Available online at www.sciencedirect.com
SCIENCE DIRECT
General Hospital Psychiatry 28 (2006) 18–26
General Hospital Psychiatry

Design and implementation of the Telemedicine-Enhanced Antidepressant Management Study

John C. Fortney, Ph.D.[a,b,c,*], Jeff M. Pyne, M.D.[a,b,c], Mark J. Edlund, M.D., Ph.D.[a,b,c], Dean E. Robinson, M.D.[c,d,e], Dinesh Mittal, M.D.[a,b,c], Kathy L. Henderson, M.D.[a,b,c,f]

[a]*VA Health Services Research and Development (HSR&D), Center for Mental Health and Outcomes Research, Central Arkansas Veterans Healthcare System, North Little Rock, AR 72114, USA*

[b]*Division of Health Services Research, Department of Psychiatry, College of Medicine, University of Arkansas for Medical Sciences, Little Rock, AR 72205, USA*

[c]*VA South Central Mental Illness Research Education and Clinical Center, North Little Rock, AR 72114, USA*

[d]*Mental Health Service, Overton Brooks VA Medical Center, Shreveport, LA 71101, USA*

[e]*Department of Psychiatry, School of Medicine, Louisiana State University Health Sciences Center, Shreveport, LA 71130, USA*

[f]*Mental Health Product Line, South Central Veterans Health Care Network, North Little Rock, AR 72114, USA*

Received 25 March 2005; accepted 7 July 2005

Abstract

Objective: Evidence-based practices designed for large urban clinics are not necessarily transportable into small rural practices. Implementing collaborative care for depression in small rural primary care clinics presents unique challenges because it is typically not feasible to employ on-site mental health specialists. The purpose of the Telemedicine-Enhanced Antidepressant Management (TEAM) study was to evaluate a collaborative care model adapted for small rural clinics using telemedicine technologies. The purpose of this paper is to describe the TEAM study design.

Method: The TEAM study was conducted in small rural Veterans Administration community-based outpatient clinics with interactive video equipment available for mental health, but no on-site psychiatrists/psychologists. The study attempted to enroll all patients whose depression could be appropriately treated in primary care.

Results: The clinical characteristics of the 395 study participants differed significantly from most previous trials of collaborative care. At baseline, 41% were already receiving primary care depression treatment. Study participants averaged 5.5 chronic physical health illnesses and 56.5% had a comorbid anxiety disorder. Over half (57.2%) reported that pain impaired their functioning extremely or quite a bit.

Conclusions: Despite small patient populations in rural clinics, enough patients with depression can be successfully enrolled to evaluate telemedicine-based collaborative care.

Keywords: Depression; Rural; Telepsychiatry

1. Introduction

Intervention studies have demonstrated the effectiveness of collaborative care models designed to improve depression outcomes in primary care settings [1–9]. Collaborative care involves primary care providers (PCPs) working in conjunction with a depression care team comprising non-physicians (e.g., nurses, pharmacists) and mental health specialists (e.g., psychologists, psychiatrists). The demonstrated cost-effectiveness of collaborative care has led to implementation efforts to promote adoption in routine practice [10–12].

Interventions designed and tested in large urban clinics are not necessarily applicable in small rural practices [13]. Implementing collaborative care in small rural primary care practices presents unique challenges because it is typically not feasible to employ mental health specialists on site. In fact, only 25% of primary care practices nationwide have on-site mental health specialists [14]. Although 21% of the

* Corresponding author. VA Health Services Research and Development, Center for Mental Health and Outcomes Research (152/NLR), North Little Rock, AR 72114, USA. Tel.: +1 501 257 1726.

E-mail address: fortneyjohnc@uams.edu (J.C. Fortney).

0163-8343/$ – see front matter © 2006 Elsevier Inc. All rights reserved.
doi:10.1016/j.genhosppsych.2005.07.001

U.S. population lives in rural areas according to the 2000 Census, only one previous study of collaborative care (QuEST) recruited a substantial number of rural primary care practices as study sites [4]. In the QuEST study, on-site primary care nurses were trained to provide depression care management, and psychiatrists were available for telephone consults [4]. The QuEST collaborative care model design has the advantage that nurse care managers have established therapeutic relationships with their patients, have access to on-site paper medical records and have open communication channels with PCPs. However, the QuEST design has the potential disadvantage that nurse care managers cannot specialize in depression treatment, lack meaningful access to mental health supervision/consultation and must incorporate care management activities into busy routines with competing demands.

The purpose of the Telemedicine-Enhanced Antidepressant Management (TEAM) study was to adapt the collaborative care model for small rural primary care practices using telemedicine technologies without altering the nature/content of the collaborative care model itself. Telemedicine (e.g., telephone, interactive video, electronic medical records, and internet) facilitates communication between a centrally located depression care team and PCPs practicing in geographically diverse clinic locations. We chose to conduct this first telemedicine-based collaborative care trial in rural areas served by the Veterans Administration (VA) healthcare system. The VA is a particularly suitable setting for telemedicine-based interventions because of the widespread standardized use of interactive video technology and electronic medical records [e.g., Computerized Patient Record System (CPRS)].

The objectives of the TEAM study are to compare processes and outcomes among patients with depression treated at intervention and matched control sites, and to determine whether the intervention was cost-effective in routine practice. The purpose of this paper is to describe the design of the TEAM study, including (1) methods used to enroll study participants, (2) usual depression care in the VA, (3) the TEAM intervention and (4) methods for evaluating the effectiveness/cost-effectiveness of the intervention. In addition, we describe the socioeconomic and clinical characteristics of the study participants and discuss our rational for the study design and the resulting strengths and weaknesses.

2. Methods

2.1. Study sites

Veterans Administration is organized into 21 Veterans Integrated Service Networks (VISNs). TEAM was conducted in VISN 16, one of the largest and most rural of the networks. The study was conducted in community-based outpatient clinics (CBOCs), of which there are 674 currently in operation across the nation and 34 in VISN 16. Community-based outpatient clinics are satellite facilities, usually located a long distance from their "parent" VA Medical Centers (VAMC) that maintain administrative responsibility. To be eligible for this study, CBOCs must have (1) treated 1000–5000 patients in Fiscal Year 2000, (2) no on-site psychiatrists/psychologists and (3) interactive video equipment available for mental health. To be eligible, parent VAMCs must have had at least two CBOCs meeting these inclusion criteria. Seven CBOCs and three parent VAMCs in VISN 16 met these criteria, and all were recruited as study sites.

2.2. Patient enrollment

2.2.1. Sampling frame

We sought to enroll all CBOC patients with depression who could be appropriately treated by PCPs (i.e., no significant psychiatric comorbidity). In addition, patients already receiving VA specialty mental health treatment were excluded because they were not expected to benefit from collaborative care. We screened patients from 12 to 18 months at each clinic to generate a large enough sample and to include infrequent users of services. Screening for short periods yields samples that overrepresent frequent users [15,16] who are more likely to report depression [18]. The VA's patient database (VISTA) was used to identify all scheduled primary care appointments with a "due" annual depression screen. Appointments made, rescheduled and canceled were downloaded from VISTA every night during the enrollment period (N=57,838). Walk-in patients (4.4%) and patients who scheduled appointments less than 3 days in advance (2.2%) were excluded.

2.2.2. Screening

Fig. 1 presents the flow of potentially eligible patients from the scheduling of their primary care appointment to enrollment. Prior to their appointment, patients were mailed postcards stating that because their clinic was participating in a study, their annual preventive health questionnaire (smoking, alcohol use, and depression) would be administered by telephone and that, depending on their answers, they could be asked to participate in a study. The postcard provided a toll-free number for patients who did not want to be contacted. Research assistants attempted to screen patients up to 3 weeks prior to their appointment. Of the 24,882 patients with a due depression screen, 73.6% (n=18,306) were successfully screened prior to their appointment. Reasons for unsuccessful screens included unable to contact (9.7%), refusal (5.8%), impaired/intoxicated (5.5%) and phone disconnected or wrong number (5.3%). Screening was conducted using Computer-Assisted Telephone Interview (CATI) software. The PHQ2 was administered, followed by the remaining PHQ9 items for patients positive on the PHQ2 (score $\geq$3) [17]. Results of the depression screen were entered into CPRS the day before the appointment for patients in both the intervention and usual care groups. Notes were entered using standard