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Improved Mental Health Outcomes Through Phased Implementation of Technology-Enabled Behavioral Health Integration in Patients with Co-Occurring Pain and Depression



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Abstract: Objective: Treatment of depression in medical settings is critical to manage the reciprocal and reinforcing relationship between psychiatric and medical illness. Technology and population-focused models of care are critical to improving access to behavioral health care in the medical setting. This study focuses on a comparison between digital-only behavioral health interventions compared to technology-augmented collaborative care (CoCM) in patients receiving outpatient treatment in a pain treatment program. A technology-enabled behavioral health integration (tBHI) solution was implemented within a subspecialty pain setting in two phases: 1) A technology-only mobile health (mHealth) platform assessing patients for depression and providing artificial intelligence (AI) guided activities and interventions. 2) Integration of mHealth technology with psychiatric collaborative care (CoCM) clinical services.

Methods: Phase 1 of tBHI occurred over a 2-year period with patients completing the Patient Health Questionnaire-9 (PHQ-9) monthly within the mHealth platform. Phase 2, over a 1-year period, expanded upon the mHealth platform with the addition of a Behavioral Health Care Manager and Psychiatric Consultant. 2808 patients were assessed for depression using the mHealth platform, and 1134 patients with an index score ≥ 10 on the PHQ-9 were included in the analysis. Response (a 50% decrease from the index score) and remission (subsequent PHQ-9 score of < 5) were measured within a 4–8-month window of the index PHQ-9 score.

Results: For patients in Phase 1, the average time to response was 22 weeks. PHQ-9 scores in this group decreased from an average of 13.6 (± 3.6 SD) to 4.4 (± 2.6 SD) with 77% (95% CI, $\pm 3\%$) of patients reaching response. Phase 2 expansion decreased the response time to 15 weeks ($p < 0.001$) with 72% (95% CI, $\pm 3.5\%$) of patients reaching response. PHQ-9 scores in this group decreased from an average of 14.5 (± 3.9 SD) to 3.7 (± 2.8 SD). In Phase 1, the average time to remission was 24 weeks, and 74% of patients achieved remission. PHQ 9 scores decreased to an average score of 1.9 (± 1.5 SD). In Phase 2, the average time to remission was 17 weeks ($p < 0.001$), and 77% of patients achieved remission. PHQ 9 scores decreased to an average score of 2.3 (± 1.6 SD).

Impression/Conclusion: Providing patients with co-occurring pain and depression solely with digital interventions through an mHealth platform resulted in the vast majority of patients achieving both a response and remission within 22–24 weeks. Technology-enabled CoCM decreased the response and remission times in most patients to 15–17 weeks. With limited mental health resources nationally, leveraging technology as a digital-only option can improve access to care and outcomes for patients with depression and pain. When technology-enabled CoCM is provided, time to response and remission can be shortened.

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Perinatal Mental Health Coordination and Monitoring Pilot Program for Veterans



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Abstract: Introduction: The proportion of female Veterans has increased over the past 20 years. Currently 11%, it is expected to reach 14.6% by 2035. Approximately half of all Veterans are of child-bearing age, making perinatal mental health a growing priority for VA. Previous authors have described perinatal mental health monitoring programs, but none specifically focused on the unique needs of female Veterans.

Method: This program was designed using collaborative care principles to address the needs of perinatal Veterans. Patients may be referred by PCPs, the VA Maternity Care Coordinator, or their mental health clinician. Nurse Care Managers manage the perinatal patient registry and are the main point of contact for Veterans. They check in at least once per trimester, at 2 weeks post-partum, then every 2 months up to 1-year post-partum. Standardized outcome measures are completed at each contact and reviewed at weekly interprofessional consultation meetings. Nurse Care Managers can schedule patients with a perinatal psychologist and/or psychiatrist for further consultation and treatment. Satisfaction surveys at the end of care assess patients' overall satisfaction with the program and their satisfaction with specific elements of the program, including periodic check-in calls, access to psychotherapy and psychiatry, having coordinated mental health care, having an established mental health provider, having a single point of contact for mental health, and program participation. Possible scores ranged from 0 (not helpful) to 3 (extremely helpful).

Results: Female Veterans involved in the pilot program expressed high satisfaction. To date, 196 Veterans have enrolled. Data collection is ongoing as the program transitions out of pilot phase. Current results demonstrated overall satisfaction score 2.7, satisfaction with the program 2.5, and satisfaction score 2.6 for check-in calls, access to psychiatry and therapy, continuation of mental health care, screening process, and having a point of contact for their mental health. Future analysis will evaluate whether standardized outcome measure scores improve during program participation.

Discussion: Women Veterans have unique mental health needs during the perinatal period. To our knowledge, this perinatal mental health monitoring program is the first of its kind to focus specifically on Veterans. Participants were highly satisfied with the program. We anticipate that mental health symptom monitoring and care management in the peripartum period will improve clinical outcomes during this crucial phase for Veterans.

Conclusion/Implications: This perinatal mental health monitoring program was feasible and holds promise for implementation in other collaborative care settings. Veterans are overall satisfied with the program and were grateful to be a part of it.

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