Published online 2020 May 27.

Research Article



Investigation of the Results of Collaborative Care in the Diagnosis and Treatment of Anxiety and Depressive Disorders in Community Mental Health Center (CMHC), Shahid Beheshti University of Medical Sciences

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Received 2018 January 24; Revised 2019 July 13; Accepted 2020 April 19.

Abstract

Background: Community Mental Health centers (CMHCs) have been successful in the on-time diagnosis and treatment of psychiatric disorders worldwide.

Objectives: The study aimed to evaluate the efficiency of the Community Mental Health Center (CMHC) affiliated with Shahid Beheshti University of Medical Sciences in the on-time diagnosis and treatment of psychiatric patients who go to the general physicians. Evidence suggests that such a diagnosis and treatment can help reduce the burden of disease on society.

Methods: This descriptive cross-sectional study was conducted from January 2014 to September 2016. Fourteen general physicians and case managers in the catchment area of CMHC cooperated with the study. General physicians began to diagnose and treat psychiatric disorders based on therapeutic guides. The descriptive statistics were used for data analysis.

Results: One thousand and four hundred and eighty seven patients were diagnosed by the general practitioners, 730 (49.09%) of whom suffered from depression, and 544 (36.58%) suffered from anxiety. As the physicians reported, 15/74% of the total number of visits was related to psychiatric disorders. Based on the telephone follow-ups, 94/34% of the patients reported improvement. Untreated patients were followed up or taken to a psychiatrist.

Conclusions: This study demonstrates the importance of on-time diagnosis of psychiatric patients and the provision of specialized services that can decrease the load of prevalent psychiatric disorders if continued.

Keywords: Anxiety, Community Mental Health Center, Depression, General Practitioners

1. Background

According to the World Health Organization (WHO), the prevalence of mental disorders through life is over 25% worldwide. This rate is estimated to be 10% of the adult population in each period (1). Based on the study of Noorbala et al. (2), the prevalence rate of psychiatric disorders in Iran is around 21% (25.9% women and 14.9% men). 15% - 20% of adults in society may show different complications and symptoms of depression. According to the WHO, it is predicted that by 2020, depression will be the second major reason for disability after cardiac diseases throughout the world (3). Also, anxiety disorders, with the prevalence rate of 19.3% in the general population, are among the most prevalent psychiatric disorders (4). Depression and anxiety disorders have a high degree of comorbidity. It is estimated that around 85% of patients with depression expe-

rience considerable degrees of anxiety symptoms. Comorbid depression is observed in more than 90% of patients with anxiety disorders (5).

It is necessary to integrate the mental health system into the primary health care system due to the high prevalence of mental disorders, the importance of the work of general practitioners in primary school, and the fact that more than 25% of patients who see a general practitioner for anxiety and depressive disorders (6). The main purpose of this integration is to emphasize prevention together with treatment, continued care, screening, and timely and appropriate referral (7).

Such measurements resulted in an evolution in psychiatry and mental health, namely, the Community Mental Health Movement. This perspective, now considered a dominant approach in mental health all over the world,

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led to fundamental changes in policymaking and planning in many countries. The main purpose of the approach adopted by CMHCs worldwide is to provide comprehensive services to prevent diagnose, treat, and rehabilitate psychiatric patients with no dependence on psychiatric hospitals (8, 9).

The major concepts in this approach include: Providing local services that are easily accessible in a catchment area, comprehensive services, continued care, effective intersectional connection, and emphasis on prevention besides treatment (10).

The most important privilege and superiority of these centers is the concentration of prevention and treatment of psychiatric disorders in one single place and easy access to such services for the regions under the coverage of the center. This will provide the optimal use of all facilities through a coordinated system. Some samples of successful design and administration of this pattern can be found in the United States, Italy (11), Australia (12), and Denmark (13).

Tantamount to this evolution, Iran has attempted to change its services from a traditional system to a system based on community mental health. Therefore, the strategy of service presentation in urban areas in the form of CMHCs was introduced and approved in 2004 in the Department of Mental Health in the Ministry of Health and Medical Education to improve the situation and set up an evolution in urban mental health (14).

After investigating services and scientific evidence, the collaborative care model was developed for the patients. The collaborative care model is a tight cooperation between Primary Health Care and a specialized team (15, 16).

The selected collaborative care model takes measures to diagnose and treat prevalent psychiatric disorders through the establishment of partnership units for the CMHC. Each CMHC partnership unit includes a general physician and a case manager who deals with the diagnosis and treatment of depression and anxiety disorders in their clients under the supervision of CMHC (15-18).

In the collaborative care model determined for our country (Iran), the general physician is in charge of visiting the patients, and the case manager follows the disorder process in the clients by regular phone calls and encourages them to follow their treatment and regularly refer when they do not refer in their determined visiting times.

Katon et al. (19), Menchetti et al. (20), Roy-Byrne et al. (21), Sullivan et al. (22), reported the effectiveness of the collaborative care model in the treatment of anxiety and depression disorders.

2. Objectives

The present study describes the establishment stages of the first CMHC in Shahid Beheshti University of Medical Sciences, the administration of collaborative care in the center's partnership units, and the most prevalent disorders diagnosed in the center's partnership units, frequency of visits, telephone follow-ups, and influence of the treatment based on the judgment of physicians and patients.

3. Methods

The study consisted of the patients who went to the general practitioners in Tehran's 7th, 8th, and 13th districts.

The establishment of the first CMHC affiliated with Shahid Beheshti University of Medical Sciences was conducted through the following multiple stages:

A) Personnel recruitment and training: To administer the project, first, the required number of human resources were recruited, including a psychiatrist, a general physician, an expert in mental health, and an administrative expert.

The team participated in a 6-day workshop held by the Department of Mental and Social Health and Addiction in the Ministry of Health and was introduced to the stages of establishment, goals, and activities of CMHC.

B) Call for general physicians: To familiarize the general physicians with the goals and activities of CMHC, a list of general physicians in Districts 7, 8, and 13 of Tehran City was provided via the Internet. Then, by in-person attendance to their offices and distribution of the center's introduction brochures, they were invited to participate in a one-day workshop called "mental health promotion: Diagnosis and treatment of anxiety and depression disorders by general physicians". In this workshop, the goals, structure, and necessity of the existence of CMHCs and the way services are provided by the center manager were explained in detail. Then cooperation agreements were signed with those who were willing to cooperate with the center. The cooperation requirements, other than willingness included an active office and a secretary capable of working with computers to enter the patients' data into the software.

C) Training of general physicians and case managers: Workshops were held by the center's specialists every three months to increase the general physicians' abilities in the diagnosis and treatment of prevalent psychiatric disorders, especially anxiety and depressive disorders. The topics of the workshop were selected based on the physicians' needs, such as effective communication with patients, diagnosis, and treatment of psychiatric disorders. Moreover,

to familiarize the general physicians and case managers with how to enter the neurotic patients' data into the related software, a one-day workshop was held. In this workshop, physicians were instructed on how to complete business forms, how to conduct telephone follow-ups by case managers, and how to enter data into software and send it to the center's e-mail.

D) The way the physicians will cooperate with the center: After selecting active physicians from among those who were willing to cooperate with the center, a computer set was placed in all the cooperating physicians' offices to register and email the data. The cooperating physicians began the diagnosis and treatment of the patients with depressive and anxiety disorders in their offices based on the CMHC guide. Also, the physicians were trained to go to the center for specialized treatment patients with psychotic and bipolar disorders, psychiatric emergency cases, such as suicide, post-traumatic stress disorder (PTSD), personality disorder, and patients in need of hospitalization, psychotherapy, or electroconvulsive therapy. In cases in which the patient did not need the referral, the physicians could enjoy calling the center's psychiatrists. Moreover, based on the view of the center's psychiatrist, psychotherapy services were provided only by the center's psychologist for those patients who were referred to the center.

Since one of the major purposes of establishing CMHCs is the constant care of neurotic patients referring to the general physicians until ensuring they have completely recovered, one important measure to be taken was following up of the treatment process in patients, especially their regular monthly referrals, and the way they use medications.

To this end, the case managers (secretaries in the physicians' offices) and/or the physicians themselves evaluated through telephone follow-ups of the disorder's progress, medication use, and patients' monthly referral to the physicians and/or to the center's psychiatrist. The diagnosis was conducted by the general practitioners based on DSM-IV-TR criteria, and treatment was conducted based on the training guide.

Recovery was assessed through two researcher-made questionnaires designed by Iran's Ministry of Health; the questionnaires included a series of questions to determine the patient's recovery. The first questionnaire, including questions about clear improvement, relative improvement, lack of response, or recurrence, or assessment of suicidal thoughts in the patient was completed by the physician at the time of the visit. The other questionnaire (e.g. "has your condition got better?" "no difference?" "worse than before?") was completed by the case managers through a follow-up phone interview. The collected data were entered into the information registration system. For

data analysis, we used descriptive statistics, frequency, and percentage.

4. Results

All the visits and follow-ups conducted by the case managers or fellow physicians for neurotic patients were recorded on a daily basis in the software and emailed to the CMHC. The data analysis results of the files received from the partnership units of the center from January 2014 to September 2016 are given in Tables 1 - 4. It is to be noted that the center activities have not been stopped.

Table 1. Demographic Characteristics of the Psychiatric Patients Referred to the Center's Partnership Units^a

Variable Index	Values
Gender	
Woman	1230 (82.71)
Man	257 (17.29)
Age, y	
0 - 19	68 (4.57)
20 - 29	254 (17.08)
30 - 39	427 (28.71)
40 - 49	340 (22.86)
50 - 59	224 (15.06)
60 - 69	107 (7.19)
70 - 79	52 (3.49)
> 80	15 (1)
Marital status	
Married	1071 (72.02)
Single	318 (21.38)
Divorced	82 (5.51)
Widow	82 (5.51)

^aValues are expressed as No. (%).

 $\textbf{Table 2.} \ Prevalent \ Diagnoses \ in \ Psychiatric \ Patients \ Referred \ to \ the \ Center's \ Partner-ship \ Units^a$

Variable Index	Values
Depressive disorders (major and minor depressive disorders)	730 (49.09)
Generalized anxiety	544 (36.58)
Panic	101 (6.79)
Dysthymic	138 (9.28)
Obsessive compulsive disorder	67 (4.5)

^aValues are expressed as No. (%).

Table 3. Frequency of Visits and Telephone Follow-Ups Carried Out in the Center's Partnership Units^a

Variable Index	Values
Visit	
Visiting psychiatric patients	4649 (15.74)
Total number of visits in the center's partnership units	29533 (15.74)
Telephone follow-ups	
Pre-visit follow-up	3596 (68.46)
Follow-up for not referring	1407 (26.78)
Referral follow-up	173 (3.29)
Follow-up for convincing the patients to refer	49 (0.93)
The final follow-up	27 (0.51)

^aValues are expressed as No. (%).

 $\textbf{Table 4.} \ Influence of the Treatment Based on the Judgment of Physicians and Case Managers ^{a}$

Variable Index	Values
Treatment's influence based on the patient's judgment in telephone follow-ups	
Improved	1386 (94.34)
No difference	77 (5.24)
Exacerbated	6(0.4)
Treatment's influence based on the physician's judgment in the final visit	
Beginning treatment	572 (44.34)
Slight improvement	476 (36.89)
Clear improvement	207 (16.04)
No response	24 (1.86)
Relapse	11 (0.85)

^aValues are expressed as No. (%).

According to the data received from 14 partnership units of CMHC from September 1487 patients were diagnosed (Table 1), of whom 730 patients (49.09%) suffered from depression, and 544 (36.58%) suffered from anxiety disorders (Table 2). 1230 patients (82.71%) were female, and 257 (17.29%) were male (Table 1). The total number of visits in the partnership units was 29533, 4649 (15.74%) of which were psychiatric visits (Table 3). The majority of patients (427) were between 30 - 39 years; a few patients were 80 years old and above (Table 1).

The frequency tables of the physician and the case managers showed that 4649 visits and 5252 telephone follow-ups were conducted for the psychiatric patients during 1.5 years of the activity of the partnership units. Most of the telephone follow-ups were pre-visit, and a few were related to the patients who did not go to the doc-

tor, despite being followed up for not referring to the visit. Thus, they were telephoned to be convinced of referral (Table 3). Moreover, in the pre-visit follow-ups mostly by telephones, 94.34% of the patients reported improvement in their condition, and 5.24% did not observe a considerable degree of improvement compared to their previous visit (Table 4). The physicians reported that 66.29% of the patients expressed relative improvement, and 28.83% had a considerable improvement in their condition. In other words, based on the physicians' reports, the condition of 95% of the patients was improved completely except for the patients who had recently begun their treatment (Table 4).

5. Discussion

The results of the present study were in line with the findings of Katon et al. (19), Menchetti et al. (20) and Roy-Byrne et al. (21). Katon et al. (19) used the collaborative care model for depressed patients who had referred to general physicians. In this intervention, 114 depressed patients were under treatment in the collaborative care model, and 114 other patients were under usual treatment. The results showed that people in the collaborative care intervention showed stronger compliance within the 90 days and evaluated the quality of the received treatment good or very good as compared to the group under usual treatment. Moreover, people in the collaborative care model reported a significant decrease in the severity of depression symptoms. In the 3- and 6-month follow-ups, they showed more complete improvements more than the patients who were under the collaborative care model (19). Although no comparison was made with the group under the usual treatment in our study, the treatment satisfaction and improvement were in accordance with the present research.

In another study by Menchetti et al. (20), the efficacy of the collaborative care model was investigated in a group of depressed patients in 15 general physicians' offices. In this clinical trial, 227 patients were in the collaborative care model group, and 99 patients were in the usual treatment group. According to the results, the collaborative care model group reported higher degrees of improvement than the usual treatment group at the end of three months. In addition, response to treatment in the 3- and 6-month follow-ups was significantly higher in the collaborative care model group than in the control group (20).

Roy-Byrne et al. (21) used the collaborative care model for 57 patients with panic disorder. In this study, 57 patients were placed in the collaborative care group, and 58 patients were under the usual treatment. The results showed that the patients under collaborative care probably had received more appropriate drug (type, dose, and duration) and reported stronger therapeutic compliance in the 3- and 6-month follow-ups. Random regression analysis showed significant improvement of the patients in the collaborative care group as compared to the patients in the usual treatment group (21). In our study, there was no control group, but in the above two studies, the therapeutic alliance and continuation of treatment until recovery were significant in depressed and anxious patients. A total of 730 depressed patients, 544 patients with impaired digestion and 101 patients with panic disorder were treated; based on the patients' referrals in the subsequent visits, a clear improvement or relative recovery was reported.

As mentioned earlier, among the disorders diagnosed by the cooperating physicians, major depression with 49% and generalized anxiety disorder with 36.58% were the most prevalent disorders. These results are in line with the findings of Sadeghi Rad et al. as they found that major depressive disorder with 3.1% - 5.1% prevalence and generalized anxiety disorder with 1.4% - 8.8% prevalence was the most prevalent psychiatric disorders (10).

Moreover, the neurotic disorders diagnosed by the cooperating physicians were more in the women referring to the cooperating general physicians' offices, which was in line with the results of many systematic studies conducted by other researchers (10).

In the study by Noorbala et al. (2), the prevalence of psychiatric disorders in Iran was reported to be 21%, the most prevalent of which was depressive disorders and then anxiety disorders. Similarly, depression and anxiety were the most commonly diagnosed disorders by fellow practitioners.

In our study, the number of patients who did not continue the treatment process was 827 (Table 5). Unlike our study, Abolhassani Shahreza et al. (23) found the patient's age, the provider clinic of services, and the follow-ups of the case manager as the main reasons that were influencing the patients to continue the treatment.

Table 5. The Last Condition of the Patients ^a	
The Last Condition of the Patients	Values
Current patient	623 (41.89)
Discontinuing the treatment process	827 (55.61)
Full compliance with the treatment process	19 (1.27)
New patient	18 (1.21)

^aValues are expressed as No. (%).

Bener et al. (24) investigated the prevalence, symptom pattern, and comorbidity of anxiety and depression disorders in the general physicians' offices in Qatar. They found that from among the 1660 patients referring to 12 general

physicians from July 2009 to December 2009, 10.3% suffered from anxiety disorders, and 13.5% suffered from depression. Unlike the study of Noorbala et al. (2), in this study, most of the patients were female between 18 and 34 of age. Also, the most commonly diagnosed disorders were anxiety and depression, which were more common in women.

Roca et al. (25) reported that from among the 7931 patients referring to 2000 general physician's offices during one year, 29% suffered from depression, 14.6% suffered from dysthymic disorder, and 25.8% suffered from anxiety. Moreover, psychiatric disorders were more prevalent in women. These results are also in line with the results of the present research.

The present study faces several limitations, including the lack of any comparison between the treatment under the collaborative care model and the usual treatment by the physicians. The study was conducted in a limited area of Tehran, and not all physicians in the area were included in the study. This problem reduced the generalization of the study results to the entire population. Future studies can consider a control group, including the physicians who do not cooperate with the center.

5.1. Conclusions

Based on the present research findings, 15.74% of the visits in the center were related to the psychiatric patients experiencing acceptable degrees of satisfaction and improvement by the treatment and regular follow-ups. This fact shows the importance of on-time diagnosis of psychiatric patients and the provision of specialized services that can decrease the load of prevalent psychiatric disorders, if continued.

Footnotes

Authors' Contribution: The study was designed by Mojgan Khademi and Alireza Zahiroddin. The article is conducted, written and analyzed by Mojgan Khademi and Shima Zohrabi. Alireza Mohtashamalsharieh did the systematic search.

Conflict of Interests: None.

Ethical Approval: Ethical code no. was ir.sbmu.retich.rec.1394.388.

Funding/Support: The author(s) received no specific funding for this work.

References

 World Health Organization. The world health report 2001. Mental health: New understanding, new hope. Geneva: WHO; 2001.

- 2. Noorbala AA, Bagheri Yazdi SA, Yasamy MT. Mental health status of individuals fifteen and older in Iran. *Hakim Med J.* 2002;**5**(1):1–10.
- 3. Kessler RC, Bromet EJ. The epidemiology of depression across cultures. *Annu Rev Public Health*. 2013;**34**:119–38. doi: 10.1146/annurev-publhealth-031912-114409. [PubMed: 23514317]. [PubMed Central: PMC4100461].
- Stein MB, Sherbourne CD, Craske MG, Means-Christensen A, Bystritsky A, Katon W, et al. Quality of care for primary care patients with anxiety disorders. *Am J Psychiatry*. 2004;161(12):2230–7. doi: 10.1176/appi.ajp.161.12.2230. [PubMed: 15569894].
- Gorman JM. Comorbid depression and anxiety spectrum disorders. *Depress Anxiety*. 1996;4(4):160-8. doi: 10.1002/(SICI)1520-6394(1996)4:4<160::AID-DA2>3.0.CO;2-J. [PubMed: 9166648].
- Sartorius N, Ustun TB, Lecrubier Y, Wittchen HU. Depression comorbid with anxiety: results from the WHO study on psychological disorders in primary health care. *Br J Psychiatry Suppl.* 1996;(30):38–43. [PubMed: 8864147].
- Saberi Zafarghandi MB, Bagheri Yazdi HA. Development of psychiatric beds in general hospitals: A national necessity on De-stigmatization of mental disorders. Iran J Psychiatry Clin Psychol. 2014;20(2):179–84.
- 8. Keegan J. Community-based mental health care: bridging the gap between community care and primary care. *Aust N Z J Ment Health Nurs*. 1998;7(3):95-102. [PubMed: 9807266].
- Mohit A. [Psychiatry and mental health for developing countries: Challenges for the 21st century]. Congress of Pakistan Psychiatric Society. Pakistan. 2001. Persian.
- Atwood N, Williams MED. Group support for the families of the mentally Ill*. Schizophr Bull. 1978;4(3):415-25. doi: 10.1093/schbul/4.3.415.
- Goldman HH, Thelander S, Westrin CG. Organizing mental health services: An evidence-based approach. J Ment Health Policy Econ. 2000;3(2):69-75. doi: 10.1002/1099-176x(200006)3:2<69::aid-mhp76>3.0.co;2-1. [PubMed: 11967440].
- Whiteford HA. Australia's national mental health policy. Hosp Community Psychiatry. 1993;44(10):963–6. doi: 10.1176/ps.44.10.963. [PubMed: 8225277].
- Vendsborg PB. [Community psychiatry in Copenhagen. Adaptation to increased needs]. *Ugeskr Laeger*. 1998;160(23):3387–93. [PubMed: 9627506].
- Sharifi V, Yasami MT, Bagheri Yazdi SA, Amin Esmaeili M. [Design of community mental health centers establishment]. Tehran: Mental Health Office of Ministry of Health and Medical Education; 2005. Persian.
- Smith JL, Williams JJ, Owen RR, Rubenstein LV, Chaney E. Developing a national dissemination plan for collaborative care for depres-

- sion: QUERI series. *Implement Sci.* 2008;**3**:59. doi: 10.1186/1748-5908-3-59. [PubMed: 19117524]. [PubMed Central: PMC2631596].
- Craven MA, Bland R. Better practices in collaborative mental health care: An analysis of the evidence base. Can J Psychiatry. 2006;51(6 Suppl 1):7S-72S. [PubMed: 16786824].
- van Orden M, Hoffman T, Haffmans J, Spinhoven P, Hoencamp E. Collaborative mental health care versus care as usual in a primary care setting: A randomized controlled trial. *Psychiatr Serv.* 2009;60(1):74–9. doi: 10.1176/ps.2009.60.1.74. [PubMed: 19114574].
- Gilbody S, Bower P. Depression in primary care. Cambridge: Cambridge University Press; 2010. doi: 10.1017/cbo9780511861147.
- Katon W, Von Korff M, Lin E, Simon G, Walker E, Unutzer J, et al. Stepped collaborative care for primary care patients with persistent symptoms of depression: A randomized trial. Arch Gen Psychiatry. 1999;56(12):1109–15. doi: 10.1001/archpsyc.56.12.1109. [PubMed: 10591288].
- Menchetti M, Sighinolfi C, Di Michele V, Peloso P, Nespeca C, Bandieri PV, et al. Effectiveness of collaborative care for depression in Italy. A randomized controlled trial. *Gen Hosp Psychiatry*. 2013;35(6):579–86. doi: 10.1016/j.genhosppsych.2013.07.009. [PubMed: 23969143].
- Roy-Byrne PP, Katon W, Cowley DS, Russo J. A randomized effectiveness trial of collaborative care for patients with panic disorder in primary care. *Arch Gen Psychiatry*. 2001;58(9):869-76. doi: 10.1001/archpsyc.58.9.869. [PubMed: 11545671].
- Sullivan G, Craske MG, Sherbourne C, Edlund MJ, Rose RD, Golinelli D, et al. Design of the coordinated anxiety learning and management (CALM) study: Innovations in collaborative care for anxiety disorders. *Gen Hosp Psychiatry*. 2007;29(5):379–87. doi: 10.1016/j.genhosppsych.2007.04.005. [PubMed: 17888803]. [PubMed Central: PMC2095116].
- Abolhassani Shahreza F, Sharifi V, Moazami Godarzi L, Mousavinia SJ, Jafarineia M, Amin-Esmaeili M, et al. [Factors associated with drop-out from treatment in patients with anxiety and depressive disorders]. Hakim Res J. 2014;17(3):250–9. Persian.
- Bener A, Ghuloum S, Abou-Saleh MT. Prevalence, symptom patterns and comorbidity of anxiety and depressive disorders in primary care in Qatar. Soc Psychiatry Psychiatr Epidemiol. 2012;47(3):439–46. doi: 10.1007/s00127-011-0349-9. [PubMed: 21293844].
- Roca M, Gili M, Garcia-Garcia M, Salva J, Vives M, Garcia Campayo J, et al. Prevalence and comorbidity of common mental disorders in primary care. *J Affect Disord*. 2009;119(1-3):52-8. doi: 10.1016/j.jad.2009.03.014. [PubMed: 19361865].