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Comparing the Effects of Continuous Care Model and Psychological Support Training Package on Self-Care in Patients with Bipolar I Disorder

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Abstract

Background: Despite the growing prevalence of bipolar I disorder (BD-I), implementation of continuous care after hospital discharge in these patients is limited.

Aim: To compare the effects of continuous care model (CCM) and psychological support training package (PSTP) on self-care in patients with BD-I.

Method: This clinical trial was conducted during 2017-2018 on 90 BD-I patients admitted to Ibn-Sina Psychiatric Hospital in Mashhad, Iran. CCM and PSTP designed in the form of a CD and a manual were implemented (within 12 weeks) to intervention groups. A control group received the routine care. The research instrument was Roldan-Merino Self-Care Requisites Scale completed before and two months following the intervention. To analyze the data, one-way analysis of variance (ANOVA) was run in SPSS, version 16.

Results: The two study groups were homogeneous in terms of demographic characteristics. The results of one-way ANOVA before the intervention revealed no significant difference among the three groups considering self-care mean scores ($P=0.52$); however, this variable was significantly different among the groups following the intervention ($P<0.001$). According to the post-hoc Dunnett's test results, a significant difference was observed in self-care mean scores between the CCM and control groups ($P<0.001$) and between the CCM and PSTP groups ($P=0.04$). Nonetheless, there was no significant difference between the CCM and control groups in this regard ($P=0.13$).

Implications for Practice: CCM can improve self-care in patients with BD-I. Therefore, it could be used to empower these patients and their families.

Keywords: Bipolar I disorder, Education, Self-care

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Introduction

Bipolar I disorder (BD-I) is known as a severe and chronic psychiatric condition characterized by fluctuations in mood, energy, and daily activities (1), which involves at least one manic episode with or without episodic major depression according to the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition; DSM-5) (2). Besides, this disorder is associated with great social and economic burden (3), and the death toll due to suicide attempts resulting from this disorder are reported to be high (4). Based on the findings of a national epidemiologic survey in the United States, the prevalence rate of this disorder was estimated to be 1.5-2.1% over a lifetime (3). Epidemiologic investigations in Iran have also shed light on BD-I as the most common cause of admission to psychiatric hospitals (5).

BD-I is considered as one of the main causes of inability among young adults (1), which is associated with severe functional decline affected by factors such as age, level of education, occupational activities, manic episodes, depression, as well as frequency of hospital admissions (6). Moreover, patients suffering from BD-I often complain about lack of attention and concentration. Thus, these patients experience cognitive impairment, often accompanied by executive functioning, oral memory, and attention deficits not only during manic episodes and depression, but also in the eutomic course (7).

In this regard, pharmacotherapy is often employed in healthcare systems to manage BD-I symptoms. However, 60% of patients who only use drug maintenance treatment are likely to experience the recurrence of the disease at least once every two years (8). On the other hand, drug compliance as one of the main causes of disease recurrence and hospital readmission affected by severity of clinical symptoms in patients with BD-I is at low levels (9). Besides, studies have shown that participation in self-care activities can enhance drug compliance in patients affected by mental (10) and physical (11) disorders. In fact, the concept of self-care in nursing was proposed by Dorothea Orem (2001) (12). The given concept in mental health includes maintaining compliance with drug treatments and lifestyle changes such as diet and physical activities that can help control the symptoms and work with health professionals in shared decision-making (10), and consequently, promote the quality of life as an abstract concept (10, 13). Furthermore, patients suffering from psychiatric disorders are not able to identify self-care needs, hence self-care in them is at moderate levels (14). It is worth mentioning that chronic BD-I can affect patients' lives (15). Self-care in these patients is positively correlated with family support and educational and socioeconomic status that can be considered in self-care programs (14).

According to the Self-Care Deficit Nursing Theory by Dorothea Orem, a person needs to have adequate self-care gained through the processes of learning, curiosity, education, experience, and observation to deal with self-care needs (12). Since nurses are the largest professional healthcare group in the field of care provision, it is essential for them to take actions in this regard. Ahmadi developed the Continuous Care Model (CCM) in 2002. In this model, patients and their families are introduced as continuous care agents who are responsible for their own health trends. This model is a regular and continuous process including four stages of orientation, sensitization, control, and evaluation to establish effective and continuous patient-nurse relationships to understand the needs and problems and sensitize patients to accept good healthcare behaviors and promote their own health status. As such, the basic functions of the given model include identifying the nature of the disease and its acceptance, as well as its effects on life, investing for health maintenance, encouraging family participation in care affairs, and making acquaintance with healthcare team (16). Numerous studies have shown the effect of this model in improving health indicators such as the frequency of hospital readmissions, physician visit trends (17), blood lipid levels, diet reforms (18), frequency of using sublingual nitroglycerine pills, and quality of life in patients with coronary artery diseases (13). CCM also reduced risk factors and improved the lifestyle of schizophrenic patients (15). In a study by Khankeh et al. (2007), it was found that the CCM had no significant impact on the total scores of quality of life in patients affected by schizophrenia (19).

Among the barriers to implementing the CCM are shortage of human resources and time spent on training. Given the advancement of technology and communication, these limitations can be eliminated to some extent and the care process can be supported through distant education (20). In this regard, a psychological support training package (PSTP) was designed based on the psychological training model of Colom and Veita (2006) whose content was focused on patients with BD-I, the nature of the disease, and its self-management (21). In fact, psychological training is an educational method that can improve the level of perception in patients and their families regarding mental

disorders. Further, this type of training can encourage patients' participation in care and treatment services as well as treatment adherence by providing information on the nature of mental disorders such as etiology, therapeutic methods, outcomes, prognosis, progression, and disease recurrence (22). In addition to helping with drug maintenance treatment, this model can be employed as a guide for the management of BD-I symptoms (23).

According to the results of the relevant studies, the feasibility and acceptance of psychological training in the form of a training activity or an electronic package for patients with BD-I has been approved (24). Moreover, sustained support via telephone after offering psychological training packages can lead to the self-management of symptoms of psychiatric disorders (25, 26). In addition, analysis of the results of investigations in this domain have suggested the impact of electronic PSTP on the promotion of insight, positive attitudes towards drug treatment, as well as self-management among patients with BD-I (27). Moreover, the results of investigations have demonstrated that telephone follow-ups after psychological training could affect self-management of symptoms of depression in patients with BD-I (26), as well as self-management of psychosis symptoms in families living with schizophrenic patients (25). However, such follow-ups did not reveal any impacts on self-management of manic symptoms in BD-I patients (26).

Since no study has yet been reported to compare the effects of CCM and PSTP on self-care in patients with BD-I constituting a large group of patients admitted to psychiatric hospitals and due to the importance of maintaining patient-nurse relationships, which is emphasized in CCM and PSTP, as well as conflicting results of investigations in this domain, we aimed to compare the effects of CCM and PSTP on self-care in BD-I patients.

Methods

This three-group (CCM, PSTP, and control), randomized clinical trial with a pretest-posttest design was conducted in 2017-2018. The study population consisted of all the BD-I patients admitted to Ibn-Sina Psychiatric Hospital, Mashhad, Iran. The participants were chosen using non-probability sampling method. They were then randomly assigned to CCM, PSTP, and control groups using the random number table. Thus, a list of all the patients participating in the study was provided and a number was assigned to each of them. After that, a randomly selected number was chosen from the random number table and its two digits on the right were considered. If these two digits on the right corresponded to the number of the individuals listed, it was selected as the first person in the first group, and then other numbers were chosen. If the numbers corresponded to the numbers listed, they were selected to complete the list of 30 individuals. The second and third groups were chosen in the same manner. The minimum sample size was calculated by using the formula of comparing two population means.

After conducting a pilot study on 30 patients with BD-I (10 people in each group), the mean and standard deviation of total self-care scores in each group were calculated and inserted in the formula of comparing two population means. In this way, the mean and standard deviations of the first and second groups, the second group and the third group, and once again the third group and the first group were inserted in this formula and the largest sample size was considered as the baseline sample size, that is, 26 individuals. Considering sample attrition, 30 cases were allocated to each group. It should be mentioned that no sample loss was observed in this study.

The inclusion criteria were age 18 and 60 years, at least a junior high school degree, lack of mental retardation, approval of BD-I by a psychiatrist, no concomitant chronic diseases (e.g., cancer, diabetes, or hypertension), no other cognitive disorders (e.g., dementia or Alzheimer's disease), and living with primary caregivers (first-degree relatives of the patients in one place of residence). The exclusion criteria consisted of non-attendance in more than one training session, attendance in in another training program within the scope of the study, academic degrees in the fields of medicine, nursing, and psychology, as well as withdrawal or unwillingness to continue participation in the study for any reasons.

The research instruments included a demographic characteristics questionnaire and the Self-Care Requisites Scale developed by Roldan-Merino. The demographic characteristics questionnaire comprised of eight completion and multiple-choice items about age, gender, level of education, occupation, marital status, level of household income, duration of the disease, and frequency of hospital admission. The Self-Care Requisites Scale developed by Roldan-Merino also comprised of 35 items and six subscales including maintaining proper storage of foods, water, and air (items 1 to 6), disposal needs

(items 7 and 8), maintaining activity-rest balance (items 9 to 14), balance in loneliness and social interaction time (items 15 to 17), prevention of life-threatening risks (items 18 to 29), and improvement of correct performance and evolution of group activities (items 30 to 35). Each of the items was scored within a range of 1 (deficit-free self-care) to 5 (complete self-care). The total score range in this questionnaire was between 35 and 175, with lower scores indicating less deficits in self-care. The psychometric characteristics of this research instrument were determined by Roldan-Merino (2015) (28). This questionnaire was translated by two individuals proficient in English, and then it was submitted to seven faculty members of Mashhad University of Medical Sciences to confirm its validity.

Roldan-Merino established the reliability of this questionnaire using the internal consistency method at Cronbach's alpha coefficient of 0.94 (28). In the present study, its reliability was also evaluated by the internal consistency method. In doing so, in the pilot study, the questionnaire was filled out by 10 volunteers affected by BD-I, and then its internal consistency was confirmed at Cronbach's alpha coefficient of 0.84.

Self-care was evaluated before the intervention and after obtaining informed consent from the patients in all the three study groups. Moreover, the demographic characteristics questionnaire was completed by the researcher based on the medical records of the patients and interviews with their primary caregivers. In the CCM group, CCM was developed based on Ahmadi's model (2002) and included four stages of orientation, sensitization, control, and evaluation (15). Within the orientation stage and before the group sessions, a session of individual interviews (lasting for 30 to 45 minutes) was held to acquaint the patients and their families with the researcher (a psychiatric nurse) generally on visiting days (Saturday, Monday, and Friday). Then, all the patients and their primary caregivers were invited in groups (10 individuals) to attend in-person sessions (2 hours) to discuss issues such as study objectives, facilities, limitations, and expectations from one another, examine levels of awareness and insight in the patients and their families about the disease, familiarize the patients and their families with BD-I and its nature, as well as encourage involvement of the patients and their families in continuous care process.

At the sensitization stage, which was held during six training sessions (two 90-minute sessions per week), the patients and their primary caregivers were taught in a classroom located in Ibn-Sina Psychiatric Hospital based on a standardized training package (including 1. explaining and justifying the features of BD-I as perceived by patients and their primary caregivers, 2. biological causes of BD-I, concepts of mania, hypo-mania, social stigma related to BD-I, and sense of guilt related to them, 3. relapse prevention, early detection of recurrence symptoms, benefits of rapid identification of the symptoms and early intervention, 4. role of drug therapy and the importance of its continuation, as well as the risks of drugs and alcohol, 5. role of lifestyle changes such as setting routines, especially sleeping patterns, and 6. giving advice to families and caregivers). It should be noted that the sessions were conducted in a question and answer format (at the beginning of the session), and then presentations were delivered by two Master's graduates of Psychiatric Nursing using slides and lectures. At the end of each session, an educational pamphlet was provided to the patients and their primary caregivers and their queries about the topics of the previous sessions were answered; if necessary, the issues were reviewed and rehearsed until the problems were resolved and the students could fully learn them. The control stage was implemented following patient discharge. In doing so, the researcher's contact number was made available to the patients and their caregivers for follow-up calls (based on a checklist prepared on the contents taught) on Sunday and Tuesday of every week (for half an hour for both patients and caregivers) to control their behaviors, to talk about how to use the given tutorials, and to answer the participants' questions in this regard.

The evaluation stage was the final stage of the CCM, which was carried out simultaneously with the control stage based on the progress reported by the patients and their caregivers and according to the checklist completed by the caller (researcher) during the control stage. Thus, the patients were assessed in terms of progress in conducting self-care behaviors during the evaluation stage.

In the PSTP group, the patients and their primary caregivers were invited at hospital discharge to receive explanations on the PSTP during a 30-minute session on how to use it and to implement its processes. Content of the PSTP was designed based on the psychological training model of Colom and Veita (2006) including (1) explaining and justifying the features of BD-I as perceived by patients and their primary caregivers; (2) delineating the biological causes of BD-I, concepts of mania, hypo-mania, social stigma related to BD-I, and sense of guilt related to them; (3) highlighting relapse

prevention, early detection of recurrence symptoms, benefits of rapid identification of the symptoms, and early intervention; (4) explaining the role of drug therapy and the importance of its continuation, as well as risks of drugs and alcohol; (5) accentuating the role of lifestyle changes such as setting routines, especially sleeping patterns; and (6) giving advice to families and caregivers (21) in the form of educational CDs and manuals within six training steps under the supervision of a Master's graduate in Psychiatric Nursing and a PhD graduate in Nursing Education. CDs and manuals were provided to this group as well. Following the patients' hospital discharge, an individual trained in the field of teaching contacted the patients and their families through telephone twice a week and any ambiguities regarding the contents of the educational CDs and manuals were resolved. Using questions and answers, the patients and their primary caregivers were controlled in terms of using the educational CDs and manuals. At the same time, their levels of learning were evaluated in the context of the PSTP designed based on the Self-Care Requisites Scale by Roldan-Merino.

The patients in the control group received the routine interventions and trainings provided by the department including presentation of educational pamphlets. In order to prevent any contacts among the study groups, attempts were made to select these individuals from different departments.

Finally, two months after hospital discharge, the patients and their families in all the three groups were invited by a social worker to come to a classroom located in Ibn-Sina Psychiatric Hospital and recomplete the Self-Care Requisites Scale.

The most important ethical considerations observed in this study included attaining permission from the Ethics Committee of Mashhad University of Medical Sciences and obtaining a written informed consent from the participants. To analyze the data, we used descriptive statistics (to summarize the data) and performed Kolmogorov-Smirnov test, to examine the normal distribution of the data, one-way analysis of variance (ANOVA), Tukey's test, Kruskal-Wallis test, Chi-square test, Fisher's exact test, and exact Chi-square test in SPSS, version 16. P-value less than 0.05 was considered statistically significant.

Results

The results of one-way ANOVA revealed no significant difference in the mean age of the patients among the CCM, PSTP, and control groups (33.1 ± 9.1 , 33.1 ± 7.7 , and 34.5 ± 9.4 years, respectively, $P=0.77$). Demographic characteristics of the groups and their comparison are presented in Table 2.

Table 1. The contents of the continuous care model at the sensitization stage

Sessions	Contents	Training method	Teacher
First	Introduction, study objectives, investigation of the status and presentation of educational and skill-based needs among patients and their families, and explanation about the disease and its complications	Lecture, group discussion, question and answer	Master's graduate in psychiatric nursing and Ph.D. graduate in nursing education
Second	Diagnosis and general concepts of bipolar I disorder (BD-I)	Lecture, group discussion, question and answer	Master's graduate in psychiatric nursing and Ph.D. graduate in nursing education
Third	Biological causes of BD-I, concepts of mania, hypo-mania, social stigma related to BD-I, and the sense of guilt about them, and group discussion	Lecture, group discussion, question and answer, lecture, group discussion, question and answer	Master's graduate in psychiatric nursing and Ph.D. graduate in nursing education
Fourth	Prevention of recurrence, early detection of relapse, benefits of rapid identification of symptoms and early interventions	Lecture, group discussion, question and answer	Master's graduate in psychiatric nursing and Ph.D. graduate in nursing education
Fifth	Role of drug therapy and the importance of its maintenance, risks of drugs and alcohol	Lecture, group discussion, question and answer	Master's graduate in psychiatric nursing and Ph.D. graduate in nursing education
Sixth	Role of lifestyle changes such as setting routines especially sleeping patterns, tips to control life stresses in families and caregivers	Lecture, group discussion, question and answer	Master's graduate in psychiatric nursing and Ph.D. graduate in nursing education

Table 2. Comparison of demographic characteristics of the patients in three study groups: continuous care model, psychological support training package, and control

Variable		Continuous care model (%)	Psychological support training package (%)	Control (%)	Test results
Gender	Male	9 (30.0)	15 (50.0)	13 (43.3)	*P=0.28
	Female	21 (70.0)	15 (50.0)	17 (70.0)	
Levels of education	Junior high school degree	13 (43.3)	15 (50.0)	12 (40.0)	**P=0.48
	High school diploma	14 (46.7)	9 (30.0)	15 (50.0)	
	University degree	3 (10.0)	6 (20.0)	3 (10.0)	
Marital status	Unmarried	7 (23.3)	13 (43.3)	6 (20.0)	**P=0.17
	Married	13 (43.3)	14 (46.7)	18 (60.0)	
	Widow/widower	2 (6.7)	0 (0.0)	2 (6.0)	
	Divorced	8 (26.7)	3 (10.0)	4 (13.3)	
Occupation	Unemployed	18 (60.0)	12 (40.0)	13 (43.3)	**P=0.61
	Self-employed	10 (33.3)	16 (53.3)	15 (50.0)	
	Retired	1 (3.3)	0 (0.0)	1 (3.3)	
	Employed	1 (40.0)	2 (6.7)	1 (3.3)	
Levels of household income	Less than enough	12 (50.0)	14 (46.7)	14 (46.7)	**P=0.68
	Enough	15 (50.0)	12 (40.0)	15 (50.0)	
	More than enough	3 (40.0)	4 (13.3)	1 (3.3)	
Frequency of hospital admissions	Less than 4 times	12 (40.0)	14 (46.7)	14 (46.7)	**P=0.68
	4-8 times	15 (50.0)	12 (40.0)	15 (50.0)	
	More than 8 times	3 (10.0)	4 (13.3)	1 (3.3)	
Duration of the disease (year)	Mean±standard deviation	8.7±6.4	9.6±6.5	5.6±5.3	***P=0.73
Age (year)	Mean±standard deviation	33.1±7.7	33.1±7.7	34.5±9.4	****P=0.77

*Chi-square test, **Exact Chi-square test, ***Kruskal-Wallis test, ****One-way ANOVA

At the pre-intervention stage, the one-way ANOVA test showed no significant difference in the mean scores of patient needs among the three groups of CCM, PSTP, and control (P=0.52). However, this test revealed a significant difference in the mean score of self-care needs at the post-intervention stage among the three study groups (P<0.001). According to the results of the post-hoc Dunnett's test, a significant difference was observed in the mean score of self-care needs between the CCM and control groups (P<0.001) and between the CCM and PSTP groups (P=0.04). In this regard, no significant difference was found between the PSTP and control groups (P=0.09). The intra-group comparisons by paired t-test showed a significant difference in the mean score of self-care needs after the intervention in the CCM and PSTP groups (P<0.001) compared to those obtained prior to the intervention, but this difference was not statistically significant in the control group (P=0.186; Table 3).

Table 3. Comparison of mean and standard deviation scores of self-care needs of patients in the three study groups

Mean and standard deviation scores of self-care needs	Continuous care model	Psychological support training package	Control	Test results
	Mean±standard deviation	Mean±standard deviation	Mean±standard deviation	
Before the intervention	15.9±98.6	16.3±94.1	19.0±98.4	*P=0.52
After the intervention	11.3±81.2	13.4±89.8	18.3±97.1	*P<0.001
Test results	**P<0.001	**P<0.001	**P=0.18	

*One-way ANOVA, **Paired t-test

Table 4. Pairwise comparison of means and standard deviations of total self-care scores of the three study groups

Post-hoc Dunnett's test results		
Group	Psychological support training package	Continuous care model
Continuous care model	P=0.04	-
Control	P=0.09	P<0.001

Discussion

The results of this study showed a significant improvement in the mean score of self-care needs after the intervention in the CCM group in comparison to the group receiving PSTP and the control group. Also, the intra-group comparisons indicated that the mean scores of self-care needs in the CCM and PSTP groups significantly improved after the intervention compared to those at the pre-intervention stage, but such an improvement in the control group was not significant.

According to our review of the related literature, there is a scarcity of studies comparing the effects of these two methods on self-care in patients with psychiatric disorders. Therefore, the relevant studies conducted on the self-management of chronic physical and mental illnesses were used. Among these studies, the investigation by Moradi et al. (2017) showed that the CCM could improve self-care in patients with cardiac failure (26). Although that investigation was performed on patients suffering from cardiac failure, its results were consistent with those of the present study. The findings of the study by Akbari et al. (2015) also indicated the positive impact of the CCM on self-efficacy in patients with myocardial infarction. Since self-efficacy refers to one's confidence and trust in their ability to conduct behaviors related to the care needs of the disease (25), the findings were in agreement with the results of the present study.

In fact, care is considered as the most basic focus in nursing activities and it is assumed as the foundation of the nursing profession. The original concept of healthcare can be found in the notes by Florent Nightingale in 1859 mentioning that since all human beings are responsive to their own affairs and sensitive to their fate and health, it is necessary to have the potential of helping and coordinating to solve their physical, psychological, social, and mental problems (15). This is also the case in patients with psychiatric disorders that are unaware of their symptoms when their disease relapses (29). Thus, targeted follow-ups and sustained mental, emotional, and functional efforts by patient, nurses, and families targeted towards the emergence of continuous healthcare behaviors can lead to collaboration and informed acceptance of treatments by patients, and consequently, help with meeting self-care needs of these individuals (15). Given that therapeutic relationships form the basis of nursing interventions in psychiatric disorders (20) and act as a factor in reducing stigma of psychiatric disorders (30), in-person training through the CCM can be more effective than the use of the PSTP in promoting self-care.

In a study by Khankeh et al. (2007), the CCM had no impact on the quality of life of patients with schizophrenia (19), which was not consistent with the results of the present study. The reason for this discrepancy could be the difference in the research populations because patients with schizophrenia have a worse prognosis compared to BD-I patients and experience more chronic symptoms (29).

Considering the intra-group comparisons in the present study, the PSTP also had a significant effect on self-care in patients. Likewise, the results of the research by Rahmani et al. (2016) reflected the impact of psychological group training on compliance with medical treatment in patients with BD-I (4), and given that drug compliance is a manifestation of self-care (10), this result was in line with the findings of our investigation.

The results of the study by Hidalgo-Mazzai et al. (2015) also showed that psychological training using phone applications in patients with BD-I could lead to improved outcomes in such individuals (19). Since self-care can reduce the effects and complications of BD-I by enhancing drug compliance (10), the results of that study were in line with our findings. Besides, Colin et al. (2015) reported that phone follow-ups after psychological training could influence self-management of BD-I symptoms (26), which was consistent with the results of the present study. The findings of an investigation by Dunn et al. (2015) also suggested the significant effect of telephone follow-ups on self-management of psychosis symptoms in families of schizophrenic patients (25) confirming the results of this study.

A study by Faria et al. (2014) entitled as "the effect of psychological training on setting biological rhythm in patients with bipolar I disorder" revealed that psychological training had no impact on sleep and biological rhythms, activities, social rhythms, and feeding patterns in patients with BD-I (16). This result was not congruent with our findings. This discrepancy could be attributed to the lack of participation of families or primary caregivers in the training process.

Among the limitations of this study was not considering the frequency of hospital admissions and disease the duration that could affect the results of the study due to complications such as cognitive

impairment. Therefore, we recommend considering this issue in the inclusion criteria of future investigations.

Implications for Practice

Considering the higher impact of the CCM relative to PSTP on improving self-care in patients with BDI, it can be taken into account as a care model assisting BD-I patients to manage their own disease and its resulting problems although PSTP could also aid in this domain. To design and compare these two educational methods, we suggest considering the duration and frequency of hospital admissions in future studies.

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Conflicts of Interest

The authors declare no conflict of interest regarding publication of this article.

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