Self-monitoring training effects on relapse in patients with bipolar disorder

Sepideh Herizchi¹, Ali Fakhari¹, Zhila Khamnian², Fatemeh Dorosti¹, Mostafa Farahbakhsh¹, Negar Aghaei¹✉

¹Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
²Department of Community Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

✉Corresponding author
Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
Email: negar_aghaie@yahoo.com

Article History
Received: 22 November 2019
Reviewed: 23/November/2019 to 10/January/2020
Accepted: 13 January 2020
E-publication: 20 January 2020
P-publication: March - April 2020

Citation

Publication License
This work is licensed under a Creative Commons Attribution 4.0 International License.

General Note
Article is recommended to print as color digital version in recycled paper.

ABSTRACT

Background: Bipolar Mood Disorder is a chronic relapsing disorder that affects patients’ social and occupational function and quality of life. More studies suggest that early diagnosis and intervention in Bipolar relapses had a better outcome. Objectives: The study aimed to determine the efficacy of self-monitoring training on relapse in bipolar disorder type I. Patients and Methods: 70 patients who met the criteria and gave informed consent to participate were randomly allocated to intervention and control groups. While both groups received routine inpatient care, the intervention group received additional 20-minute self-monitoring training sessions...
led by educated psychologists and researchers. After discharge, both groups were followed monthly by the researcher in the outpatient clinic of Razi hospital. They also were given a telephone number to contact researchers if they had any questions. At the end of 12 months of follow up, the number of Hospitalizations of all patients was recorded. Data were analyzed through the 16th version of SPSS software. Results: After 12 months while in intervention group 11(31%) patients had at least one episode, this measure in the control group was 20(57%) patients. This difference was statistically significant (P=0.03). Further analysis also revealed a significantly lower relapse rate in the intervention group (P=0.028). Conclusion: Self-monitoring training seems to reduce the relapse rate among patients suffering from BMD I.

Keywords: Bipolar Mood Disorder I, Self-monitoring Training, Relapse

1. INTRODUCTION

Bipolar Mood Disorder (BMD) is a chronic and disabling psychiatric disease that has an early onset and affects the function and quality of life of patients (Clemente et al., 2015). Bipolar Mood Disorder is categorized into three subcategories in Clinic: Type I is characterized with at least one episode of mania or mixed state, which lasts at least a week, but the main presentation of type II is recurrent Depression combined with hypomanic episodes. Cyclothymic disorder is defined as a continuous alternation between hypomanic and depressive episodes, which does not meet the standard criteria for BMD (Sadock and Sadock, 2011). It has been estimated that 48.8 million people had bipolar disorder around the world in 2013, and this number is increasing due to aging and population growth. Bipolar disorder was the underlying cause of 9.9 million DALYs, Disability-Adjusted Life Year, in 2013 (Ferrari et al., 2016). This condition has a high rate of mortality, and as estimated, one-third of patients have committed suicide once in their lives (Baldessarini et al., 2010; Goodwin et al., 2003). A qualitative study on these patients revealed that the main themes of patients living with this condition include having a hard time accepting the disease, being insecure, striving to understand the condition, managing the illness (Jönsson et al., 2008). Given together, the primary aim of the management of BMD should include treatment of the acute phase of illness and prevention of relapse as the present treatment options cannot prevent the development and recurrence of the disease. It has been suggested that psychoeducation can play an essential role in the prevention of relapse and even could strengthen the families of patients in managing the situation (Baldessarini et al., 2010; Goodwin et al., 2016; Jönsson et al., 2011).

It has been shown that disturbance in circadian rhythm is a characteristic marker of BMD and could predict relapse of disease; monitoring of sleep routine, mood swings have been shown to be effective in management of BMD by making health management easier, improving self-awareness and efficacy and helping patients to interact positively with physicians (Cosley et al., 2016; Takaesu, 2018). Factors like lack of insight into the disease or denying the disease, the most critical factor, relationship problems, recent suicidal ideation, and noncompliance to medication are observed in a majority of bipolar patients who need to be hospitalized (Kent and Yellowlees, 1994). Educating patients regarding the nature of the disease, mood swings, and early symptoms of a manic or depressive episode have long been discussed, and some frameworks are suggested. A significant number of studies were dedicated to developing an effective and cost-benefit method of empowering patients to monitor their symptoms. Some studies adapted Chronic Disease Self-Management Program (CDSMP) by giving patients the confidence to better manage the disease. There have been promising results regarding physical function, emotional wellbeing, and overall healthy functioning. These programs also showed higher self-efficacy and patient activation (Doğan and Sabancioğullari, 2003; Druss et al., 2010; Goldberg et al., 2013).

Objectives
As there is a particular emphasis on the role of Self-care in managing mental and physical chronic disease, we aimed to determine the efficacy of self-monitoring on relapse in bipolar disorder type I.

2. MATERIALS AND METHODS

Study population and design
This prospective double-blinded randomized controlled clinical trial was carried out at Razi Hospital of Tabriz in order to assess the effectiveness of self-monitoring training on relapse of Bipolar Mood Disorder I and was reviewed and approved by Ethics committee of Tabriz University of Medical Science.
Participants
Participants were randomly selected from patients who sought inpatient care at psychiatry wards of Razi Hospital of Tabriz from October 2017 to November 2018.

Intervention
Both groups received routine inpatient care, including pharmaceutical and usual psycho-education, while each individual in the intervention group received additional 20-minute self-monitoring training sessions after partial healing. Educated psychologists led these sessions for 2 or 3 times over two weeks of admission. The researcher was present in the last sessions. Over the course of these sessions, patients were provided with information regarding the nature of Bipolar Disease, its prevalence, current treatments, adverse effects of the medicine. Mainly they were training about mood changes like elated or low mood and instability of mood. They also were educated about healthy lifestyle for enough sleep and warning signs of the onset of an episode of the disease and how to manage such symptoms in order to prevent a full-blown relapse. Furthermore, the researcher reviewed warning signs with study group patients in all follow-up sessions.

Sample size
According to Shaabani and his colleagues' work (Shaabani, et al., 2006) “Relapse rate of Bipolar Mood Disorder I” was estimated to be 4.5 percent over 17 months of follow up, therefore, the sample size of our study was calculated to be $33 \times 2$ by Cochrane sample size formula, assuming a power of 0.80 and $\alpha=0.05$

Randomization
Out of all of the patients admitted to psychiatric wards of Razi hospital, everyone who was diagnosed with BMD I and gave informed consent to participate was included in the study; participants were allocated to groups based on the Random Numbers Table with central randomization model by a statistician. Due to the nature of the intervention, psychiatrists and psychologists were not blinded, but patients and researchers who performed statistical analysis were blind to group allocation. All patients completed the trial (figure 1).

Figure 1 Flow chart of the Study

Measures
We included patients who met the criteria of Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) for Bipolar Mood Disorder I. Relapse was defined by criteria of DSM-IV-TR for Manic or Depressive episode.
**Exclusion criteria**
Patients were excluded if they a) had a significant psychiatric disorder in axis I or II, b) suffered from a severe physical disease such as hepatic or renal failure, and c) had a concomitant cognitive disability like dementia or delirium.

**Inclusion criteria**
We included patients who a) aged between 18-65 years, b) had at least a history of admission with a diagnosis of Bipolar Mood Disorder I, c) had at least the primary education and d) had the willingness to participate in the study.

**Data Collection and follow up**
A table of Warning signs was given to patients, and they were asked to write down every warning sign they had; the researcher assessed symptoms of disease and self-reports of patients every month at the outpatient clinic of Razi Hospital. Patients also were given a phone number to ask their probable questions. At the end of the 12-month of follow up relapse rate of each group was assessed by referring to the hospital registry.

**Statistical Method**
Independent Samples Kolmogorov-Smirnov test was used to determine the Normality of Data; Independent T-test and Chi-Square were used to determining differences between groups of study. Data on the number of episodes were not normal; therefore, Independent samples Mann Whitney U test was utilized to compare this measure. IBM SPSS (version 16, SPSS Inc., Chicago, IL, USA) was used to perform all statistical analysis; statistical significance was considered values of $P$ lesser than 0.05.

3. **RESULTS**
The baseline characteristics of patients in the two groups have been presented in table 1. Over the study period more than 100 sessions of self-monitoring training and about 300 follow-up sessions were held. It was observed that while 20(57%) patients in control group had at least one Mood episode during 12 months of follow up, 11(31%) patients relapsed during this time in self-monitoring training group, there was a significant difference between two groups ($P=0.03$) (figure2) and self-monitoring practice showed to be effective in preventing episodes of BMD. Further analysis confirmed this significant difference between groups of the study concerning the number of episodes during 12 months of study ($P=0.028$).

![Figure 2 Frequency of relapse in groups of study](image-url)
Table 1  Baseline Characteristics of Two Groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intervention (n=35)</th>
<th>Control (n=35)</th>
<th>Total (n=70)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>37.40±9.71</td>
<td>36.77±9.94</td>
<td>37.09±9.76</td>
<td>0.790</td>
</tr>
<tr>
<td>Gender a</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td>Male</td>
<td>17(49)</td>
<td>17(49)</td>
<td>34(49)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>18(51)</td>
<td>18(51)</td>
<td>36(51)</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td>0.407</td>
</tr>
<tr>
<td>Married</td>
<td>14(40)</td>
<td>16(46)</td>
<td>30(43)</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>13(37)</td>
<td>8(23)</td>
<td>21(30)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>8(23)</td>
<td>11(31)</td>
<td>19(27)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td>0.060</td>
</tr>
<tr>
<td>Primary School</td>
<td>3(9)</td>
<td>3(9)</td>
<td>6(9)</td>
<td></td>
</tr>
<tr>
<td>Middle School</td>
<td>9(26)</td>
<td>7(20)</td>
<td>16(23)</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>0</td>
<td>7(20)</td>
<td>7(10)</td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>14(40)</td>
<td>15(43)</td>
<td>29(41)</td>
<td></td>
</tr>
<tr>
<td>AS/AA b</td>
<td>4(11)</td>
<td>2(6)</td>
<td>6(9)</td>
<td></td>
</tr>
<tr>
<td>BS/BA or higher c</td>
<td>5(14)</td>
<td>1(3)</td>
<td>6(9)</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td>0.924</td>
</tr>
<tr>
<td>Unemployed</td>
<td>9(26)</td>
<td>11(31)</td>
<td>20(29)</td>
<td></td>
</tr>
<tr>
<td>House-wife</td>
<td>17(49)</td>
<td>18(51)</td>
<td>35(50)</td>
<td></td>
</tr>
<tr>
<td>Employee</td>
<td>2(6)</td>
<td>1(3)</td>
<td>3(4)</td>
<td></td>
</tr>
<tr>
<td>Workman</td>
<td>4(11)</td>
<td>3(9)</td>
<td>7(10)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3(9)</td>
<td>2(6)</td>
<td>5(7)</td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td>Urban</td>
<td>30(86)</td>
<td>30(86)</td>
<td>60(86)</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>5(14)</td>
<td>5(14)</td>
<td>10(14)</td>
<td></td>
</tr>
<tr>
<td>Medical treatment</td>
<td></td>
<td></td>
<td></td>
<td>0.203</td>
</tr>
<tr>
<td>yes</td>
<td>14(40)</td>
<td>9(26)</td>
<td>23(33)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>21(60)</td>
<td>26(74)</td>
<td>47(67)</td>
<td></td>
</tr>
<tr>
<td>History of Suicide</td>
<td></td>
<td></td>
<td></td>
<td>0.550</td>
</tr>
<tr>
<td>Yes</td>
<td>8(23)</td>
<td>6(17)</td>
<td>14(20)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>27(77)</td>
<td>29(83)</td>
<td>56(80)</td>
<td></td>
</tr>
<tr>
<td>Tobacco Use</td>
<td></td>
<td></td>
<td></td>
<td>0.337</td>
</tr>
<tr>
<td>Yes</td>
<td>14(40)</td>
<td>18(51)</td>
<td>32(46)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>21(60)</td>
<td>17(49)</td>
<td>38(54)</td>
<td></td>
</tr>
<tr>
<td>History of comorbidities</td>
<td></td>
<td></td>
<td></td>
<td>0.584</td>
</tr>
<tr>
<td>yes</td>
<td>8(23)</td>
<td>10(29)</td>
<td>18(26)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>27(77)</td>
<td>25(71)</td>
<td>52(74)</td>
<td></td>
</tr>
<tr>
<td>Frequency of Admission</td>
<td>5.71±4.16</td>
<td>4.91±3.00</td>
<td>5.31±3.63</td>
<td>0.348</td>
</tr>
<tr>
<td>Age at Diagnosis, y</td>
<td>27.34±7.33</td>
<td>27.63±9.37</td>
<td>27.49±8.35</td>
<td>0.887</td>
</tr>
<tr>
<td>Duration of Admission, d</td>
<td>30.97±5.10</td>
<td>35.31±5.25</td>
<td>33.14±5.58</td>
<td>0.001</td>
</tr>
<tr>
<td>Duration of Disease, y</td>
<td>12.14±8.92</td>
<td>10.22±8.01</td>
<td>11.19±8.47</td>
<td>0.360</td>
</tr>
</tbody>
</table>

aData are presented as No. (%) or Mean ± SD. b Associate of Science/ Associate of Art c Bachelor of Science/ Bachelor of Art

Results also showed that there was a significant positive correlation between relapse rate and duration of disease, frequency of relapse \((r= 0.370 P= 0.002, r= 0.368 P= 0.002, \text{ respectively})\) and a negative significant correlation between relapse rate and age at first diagnosis and education \((r= -0.277 P= 0.02, r= -0.260 P= 0.03, \text{ respectively})\).
4. DISCUSSION

The present study was designed to determine the effectiveness of psycho-education and Self-monitoring training in preventing relapses of BMD I episodes. In line with previous researches, our results suggest that use of self-monitoring could decrease the rate of relapse in BMD I. As can see similar results in the work of Perry et al., they conducted a randomized clinical trial to evaluate effects of empowering BMD patients to identify early symptoms of an episode; they observed that this intervention significantly lowers the relapse rate (Perry et al., 1999). In another work, Bilderbeck et al. conducted a randomized clinical trial on BMD outpatients who were on medical treatment to compare facilitated Integrated Mood Management (FIMM) and Manual integrated mood management (MIMM) and found out although there was no difference regarding self-reported depression symptoms or relapse/admission. However, knowledge of the disease was higher in the FIMM Group at three months (Bilderbeck et al., 2016). In another similar study, Javadpour et al. conducted a clinical trial to determine the effectiveness of psycho-education in preventing relapse of BMD and observed a significantly lower rate of relapse in the intervention group compared to routine pharmacotherapy (Javadpour et al., 2013).

On the other hand, Gumus et al., in a controlled experimental study designed to determine the effectiveness of individual psychoeducation on the recurrence of BMD, indicated that there was no significant difference between the two groups regarding the relapse rate (Gumus et al., 2015). Daggenvoorde, in qualitative research, demonstrated that such Psycho-educational programs in patients’ perspective guide them to gain control over their lives and give them self-management skills they need; they also revealed that contact with relatives and the match with the professionals could be considered facilitating factors of great importance (Daggenvoorde et al., 2013). Psycho-educational sessions are reported to be effective in promoting medical adherence (Depp et al., 2007); chronic Mental illnesses like BMD can have a significant effect on family members, it has also been reported that a course of psycho-education for relatives of BMD patients could successfully improve their knowledge of disease and reduce stress (Abder-Rahman et al., 2000; Jönsson et al., 2011).

Although the effect of psycho-education and self-monitoring in BMD disease has been well studied, a limited number of patients have the chance to get the help they need, and it has been reported to be uncommon (Goossens et al., 2007). There are a large number of Self-monitoring applications, and they have shown to be even better than pen and paper (Bauer et al., 2006; Bauer et al., 2008; Depp et al., 2015; Hidalgo-Mazzei et al., 2015; Hidalgo-Mazzei et al., 2015); However positive effects of such applications are limited once stopped (Depp et al., 2015). Nevertheless, a web-based cognitive Psycho-educational program has shown to be equal to the control group in terms of recurrence and admission to hospital (Barnes et al., 2015). Even though researches in developed countries suggest applications over pen and paper method for self-monitoring, use of applications for Self-monitoring in our setting is of low value for variety of reasons: first, to our knowledge there is no such application in Persian language, second, a large number of our study population are of low and middle socioeconomic level and therefore neither can afford to have a Smartphone nor can use English apps.

There were several strengths and limitations to a recent study: There was no drop out in this study which strengthens the power of the study, groups of the study were relatively similar in other factors associated with relapse rate in BMD. Studies like this study with three session psycho-education in conjunction with self-monitoring training were not conducted before in Iran. It seems that Individual psycho-education is more beneficial for patients who do not want to discuss their issues in group sessions. Although the original study sample size was similar to related works in the field, and it was relatively small, but it was more than the number calculated to show the difference between groups. Finally follow up period in this study was only 12 months, and more extended periods should be considered.

5. CONCLUSION

In conclusion, findings of this research suggest that educating patients about the disease and its symptoms self-monitoring training to detect and management of early symptoms in conjunction with monthly follow up could decrease the risk of relapse BMD I patients. Future studies with larger study samples and longer follow up could guide to draw further conclusions.

Acknowledgments
Researchers appreciate all participants involved in this study.

Conflict of interest statement
The authors declare that there is no conflict of interest.
Data resource
This work has been conducted as a M.D. thesis at Tabriz University of Medical Sciences (1/6-3/95).

Funding: This research received no external funding.

Ethical approval
This work has been approved by the local branch of the Iran national committee for ethics in biomedical research (IR.TBZMED.REC.1395.806).

REFERENCE


