


Effects of a mental fitness positive psychology intervention program on inpatients with schizophrenia in South Korea: A feasibility study

Se Jin Kang RN¹ | Sung Hee Ko RN, PhD² | Ji Young Kim RN, PhD²  |
Sung Reul Kim RN, PhD³

¹Department of Nursing, Sungil Mental Hospital, Namwon-si, Republic of Korea

²Department of Nursing, Chonbuk Research Institute of Nursing Science, Chonbuk National University, Jeonju-si, Republic of Korea

³Department of Nursing, Korea University, Seoul, Republic of Korea

Correspondence

Ji Young Kim, Department of Nursing, Chonbuk National University, 567 Baekje-daero, Deokjin-gu, Jeonju-si 54896, Jeollabuk-do, Republic of Korea.
Email: kimjy@jbnu.ac.kr

Abstract

Purpose: This study investigated the effects of a mental fitness positive psychology intervention program on the self-esteem and interpersonal relationship ability of inpatients with schizophrenia.

Design and Methods: A pretest-posttest nonequivalent control group quasi-experimental design was used. Participants ($N = 60$) completed scales measuring self-esteem and interpersonal relationship ability.

Findings: The program effectively improved participants' self-esteem and interpersonal relationship ability.

Practice Implications: Psychiatric nurses can use this program as a nursing intervention to enhance the self-esteem and interpersonal skills of inpatients with schizophrenia in mental health facilities.

KEYWORDS

interpersonal relationship ability, mental fitness positive psychology, schizophrenia, self-esteem

1 | INTRODUCTION

In 2016, the lifetime prevalence rate of schizophrenia spectrum disorders among South Korean adults was reported to be 0.5%. The number of patients with schizophrenia spectrum disorders was estimated to be 113 000 in 2016, with nearly 50% of these patients being hospitalized in mental health institutions or facilities.¹ In 2015, the average length of hospital stay for patients with schizophrenia was 214.6 days in South Korea, which is 8 to 20 times greater than that of Austria (25 days) and the United States (10 days) (Organization for Economic Co-operation and Development [OECD]).² The rate of readmission within 30 days after being discharged from the hospital was 19.4%, which surpasses the average readmission rate of OECD countries, namely, 12.9%.¹ Thus, the excessively long hospital stay and the hospitalization-oriented mental health environment are the most pressing issues in mental healthcare in South Korea.³

Furthermore, patients with schizophrenia experience feelings of isolation and alienation from their families and society upon their admission into an unfamiliar and restrictive hospital environment. These

patients also experience an overwhelming amount of stress caused by frustration and fear of the future.⁴ This stress is compounded for patients whose hospital stay is extended, and they are more likely to experience difficulties with social readjustment and rehabilitation after their discharge. Hence, a psychosocial rehabilitation service should be provided during hospitalization to ensure the successful adjustment of these patients when they return to the community.⁵

Self-esteem, which is the positive or negative evaluation of one's self-worth, is a key psychological resource required for an individual's growth and it is a predictor of happiness and positive emotions. It is considered a crucial factor in mental health patients' ability to cope with stress and their social adjustment.⁶ Psychosocial functioning and self-esteem are more likely to be impaired in patients with schizophrenia who have been isolated from society owing to an extended period of hospitalization.⁷ Patients with schizophrenia who have low self-esteem exhibit less motivation to participate in treatment and their high vulnerability to stress puts them at a greater risk of relapse.⁸ These patients also exhibit severe psychotic symptoms that are associated with depression and suicidal behavior.⁹

Consequently, patients with schizophrenia must be provided with opportunities for positive self-evaluation that can improve their self-esteem to ensure their success in social adjustment and recovery.^{7,10}

Patients with schizophrenia also have difficulty detecting or interpreting others' emotional cues during interpersonal interactions due to impaired social cognition. Their nonverbal communication skills, such as eye contact, tone, facial expressions, and gestures are also lacking, causing further hindrance to their interpersonal relationships.¹¹ Those with schizophrenia are therefore discouraged from socializing because of their low self-esteem and lack of social skills, which leads to isolation and social maladjustment.¹² Hence, for patients with schizophrenia to successfully readjust to their communities and lead independent lives following their discharge from the hospital, psychosocial interventions must be provided before their release to enhance their self-esteem and address the lack of interpersonal skills that often exacerbate their feelings of social inadequacy.¹²

Historically, mental illness has been perceived as a disease, and deficit-focused treatments, such as alleviating symptoms, preventing relapse, and reducing problem behaviors, have therefore been the standard for care.¹³ However, recent efforts have produced an intervention based on positive psychology.^{14,15} There has also been an increase in attempts to improve the mental health of such patients and to accelerate their recovery by strengthening their inherent positive emotions and qualities.¹⁶

Specifically, Meyer et al¹⁷ reported significant improvements in psychological well-being, hope, self-esteem, recovery, and alleviation of symptoms in patients with schizophrenia who underwent a positive psychology treatment. Likewise, Schrank et al¹⁸ conducted a study with a randomized controlled design in which a positive psychology therapy intervention was administered to people with psychosis. A significant improvement in symptoms but an insignificant effect on patients' well-being was found. While a positive psychology intervention is appropriate to patients with a chronic mental illness, such as schizophrenia, few studies have examined the effectiveness of the preliminary level of treatment and many have failed to ascertain the treatment effectiveness. Some studies have attempted to evaluate the effects of a positive psychology intervention among patients with schizophrenia in the field of psychiatric nursing practice in South Korea; however, research in this field is limited.¹² Therefore, there is a need for more research across various mental health settings and cultural contexts to confirm the validity of the clinical outcomes of positive psychology interventions so that it can be applied in nursing practice.

The mental fitness positive psychology intervention program used in the current study was developed by Ko and Kim.¹⁹ It is based on the concept of mental fitness proposed by McCarthy,²⁰ and it promotes systematic and conscious training to generate positive emotional experiences and life satisfaction, which is similar to how one improves physical health through a physical fitness regimen. Existing studies have shown that the program is effective in improving college students' mental health,²¹ and the self-esteem and sense of hope of patients with major depressive disorder.²²

This study was conducted to test the feasibility and effects of the mental fitness positive psychology intervention program as a form of

nursing intervention for inpatients with schizophrenia. This program, which was developed based on the Western framework of positive psychology, has subsequently been tailored to fit the South Korean culture and psychiatric nursing practices. This study is one of the first studies to examine this program's feasibility and effectiveness for inpatients with schizophrenia in South Korea. As a feasibility study, we evaluated the effects of the mental fitness positive psychology intervention program on the self-esteem and interpersonal relationship ability of inpatients with schizophrenia (as the outcome variables), considering that the self-esteem and interpersonal skills of these patients are often compromised due to periods of repeated hospitalization and discharge.

2 | METHODS

2.1 | Design

This quasi-experimental study used a pretest-posttest design with nonequivalent control groups.

2.2 | Participants

Participants were inpatients with schizophrenia at a psychiatric hospital located in "N" city, South Korea. The inclusion criteria were inpatients (a) aged 20 to 65 years and admitted to closed wards, (b) primarily diagnosed with schizophrenia (based on the Diagnostic and Statistical Manual of Mental Disorders 5 [DSM-5]) by a psychiatrist, (c) able to complete the questionnaires and research consent form in writing, (d) without any acute symptoms like hallucinations or delusions, (e) without risk of self-harm or harming others. The exclusion criteria was inpatients (a) with other mental disorders (such as bipolar disorder, major depression, and substance use disorders).

G*power 3.1²³ was used to determine the sufficient sample size for this study using two groups, three measurements, a medium effect size of 0.25, a significance level of 0.05, and a power (1- β) of 80% for a repeated-measures analysis of variance (ANOVA). The desired sample size was 28 individuals per group, which was increased to 34 to account for dropouts. Overall, data from 60 individuals were analyzed (30 in the experimental group and 30 in the control group).

2.3 | Procedures and data collection

This study was conducted from July 25, 2017 to September 26, 2017 after obtaining approval from an institutional review board (2017-04-003-001). Before the research, a meeting was held with the director and head nurse of the psychiatric hospital located in "N" city to explain the research aims and methodology and to request permission regarding the program.

Individuals who wished to participate were recruited by a posted announcement on the hospital bulletin board from June 15 to 24, 2017; then, the researcher used a brochure to personally explain the study to all recruited participants. Next, patients who wished to participate were directly contacted by the researcher to determine

their eligibility based on the noted inclusion criteria. When necessary, the doctor's opinions about the patient's state was received orally and used as a reference to determine whether the patient's symptoms were stable enough to participate in a group therapy program. Finally, participants were selected among those who voluntarily provided written consent after listening to detailed explanations about the research objective, method, and duration. Further, the participants for the control group were recruited from a closed ward with similar patient structure and environment as that of the experimental group. The recruitment process was the same as that for the experimental group: an announcement was posted and information about the study was provided using a brochure to recruit volunteers. Participants were told that all data would be confidential and that they could withdraw from the experiment at any time.

The pretest and posttest surveys were conducted by four research assistants who were working as psychiatric social workers and trained for this study. The pretest survey was conducted on the first day of the program, the posttest survey was conducted on the last day of the program, and a follow-up survey was performed 4 weeks later. The control group's pretest was administered 1 day before that of the experimental group and the posttest was conducted 1 day before the final session of the program. Participants completed a structured questionnaire about their self-esteem and interpersonal relationship ability and answered questions regarding their general characteristics. The questionnaire took 20 minutes, on an average, to complete.

2.4 | Mental fitness positive psychology intervention program

The mental fitness positive psychology intervention program was based on a program that was developed using the mental fitness framework of McCarthy,²⁰ which was subsequently adapted to the South Korean context by Ko and Kim.¹⁹ The program allows participants to identify their inherent strengths and qualities and to use them to improve their quality of life through real-life application.¹⁹ One developer of the program, one psychiatric nursing professor, one psychiatric nurse, and one mental health social worker were consulted to verify that the program accurately reflected participants' characteristics and used terminology could be easily understood by patients. The program duration was shortened from 10 sessions at the developmental stage to eight sessions to account for patients' hospitalization period. The program was conducted by the first author, who works as a nurse at a mental health hospital. The researcher has completed the beginner and intermediate levels of mental fitness positive psychology counseling and a treatment program hosted by the Mental Fitness Positive Psychology Research Institute under the Korean Clinical Psychology Association. The program consisted of eight, 60-minute sessions that were administered twice a week for 4 weeks and took place in the hospital's program room. Participants were divided into two groups: one group attended the session in the morning and other group attended it in the afternoon. Details of the program are shown in Table 1. During the first session, titled "Walking Together," participants were informed of the program's objectives and

methods and given time to bond with one another. The second session, titled "Life is a Blessing," involved optimism training in which the participants shared their concerns and stories of negative experiences and practiced "thought change" to convert the negative thoughts into positive thoughts, a strategy that they started to apply in their daily lives in the ward. In the third session, called "I'm so Proud of You," the participants identified their inherent strengths and devised ways of applying them in everyday life. For the fourth session, titled "More Thankful Today," the participants shared what they felt grateful for and practiced expressing gratitude. During the fifth session, called "Beautiful Helping Hands," which focused on caring and kindness, participants were encouraged to speak about acts of kindness that they had either performed or received and to compliment one another, allowing them to experience positive emotions in the process. In the sixth session, called "Power of Words," the participants learned about positive conversation skills and were encouraged to speak about conflicts they had experienced with other patients or medical staff, to which they then applied their newly acquired skills. The seventh session, titled "Forgiveness," opened the patients' minds to forgiveness and facilitated emotional cleansing. The patients practiced methods of forgiving and were encouraged to apply them to real-life events. In the last session, called "Planned Mission," the patients reflected on their activities, exchanged their thoughts and impressions of the program, and evaluated how they had changed as a result of the intervention. The participants were asked to share their thoughts freely after each session to measure the program's feasibility.

2.5 | Instruments

2.5.1 | Self-esteem

Self-esteem was measured with a Korean version²⁴ of a self-esteem scale originally developed by Rosenberg.²⁵ The instrument consists of 10 questions (5 positive and 5 negative items). The questionnaire uses two distinct four-point Likert scales (1 = *strongly disagree* to 4 = *strongly agree* for positive items; 1 = *strongly agree* to 4 = *strongly disagree* for negative items). Self-esteem scores range from 10 to 40; higher scores indicate higher self-esteem. The Cronbach α coefficients were 0.83 in the Jon's study²⁴ and 0.85 in the current study.

2.5.2 | Interpersonal relationship ability

Interpersonal relationship ability was measured using a tool developed by Schlein and Guerney,²⁶ which has verified reliability²⁷ among patients with schizophrenia in Korea. This instrument comprises 25 questions measured using a five-point Likert scale. Total scores range from 25 to 125; higher scores indicate better interpersonal relationship ability. The Cronbach α coefficients were 0.88 in the Jeon study²⁷ and 0.93 in this study.

2.6 | Data analyzes

All data were analyzed using IBM SPSS Statistics 21.0 (IBM Corp., Armonk, NY), and the level of significance was set at 0.05 for all tests.

TABLE 1 Contents of a mental fitness positive psychology intervention program

Sessions	Theme	Objectives	Contents
1	First meeting: "Walking Together"	<ol style="list-style-type: none"> 1. Understanding the program's objective and procedure 2. Establishing bonds and trust between participants 	<ol style="list-style-type: none"> 1. Introduction to the mental fitness positive psychology intervention program, and pretest survey 2. Choose nicknames and self-introduction
2	Optimism training: "Life is a Blessing"	<ol style="list-style-type: none"> 1. Reinterpreting events that have already taken place 2. Practicing positive thinking 	<ol style="list-style-type: none"> 1. Watch video about positivity and the sharing of thoughts 2. Examine concerns in a positive light (thought change)
3	Finding one's strengths: "I am So Proud of You"	<ol style="list-style-type: none"> 1. Identifying one's most outstanding strengths 2. Creating a positive self-concept 	<ol style="list-style-type: none"> 1. Presentation of my most outstanding quality 2. Positive self-introduction and feedback exchange
4	Being grateful: "More Thankful Today"	<ol style="list-style-type: none"> 1. Understanding gratitude 2. Practicing an expression of gratitude 	<ol style="list-style-type: none"> 1. Watch video about gratitude and sharing of thoughts 2. Think about what I am grateful for and share it
5	Being caring and kind: "Beautiful Helping Hands"	<ol style="list-style-type: none"> 1. Understanding caring and kindness 2. Practical application 	<ol style="list-style-type: none"> 1. Watch video about kindness and sharing of thoughts 2. Share personal experiences regarding caring and kindness
6	Positive conversation skills: "Power of Words"	<ol style="list-style-type: none"> 1. Understanding positive conversation skills 2. Applying skills to real-life situations 	<ol style="list-style-type: none"> 1. Watch video about positive conversation skills and sharing of thoughts 2. Positive and negative words quiz and training in positive conversation
7	Forgiving: "Forgiveness"	<ol style="list-style-type: none"> 1. Opening one's mind toward forgiveness 2. Experiencing emotional change through the practice of forgiveness in day-to-day life 	<ol style="list-style-type: none"> 1. Share one's experience about forgiveness 2. Talk about what you wish to be forgiven for during the past week
8	Transformation and choice: "Planned Mission"	<ol style="list-style-type: none"> 1. Reflection on the changes made throughout the eight sessions 2. Exchange feedback and encouragement 	<ol style="list-style-type: none"> 1. Evaluate the program and share behavioral changes throughout the 4 weeks

Descriptive statistics were used to describe participants' general characteristics. The Kolmogorov-Smirnov normality test was performed to evaluate the skewness of the dependent variables. The χ^2 test and the Fisher exact test were used to test the homogeneity of the two groups' general characteristics. The dependent variables were analyzed using the Mann-Whitney *U* test and independent *t* tests. Because the self-esteem variable did not fulfill the normality assumption, the effects of the program were evaluated using the Friedman test, which is a nonparametric test. Post hoc analysis was performed with the Wilcoxon signed ranks test. Interpersonal relationship ability, which fulfilled the assumption of normality, was analyzed using a repeated-measures ANOVA.

3 | RESULTS

3.1 | Demographic characteristics and homogeneity

Participants' general characteristics and baseline scores for self-esteem and interpersonal relationship ability did not significantly differ between groups (Table 2).

3.2 | Effectiveness of the mental fitness positive psychology intervention

The experimental group's self-esteem and interpersonal relationship ability scores showed significant increases both immediately after the intervention and 4 weeks after the intervention in comparison with those of the control group (Table 3). The self-esteem score of the experimental group significantly increased after the program and then reduced slightly at the follow-up test 4 weeks after the program. On the other hand, the control group did not show any significant changes in the scores throughout the pretest, posttest, and follow-up test. The interpersonal relationship ability score fulfilled the assumption of sphericity (the Mauchly test of sphericity; $W = 0.93$, $P = 0.145$), and the scores of patients with schizophrenia varied across the distinct measurement times ($F = 61.23$, $P < 0.001$).

The experimental group exhibited significant differences in scores compared to the control group ($F = 79.79$, $P < 0.001$) and the scores of two groups showed a significant difference across the distinct measurement times ($F = 44.95$, $P < 0.001$). Post hoc analysis revealed a significant difference in the score increase between the experimental and control groups ($t = 9.98$, $P < 0.001$). The same was true for the follow-up test between groups (Table 4).

TABLE 2 Homogeneity of general characteristics and variables (N = 60)

Characteristics/variables	Categories	Exp (n = 30) n (%) or M (SD)	Cont (n = 30) n (%) or M (SD)	χ^2 or t or U	P
Sex	Male	15 (50.0)	15 (50.0)	0.00	>0.999
	Female	15 (50.0)	15 (50.0)		
Age		50.83 (8.82)	52.23 (7.17)	-0.67	0.503
Education	≤Elementary	4 (13.3)	4 (13.3)	1.37	0.756 ^a
	Middle school	6 (20.0)	8 (26.7)		
	High school	14 (46.7)	15 (50.0)		
	≥Undergraduate	6 (20.0)	3 (10.0)		
Marital status	Married	2 (6.7)	5 (16.7)	1.72	0.440 ^a
	Divorced	5 (16.7)	6 (20.0)		
	Unmarried	23 (76.7)	19 (63.3)		
Religion	Yes	25 (83.3)	23 (76.7)	0.42	0.519
	No	5 (16.7)	7 (23.3)		
Onset age, yr	<20	2 (6.7)	0 (0.0)	2.86	0.226 ^a
	20-29	3 (10.0)	1 (3.3)		
	≥30	25 (83.3)	29 (96.7)		
Number of hospitalizations		5.07 (2.05)	5.13 (2.03)	-0.13	0.900
Duration of illness, yr	1-5	3 (10.0)	4 (13.3)	0.162	>0.999 ^a
	≥5	27 (90.0)	26 (86.7)		
Self-esteem		22.00 (1.17)	22.43 (1.07)	341.00	0.87 ^b
Interpersonal relationship ability		64.17 (3.26)	65.27 (5.87)	-0.90	0.373

Abbreviations: Exp = experiment group; Con = control group; M = mean; and SD = standard deviation.

^aThe Fisher exact test.

^bThe Mann-Whitney U test.

3.3 | Feasibility

Overall, 140 patients were hospitalized in the closed ward where the recruitment announcement for the experimental group was posted, and brochures about the research were distributed and advertised to all of them. From them, 40 patients showed interest in this study and applied for participation; however, only 34 were eligible based on selection criteria. All eight sessions of the program were completed by 30 (88.2%) of the participants. One of the selected patients withdrew (in the middle of Session 1) due to fatigue.

The attendance rate for each session was as follows. All 33 participants attended Session 2; however, in Session 3, one participant was absent due to a scheduled appointment. All 33 participants completed the program without absence or leave from

Sessions 4 to 6. One participant dropped out in Session 7 and another participant in Session 8 as they were discharged from the hospital, leaving 31 in attendance. Excluding one participant who was absent once among all eight sessions, the data from 30 participants were analyzed. For recruitment to the control group, 150 patients were contacted, and 50 of them applied for participation; 34 of them were eligible for selection. One was discharged from the hospital during the research period, and three did not complete the questionnaires and were thus excluded. Therefore, data from 30 control group participants were analyzed. They expressed satisfaction with the program, saying that they “learned of inherent positive qualities in themselves,” “learned ways to express gratitude even within the confines of the hospital,” and “became inspired to perceive their current situation in a positive light.”

TABLE 3 Effects of a mental fitness positive psychology intervention program on self-esteem (N = 60)

Group	P0	P1	P2	χ^2	P	Differences (P1-P0)			Differences (P2-P0)		
	Median (IQR)	Median (IQR)	Median (IQR)			Mean Rank	Z	P	Mean Rank	Z	P
Exp (n = 30)	22.00 (21.00-23.00)	30.50 (28.00-32.25)	29.50 (27.75-32.00)	46.83	<0.001	15.50	-4.792	<0.001	15.50	-4.789	<0.001
Con (n = 30)	23.00 (22.00-23.00)	23.00 (21.75-24.00)	23.00 (21.00-24.25)	1.20	0.569						

Abbreviations: Exp = experiment group; Con = control group; P0 = pretest; P1 = posttest; P2 = 4 wk after the posttest; IQR = interquartile range.

TABLE 4 Effects of a mental fitness positive psychology intervention program on interpersonal relationship ability (N = 60)

Group	P0	P1	P2	Source	F	P	Differences (P1-P0)			Differences (P2-P1)		
	M (SD)	M (SD)	M (SD)				M (SD)	t	P	M (SD)	t	P
Exp (n = 30)	64.17 (3.26)	93.90 (11.84)	91.07 (17.47)	Time	61.23	<0.001	29.73 (12.68)	9.98	<0.001	26.90 (17.40)	7.21	<0.001
Cont (n = 30)	65.27 (5.87)	67.47 (6.84)	67.47 (8.32)	Group	79.79	<0.001	2.20 (8.21)			2.20 (7.02)		
				GxT	44.95	<0.001						

Abbreviations: Exp = experiment group; Con = control group; M = mean; and SD = standard deviation; P0 = pretest; P1 = posttest; P2 = 4 wk after the posttest.

4 | DISCUSSION

This study was conducted to evaluate the feasibility and effectiveness of a 4-week mental fitness positive psychology intervention program for inpatients with schizophrenia. The experimental group's self-esteem scores showed a marked improvement in comparison with the control group after the program. Their self-esteem score was also significantly improved compared with the baseline score at the follow-up survey conducted 4 weeks after the intervention. This finding was consistent with that of Ko and Hyun,²² who examined patients with major depressive disorder and reported a significant improvement in the experimental group's self-esteem after undergoing the similar program. Similarly, when the same program was administered to maladjusted adolescent students²⁸ and elementary school students exhibiting depressive tendencies,²⁹ the experimental group's self-esteem also significantly increased.

The program used in this study was designed so that participants could identify their strengths and be positively recognized by their peers in every session. It seems that engaging in activities that promote feelings of happiness, gratitude, and forgiveness, which are seldom experienced in monotonous hospital settings, inspires positive thoughts in patients and lead to improved self-esteem. Positive psychology and its expansive effect not only improves one's overall life satisfaction by facilitating interactions with others and helping one overcome his or her limitations,³⁰ it also enhances his or her self-esteem. Patients with schizophrenia are prone to negative self-evaluation and to lowered self-esteem after undergoing a series of frequent hospitalizations and discharges; therefore, self-esteem is closely tied with the mental health outcomes of patients with schizophrenia and an active intervention is necessary to improve their self-esteem during their hospitalization and to prepare them for readjustment to their local community.¹⁰

The interpersonal relationship ability score also significantly increased in the experimental group in comparison with the control group both immediately after the completion of the program and 4 weeks later. This finding corresponds with those of existing studies that reported that the positive psychology program, with a slight modification in the program, enhances the interpersonal relationships of patients with schizophrenia.^{12,17} Compared to the increase in the interpersonal relationship score of the postintervention experimental group in the study by Kim and Na¹² that increased from 86.68 (before) to 90.11 (after), the score increased remarkably in the current study from 64.17 (before) to 93.90 (after). Considering that

the interpersonal relationship ability scores of participants before the program were considerably low, perhaps the hospitalization environment of a closed ward has limited experience of interpersonal relationships. Consequently, providing an opportunity for developing interpersonal relationships through the positive psychology intervention program may have been effective in promoting their interpersonal relationship.

O'Connell et al³¹ studies nonpatients with a focus on their relationships and found that positive psychology activities could enhance their satisfaction with social relationships. These findings suggest that the mental fitness positive psychology intervention program used in this study was effective for improving interpersonal relationship ability because it consisted of various group activities that encouraged interaction among participants rather than self-focused activities. Participants experienced satisfaction from being able to thank one another and to perform acts of kindness every week during a set time and in a hospital setting where interaction with others is normally restricted. A sound interpersonal relationship ability is a trait commonly found in happy individuals and it ensures a person's well-being and quality of life³¹; thus it is imperative that positive psychology intervention programs include activities that encourage social interaction. Such activities would be especially effective for patients with schizophrenia, who are often challenged in terms of their interpersonal relations and social skills.³²

Further, this study showed a significant increase in self-esteem and interpersonal relationship ability score compared with previous studies that utilized similar positive psychology programs.^{12,17,22} However, to date, there have been no studies applying positive psychology interventions for patients with chronic schizophrenia who were hospitalized in a closed ward in Korea. Consequently, verifying the effects of the program and determining causation for the noteworthy changes among participants is difficult. Perhaps the remarkable increase in self-esteem and interpersonal relationship ability originates from differences in participants' characteristics or the therapeutic environment of the hospital. The participants in Meyer et al¹⁷ and Kim and Na¹² were all patients with schizophrenia or schizoaffective disorders who were receiving outpatient treatment or living in the community, whereas those in the current study were patients with chronic schizophrenia who were hospitalized in a closed ward. The current participants may have been lacking self-esteem and interpersonal relationship ability due to their hospitalization; therefore, the program ended up being effective. In addition, participants were hospitalized in a long-term closed ward that does not regularly

provide intensive psychotherapy interventions in small groups; thus, the fact that participants showed high interest and voluntary participation for this program may have affected the results.

The 4-week program began with 34 participants and 30 completed all eight sessions. The drop-out rate was low because the study was conducted with hospitalized patients; however, given that the program was sustained through voluntary participation, the fact that 30 patients completed the program demonstrates its future applicability. During the postprogram interviews, participants admitted having “found the desire to love and show themselves to the world with confidence” and “identified inherent strengths and reconsidered the positive aspects of life, such as gratitude, forgiveness, kindness, and happiness as well as put them into practice.” Some said they “learned that being able to approach one another and exchange thoughts is a happiness in itself,” and that they “were pleased to engage in heartfelt conversations with people who otherwise would have been strangers,” thereby expressing satisfaction with the bonds they had established with their peers through the program. Therefore, all the above findings confirm that the mental fitness positive psychology intervention program was effective for improving the self-esteem and interpersonal relationship ability of inpatients with schizophrenia and demonstrate its applicability.

4.1 | Limitations

The participants of this study were not randomly selected but were sampled from patients hospitalized in a psychiatric hospital in one particular region; thus, the findings should not be generalized. In addition, some of the patients were participating in pharmacotherapy and other psychosocial activities during the intervention period, and the influence of these factors was not accounted for in this study. Furthermore, as this was a preliminary study that evaluated the feasibility of the mental fitness positive psychology intervention program, its outcomes were limited to self-esteem and interpersonal relationship ability only.

4.2 | Implications for nursing practice

This study has key implications in that it administered a positive psychology intervention program to inpatients with schizophrenia and evaluated its effect at the time of the program's completion as well as at a follow-up evaluation 4 weeks later. The findings confirm the applicability of the program to the South Korean cultural context. Moreover, the program provides baseline data for a positive psychology-oriented nursing intervention for inpatients with schizophrenia in the future. Further research should be conducted to test the program's effectiveness by using a variety of outcome variables. A research design that employs objective observation by medical personnel in addition to participants' self-reported evaluations is also needed.

CONFLICTS OF INTEREST

The author declare that there are no conflicts of interest.

ORCID

Ji Young Kim  <http://orcid.org/0000-0003-4375-1384>

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