Risk of Suicide and Severity of Depression in Patients with Severe Mental Disorders Receiving Home Care Along with Psychological Training, Anger Management, and Life Skills Training Versus Usual Clinical Care

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Abstract

Background: Severe mental disorders impose a significant burden of illness directly on the patient and their caregivers. In this study, the prevalence of suicidal ideation and the severity of depression in patients who received home care were evaluated in comparison with other patients who experienced usual outpatient care.

Methods: The study design was cross-sectional and the sample was assigned in two groups. Structured scale and inventory were used to evaluate the prevalence of suicidal thoughts and severity of depression among the patients. Beck Depression Inventory and Ideation for Suicide Beck Scale were utilized for this evaluation. The study was conducted from June 2019 to June 2020.

Results: The total number of participants in the study was 71 patients. The results of multivariate analysis showed that the observed difference between the two groups in all components and in the total score of Beck Suicide Scale and Beck Depression Scale was statistically significant. Regarding Ideation for Suicide Beck Scale, the mean in the home visit group was 0.94 (standard deviation (SD)= 4.24) and in the Treatment as Usual (TAU) group was 3.83(SD =5.44) (p-value=0.016). Regarding Beck Depression Scale, the mean in the home visit group was 6.14(SD= 7.75) and in the TAU group was 11.17(SD= 9.18) (p-value=0.015).

Conclusion: It seems that home care for patients with severe mental disorders may be more effective than outpatient care in reducing suicidal ideation and severe depression. The use of longitudinal and multicenter studies with larger sample sizes can be effective in assessing the impact of home care on improving indicators of suicidal ideation and severity of depression.

Keywords: Ambulatory care, Depression, Depressive disorder, Home care services, Suicide

Introduction

Severe psychiatric disorders impose a significant burden of illness on both the patient and the community due to the relatively high prevalence, associated mortality, functional decline, and high-cost care (1-3). These disorders were shown to be risk factors in many other problems, such as suicidal ideation, depression, physical illness, substance abuse, and conditions caused by medication side effects (4-6). Psychiatric disorders may also create social problems such as poverty, marginalization, insufficiency (7), and reduced individual and social functioning (8).

Hospitalization, medication, and psychoeducation have been effective interventions for patients with severe psychiatric disorders worldwide (9). However, many of these patients require long-term hospitalization or repeated re-hospitalization, which not only reduces patients' quality of life, but also increases the costs of mental health programs (10,11). One of the approaches used to facilitate treatment is offering home care programs for patients with severe mental disorders (12). Some patients leave treatment after discharge, which can lead to recurrence and readmission. The purpose of post-discharge care is providing consistent care, proper medication, and support for the patient besides educating his/her family, thereby improving capabilities and quality of life of the patient and his/her family and reducing hospital readmission (13). This is an important step despite the limited evidence of its effectiveness in low- and middle-income countries (14).

One of the methods in home care services for patients and their caregivers is less-intensive follow-up provided by treatment team at home. Home care team members, including a general practitioner or psychiatry resident, a psychiatric nurse, and a social worker in low-intensity home-based aftercare models, visit patients once every 2-4 weeks under the supervision of a faculty member psychiatrist. The target population is mainly the patients with severe psychiatric disorders who have a history of frequent hospitalizations and recurrences; they do not visit the hospital for outpatient appointments or they are often deprived of appropriate treatment (15).

Severe psychiatric disorders increase the risk of suicide, severity of depression, and its prevalence in afflicted patients (16,17). The lifetime risk of suicide in patients with schizophrenia is approximately 5-6% (18). Management of schizophrenia and early intervention strategies to reduce or prevent recurrence or re-hospitalization may decrease suicide risk and severity of depression while improving the prognosis of psychiatric disorders (19-21).

The home care program under the management of the Community Psychiatry Division of the Roozbeh Hospital which is the main Psychiatry Hospital of Tehran University of Medical Sciences has been implemented since 2004. This program consists of active care of patients with severe psychiatric disorders in their homes and providing family support along with medical care, assessment of living, occupational, physical problems, and other related measures (13).

The primary purpose of the abovementioned strategy is to reduce the risk of depression and suicide during active home care. In this study, the prevalence of suicidal ideation and the severity of depression in patients who received home care were compared with other similar patients who experienced usual outpatient care.

Materials and Methods
Subjects

The subjects of this study were patients with severe mental disorders including schizophrenia, schizoaffective and bipolar disorders according to the DSM-IV_TR criteria, in age range of 18 to 65 years. Moreover, based on the inclusion criteria, patients with at least two years' history of disorders from the time of diagnosis, and at least one psychiatric hospitalization, a history of receiving at least 6 months of active psychiatric care, namely usual outpatient care or home visit care, were recruited as the final population. Moreover, the patients with intellectual disability were excluded from the study. The subjects received care at home in case at least one of the relatives lived with them. Patients' residences were also limited to catchment area of the Hospital. Written informed consent was obtained from the participants and their caregivers. In case patients had suicidal ideation, they were referred to the care team for appropriate care.

Since the purpose of this cross-sectional study was to evaluate the prevalence of suicidal thoughts and

severity of depression among patients, matched group design was implemented to easily understand and interpret the results in two groups. In this method, each person belongs to only one specific group and at least one variable is used for matching between groups (22). These two groups included the home care group with 36 patients and the outpatient care group with 35 patients who were matched in terms of the type of disorder, number of hospitalizations, history of substance use, history of physical illness, gender, and age. They received treatment with antipsychotic medications or mood stabilizers. Home care patients were visited regularly each month by home care team members. The members included a psychiatry resident, a psychiatric nurse, and a social worker. They provided care for patients based on a plan developed and supervised by a faculty member psychiatrist. They were also trained in a psychiatric home care program. Their care comprised bio-psychosocial interventions, including medication management, psychoeducation for the patient and the family, and assisting the patients to access support resources. All members of the team reviewed and analyzed the patients' condition on a monthly basis by the assistance of a faculty member psychiatrist. Related programs included assessing the course of the disease, prescribing medications required for the following month, evaluating drug side effects, psycho-education on medication compliance, and social skills and anger management training; using the whole package or selected program items depended on the patient's diagnosis and the specific plan for each patient.

The treatment-as-usual group received routine outpatient services after discharge from the hospital. Care for the mentioned patients was provided by a psychiatry resident through follow-up visits and prescribing appropriate medication. There was no routine psychosocial intervention or rehabilitative activity. Care was provided only by a psychiatry resident. The frequency of visits in this group of patients was determined at the discretion of the psychiatry resident and based on the patients' psychiatric conditions at the time of the outpatient visit and the status of medication adjustment. This time interval was variable. Also, if needed, psychiatry residents could receive guidance and supervision from

one of the professors at the clinic. One day before the time specified for the outpatient visit, the time of the visit would be reminded *via* a text message to the patient's caregiver. The frequency of visits in this group, depending on the various factors mentioned, varied between two weeks to three months.

Data collection and instruments

Based on the purpose of the research, demographic information was collected using a designed questionnaire and the prevalence of suicidal thoughts and depression among patients was evaluated based on the standard and validated inventory and scale. The study instruments included Beck Depression Inventory (23) and Beck Scale for Suicidal Ideation (24) and all were validated in previous studies (25,26). The specifications of the research instruments are detailed below. These tests were performed once during the study and at the patients' home (home visit group) or in the outpatient clinic [Treatment as Usual (TAU) group].

The personal information form

This questionnaire was designed by the researchers of the study. Using this questionnaire, information including age, gender, job, education, type of disorder, history of smoking, history of substance use, history of alcohol use, history of physical illness, patient's main caregiver, number of hospitalizations and duration of disease were evaluated.

Beck depression inventory-II

This inventory is a widely utilized tool to identify the severity of depression in adults and its validity and reliability were confirmed in various studies and among different cultural groups (27). It is a 21-item self-report rating inventory, designed for clinical and educational purposes (28). Toosi *et al* evaluated the psychometric properties of Beck Depression Inventory-II among a group of high school students by measuring concurrent validity and factor analysis. Using test-retest and Cronbach's alpha, they obtained the reliability and correlation coefficients of the inventory equal to 0.55 and 0.83, respectively (29). Also, Ahmadi *et al* showed the acceptable psychometric properties of this inventory for screening depression among Iranian patients with coronary heart disease. They reported an internalconsistency of 0.90

using Cronbach's alpha (30).

Beck Scale for Suicidal Ideation

This scale contains 19 items associated with current suicidal ideation (during the previous week) and it demonstrated satisfactory internal consistency in both adult and adolescent clinical samples (31). Its validity has also been confirmed in several conducted studies (24). Cronbach's alpha coefficients in the whole scale or different dimensions were reported to be greater than 0.8 (25).

Ratings were conducted by a trained interviewer who was a senior psychiatry resident. It was performed among patients receiving home care at their place of residence and patients receiving usual care at the hospital outpatient clinic. The study was conducted from June 2019 to June 2020 in two groups who had already been clinically diagnosed according to DSM-IV-TR criteria and were receiving services. However, according to our assessments, all these patients with DSM-5 criteria had similar diagnosis.

Ethical considerations

Patients and their caregivers submitted written informed consent prior to participating in the study. Information obtained from participants was kept confidential to the executor of the project and was not made available to anyone else. If the patient or patient caregiver was unwilling to participate in the study, he or she was not included in the study (in this study, one person from each group did not want to participate in the study and they were not enrolled). It was also possible for the patients to leave the study at any time during its implementation. Under any circumstances, the patient received all his or her usual services. The study was approved by the Ethics Committee of Tehran University of Medical Sciences in Tehran, Iran (Code No: MEDICINE.REC.1398.170)

Data analysis

The Statistical Package for the Social Sciences (SPSS) 21 was used for data analysis. Background and demographic characteristics of the patients and descriptive information of the research variables were initially examined and then the research hypotheses were tested. Research hypotheses were based on comparisons between two groups receiving treatment services. In order to compare the two groups in variables that are one-dimensional (total suicide score and total depression score), independent samples t-test and to compare the two groups in variables that are multidimensional (components of suicide scale), multiple linear regression was used.

Results

The total number of participants in the study was 71 patients who were in two groups of 36 patients receiving home care and 35 patients receiving usual care. The number of patients in each group, as seen in table 1, included 22, 8 and 6 individuals with diagnoses of schizophrenia, schizoaffective disorder and bipolar disorder, respectively, in the home care group and 21, 6 and 8 individuals in the TAU group. The number of members in each group did not differ statistically significantly from the other group.

The background and demographic characteristics of the patients in the home care group and the usual care group are independently presented in table 1. There were no statistical differences in the study variables between the two groups.

The mean scores of the components of Beck Scale for Suicidal Ideation showed that the group which received home care service had a lower average in all components of the scale. The results of multivariate analysis indicated that the observed difference between the two groups in all components and also in the total score of Beck Scale was statistically significant. According to the Beck Scale, the mean of home visit group was 0.94 (±4.24) and that of the usual group was 3.83 (±5.44) with p value of 0.016.

The results of Beck Depression Inventory showed that people who were cared for as usual, scored higher than those who were cared at home. Independent t-test represented that the observed difference between the two groups in terms of depression was statistically significant. Based on the Beck Depression Inventory, the mean of home visit group was 6.14 (±7.75) and the one in the outpatient care group was 11.17 (± 9.18) with p-value of 0.015 (Table 2).

Discussion

In this study, regarding suicide and its indicators, as well as the severity of depression, the group receiving home care was at lower risk of suicide and

Table 1. Background and demographic characteristics of patients in the home visit group and the usual treatment group

		Number (percentage) / average (standard deviation)			Chi² /t test	p- value
		Home care N (%)	Usual care N (%)	Total		
Gender	Female	16 (44.4)	18 (51.4)	34 (47.9)	0.347	0.556
	Male	20 (55.6)	17 (48(6)	37 (52.1)		
Job	housewife	11 (30.6)	11 (31.4)	22 (31.0)	2.930	0.570
	Unemployed	23 (63.9)	18 (51.4)	41 (57.7)		
	Freelance	1 (2.8)	3 (8.6)	4 (5.6)		
	Worker	1 (2.8)	2 (5.7)	3 (4.2)		
	Employee	0	1 (2.9)	1 (1.4)		
Education	Illiterate	3 (8.3)	2 (5.7)	5 (7.0)	2.607	0.456
	undergraduate	21 (58.3)	17 (48.6)	38 (53.5)		
	diploma	10 (27.8)	10 (28.6)	20 (28.2)		
	Bachelor's degree or higher	2 (5.6)	6 (17.1)	8 (11.3)		
Type of disorder	schizophrenia	22 (61.1)	21 (60.0)	43 (60.6)	0.581	0.748
	Schizoaffective disorder	8 (22.2)	6 (17.1)	14 (19.7)		
	Bipolar disorder	6 (16.7)	8 (22.9)	14 (19.7)		
History of Smoking	have	13 (36.1)	18 (51.4)	29 (40.8)	1.693	0.193
	Don't have	23 (63.9)	17 (48.6)	40 (56.3)		
History of substance use	have	8 (22.2)	8 (22.9)	16 (22.5)	0.004	0.949
	Don't have	28 (77.8)	27 (77.1)	27 (77.1)		
History of alcohol use	have	3 (8.3)	4 (11.4)	7 (9.9)	0.191	0.662
	Don't have	33 (91.7)	31 (88.6)	64 (90.1)		
History of physical illness	have	6 (16.7)	13 (37.1)	19 (26.8)	3.795	0.052
	Don't have	30 (83.3)	22 (62.9)	52 (73.2)		
Patient main caregiver	Spouse	9 (25.0)	11 (31.4)	20 (28.2)	3.950	0.413
	Father	8 (22.2)	12 (34.3)	20 (28.2)		
	Mother	18 (50.0)	11 (31.4)	29 (40.8)		
	Brother	1 (2.8)	1 (2.9)	2 (2.8)		
Number of hospitalizations	1-2 time(s)	23 (63.9)	25 (71.4)	48 (67.6)	0.492	0.782
	3-5 time(s)	10 (27.8)	8 (22.9)	18 (25.4)		
	6-7 time(s)	3 (8.3)	2 (5.7)	5 (7.0)		
Age (years)		39.69 (9.96)	40.59 (12.11)	40.15 (11.05)	0.329	0.743
Duration of the disorder (years)		9.69 (8.37)	9.91 (6.05)	9.80 (7.27)	0.127	0.900

experienced less severe depression.

Home care services, after discharge from the hospital, are effective for patients with chronic and severe mental disorders. The implementation of these services can play a major role in improving the functioning of the patients and controlling their symptoms (32). Intervention in the form of community services for patients with mental health disorders and its main

Table 2. Comparison of two groups of home care (n=36) and usual care (n=35) groups in the components of Beck Suicide and Beck depression Inventory

Ideation for Suicide Beck Scale Components	Grouping	Mean	SD	Sum of squares	Mean of square	F value	p-value
Death wish	Home care	0.36	1.29	16.123	16.123	6.118	.016
	Usual care	1.31	1.91				
Suicide preparation	Home care	0.36	1.69	21.319	21.319	4.700	.034
	Usual care	1.46	2.50				
Suicidal idea	Home care	0.22	1.33	12.371	12.371	4.739	.033
	Usual care	1.06	1.86				
				MD[1]	SDD[2]	t value	p-value
Total score of suicide	Home care	0.94	4.24	2.88	1.15	16.123	.016
	Usual care	3.83	5.44				
Depression	Home care	6.141	7.75	5.03	2.01	2.498	.015
	Usual care	11.17	9.18				

[1] Mean difference, [2] SD difference

component as home visit can significantly reduce the re-hospitalization rate (33,34).

Sharifi *et al*, in 2011, conducted a study on 130 patients with bipolar disorder and schizophrenia and compared re-hospitalization incidence rate in two groups of patients receiving home care services and routine care. During the 1-year follow-up, home care led to a further reduction in hospitalization rate, further improvement in psychotic symptoms and global illness severity, and greater satisfaction with the services received (35). In a similar study, Ghadiri Vasfi *et al* in 2015 achieved the same results (36).

One of the similarities between the mentioned studies and the present study is a further reduction in symptoms of depression in patients cared for at home. It seems that improvement of depression symptoms and consequent reduction of suicide attempts are possible with more immediate interventions, which are usually performed in home care conditions compared to usual clinical care at hospitals where longer delays and lack of social interventions exacerbate the patient condition. The other advantages are increased medication adherence, the possibility of identifying the optimal intervention and problem solving strategies as a result of better availability of home care and the provision of social intervention (37-39).

Díaz-Fernández *et al* in a long-term follow-up, while enumerating the risk factors for suicidal thoughts and attempts, mentioned the continuation and adherence to treatment as the most important protective factor in suicide among patients (40). In our study, reducing the severity of depression among patients receiving home visit services can be one of the effective factors in decreasing suicide rate as a result of continuous and monthly care that monitors patients' mood on a regular basis. In these situations, timely biological interventions as well as psychoeducation regarding new problems or previous complications might be effective in reducing depression and suicidal ideation in patients receiving home care.

Limitations
This study was performed only on patients receiving home care or usual care in one hospital center. Moreover, this study is a cross-sectional one and its findings cannot be generalized to other studies with longer durations. It seems that studies with a larger sample size including multi-center and longitudinal research and randomized clinical trials may increase the validity of the findings.

Conclusion
At the time of the study, patients with severe mental disorders who were cared for at home had fewer death wishes, suicide commitment, and actual suicidal thoughts according to the scores recorded on Beck Depression Inventory. The use of longitudinaland multi-center studies with larger sample sizes can

be effective in assessing the impact of home care on improving indicators of suicidal ideation and severity of depression.

Conflict of Interest

None.

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