Texting for Mental Health:
A Pilot Study Using Technology and Interdisciplinary Care in the Free Clinic Setting

Cynthia Bunde, MPAS, PA-C; Callie Ceci, LSW, ADCJ; Melinda Hong, BA; Alan Mirly, MBA, PA-C

Pocatello Free Clinic; Idaho State University

Introduction

Mental illness is common and more people with mental illness are uninsured compared to the general population.[1] Unfortunately, mental health diagnosis and treatment can be time-consuming and many primary care providers are either uncomfortable or lack adequate training in delivering psychiatric services.

PAs are poised to solve this dilemma in many ways. This study proposed PA-led case management of patients with mental health diagnoses at the Pocatello Free Clinic (PFC). A social work intern student served as the case manager and texted stress-reduction support to patient participants. This study could model a cost- and time-efficient way to improve mental health outcomes in similar free clinics, or even in traditional outpatient clinics.

Even in a free clinic setting serving impoverished patients, cell phone usage is surprisingly high, with even the lowest income level reporting 92% cell phone ownership.[2] CareMessage is a nonprofit organization offering mobile technology "to improve health literacy and self-health management" of disease.[3] Frequent interactions and repeat messages can help patients feel more connected. This approach of case management via texting and in-person interactions can nicely supplement the prescription medication approach to mental health treatment.

Figure 1. CareMessage Texts

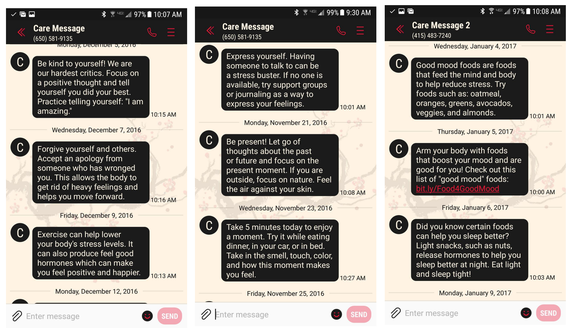

Table 1: Characteristics of Study Population

*value obtained using GoodRx.com

	All participants enrolled (N=27)					Participants completing program and all measures (N=17)				
Characteristics during study period	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**Sum of all participants**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**Sum of all participants**
Appointments scheduled per participant	3	14	8.59	3.56	232	5	14	9.88	2.93	168
Appointments missed per participant	0	3	0.78	0.89	21	0	2	0.53	0.8	9
Rate of no-show (General clinic no-show rate pre-study 16%)	9.05%	(21/232 appointments)				5.36%	(9/168 appointments)			
Value of medications dispensed per participant*	$0.00	$2,198.17	$476.35	$661.95	$12,862.21	$64.74	$2,198.17	$508.74	$594.75	$8,648.64

Methods

- Pilot program of 12 weeks
- Enroll 24 patient participants, with written consent
- All receive standard medical care plus case management and text support
  - Staff physician assistant (PA) provides medical care and oversight
  - Social work intern provides case management and manages texting
- All complete biopsychocial assessment, goal-setting with case manager
- Incentives (gas cards) at initial intake and again at completion of program
- Measurement of three objectives to assess improved mental health outcomes
  - *Objective 1: Reduce no-show rate*
    - Pre-program general clinic no-show rate of 16%
    - Track # of appointments scheduled and number in which patient does not attend without calling first to cancel or reschedule
    - Goal of program to reduce no-show to 12% or less
  - *Objective 2: Increase patient ability to manage their illness*
    - Use of simple, visual single question "My Health Confidence" rating scale, developed by Dr. John Wasson.[4]
    - Self-administered questionnaire, 0-10, higher score indicates improved confidence in management of health issues
  - *Objective 3: Demonstrate improved mood*
    - Use of self-administered Patient Health Questionnaire (PHQ-9)[5]
    - PHQ-9 is validated, peer-reviewed, standardized and requires no permission to reproduce.[6]
    - Nine depression-related questions, scored 0 to 27, higher scores represent more severe depression
- Study inclusion criteria:
  - Uninsured, low-income (200% federal poverty limit or lower), and without Medicaid or Medicare
  - At least 1 mental health diagnosis within the scope of the clinic resources
- Text messages (~3/wk) for condition management and participant skill building (see Figure 1)
- Data compiled, de-identified and analyzed using SPSS Statistics. .

Results

Table 2: Results of Texting Pilot Study

Objective	Measurement	Pre-Intervention All Participants N=27	Pre-Intervention Completers Only N=17	Post-Intervention N=17	Statistically Significant?
Appointment compliance	No-show rate	General clinic no-show rate of 16%		9.05%	n/a
Health management	My Health Confidence	5.868	5.971	7.29	Yes
Reduced depression score	PHQ-9	14.52	14.41	9.24	Yes

- Data collected and analyzed on all program participants
  - Goal enrollment 24; 27 enrolled; 17 completed program and all measures
- Estimated value of Rxs provided to participants through PFC was $12,862.21
- Mean age of all program participants was 41.6 years (range 22-60 years)
- 70.4% female in gender
- *Objective 1: Reduce no-show rate*
  - No-show rate reduced from pre-program rate of 16% to 9.05%
    - No-show rate in participants who completed entire program 5.36%
- *Objective 2: Increase patient ability to manage their illness*
  - Using "My Health Confidence" rating scale, statistically significant increase from mean pre-program health confidence score of 5.87 to mean post-program score was 7.29
- *Objective 3: Demonstrate improved mood*
  - Using Patient Health Questionnaire (PHQ-9), statistically significant decrease in depressive symptoms mean pre-program score of 14.52 to mean post-program score of 9.24

Discussion

Both objective and subjective successes were noted with this pilot program. The Case Manager notes, especially for highly engaged participants, the program resulted in fewer crisis situations. One participant proudly reported that she would have normally gone to the emergency department for pain after a minor back injury, but thanks to her resources provided via this program, she did some stretching and utilized self-care solutions instead. Crisis-management interventions, like those utilized in the program, can reduce over-utilization of emergency departments. The PA also reported satisfaction with the case management aspect, allowing her to rapidly adjust the treatment regimen or scheduled appointments, based on feedback from the Case Manager.

Relying on a Case Manager to gather extensive biopsychosocial history, provide community resources and remain in contact with the patient frees up the staff provider to see more patients, with shorter wait times.

Overall, this group experienced reduced mental health burden, as evidenced by objectives #1-3 above. Additionally, participant comments were favorable. Patients reported that, **"the most helpful part about this program was the tips that helped me cope with my feelings and make changes." "I really liked that information about free resources were always available to me. It made it easier to reach out and get the help I needed."** Given the much-improved depression rating scales, patients theoretically would have been more functional in daily activities, relationships and employment.

Medication adherence was assessed via questionnaire, but not reported due to permissions pending.

Conclusions

The population targeted by this program demonstrates a high need for utilization of medical and social services. Traditionally, there is limited data on the uninsured, as many sources can easily report trends of those covered by Medicare, Medicaid and private insurance. This pilot study suggests a case manager and texting technology can assist the provider in improving outcomes for his or her patients with mental illness, in a cost-efficient manner. Given the promising results of this project, a larger multi-site study, with a control group, should be considered.

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