Archives of Psychiatric Nursing 31 (2017) 93–98

Contents lists available at ScienceDirect

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu

The Effectiveness of the Nanta-Program on Psychiatric Symptoms, Interpersonal Relationships, and Quality of Life in Forensic Inpatients with Schizophrenia

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A B S T R A C T

Purpose: The purpose of this study was to examine the effectiveness of the Nanta-program on psychiatric symptoms, interpersonal relationships, and quality of life (QoL) in forensic inpatients with schizophrenia (SPR).
Methods: A quasi-experimental study employing a nonequivalent control group and pre–posttest design was conducted. Participants were 38 forensic inpatients with SPR from South Korea (experimental group = 18, control group = 20). The intervention was conducted in 12 sessions over 12 weeks, taking 90 min per session. Data were analyzed using χ^2-test and *t*-test with SPSS 22.0 program.
Results: The experimental group showed significant improvements in psychiatric symptoms ($t = -2.73$, $p = .010$) and slight improvement in interpersonal relationships ($t = 2.23$, $p = .0.34$) after 12 weeks of group music therapy. There was no significant difference in QoL change between the two groups.
Conclusion: These findings indicate that the Nanta-program is an effective intervention program for improving psychiatric symptoms and interpersonal relationships of prisoners with schizophrenia.

The mental health problems of prisoners are a significant issue for psychiatric mental health nursing worldwide and appear to be increasing over time. To date, the numbers of mentally ill prisoners are increasing, and, the severity of their mental illnesses is also rising. According to a review study using international data from 24 countries, the prevalence of severe mental illness in prison is 3.6%–14.1% (Fazel & Seewald, 2012). These figures are higher than in the general population. In particular, schizophrenia (SPR) prisoners occupy the highest proportion of long-term served mental ill prisoners, and are more likely to commit murder, arson and sexual violence. In addition, they show a 50% recidivism rate, much higher than the rate shown by their counterparts without SPR (Supreme Prosecutor's Office of Republic of Korea, 2014; Torrey, Zdanowicz, Kennard, et al., 2014). In spite of these high rates, prison inmates often do not receive sufficient and adequate therapy (Simpson, McMaster, & Cohen, 2013).

Schizophrenia (SPR) is a severe mental illness that affects various psychological functions, such as thought, perception, emotion, and behaviors (American Psychiatric Association, 2000). SPR patients present social withdrawal and poor social skills, as they live in their own private world. Traditionally, symptoms of schizophrenia are categorized with positive (hallucinations or paranoid ideation etc.), negative (blunted affect, low motivation and poor social relationships etc.) and cognitive symptoms (American Psychiatric Association, 2000). In addition, prisoners with SPR are not only mentally ill patients suffering from psychiatric symptoms but also criminal offenders serving their sentences in correctional institutions. Being imprisoned is a stressful experience, and prisons are inherently stressful environments (Hoke, 2015). The effects of the SPR patients' psychiatric symptoms, combined with the psychosocial distress of the prison environment might result in a recurrence of mental illness and a decrease of social function caused by repeated hospitalizations, and thus contribute to a lower quality of life (QoL) in this population (Galuppi, Turola, Nanni, Mazzoni, & Grassi, 2010). Furthermore, overcrowding, isolation of the SPR prisoners who are perceived as difficult, dangerous, or untreatable, and subjected to stigma may even worsen their psychological states, often leading to high rates of self-harm and suicide (Hoke, 2015; Torrey et al., 2014).

Although these severe mentally ill prisoners have special needs for treatment and therapeutic intervention, less than 10% of them are treated in special forensic psychiatric hospitals (Supreme Prosecutor's Office of Republic of Korea, 2014; Torrey et al., 2014). In other words, the majority of these individuals do not receive adequate mental health services during incarceration. Thus, more tailored mental health services during incarceration are needed in SPR prisoners to meet their growing mental health care needs and foster their successful community reentry (Simpson et al., 2013). However, many existing studies on mentally ill prisoners, so far, have focused on the type of disorder, the gender of criminals, the opposition between incarceration and treatment, the policies toward criminals, the prevention of recidivism, and harm reduction and stigma (Hoke, 2015).

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http://dx.doi.org/10.1016/j.apnu.2016.09.005
0883-9417/

The main objective of treatments of SPR prisoners has been to maintain public safety when these prisoners have served their sentences and returned to their communities. The objective of a care and custody or forensic approach, by contrast, goes beyond this goal. The forensic mental health approach will offer help for SPR prisoners who have a risk of committing a second crime. This approach recognizes the need for appropriate special education, correction, and treatment not only to prevent recidivism and but also to promote a return to normal social life for these patients (Torrey et al., 2014). The overall purpose of the forensic care is to promote the QoL of their clients and enable their reentry to a safe and healthy life in the community, and thereby, also maintain public safety (Hoke, 2015). Thus, the forensic treatment of SPR prisoners should focus not only on relieving psychiatric symptoms, but also on improving interpersonal relationships and enhancing quality of life for them.

At present, medication or medical treatment is approved as the first choice for treating SPR patients, but it has limitations when treating decrease of cognitive or social functions. Therefore, numerous psychosocial intervention studies have been conducted to support SPR patients. Indeed, a review of interventions for mentally ill prisoners has documented that various psychosocial interventions, such as art therapy, drama therapy, music therapy, dance/movement therapy, and cognitive behavioral therapy were effective in improving symptoms, social rehabilitation, and QoL in this population (Fontanarosa, Uhl, Oyesanmi, & Schoelles, 2013; Kõiv & Kaudne, 2015). In particular, music therapy has consistently been reported to be effective in improving negative symptoms, general mental state, psychosocial function, and QoL in the SPR population (Mössler, Chen, Heldal, & Gold, 2011; Park & Kwon, 2012; Solli, Rolvsjord, & Borg, 2013; Tseng et al., 2016). In addition, psychiatric participants rated music therapy as significantly more helpful than all other programming (Silverman, 2006). Meta-analysis in music therapy has showed positive effects on reducing anxiety and depression, and improving social function among prisoners (Gold et al., 2014).

While the evidence for the benefits of music therapy for SPR patients or for prisoners is accumulating, group music therapy for SPR prisoners has not yet been tried. In addition, studies on the effects of music therapy on outcomes of psychiatric symptoms, interpersonal relationships, and QoL for SPR prisoners are rare. Most studies have provided a short dosage (less than 12 sessions) of multiple music activities with a music therapist, including playing, singing, and listening (Gold, Solli, Krüger, & Lie, 2009). These sessions have targeted the patients in community settings and have mainly focused on negative symptoms or social function, with mixed results. As these studies have focused only on negative or positive symptoms, they have been limited. An integrative approach that takes into account overall SPR symptoms is needed to understand psychopathology and characteristics of SPR prisoners (Park & Kwon, 2012; Peng, Koo, & Kuo, 2010). Therefore, what is needed is a study that develops and evaluates outcomes and engages SPR prisoners, and most importantly, considers the environment of correctional institutions, and maintains adherence rates in nursing practice.

The Nanta-program is a type of music therapy with non-verbal performance that consists of rhythm and beat using Western rhythm, and traditional Korean Samulnori rhythm used commonly in well-known Korean folk songs and familiar to all Koreans (Youm, 2012). With no special skills or knowledge, participants can easily and simply express and make the sounds using beating drum. They are also engaged through performing a variety of body motion in a group activity. Specifically, they play repetitive lower frequency-rhythms on drums, varying their hands' speed and power. This activity may help participants improve concentration, social connectedness, and social functions, as well as discharge excess energy (Solli et al., 2013; Sung, Cheong, & Choi, 2012). In addition, the non-verbal aspect of this musical experience can encourage emotional expression and sharing since limitations in prison can make a prisoner afraid to discuss personal matters through conversation. Another notable aspect of Nanta activities is that they alternate tension and relaxation through variously implementing strong and weak drumming and fast and slow tempos. This alternation may help SPR prisoners with disturbed expression of emotion to enhance non-verbal expression of emotion through various rhythm, dynamic, tempo, expression, and gestures. The high level of engagement is particularly important for SPR patients, who often show a limited interest in therapies. The pleasant action of music-making will contribute to alleviate high excitement or tension, avolition, and symptoms in SPR patients (Costa & Vianna, 2011).

Hence, the Nanta-program might be a feasible and usable program for prisoners, who are characterized by inappropriate thoughts, behaviors and emotions, and withdrawal of social functions. Furthermore, the lower frequency-rhythmical stimulation of the Nanta activity may be acceptable for SPR prisoners and may help them express negative emotions and impulsiveness in a positive way, thereby enhancing their interactions with others, and having a positive effect on their QoL. Previously, the Nanta-program has shown effectiveness in adolescents and children with disability or depression tendencies. Use of the program significantly improved social adjustment, self-image, and emotional adjustment (Sung et al., 2012), reduced aggression, emotional maladjustment behaviors (Lee, 2009), anxiety, and depression (Park, Lee, & Cheon, 2008) and improved stress and self-efficacy in these subjects (Youm, 2012). However, studies related to the Nanta-program in prisoners with mental illness have so far been rare. Therefore, the purpose of this study was to examine the effectiveness of the Nanta-program on overall psychiatric symptoms, interpersonal relationships, and QoL in forensic inpatients with SPR. These results can evaluate the feasibility and applicability of the Nanta-program as a mental health service for SPR prisoners and also contribute to the improvement of psychosocial rehabilitation and QoL in this population.

MATERIALS AND METHODS

Study Design and Sample

The study was employed using a non-equivalent control group pretest-posttest design.

The subjects were prisoners and inpatients with SPR in a forensic psychiatric hospital. Since this hospital is the only national correctional facility for prisoners with mental illness in Korea, no equivalent control group was available. The study took into consideration that psychological characteristics of prisoners vary according to gender, and that the institution separates genders by wards to determine our selection criteria. Inclusion criteria were: 1) a diagnosis of schizophrenia by a psychiatrist according to the Diagnostic and Statistical Manual of Mental Disorder Fourth Edition, Text Revision (American Psychiatric Association, 2000), 2) male adults aged 20–60 years, 3) having a remaining period of incarceration of ≥6 months, 4) having no verbal, auditory or physical disabilities, and 5) having both a written consent form and a legal guardian. Exclusion criteria were: 1) ongoing acute psychiatric symptoms, 2) sexual and drug offenders, and 3) missing more than two sessions of the program.

The required sample was 12 patients for each group, with independent *t*-test, a significance level of .05, power of .8, and an effect size of 1.20 (Park & Kwon, 2012), based on a previous study which examined the effects on QoL of the Nanta-program using the G*power 3.1 program. Twenty participants were selected for the experimental group and the control group, respectively, anticipating a potential dropout rate of 40%. In Korea, the Ministry of Justice runs a forensic hospital that accommodates 1200 prisoners with mental illness, 70% of whom were diagnosed with SPR in 2014 (Supreme Prosecutor's Office of Republic of Korea, 2014). To avoid spreading the effect of the intervention and confounding of exogenous variables, intervention and control groups were determined by flipping a coin, and wards were kept intact. The seven male wards were relatively similar in terms of the types of diagnosis (mainly schizophrenia and mood disorders) and the staff-patient ratio. All seven included adults aged 20–60 years. Two