were divided into experimental and control groups. Data were collected from May to August,

1983, through interviews during home visits, questionaires and medical records.

The supportive nursing intervention proctocol and the measurement tools were developed by the investigator from the literature review. The instruments to measure patients' knowledge, percieved family support, barriers and benefits of health care, susceptibility and severity of illness, family support behavior, delayed medication days-objective compliance, and percieved sick role behaviors-subjective compliance, were tested for reliability and validity. Personality characteristics (Internal and External Locus of Control) were measured by Waltson's Health Locus of Control Instrument.

T-test, ANOVA and w^2 were used in analyzing the data to confirm the intensity of the influence and the relationship between intervening variables, family characteristics, demographic characteristics, sick role behavior, Pearson's correlation and Stepwise Multiple Regression, they were also used to confirm the predictors of sick role behavior, and PATH anal-

(Table 1) Relationship between objective compliance and demographic variables

Demographic characteristic		Number of patient	Mean	SS_B SS_W	MS_B MS_W	S.E.	F or t valuc	P value	W^2
Sex	male	55	16.83			2.96			
	female	32	8.00			1.82	2.54*	.013*	.057
Age	15~24	22	10.36						
	25~34	22	11.95	329.65	823.41				
	35~44	20	10.15	27649.41	337.18		2.44	.053	.042
	45~54	16	16.00						
	55~65	7	33.14						
Type of	company employee	10	8.60						
occupation	commercial business	15	17.60						
	enginear	12	14.08						
	student	9	6.55	3156.16	526.02				
	no job	18	22.94	27786.90	347.33		0.15	.854	.019
	unskilled worker	11	8.27						
	housewife	12	8.33						
Education	no education	8	25.12						
	Elimentary school	18	10.77						
	Middle school	27	9.77	2382.34	595.58		1.71	.155	.000
	High school	28	13.32	28560.72	348.30				
	College	6	25.00						
Marital	single	22	60.63			3.51	−0.92	.362	.011
status	married	65	14.58			2.45			
Religion	catholic, protestant	22	13.36						
	buddhism	9	19.00	302.48	100.82				
	no religion	55	12.83	30640.54	369.16		0.27	.841	.025
	no answer	1	11.00						

*$p<.05$

(Table 2) **Relationship between subjective compliance and demographic variables**

Demographic characteristic		Number of patient	Mean	SS_B SS_W	MS_B MS_W	S.E.	F or t value	P value	W^2
sex	male	55	3.06			0.10	−2.40	.019*	.000
	female	32	3.46			0.13			
Age	15~24	22	3.48						
	25~34	22	3.13	4.03	1.00		1.70	.157	.031
	35~44	20	3.20	48.55	0.59				
	45~54	16	3.15						
	55~65								
Type of	company employee	10	3.30						
occupation	commercial business	15	2.84						
	enginear	12	3.38	3.30	0.55				
	student	9	3.39	49.27	0.61		0.89	.502	.007
	no job	18	3.27						
	unskilled worker	11	3.03						
	housewife	12	3.32						
Education	no education	8	3.29						
	Elimentary school	18	3.12	1.76	0.44		0.71	.587	.013
	Middle school	27	3.37	50.82	0.61				
	High school	28	3.13						
	College	6	2.87						
Marital	single	22	3.44			0.16	1.66	.103	.000
status	married	65	3.12			0.09			
Religion	catholic, protestant	22	3.18						
	buddhism	9	3.38	0.31	0.10		0.16	.919	.029
	no religion	55	3.18	52.27	0.62				
	no answer	1	3.22						

*p<.05

ysis and others, as well as to confirm the causal relationship among variables. Family characteristics, demographic and intervening variables were compaired by means of t-test and x^2-test for similarities between the experimental and the control group to confirm the effect of supportive nursing intervention. Paired t-test was used to examine the difference between family support behavior and sick role behavior before and after supportive sursing intervention and ANOCOVA was used to test for significant differences between the experimental and the control groups.

4. Analysis & Findings

The results of the study may be summarized as follows:

1) Factors influential on sick role behavior: The study analyzed the relationship of nine

(Table 3) Relationship between characteristics of family and objective compliance

Characteristics of family		Number of patient	Mean.	SS_B SS_W	MS_B MS_W	S.E	F or T value	P value	W^2
Number of family	1	10	24.80						
member	2	18	10.01				2.12	.085	.060
	3	16	20.18	2906.32	726.58				
	4	16	8.43	27729.95	342.34				
	5	26	10.19						
	6	1	9.12						
Type of	nuclear family	74	14.29			2.09			
family	extended family	13	15.23			6.82	−0.27	.790	.010
Relationship	parents	31	13.93						
between patient	spouse	52	13.40	426.04	142.01				
and significant	sibling	3	7.43	30516.96	367.67		0.38	.763	.021
family member	etc.	1	31.00						
Sex of significant	male	24	5.54			2.10			
family member	female	63	16.65			2.59	−3.32	.001**	.113

**p<.001

(Table 4) Relationship between characteristics of family and subjective compliance

Characteristics of Family		Number of patient	Mean.	SS_B SS_W	MS_B MS_W	S.E	F or T value	P value	W^2
Number of Family	1	10	2.77						
Member	2	18	3.19						
	3	16	3.06	3.92	0.98		1.64	.171	.040
	4	16	3.24	48.42	0.59				
	5	26	3.46						
	6	1	3.12						
Type of	nuclear family	74	3.20			0.09			
family	extended family	13	3.19			0.18	0.08	.093	.011
Relationship	parents	31	3.28						
between patient	spouse	52	3.14	1.22	6.40				
and significant	sibling	3	3.64	51.35	0.61		0.66	.578	.011
family member									
	etc.	1	2.72						
Sex of	male	24	3.59			0.14			
significant	female	63	3.05			0.09	3.05	.004*	.087
family member									

*p<.05

demographic characteristics, four family characteristics and seven intervening variables with subjective and objective compliance, the dependent variables. The demographic and family

(Table 5) Simple correlation between objective compliance and intervening variables

Intervening variable	r	p
percieved family support	−.3840	.000***
personality characteristics of patient	.2357	.014*
perceived susceptibility. severity	−.2130	.024*
percieved barrier trait of patient	.1186	.137
percieved benefit	.4804	.000**
knowledge of disease	−.4737	.000**

*p<.05
**p<.001

(Table 6) Spetwise regression: dependent variable=objective compliance

Intervening variable	R	R^2	β	F
percieved benefit	.4804	.2308	−.3191	25.507
knowledge of disease	.5267	.2774	−.3132	16.130
percieved susceptibility. severity	.5304	.2814	.0857	10.834
percieved family support	.5321	.2832	−.0474	8.100
personality trait of patient	.5326	.2837	.0253	6.418

(Table 7) Simple correlation between intervening variables and subjective compliance

Intervening variable	r	p
perceived family support	.8076	.000**
personality trait of patient	−.4264	.000**
perceived susceptibility. severity	.4087	.000**
perceived barrier	−.2952	.003*
perceived benefit	.7269	.000**
knowledge of disease	.6479	.000**

*p<.05
**p<.001

(Table 8) Stepwise Regression: dependent variable=Subjective compliance

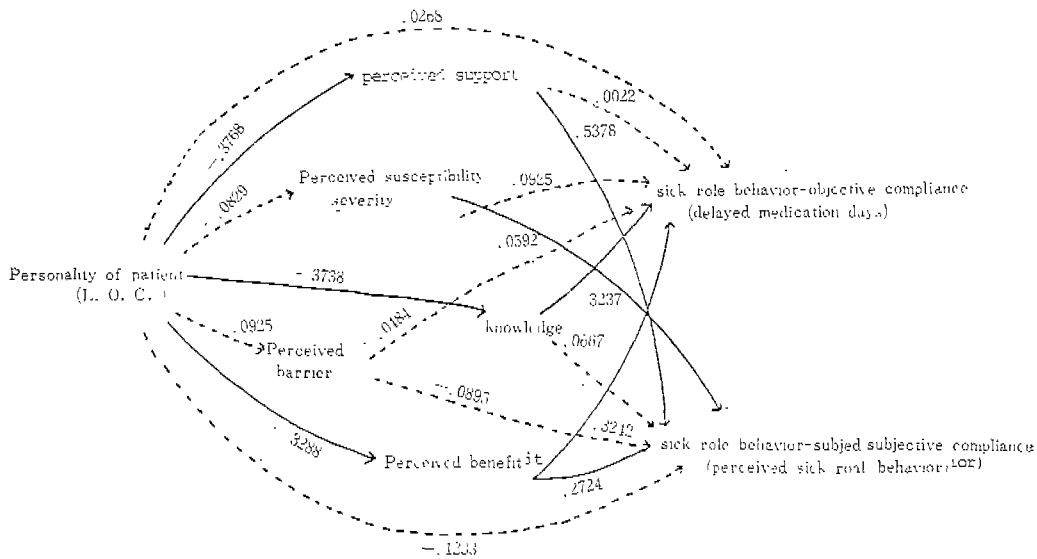
Intervening variable	R	R^2	β	F
perceived family support	.8075	.6521	.5112	159.366
perceived benefit	.8465	.7145	.2623	106.194
personality trait of patient	.8528	.7274	−.1200	73.824
perceived barrier	.8550	.7310	−.0953	55.715
perceived susceptibility. serverity	.8587	.7375	.0852	45.519
knowledge of disease	.850	.7378	.0311	37.536

characteristic variable which had a significant relationship with objective and subjective compliance was the sex of the subjects and that of supportive family members. The intervening variables which correlated with objective compliance were perceived family support, personality characteristics of patients, percieved susceptibility severity, perceived benefits and the knowledge about their disease, of which the most influential was perceived benefit. Subjective compliance and intervening variables correlated to a significant level and the most influential variable was perceived family support.

Path analysis showed causal relationships between compliance and intervening variables: Internal Locus of Control(I.L.O.C) influenced percieved benefit which increased objective compliance (the decrease of delayed medication days). I.L.O.C increased a high degree of knowledge which increased objective compliance (the decrease of delayed medication days). I.L.O.C increased percieved family support which increased subjective compliance. Percieved high susceptibility and severity also increased subjective compliance.

2) Results from analyzing the effect of supportive nursing intervention. Comparative analysis of the measurement of Intervening variables between the experimental and the control group before and after the experiement to confirm the effect of the supportive nursing intervention rerulted in a significant difference among all the intervening variables except for the personality of the patient.

A hypothetical test using comparative analysis of the measurement of sick role behavior



(Figure 6) Path diagram with regression coefficients for health locus of control, belief, family support, knowledge and sick role behavior.

(Table 13) **Pre and Posttreatment Comparison of Intervening Variables**

Intervening variable	Group	Number of patient	Mean	S.E.	t	d.f	P
Percieved suscep.	Exp.	40	0.877	0.048			
sev.	Cont.	47	0.031	0.026	16.12	85	.000**
Percieved barrier	Exp.	40	−0.238	0.089			
	Cont.	47	0.083	0.063	−3.80	85	.000**
Percieved benefit	Exp.	40	1.120	0.643			
	Cont.	47	0.029	0.269	10.60	85	.000**
Personality of	Exp.	40	−29.040	0.823			
patient	Cont.	47	−28.437	0.821	−0.52	85	.607
Knowledge of	Exp.	40	0.658	0.082			
disease	Cont.	47	0.063	0.033	7.11	85	.000**
Percieved family	Exp.	40	1.121	0.070			
support	Cont.	47	0.026	0.038	14.30	85	.000**

(Table 9) **Pre and Posttreatment Comparison of Supportive Nursing Intervention**

Independent variable	Group	N	M	S.E	t	d.f	P
Objective compliance	experimental group	40	−22.200	3.481	−4.19	85	.000**
	control group	47	5.170	2.293			
Subjective compliance	experimental group	40	1.226	0.067	16.74	85	.000**
	control group	47	−0.001	0.036			

**p<.001

(Table 10) **Pre and Posttreatment Comparison of Supportive Nursing Intervention**

Dependent variable	group	number	mean	S.E.	t	d.f	p
Family support	Experimental group	40	0.740	0.08	8.70	85	.000**
behavior	control group	47	−0.068	0.041			

**p<.001

(Table 11) **Correlation between family support behavior and sick role behavior**

	Dependent variable	r
before supportive nursing intervention	objective compliance	−.1996*
	subjective compliance	.3022*
after supportive nursing intervention	objective compliance	−.3207*
	subjective compliance	.7535*

*p<.05
**p<.001

and family support between the experimental and the control groups before and after the experiment to confirm the effect of supportive nursing intervention resulted in the following:

The first hypothesis that supportive nursing intervention will increase sick role behavior was supported.

The second hypothesis that supportive nursing intervention will increase family support behavior was supported.

The third hypothesis that the higher the degree of family support, the higher the compliance of sick role behavior was supported.

As an additive analysis, the three variables, i.e. the sex of the subjects and their supportive family members, perceived susceptibility, and severity, which showed differences in the tests between the experimental and the control groups, were controlled and retested.

As a result, it was shown that supportive nursing intervention increased family support behavior and sick role behavior, and the hypotheses were supported.

It was concluded that support by significant family members and by the nurse is important to patient compliance. Patients need an increased supportive system.

There is a causal relationship between a patient's personality characteristics and sick role behavior. Although there are no direct relationships, with most of the intervening variables, the more influenctial variables are patient knowledge, percieved benefit and percieved family support.

Nursing assessment should identify the patient's internal locus of control, then predict and control the above three variables for improved patient compliance.