

Assessing the Impact of the Integrated Care Model on Depression Remission in Adolescents

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Background

The need for mental health services in the United States continues to rise and the resources for children and adolescents remain limited. New strategies have been developed to address these needs in the primary care setting where patients are often initially seen for mental health concerns. One such strategy, the Integrated Care Model, embeds trained child and adolescent psychiatrists in primary care clinics to see patients as well as provide psychoeducation and guidance to the pediatricians on their own patients.

The Integrated Care Model increases patient access to mental health services on multiple fronts by increasing primary care provider comfort with providing mental health care, destigmatizing mental health care for patients and families, and decreasing costs associated with mental health decompensation and under-treatment.

In this study, we examine the treatment of adolescents with depression in an integrated care clinic compared to treatment in a general pediatric clinic. We hypothesize that the integrated care clinic will have a shorter time to remission as compared to the general pediatric clinic.

Methods

A retrospective chart review was completed in the Pediatric and Integrated Care clinics at a local hospital. The study sample included 54 adolescents who were between the ages 12-18 years old, were diagnosed with a Depressive Disorder or Adjustment Disorder with Depression according to DSM IV-TR/5 criteria, and whose symptoms were monitored using the Patient Health Questionnaire (PHQ-9A). A PHQ-9A score of 5 or greater indicates “mild depression” which would benefit from mental health care. Remission of depressive symptoms was defined as a PHQ-9A score less than 5.

The study compared three groups of patients: A) Patients seen in the Pediatric clinic prior to the Integrated clinic’s existence, B) Patients seen in the Pediatric clinic after the Integrated clinic’s initiation, and C) Patients seen in the Integrated Care clinic. Statistical analysis was performed using a Cox regression analysis. Charts were excluded if they did not meet the age, diagnostic, or PHQ-9A requirements for the study. Charts were also excluded and if the PHQ-9A at first encounter was less than 5.

Results

Descriptive Statistics

Of the 54 patients, 10 (19%) were in the Pediatric clinic before the presence of an Integrated Care clinic, 21 (39%) were in the clinic after its presence, and 23 (43%) were in the Integrated Care clinic itself (Figure 1). Of the 54 patients, 16 experienced remission (Table 1)

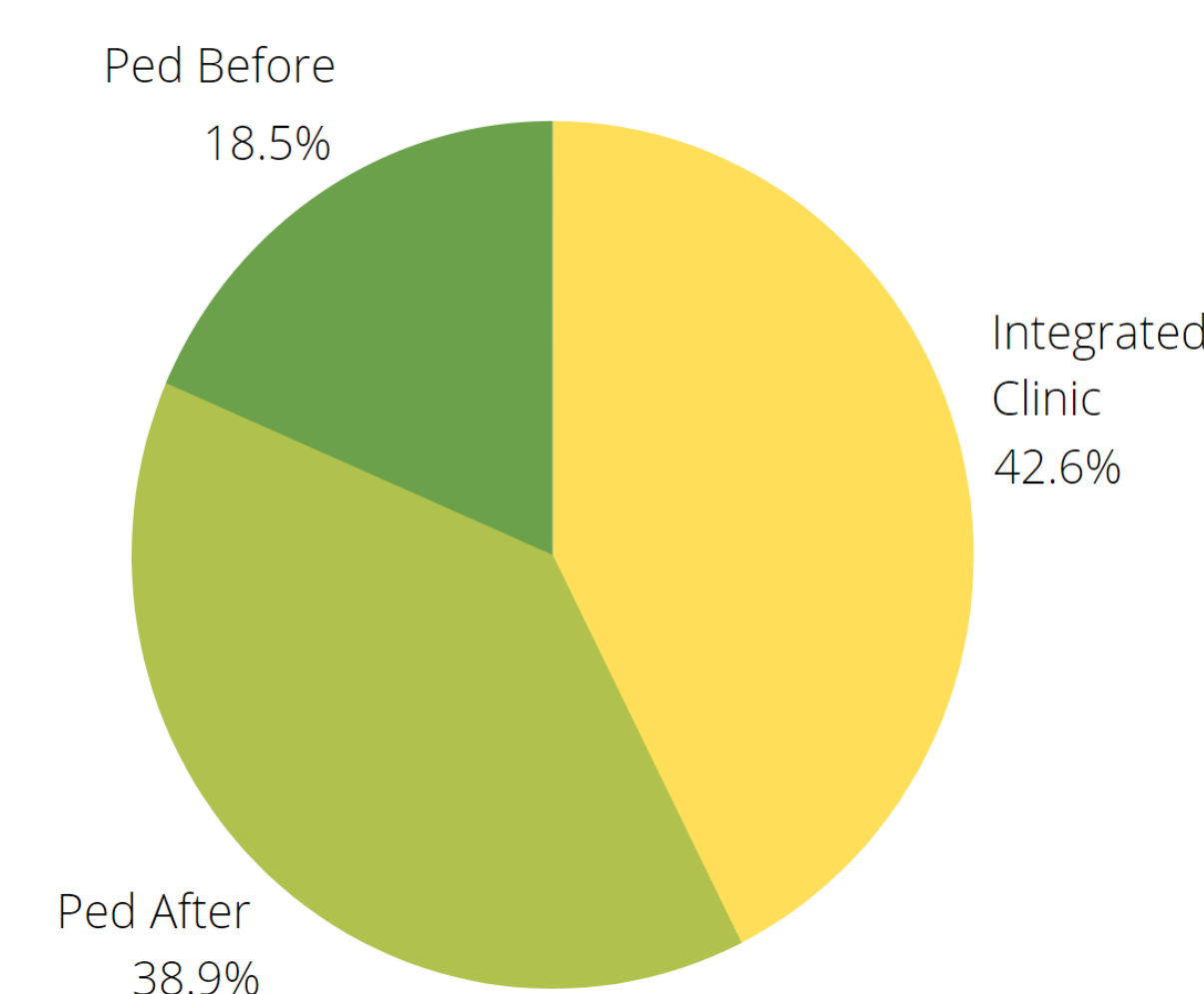


Figure 1: Patients by Clinic Type

Remission (PHQ9 < 5)	16 (30%)
Initial elevated PHQ-9 (>= 5)	14.0 (12.0, 19.0)
Final PHQ-9	8.0 (4.0, 12.0)
Days to final PHQ-9	151 (43, 257)
Age at initial elevated PHQ-9	15.00 (13.25, 16.00)
Sex	F 41 (76%); M 13 (24%)

Table 1: Patient Characteristics

Clinic	Patients in remission	Median days to remission
Integrated	6	455
Ped After	6	658
Ped Before	4	182

Table 2: Remission Results by Clinic

Unadjusted Analysis

The outcome, “time to remission”, is defined in the time from initial elevated PHQ-9 (≥ 5) to first non-elevated PHQ-9 (< 5). Table 2 displays the number of patients, remissions, and median days to remission, by clinic. Figure 2 displays the “survival curve”, or probability of not yet having remission as of a given day, by clinic. Since the “event” is remission, a curve that drops more represents a clinic with more remissions.

Cox regression results were obtained, as shown in Table 3. The “before” clinic was observed to have the shortest time to remission, followed by the “integrated” clinic, although this difference was not statistically significant.

Adjusted Analysis

A Cox regression analysis was performed that adjusts for age, sex, diagnosis, and comorbidities (Table 4). In order to account for clinic differences in initial severity, the analysis does adjust for initial PHQ-9.

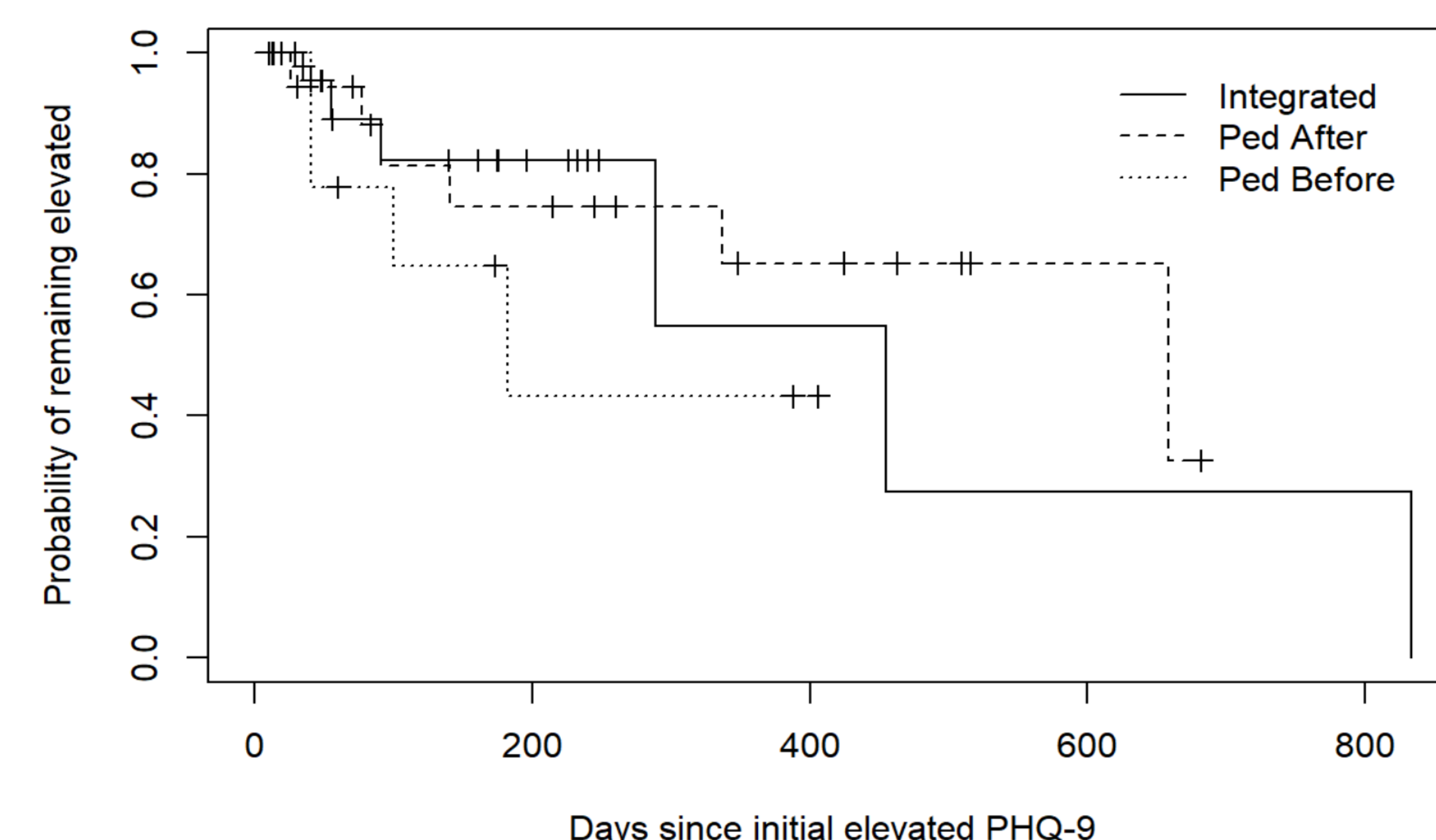


Figure 2: Probability of Remission by Clinic

Characteristic	HR [†]	95% CI [†]	p-value
clinic			
Integrated	—	—	
Ped After	0.91	0.27, 3.07	0.883
Ped Before	1.93	0.51, 7.31	0.335

[†]HR = Hazard Ratio, CI = Confidence Interval

Table 3: Unadjusted Cox regression results

Table 4: Adjusted Cox regression results

Characteristic	HR [†]	95% CI [†]	p-value
clinic			
Integrated	—	—	
Ped After	1.07	0.26, 4.41	0.922
Ped Before	3.70	0.66, 20.8	0.137
age0	1.09	0.75, 1.60	0.650
sex			
F	—	—	
M	0.79	0.22, 2.87	0.721
comorbidity0			
No	—	—	
Yes	0.63	0.12, 3.43	0.591
dx0_new			
Recurrent/Single DE	—	—	
Other DE/Other	0.77	0.22, 2.67	0.685
phq9_0	0.90	0.78, 1.03	0.111

[†]HR = Hazard Ratio, CI = Confidence Interval

There was no significant difference in time to remission amongst the three groups ($p = 0.241$). The Pediatric Clinic before the initiation of the Integrated Care Clinic had the greatest remission rate and the shortest time to remission. This was followed by the Pediatric Clinic after the initiation of the Integrated Care Clinic as well as the Integrated Care Clinic.

Conclusion

While we hypothesized that the Integrated Care Clinic setting would yield swifter improvement in depressive symptoms amongst adolescents compared to the general pediatric setting, chart review and data analysis yielded no significant difference between the clinics. The results were unable to provide further support for the integrated care model currently at this time.

This project did reveal limitations regarding the methodology as well as how depression symptoms are identified in the clinical setting. One such limitation included the inconsistency, between all clinics, in monitoring depressive symptoms with PHQ-9A screenings.

Future Direction

Lessons learned from this study which may be applied to future research may include potential changes to the study design. This would likely mean utilizing a prospective cohort study rather than a retrospective study. It would also provide an opportunity to measure different outcomes which could highlight the advantages of the integrated care model.

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