Development of An Intervention Scale Measuring Psychiatric Patient-Nurse Relationship

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scale development
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ABSTRACT

The purpose of this paper is to develop a scale that measures the formation of a patient-nurse relationship in psychiatry and examine its reliability and validity. The scale was constructed by reviewing literature on Peplau's nursing theory and interviewing 8 nurses who had worked at psychiatric wards for at least 5 years. Then, we conducted a questionnaire survey of nurses who work on psychiatric wards in university hospitals in Japan and developed scale items by statistical methods. The scale was composed of 24 items and 4 subscales – "cooperative and supportive intervention," "cognitive, analytical, and communicative skills," "receptive attitude," and "readiness for intervention." Statistical analysis showed that Cronbach's coefficient alpha was above .70, indicating high internal consistency. We also compared these results with results on the earlier study of involvement necessary for establishing the patient-nurse relationship. It showed that construct validity, and the emotional empathy scale and the opener scale on criterion-related validity were adequate, yet we consider that it is still necessary to enhance the validity for its practical application.

Introduction

Okaya (1995) noted that "nursing is the work involved in patients' daily life and sometimes their whole life, making it difficult to offer them effective care without good relationship with them." Hildegard E. Peplau (1952/1999), a pioneer of psychiatric nursing, also discussed the importance of a nurse's involvement with a patient. She defined nursing as a "significant, therapeutic, interpersonal process" and revealed that patients had come to actively deal with their own problems and develop themselves through the nurse-patient interaction.

Yet, there are some previous studies that showed that nurses sometimes are "afraid of patient's response" and feel "helplessness," revealing that there is a difficulty in dealing with patients (Nishikiori, et al., 2005). Makino (2005) also unveiled that nurses' lack of experience and their upset over patients' words and actions were an influence factor causing their confusion of therapeutic situations and orientation due to the maintenance of their negative feelings toward patients ("unintended involvement").

In addition, Abo (1994) notes that it is difficult to express nurse-patient relationship in an objective and conscious way. This is because nurses' own characteristics can't help but affect their involvement with patients, therefore, it is difficult to see their own involvement objectively and to visualize relationship between them, uncertain factors such as patients' disease and conditions affect the construction of their relationship, and their interpersonal skills depend on their own abilities.

However, some scales have been developed for measuring a patient-nurse relationship objectively, for instance, Okaya (1995)'s Patient Trust Scale, which measures the level of trust between a patient and a nurse, and Client-Nurse Relationship Scale (CNRS) (Fukai, Shinmi, and Okura, 2000). Yet, these scales are not constructed specifically for psychiatric services. They are measured by asking patients to evaluate nurses' involvement but in psychiatry it is especially difficult to improve the patient-nurse relationship, making it necessary to develop nurses' professional skills.

I. The Purpose and Framework of the Research

The purpose of this research is to develop a scale that measures the formation of a patient-nurse relationship in psychiatry. We relied on Peplau's theory of interpersonal relations, which is used in previous studies focusing on a patient-nurse relationship (Forchuck and Brown, 1989), as the theoretical basis of scale construction. Patient-nurse relationship is defined as "relationship in which it is aimed to change subject's behaviors by nurse's exploratory approach (the attempt to talk together for clarifying patient's needs and to collaborate for resolving problems)" by referring to Peplau's description of patient-nurse relationship in her article (1989/2010).

It is expected that this scale can be used as a measure to evaluate nurses' intentional involvement for constructing patient-nurse relationship and as a tool to review how their involvement helps to construct a supportive relationship between them.

II. Research Methods

1. The Construction of Items on "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards"

a. Construction Process

Provisional scale items were constructed by reviewing relevant literature and interviewing some psychiatric nurses. Then, a questionnaire survey was conducted with nurses who had worked on psychiatric wards in national university hospitals which agreed to participate in this research, and scale items were developed by statistical methods.

b. Literature Review

With the supervision by a psychiatric nursing specialist we read Hildegard E. Peplau's *Theory of Interpersonal Relations* thoroughly and extracted factors which were necessary for forming nurse-patient relationship on "four phases of nurse-patient relationship." We then assigned numbers to data extracted from the literature.

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c. Interview Survey

We conducted semi-structured interviews with nurses working in psychiatric wards in order to extract their concrete involvement.

(1) Subjects

Subjects were 8 nurses who had worked at psychiatric wards for at least 5 years in hospitals which agreed to cooperate in this research project.

(2) Implementation Period

From June to August in 2009.

(3) Data Collection Methods

A ward administrator selected those who met the conditions necessary for the research. Subjects were those who agreed to participate in this research from among them. In a semi-structured interview we explained the definition of “patient-nurse relationship” and “Peplau’s interpersonal process” in this research and asked them to talk about freely “cases in which they made a patient change their behaviors in some way or could realize that they formed ties with a patient.”

We conducted interviews with each subject once for 20 to 60 minutes in a separate room. The content of interviews was recorded using an IC recorder with subject’s consent and was transcribed verbatim.

(4) Methods of Analysis

Accounts supposed to be an involvement necessary for forming patient-nurse relationship was transcribed verbatim with one meaning in one sentence. One context was treated as a unit of records and factors extracted from Peplau’s nursing theory were numbered serially. Data obtained from interview surveys were put into numerical order (A001 to H010) based on subjects and data. In order to enhance the validity of our analysis we classified every unit of records and extracted questionnaire items under the supervision of a psychiatric nursing specialist.

2. Questionnaire Items

a. Attributes of Nurses

Sex, age, years of nursing experience, and years of psychiatric nursing experience.

b. The Number of Questionnaire Items and Point Allocation

Thirty two questionnaire items were extracted from literature review and survey content of interviews (Figure 1). Each item was scored from 1 (do not at all) to 10 (never fail to do).

c. Examination of Criterion-related Validity

As Ito (1999) notes that “patient-nurse relationship which has gone through the phase of empathy leads to important understanding of patients for carrying out skilled help and the reduction of patient’s distress such as anxiety, depression, and anger,” an empathic attitude is considered to be a necessary stance a nurse must take as a condition to form relationship between them.

Gail W. Stuart (2007) pointed out that nurse’s self-disclosure elicits patient’s self-disclosure which is necessary for bringing about favorable outcomes of treatment. Therefore, we focused attention on empathy and self-disclosure, and decided to employ an “emotional empathy scale” as an external criterion for scale development and an “opener scale” which measures a sensibility toward self-disclosure.

(1) Emotional Empathy Scale

Emotional empathy scale was developed by Kato and Takagi (1980) for measuring the level of empathy on emotional aspects. Its scales are composed of Scale I (emotional-warmth, 10 items), Scale II (emotional-coolness, 10 items), and Scale III (emotional-susceptibility, 5 items). The reliability and validity of these scales have already been verified. High scores of Scale I (emotional-warmth), Scale II (emotional-coolness), and Scale III (emotional-susceptibility) show that a subject is emotionally warm, emotionally cool, and susceptible to emotions, respectively.

(2) Opener Scale

An opener scale was developed to measure the sensibility to self-disclosure (Miller, Berg & Archer, 1983; Oguchi, 1989). This scale is composed of two subscales: a “relaxing” factor (5 items) which measures the extent to which a subject can make others feel comfortable and open up and an “empathetic” factor (5 items) which measures the extent to which a subject listens to another person with interest. The coefficient of reliability was .65 for all items, .64 for the “relaxing” factor, and .62 for the “emphatic” factor. Construct validity was assured on its correlation with Revised-Jourard’s Self-Disclosure Questionnaire (R-JSDQ).

3. The Implementation of a Questionnaire Survey

a. Facilities That Participate in the Research

We asked national university hospitals in Japan to participate in this research and 39 facilities agreed to it.

b. Subjects

Subjects were 718 nurses working in psychiatric wards of 39 national university hospitals.

c. Period

From June to November 2009.

d. Methods

A confidential self-administered questionnaire survey was conducted with psychiatric nurses in 39 national university hospitals. The questionnaire sheets were sent to directors of nursing in each facility. We asked them to distribute sheets to subjects and tell them to mail the survey sheets to us by mail or submit sheets to a director of nursing.

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Figure 1. Questionnaire Items Classified by Literature Review and Content of an Interview Investigation

Number	Extracted Item	Extracted Content
1	Literature No.3	Explaining rules and restrictions on hospital service available to a patient.
2	A005 A007 A008	Telling that a nurse would help a patient to be well and to solve problems.
3	A016 C011	Being involved for constructing relationship through casual conversation such as patient's concerns.
4	A026 C009 Literature No.12	Listening to patient's opinions fully without telling nurses' opinions unilaterally.
5	D014	Listening to patient's complaints and trying to understand his/her feelings.
6	D013 D002	Listening to patient's complaints without interrupting him/her.
7	D001 D005 D025 E003	Telling a patient about the things nurses worry about.
8	C006 D006	Telling a patient about nurse's own thoughts and opinions.
9	F017 H010 Literature No.15	Understanding patient's experience and accepting it as it is.
10	D004 D010 D024 F016	Being involved with a patient patiently whatever situation he/she faces.
11	F018	Being involved with a patient without expecting too much from him/her until reliable relationship is formed.
12	A010 C018 C019 D009 D019 E010 Literature No.11	Being involved with a patient so that he/she can express his/her feelings and troubles.
13	A003 C005 F022 Literature No.7	Being involved so that a patient can recognize that he/she is a nurse in charge.
14	A024 B007 B008 C014	Setting an appropriate time and place when talking to a patient in order to listen to him/her talking in a relaxed way.
15	D019	Trying to clarify positive and negative emotions a nurse has toward a patient.
16	F001 F004 F005 F019	Judging how to be involved with a patient (e.g., whether I should ask a patient about his/her private matters or make only a general talk) from his/her glance, expression, atmosphere, and attitudes.
17	Literature No.21	Being involved with a patient by which a nurse can understand the needs he/she requires in a step-by-step manner and supply them sufficiently.
18	A018 B017 Literature No.23	Noticing patient's small changes and the things they can do in order to give feedback to him/her in a positive way.
19	A029 A030	Being involved with a patient in order to make him/her understand the significance of treatment by mentioning the things he/she could do by treatment.
20	D008 F013	Being involved with a patient while recognizing one's own roles and maintaining an appropriate distance from him/her.
21	D015 E025	Trying to understand patient's psychosocial conditions.
22	B012 B016 C002 D007 D023 E012 H008	Listening to patient's hopes and goals which he/she wants to achieve in the future.
23	B004 B014 E029 G005	Thinking together about how to achieve patient's goals.
24	B009 H014	Telling a patient that a nurse would like to solve problems he/she faces together.
25	G007 G009	Sharing problems with a patient and encouraging him/her to evaluate them together.
26	A014 E001 E005 E017	Explaining the necessity of treatment while evaluating patient's conditions.
27	A009 B018 C007 Literature No.4	Understanding patient's anxieties and being involved with him/her for relieving them.
28	A012 B006 E018	Thinking together about what a patient should do when he/she is in trouble, feels sick, or needs help after discharge.
29	C001 C017	Looking back on the past conditions together in order to make a patient notice the effect of treatment.
30	B012 E004 E005	Taking care of patient's conditions and trying to let him/her make own decisions by approaching him/her in a step-by-step manner.
31	Literature No.19	Clarifying expectations that both a nurse and a patient have with each other.
32	Literature No.27	Analyzing one's own tendency and recognizing own behavioral pattern.

note.
1. The number of each datum is recorded and each interview subject is named A to H.
2. Each datum extracted from literature is name Literature No. ~.

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e. Methods of Analysis

Exploratory factor analysis was conducted for identifying items on Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards and a Cronbach's alpha of subscales was calculated to examine reliability of each item.

We also calculated Spearman's rank correlation coefficient for the examination of criterion-related validity and performed a Mann-Whitney U test for testing the differences between the sexes. The Kruskal-Wallis test and Scheffe's test of multiple comparisons were conducted on the years of nursing experience and years of psychiatric nursing experience. PASW Statistics 18 for Windows was used for statistical analysis.

4. Ethical Considerations

Those who agreed to participate in this research signed a letter of consent after receiving the following explanation: your participation in the research is voluntary and you can quit it at any time; interviews can be suspended according to interviewee's convenience; information on individuals and hospitals remains confidential; we do not use acquired data for other purposes; data were kept in the secure possession of the researchers; data on individual information were discarded after the study had been completed; and the article written based on acquired data is not used for other than conference presentation and the publication to an academic journal.

In addition, the following explanation was made in a written form: the submission of a questionnaire is treated as the acceptance of this research; participation in this research is voluntary and non-participation does not bring any disadvantages to them; subject's workplaces and attributes are confidential; and personal data acquired through the interview are managed strictly. This research protected subjects' human rights and was approved by and conducted under the guidance of Ethics Committee of Faculty of Medicine, Oita Univesrity.

III. Results

1. Subjects

Questionnaires were sent to 718 nurses and 414 questionnaires were recovered (response rate 57.7%), among which 410 questionnaires were valid, with the effective response rate of 99.0%.

2. Background of Subjects

Subjects were 64 males (15.6%) and 346 females (84.4%) and their average age was 35.85±11.34. According to age brackets, 160 subjects (39%) were in their twenties, followed by 106 subjects (25.9%) in their thirties and 68 subjects (16.6%) in their forties. The average years of nursing experience was 12.83±0.98. Their distribution was 184 (44.9%) in 10 years and over, 97 (23.7%) in 5 to 10 years, 96 (23.4%) in 2 to 4 years, and 33 (8.0%) in the first year. The average years of psychiatric nursing experience was 4.93±4.66. Their distribution was 203 (49.5%) in 2 to 4 years, 92 (22.4%) in 5 to 10 years, and 79 (19.3%) in the first year.

3. Exploratory Factor Analysis

a. Excluded Items

In order to construct appropriate subscales on 32 intervention scales for building the relationship between a patient and a nurse, inappropriate items were identified and excluded in the following way.

(1) Items excluded from the analysis due to ceiling effect (Figure 2)

Oshio (2004) pointed out that "when a ceiling effect (or floor effect) occurs the distribution is skewed positively (negatively), making it inappropriate to use as a scale item." Therefore, we calculated the average score and standard deviation of 32 items and set the score of 10 (the average score + standard deviation) as the upper limit. Item 7 was excluded because its score (8.45+1.46=9.91) was close to the score of 10. After excluding 5 items (Item Number 2, 3, 5, 7, 13) out of 32 items, 27 items remained for analysis.

(2) Items whose value of correlation coefficient was .70 and over (Figure 3)

Item Number 4 was included because Item Number 5 was excluded from the analysis due to ceiling effect. Item Number 22 was also excluded from the analysis because Item Number 23, involvement in which a nurse thinks together for goal achievement subsumes Item Number 22, involvement in which a nurse asks a patient about his/her desire in the future and goals. Item Number 24 was similar to Item Number 23 but not excluded from the analysis because it was about involvement in which a nurse tells a patient about his/her intention to cooperate for problem solving, which was different from the content of Item Number 23. Both Item Number 18 and 19 were not excluded from the analysis because giving positive feedback to a subject (Item Number 18) and involvement which can notice the meaning of treatment (Item Number 19) were different in content. The content of attaching a meaning to treatment by looking back on physical conditions (Item Number 29) and involvement through which patient's conditions are observed and for which a patient can make his/her own decisions (Item Number 30) were different in content, so that both items were not excluded. Then, a total of 26 items were retained for factor analysis.

Figure 2. Items Excluded from the Analysis due to Ceiling Effect

Number	Questionnaire Item	Sum (the mean + SD)
2	Telling that a nurse would help patients to be well and to solve problems.	10.39 (9.17+1.22)
3	Being involved for constructing relationship through casual conversation such as patient's concerns.	10.04 (8.64+1.40)
5	Listening to patient's complaints and trying to understand his/her feelings.	10.04 (8.82+1.22)
7	Telling a patient about the things nurses worry about.	9.91 (8.45+1.46)
13	Being involved so that a patient can recognize that he/she is a nurse in charge.	10.08 (8.43+1.65)

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Figure 3. Items Whose Value of Correlation Coefficient was .70 and Over Number

Number	Questionnaire Item	Correlation Coefficient
4	Listening to patient's opinions fully without telling nurses' opinions unilaterally.	.71
5	Listening to patient's complaints and trying to understand his/her feelings.	
(excluded) 22	Listening to patient's hopes and goals which he/she wants to achieve in the future.	.79
23	Thinking together about how to achieve patient's goals.	
24	Telling a patient that I would like to solve problems he/she faces together.	.72
18	Noticing patient's small changes and the things they can do in order to give feedback to him/her in a positive way.	.75
19	Being involved with a patient in order to make him/her understand the significance of treatment by mentioning the things he/she could do by treatment.	
29	Looking back on the past conditions together in order to make a patient notice the effect of treatment.	.75
30	Taking care of patient's conditions and trying to let him/her make own decisions by approaching him/her in a step-by-step manner.	

Figure 4. Excluded Items after the First Exploratory Factor Analysis

Number	Questionnaire It	Factor Loadings
1	Explaining rules and restrictions on hospital service available to a patient.	.18
8	Telling a patient about nurse's own thoughts and opinions.	.29

(3) Excluded items after the first exploratory factor analysis (Figure 4)

An exploratory factor analysis using maximum likelihood estimation and a promax rotation was performed on the 26 items. The Kaiser-Guttman rule suggested that four factors were sufficient. Through factor analysis, Item Number 1 (.18) and 8 (.29) whose factor loading was below .30 were deleted.

b. Factor Structure of Scales (Figure 5)

Eight items were finally deleted from the earlier results. Then, factor analysis was conducted again, resulting in subscales of 4 factors and 24 items.

c. Reliability of Scales

Internal consistency of the whole scales of 24 items (Cronbach's alpha) was .95. The alpha coefficient of each subscale was .92 (Factor 1), .92 (Factor 2), .80 (Factor 3), and .72 (Factor 4).

4. Evaluation of Four Factors

a. Factor 1

Factor 1 was composed of 8 items. It was named "cooperative and supportive intervention" because its components had high factor loadings on involvement necessary for working together toward goals such as Item Number 24 ("Telling a patient that a nurse would like to solve problems he/she faces together.") and Item Number 28 ("Thinking together about what a patient should do when he/she is in trouble, feel sick, or needs help after discharge.").

b. Factor 2

Factor 2 was composed of 8 items. It was named "cognitive, analytical, and communicative skills" because it was related to "cognition" which recognizes and evaluates patient's nonverbal behaviors such as Item Number 20 ("Being involved with a patient while recognizing one's own roles and maintaining an appropriate distance from him/her.") and Item Number 16 ("Judging how to be involved with a patient [e.g., whether I should ask a patient about his/her private matters or make only a general talk] from his/her glance, expression, atmosphere, and attitudes."), content which recognizes and "analyzes" situations such as Item Number 21 ("Trying to understand patient's psychosocial conditions.") and Item Number 17 ("Being involved with a patient by which a nurse can understand the needs he/she requires in a step-by-step manner and supply them sufficiently."), and intentional linguistic approach leading to the enhancement of one's feelings of self-esteem such as Item Number 18 ("Noticing patient's small changes and the things they can do in order to give feedback to him/her in a positive way.").

c. Factor 3

Factor 3 was composed of 4 items. It was named "receptive attitude." Item Number 6 ("Listening to patient's complaints without interrupting him/her.") and Item Number 4 ("Listening to patient's opinions fully without expressing nurse's opinions unilaterally.") show the attitude on which a nurse keeps when talking to a patient. Item Number 9 ("Understanding patient's experience and accepting it as it is.") and Item Number 10 ("Being involved with a patient patiently whatever situation he/she faces.") were about nurse's attitudes on accepting subjects unconditionally.

d. Factor 4

Factor 4 was composed of 4 items. Item Number 31 ("Clarifying expectations that both a nurse and a patient have with each other.") refers to involvement for which a nurse prepares to cooperate with a patient. Item Number 15 ("Trying to clarify positive and negative emotions a nurse has toward a patient.") shows how a nurse analyzes one's own emotions and behaviors in order to understand oneself. This factor was named "readiness for intervention" because factor loadings of items showing readiness to be involved were high.

5. Criterion-related Validity (Figure 6)

To establish criterion-related validity, we calculated the score of each factor and obtained a correlation coefficient between an emotional empathy scale and an opener scale. The Shapiro-Wilk test for normality showed that data were not normally distributed, therefore, Spearman's rank-correlation coefficient, a non-parametric measure of correlation, was used to determine the relationship between 4 subscales, an emotional empathy scale and an opener scale.

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Figure 5. Results of Factor Analysis of "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards" (Maximum Like lihood Estimation and a Promax Rotation)

	Factor Loadings				Communality
	Factor 1	Factor 2	Factor 3	Factor 4	
24. Telling a patient that I would like to solve problems he/she faces together.	.788	.093	.100	-.209	.640
28. Thinking together about what a patient should do when he/she is in trouble, feels sick, or needs help after discharge.	.766	.022	.015	.023	.650
26. Explaining the necessity of treatment while evaluating patient's conditions.	.759	-.006	-.047	.067	.596
29. Looking back on the past conditions together in order to make a patient notice the effect of treatment.	.709	-.093	-.048	.313	.718
27. Understanding patient's anxieties and being involved with him/her for relieving them.	.652	.136	.174	-.14	.623
23. Thinking together about how to achieve patient's goals.	.650	.254	.007	-.088	.641
25. Sharing problems with a patient and encouraging him/her to evaluate them together.	.621	-.154	-.008	.292	.530
30. Taking care of patient's conditions and trying to let him/her make own decisions by approaching him/her in a step-by-step manner.	.524	.045	.006	.373	.725
20. Being involved with a patient while recognizing one's own roles and maintaining an appropriate distance from him/her.	-.019	.888	-.084	-.007	.663
16. Judging how to be involved with a patient (e.g., whether I should ask a patient about his/her private matters or make only a general talk) from his/her glance, expression, atmosphere, and attitudes.	-.047	.763	-.119	.159	.565
21. Trying to understand patient's psychosocial conditions.	.215	.678	-.074	.035	.688
17. Being involved with a patient by which a nurse can understand the needs he/she requires in a step-by-step manner and supply them sufficiently.	.070	.65	.007	.091	.586
19. Being involved with a patient in order to make him/her understand the significance of treatment by mentioning the things he/she could do by treatment.	.321	.627	-.029	-.048	.699
18. Noticing patient's small changes and the things they can do in order to give feedback to him/her in a positive way.	.273	.523	-.015	.077	.617
11. Being involved with a patient without expecting too much from him/her until reliable relationship is formed.	-.207	.509	.292	.133	.473
12. Being involved with a patient so that he/she can express his/her feelings and troubles.	.005	.466	.326	.098	.636
6. Listening to patient's complaints without interrupting him/her.	-.021	-.200	.857	.000	.520
4. Listening to patient's opinions fully without telling nurse's opinions unilaterally.	.172	.000	.744	-.259	.549
9. Understanding patient's experience and accepting it as it is.	.042	.061	.573	.154	.547
10. Being involved with a patient patiently whatever situation he/she faces.	-.066	.182	.504	.233	.565
31. Clarifying expectations that both a nurse and a patient have with each other.	.408	-.078	-.074	.611	.696
15. Trying to clarify positive and negative emotions a nurse has toward a patient.	-.105	.208	-.208	.487	.259
32. Analyzing one's own tendency and recognizing own behavioral pattern.	.158	.151	.151	.421	.482
14. Setting an appropriate time and place when talking to a patient in order to listen to him/her talking in a relaxed way.	.014	.134	.251	.383	.407
Factor Contribution (After Rotation)	9.74	9.55	7.24	6.90	
Contribution Ratio (%) (Before Rotation)	47.66	5.10	3.16	2.65	
Cumulative Contribution Ratio (%) (Before Rotation)	47.66	52.76	55.92	58.56	

Figure 6. The Association Between "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards," an Emotional Empathy Scale, and an Opener Scale

	Cooperative and Supportive Intervention	Cognitive, Analytical, and Communicative Skills	Receptive Attitude	Readiness for Intervention
Emotional-Warmth	.16 **	.14 **	.20 **	.05
Emotional-Coolness	-.16 **	-.15 **	-.20 **	-.03
Emotional-susceptibility	-.08	-.12 *	-.13 **	-.22 **
Relaxing Factor	.17 **	.11 *	.15 **	-.13 *
Empathic Factor	.18 **	.15 **	.30 **	.09

note. *:p<.05 **:p<.01
note. Spearman's rank correlation coefficient

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Figure 7. The Association Between "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards" and Nurses' Attribution

		Cooperative and Supportive Intervention	Cognitive, Analytical, and Communicative Skills	Receptive Attitude	Readiness for Intervention
Male	Mean Value	-.10	-.05	-.31	.00
Female		.02	.01	.06	.00
	Significance Probability	.31	.49	.000*	.87
Year of Nursing Experience					
1st Year	Mean Value	-.71	-.66	-.13	-.38
2 to 4 Years		-.11	-.24	-.28	-.22
5 to 10 Years		.08	.07	.05	-.22
11 Years And Over		.15	.22	.15	.20
Years of sychatric Nursing Experience					
1st Year	Mean Value	-.45	-.44	-.21	-.39
2 to 4 Years		.02	-.01	-.07	-.05
5 to 10 Years		.24	.22	.24	.22
11 Years And Over		.32	.52	.29	.57

Significance brackets printed in the figure, written out here: Years of nursing experience — Cooperative: 1st vs 5 to 10 **, 1st vs 11 and over **; Cognitive: 1st vs 2 to 4 **, 2 to 4 vs 11 and over **, 1st vs 11 and over **; Receptive: 2 to 4 vs 11 and over **; Readiness: 2 to 4 vs 11 and over **. Years of psychiatric nursing experience — Cooperative: 1st vs 2 to 4 **, 1st vs 5 to 10 **, 1st vs 11 and over **; Cognitive: 1st vs 2 to 4 **, 1st vs 5 to 10 **, 1st vs 11 and over **; Receptive: 1st vs 11 and over *; Readiness: 1st vs 5 to 10 **, 2 to 4 vs 11 and over *, 1st vs 11 and over **.

note.
1. Factor score is used for calculating the mean value.
3. Significant difference between the sexes; the Mann-Whitney U test.
4. Significant difference between years of nursing experience and years of psychiatric nursing experience; Scheffe's method.

"Cooperative and supportive intervention" (Factor 1) was associated positively with "emotional-warmth" (r=.16, p<.01) and negatively with "emotional-coolness" (r=-.16, p<.01) in Emotional Empathy Scale. There was no association with "emotional-susceptibility." It was also associated positively with a "relaxing" factor (r=-.17, p<.01) and an "empathic" factor (r=-.18, p<.01) in an opener scale.

"Cognitive, analytical, and communicative skills" (Factor 2) and "receptive attitude" (Factor 3) were associated positively with "emotional-warmth" (r=.14, p<.01; r=.20, p<.01) and negative with "emotional-coolness" (r=-.15, p<.01; r=.20, p<.01) and "emotional-susceptibility" (r=-.12, p<.05; r=.13, p<.01) , respectively. They were also associated positively with a "relaxing" factor (r=-.11, p<.05; r=.15, p<.01) and a "empathic" factor (r=-.15, p<.01; r=.30, p<.01), respectively.

"Readiness for intervention" (Factor 4) was associated positively with "emotional-susceptibility" (r=-.22, p<.01) while there was no association with "emotional-warmth" and "emotional-coolness." It was also associated negatively with a "relaxing" factor (r=-.13, p<.05) but there was no association with an "empathic" factor.

6. The Association Between "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards" and the Attributes of Nurses (Figure 7)

Comparison between sexes revealed that the score of "receptive attitude" among female nurses was significantly higher than that among male nurses.

On "cooperative and supportive intervention" the score of those whose years of nursing experience were either "five to ten years" or "eleven years and over" was significantly higher than that among those who worked "less than one year." On "cognitive, analytical, and communicative skills" the score of those whose years of nursing experience were either "five to ten years" or "eleven years and over" was significantly higher than that among those who worked for "less than one year." The score of those whose years of nursing experience were "eleven years and over" was also significantly higher than that among those who worked for "two to four years." On both "receptive attitude" and "readiness for intervention" the score of those whose years of nursing experience were "eleven years and over" was significantly higher than that among those who worked for "two to four years."

In addition, on "cooperative and supportive intervention" and "cognitive, analytical, and communicative skills" the score of those whose years of psychiatric nursing experience were "two to four years," "five to ten years", or "eleven years and over" was significantly higher than that "less than one year." On "receptive attitude" the score of those whose years of psychiatric nursing experience were "eleven years and over" was significantly higher than that among those who worked for "less than one year." On "readiness for intervention" the score of those whose years of psychiatric nursing experience were "five to ten years" and "more than ten years" were significantly higher than that among those who worked for "less than one year.", and the score of those whose years of psychiatric nursing experience were "eleven years and over" was significantly higher than that among those who worked for "two to four years."

IV. Discussion

1. Reliability of Scales

Oshio (2004) noted that "it is evaluated that scales are internally consistent when a coefficient alpha is over some level (.70 or .80)." In this research every coefficient alpha was over .70, showing that its internal consistency was found to be good.

2. Validity of Scales

a. Construct Validity

The first factor - "cooperative and supportive intervention" refers to participatory approach of nursing in which a nurse shares problems with a patient by supportively relating

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to patients. Psychiatric care tended to be paternalistic, necessitating an effort to construct cooperative relationship aiming for the improvement of patient's autonomy. Peplau's *Interpersonal Relations in Nursing* also maintains the necessity to construct cooperative relationship between a nurse and a patient.

Therapeutic alliance, a concept of psychotherapy, shows relationship between a client and a therapist for making cooperative work possible by focusing on the health of patients. Previous studies have revealed that therapeutic alliance between a patient and a nurse brings about patient's behavioral changes (Kanemoto, Okamoto & Kishitani, 2009). The Working Alliance Inventory which Adam O. Horvath and Leslie S. Greenberg (1989) invented for measuring the formation of therapeutic alliance also pointed out the necessity to construct cooperative relationship for solving a variety of problems as suggested that its subscales are "the emotional bond of trust and attachment between patient and therapist," "agreement concerning the overall goals of treatment" and "agreement concerning the tasks relevant for achieving these goals."

The second factor - "cognitive, analytical, and communicative skills" shows nurse's skills for recognizing, analyzing, and communicating phenomena arising when a nurse interacts with a patient. In the study of interaction on communication between patient and nurse S. Janzen (1980) treats coding, translating, and screening received messages in conducting assessment through communication as basic skills. In addition, the second factor mainly contains the content gained from interview investigations of nurses, implying that it shows nurses' "practical knowledge" necessary for forming relationship between nurse and patient.

The third factor - "receptive attitude" shows nurses' attitudes which accept patients as they are. C.B. Rogers (1959/1966) noted that pure interest in clients and accepting them as one human being are one of the basic characteristics of therapeutic relationship. It is considered that nurses must have an interest in subjects who feel loneliness or fear according to their mental state and accept them as they are.

The fourth factor - "readiness for intervention" is about insight on mutual expectations and nurse's own feelings as preconditions for intervention. Katsuki (2009) notes that "interacting with patients in a warm feeling is an important quality of nurses but its excess might encourage patient's dependence and inhibit their potential for self-reliance." Trasference or countertransference may occur in the relationship between nurse and patient, impeding patients' treatment. Therefore, it is considered that "readiness for intervention" is a necessary involvement because nurses must see their own involvement in patients' treatment objectively and get to know themselves better.

For the reasons stated above, it is suggested that 4 subscales extracted in this study are about part of factors of involvement necessary for forming patient-nurse relationship in psychiatry.

b. Criterion-related Validity

Statistically significant relationship was found out between intervention scales and emotional empathy scale but there was no association in some items. Empathy falls roughly into two categories: those that emphasize "cognitive aspects" and those that emphasize "emotional aspects." Empathy in supportive relationship is not the same thing as sympathizing out of pity. A.W. Combs (1985/1990) argues that empathy is a willingness to accept that the other's perception is the reality for him/her, suggesting that empathy in supportive relationship is "closer" to "cognitive aspects" of empathy. There is a possibility that statistically significant difference was not found in some items because empathy does not necessarily lead to sympathy.

Some association was found on subscales of an opener scale - a "relaxing factor" and an "empathetic factor" and factors extracted in this research ("cooperative and supportive intervention," "cognitive, analytical, and communicative skills," and "receptive attitude") probably because it was necessary to make a patient open up and disclose himself/herself when sharing problems and evaluating implemented nursing practice and to listen to a patient with interest.

c. Cross Validity

It was examined whether 4 subscales extracted in this research differed according to the attributes of subjects. The results showed that although differences were found in each subscale, the scores of those who worked as nurses or psychiatric nurses for a long time tended to high. There was a statistically significant difference between those who worked as psychiatric nurses for less than 1 year and those who worked as psychiatric nurses for 11 years and over.

C. Forchuk (1995), who had conducted research on factors affecting the development of patient-nurse relationship, clarified that experienced nurses were quicker to form a relationship than inexperienced nurses by examining ages, years of nursing experience, years of psychiatric nursing, and hours of dialogue in a month. Therefore, "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards" were affected by years of nursing experience, failing to secure universality.

This result reaffirms that nurse's experience is necessary for constructing patient-nurse relationship and it would take time to master necessary skills.

d. The Use of "Intervention Scales for Forming Patient-Nurse Relationship in Psychiatric Wards"

It is possible to make use of the factors in this scales when a nurse wants to know which intervention is lacking when forming relationships with a patient. Yet, it is necessary to keep in mind that some questions in Factor 1 (cooperative and supportive intervention) are not good at evaluating its usefulness on nursing intervention during recover process (e.g., Question 28: Thinking together about what a patient should do when he/she is in trouble, feels sick, or needs help after discharge.).

3. The Limitation of This Research and Future Tasks

The application of research is limited to nurses dealing with patients who can use verbal communication because some scale items include involvement for sharing goals with patients. This research also examined validity only on "self-disclosure" and "empathy," therefore, as future tasks, it is considered to be necessary to examine the association with other factors affecting the formation of nurse-patient relationship.

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Conclusion

Intervention scales for forming patient-nurse relationship in psychiatric wards were composed of 24 items and 4 factors ("cooperative and supportive intervention," "cognitive, analytical, and communicative skills," "receptive attitude," and "readiness for intervention"). The calculation of a Cronbach's alpha of each factor showed that there was internal consistency on these 4 factors.

Extracted factors reflected part of involvement necessary for forming patient-nurse relationship shown in earlier studies and supported construct validity. Criterion-related validity was assured on some items of an emotional empathy scale and an opener scale.

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