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Effect of Psychotherapy on Healthcare Utilization in Children with Inflammatory Bowel Disease and Depression

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Abstract

OBJECTIVE—Pediatric patients with inflammatory bowel disease (IBD) are at an increased risk of developing depression compared to community controls. Depression often negatively influence illness-behaviors such as resource utilization. We sought to investigate the effects of treating depression on utilization of medical resources in depressed pediatric patients with IBD by comparing rates of healthcare utilization one year before and after psychotherapy.

METHOD—217 subjects ages 9–17 years with IBD and depression received 3 months of psychotherapy for depression as part of a multicenter randomized-controlled trial. Of these 217 subjects, 70 had utilization data available one year prior and one year after receiving 3 months of psychotherapy. Primary outcomes included frequency of hospitalizations, inpatient hospital days, outpatient gastrointestinal visits, and number of emergency room visits, radiological exams, and endoscopies. Within subject analyses were completed comparing healthcare utilization 12-months prior to psychotherapy compared to the 12 month following the conclusion of psychotherapy.

RESULTS—51 and 19 patients had CD and UC, respectively. 55.7% of patients had major depression and 44.3% had minor depression. Overall, all study measures of healthcare utilization were significantly reduced after psychotherapy ($p < 0.01$) – including gastrointestinal-related [mean values] hospitalization frequency], inpatient days, outpatient visit, emergency room visits, radiological exams, and endoscopies.

CONCLUSIONS—Psychotherapy for comorbid depression in pediatric patients with IBD is associated with decreased GI-related healthcare utilization. This study highlights the importance of screening for depression in a pediatric population with IBD, and that psychotherapy may be a reasonable adjunctive treatment for pediatric patients with IBD and comorbid depression.

Keywords

Psychotherapy; Inflammatory Bowel Disease; Utilization; Depression

INTRODUCTION

Inflammatory bowel disease (IBD) is comprised of a group of chronic, debilitating gastrointestinal (GI) conditions that can have an unpredictable course and burdensome treatments. In North America, the prevalence is as high as 319 cases per 100,000 persons for Crohn's disease (CD) and 249 cases per 100,000 persons for ulcerative colitis (UC)[1]. About 20–30% of patients with IBD are diagnosed during childhood and this incidence is rising [2–4]. Symptoms include bloody diarrhea, symptoms include abdominal pain, nausea, and fatigue. Development of these symptoms typically is associated with increased healthcare utilization in efforts to identify and control presumed increased disease activity. [5]

Currently, an estimated \$6.3 billion annually is spent on IBD healthcare in the United States[6], with a majority of the cost coming from IBD medications and medical resource utilization [4, 6–8]. Pediatric IBD costs are significantly higher with approximately 1,500 dollars per patient-year more expensive than the care of adults with CD and nearly double with UC[6].

In addition to the impact on physical health, IBD can have profound psychiatric sequelae for pediatric patients compared to both healthy children as well as children with other chronic illness[9, 10]. Cross-sectional rates of clinically significant depressive symptoms, as measured by Children's Depression Inventory scores > 12, in this population can be as high as 25% [11, 12]. Comorbid depression or depressive symptoms in patients with IBD are associated with fatigue, disability, lower quality of life[13], increased disease activity[11, 14], decreased medical adherence [15, 16], missed work and school, increased physical limitations and interpersonal difficulties, and increased healthcare utilization [5, 17]. Although pediatric studies are limited, adult studies have shown depressive symptoms in IBD are related to stress[18, 19], and increased healthcare utilization[5]. Given that pediatric IBD patients have greater healthcare utilization than adults[6], psychotherapy targeting depression in this population may significantly impact healthcare utilization. Specifically, the healthcare utilization patterns of 222 adult patients with IBD over one year showed that for patients with comorbid depression there was significant increase in visits to both gastroenterologists and general practitioners[5]. This study included only adults (age >21), therefore further insight into healthcare utilization by pediatric patients with IBD and depression would be valuable. In a study of adolescents with IBD and clinical levels of anxiety, greater healthcare utilization was noted[20].

The mechanism by which depressive symptoms might affect healthcare utilization in IBD is likely multifactorial. This includes the effect of depressive symptoms on symptom reporting [12, 21], medical adherence [22, 23], and a lack of confidence in the utility of medications [24]. A recent study showed that adult patients with depression are at an increased risk for re-hospitalization within 90 days after initial IBD admission.[25] Targeting this depression is therefore expected to decrease healthcare utilization[25]. Adult IBD patients with psychiatric comorbidities also tend to call their outpatient nurses more frequently about their care[26].

Given the significant impact depression has on IBD healthcare utilization, the natural assumption is that targeting depression will lead to decreased healthcare utilization. Previous work has shown that depression in youth with IBD is highly responsive to psychotherapy [27, 28]. Specifically, cognitive behavioral therapy (CBT) has shown significant short and long-term benefit in depressive symptom reduction compared to medical treatment as usual in pediatric patients with subsyndromal depression [27, 29, 30]. In a randomized trial comparing CBT and supportive non-directive therapy (SNDT) for clinical depression, both treatments were associated with significant improvement in depression[31] suggesting that psychotherapy for depression, regardless of the specific modality, is a useful adjunct to medical treatment of IBD.

Given the high rates of depression in pediatric patients with IBD, the patients' responsiveness to psychiatric treatment, as well as the potential impact of these comorbidities on the patients' healthcare utilization, we assessed the utility of 3 months of psychotherapy (either CBT or SNDT) on reducing GI-related healthcare utilization in pediatric patients with IBD and comorbid depression. In the parent study comparing CBT to SNDT for depression, a three month course of either CBT or SNDT was associated with significant reductions in depressive severity in a pediatric IBD population with depression

but the type of therapy did not differentiate from each other[31]. Since this study represents a smaller subset of the entire randomized sample (70 of 217), the two therapy groups were pooled to represent a sample of patients receiving psychotherapy.

This study represents a secondary analysis of the primary randomized trial, selecting those subjects who had healthcare utilization data available one year before and one year after the 3 months of psychotherapy received as part of the trial. Given the demonstrated effect of depression on increasing healthcare utilization and the effect of psychotherapy on decreasing depression, we hypothesized that a 3-month course of a psychotherapeutic intervention targeting depressive symptoms would be associated with a decrease in GI-related healthcare utilization in the 12 months following the intervention compared to the 12 months prior to the intervention. We chose the 12 months interval to avoid any potential falsely exaggerated results due to acute changes that may arise with a shorter time interval and to maximize the power of the study by not examining a longer time interval. With pediatric patients having greater IBD healthcare utilization than adults[6], it is possible that the impact of psychotherapy targeting depression can have a more robust impact in the pediatric population than that seen in adults.

MATERIALS AND METHODS

Participants

As part of an IRB-approved, multicenter, randomized controlled treatment trial, pediatric patients aged 9–17 with biopsy-confirmed IBD (CD, UC) were recruited from pediatric GI clinics and inpatient units at Children's Hospital of Pittsburgh of UPMC and Boston Children's Hospital[31].

Depression screening of seven hundred sixty-five (n=765) pediatric patients with IBD was completed using the Children's Depression Inventory, Child and Parent Versions (CDI-C and CDI-P[32]). Pediatric patients meeting screening criteria for depression (CDI-C and/or CDI-P ≥ 10) were considered to have clinically significant depressive symptoms and thus were further assessed within 2 weeks with The Kiddie-Schedule for Affective Disorders and Schizophrenia for Children, Present and Lifetime Version, KSADS-PL [33] to confirm their diagnosis of depression. Pediatric patients were included in the trial if they met criteria for major or minor depression by DSM-IV-TR criteria[34]. Minor depression is defined the same way as major depression, except patients only have to meet 2 out of the additional 7 symptoms beyond mood or anhedonia as described in the DSM-IV-TR research[34]. It is important to include minor depression as it can often be a precursor to major depression if left untreated,[35] and is associated with significant morbidity and functional impairment in adolescents[36–38].

Patients were excluded from the study if they had: current or past history of eating disorder requiring hospitalization, bipolar disorder or psychotic disorder according to DSM-IV TR criteria, antidepressant medications within one month of study entry, major depressive episode requiring psychiatric hospitalization within three months of study entry, suicide attempt within one month of study entry, history of substance abuse or dependence within one month of study entry; and/or current psychotherapy. Because this is a psychotherapy

study targeting depression, we used standardized exclusion criteria from the psychiatric literature [39, 40] : severe depression, suicidal action, or co-morbid psychiatric conditions (bipolar or psychotic disorder, eating disorder or substance use) for which the psychotherapy alone would not be appropriate. In addition, psychiatric hospitalizations or start of antidepressants would serve as confounding variables given potential therapeutic effects on depression.

Two hundred thirty three subjects were eligible for psychotherapy randomization. Of this group 16 were excluded from the parent study: 1 due to severe depression, 6 for being on antidepressants, and 9 due to having one of the comorbid excluded psychiatric diagnoses. The remaining 217 patients were randomized to receive a 12-week course of CBT or SNDT. Of these 217 participants, 70 patients were included for this analysis because they received at least three psychotherapy session, were diagnosed with IBD at least 12 months prior to randomization (to allow for same time interval to most accurately compare healthcare utilization pre- and post-therapy), and were followed for at least 12 months after the completion of the 3 month intervention (CBT or SNDT). Of the 217 that were randomized, 147 were not included in this analysis because 86 were diagnosed less than 1 year before enrollment and 61 were followed less than 1 year after enrollment. There was no difference in baseline age, IBD type, baseline IBD activity or depressive severity between the included and excluded groups of participants. There was a male predominance in the included group (57% versus 42%; $p=.039$)

Measures

Psychometric information on the measures used can be found in the parent publication (26).

Self-report and Parent/Guardian Assessments

Demographic questionnaire: Parents/guardians of the participants were asked to complete a brief demographic questionnaire at study onset which detailed age, gender, and race.

The CDI[32]: The CDI is a validated 27-item questionnaire completed separately by parent and child (CDI-P and CDI-C, respectively) that assesses patient mood symptoms over the previous two weeks. It is widely used for its validity and strong psychometric properties. For the purposes of this study, we used a CDI cutoff of 10, as other studies in pediatric patients with IBD and comorbid depression suggest that this cutoff includes clinically significant depressive symptoms in this population that otherwise would be missed [27].

Kiddie Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version[33]: The KSADS-PL is a semi-structured diagnostic interview designed to assess for current or past episodes of Axis I psychiatric diagnoses based on DSM-IV criteria [34] in children and adolescents. The interview was administered by trained staff at initial evaluation and collected input from both parent/guardian and child. Based on the KSADS-PL, subjects were stratified as either having major depressive disorder or minor depression.

Children's Depression Rating Scale – Revised (CDRS-R; [41]): The CDRS-R is a validated semi-structured clinician-rated instrument consisting of 17 items to assess

depressive symptom presentation. The CDRS-R score is based on input from both the patient and parent/guardian. The total scores range from 17 to 113 with higher scores indicating higher depressive severity. “Raw scores of > 28 (T-score of 55,) represent the lower limit for considering a depressive disorder. A raw score of >44 (T-score of >65) is suggestive of a depressive disorder, raw scores of >58 (T-score of >75) is very likely depressive disorder, and raw scores of >76 (T score of >85) is almost certainly consistent with a depressive disorder.

Both KSADS-PL and CDRS-R were included as measures because they capture different pieces of information. KSADS-PL is a semi-structured psychiatric interview which confirms diagnosis (major versus minor depression) as well as co-morbid psychiatric diagnoses. The CDRS-R was administered by a blinded assessor to evaluate depressive severity.

IBD-related Assessments

Pediatric Crohn’s Disease Activity Index (PCDAI)[42]: Crohn’s disease severity was assessed using the PCDAI. The PCDAI is a clinician-rated instrument that measures overall well-being, inflammatory markers, growth parameters, and physical exam findings. Total scores range from 0–100 (10 -inactive disease, 11–30-mild disease, and >30 moderate/severe disease).

Pediatric Ulcerative Colitis Activity Index (PUCAI)[43]: The PUCAI is a six-item clinical questionnaire that assesses UC severity. The questionnaire specifically assesses degree of abdominal pain, stooling characteristics, and activity level. Total scores range from 0–85 (0–9 inactive disease, 10–34 mild disease, 35–64 moderate disease, 65 severe disease).

Intervention

CBT or SNTD was administered over three months in addition to receiving standard medical care for IBD (See Szigethy et al., 2014[31] for complete description). Psychotherapy was provided by master’s level licensed social workers, doctoral level psychology graduate students, and trained psychiatrists. All therapists who provided psychotherapy underwent protocol-specific training prior to administering CBT or SNTD.

Healthcare Utilization Assessments—From a retrospective medical chart review the following proxies of GI-related healthcare utilization were obtained for the included patients: number of hospital admissions, total hospital days admitted, emergency room (ER) visits, radiologic tests, and endoscopies. Other potential proxies for healthcare utilization that were considered but not included in the study were GI clinic visits, requisitions for laboratory evaluation, as well as inpatient or outpatient consultations. These measures of healthcare utilization were excluded because of the significant risk for confounding factors influencing these measures such as clinical preference and non-IBD related reasons for healthcare utilization. Additionally, our electronic health record and the catchment areas of the two children’s hospitals involved in this study precluded accurate assessment of primary care visits as proxy for healthcare utilization.

Psychotherapeutic Interventions

Participants in the primary study were randomized to receive a 12-week course of either CBT or SNTD. Sessions were delivered weekly either face-to-face or by phone. Up to three 45-minute family/guardian psychoeducational sessions occurred as well. CBT was delivered using the Primary and Secondary Control Enhancement Training: Integrated Depression Prevention Program for Youth with Physical Illness (PASCET-PI) [29]. The PASCET-PI was adapted from Weisz et al's[44] therapy and adjusted to meet the needs of adolescents with comorbid depression and physical illness. Therefore, in addition to the traditional focus of CBT on modifying mood, cognitions and behavior, Szigethy et al.[29] integrated three additional components into the program: 1) emphasis on the physical illness narrative of the child, 2) enhanced social skill-building and 3) parental involvement to reinforce the CBT skills taught to the child. SNTD was structurally identical to CBT, but did not include CBT-specific techniques, skills building or social skills training. SNTD has shown efficacy as a comparison treatment in previous CBT studies[39, 45], including those with physically ill cohorts[46, 47].

Data Analysis—Descriptive statistics (means and standard deviations for continuous variables; frequencies for categorical variables) were used to characterize the sample. Student's t-tests or chi-Squared tests were used to compare the demographic and clinical characteristics between IBD subtypes. Since the healthcare utilization parameters were not normally distributed, Wilcoxon rank-sum tests were performed to assess for statistically significant differences in healthcare utilization parameters before and after the three month psychotherapeutic intervention. A paired t-test was used to compare the change in depressive severity before and after psychotherapy. No corrections for multiple comparisons were made. All analyses were performed using SPSS version 21.0 (SPSS Inc., an IBM Company, Chicago, IL). Effect sizes for psychotherapy impact were computed for all measures using a pre-post design based on Cohen's d estimate.

RESULTS

Sample characterization

The demographic and illness characteristics of the patients are shown in Table 1. Of the 70 patients included in analysis, 51 patients had CD (73%) and 19 had UC (27%). The mean age of the total group was 14.11 years (SD 2.32) and was not statistically different between the IBD subtypes. There was a higher percentage of females in the CD group compared to the UC group but this was not statistically significant. Both groups were comprised of a majority of Caucasians. Parents/guardians were primarily biological parents with household incomes greater than \$60,000, were married, had post-high school education, and were employed. The mean disease activity within both IBD subtypes was in the mild range. Approximately half of the IBD patients were diagnosed with major depression; with more CD than UC patients with major depression. CDRS-R scores at baseline were statistically similar between IBD subtypes. The number of total therapy sessions, including family sessions and maintenance sessions did not differ between patients with CD and UC.

Psychotherapy effect on healthcare utilization parameters and depressive severity

Table 2 and Figure 1 depict the effect of 3 months of psychotherapy for depression on frequency of GI-related hospitalizations, inpatient days, ER visits, radiologic exams, endoscopies, GI visits and overall depressive severity. Statistically significant decreases were seen in all measured healthcare utilization parameters in addition to depressive severity one year later after 3 months of psychotherapy (CBT or SNTD) and disease activity for those with CD. Effect sizes for psychotherapy impact ranged from medium (.3–.79) to large (.8+).

DISCUSSION

This study found that a three-month course of psychotherapy was associated with statistically significant decreases in frequency of GI-related hospitalizations, inpatient days, ER visits, radiologic exams, and endoscopies in pediatric patients with comorbid IBD and depression over the ensuing 12 months when compared to 12 months prior to psychotherapy. There was also a decrease in depressive symptom severity as reported by the CDRS-R over the 12 month post-intervention period as compared to the 12 months prior to the intervention.

No study to date has examined the utility of psychotherapy on healthcare utilization in pediatric patients with IBD and comorbid depression. This study confirms the results of previous studies showing that untreated depression is associated with healthcare utilization related to IBD in patients with chronic illness [5, 23, 24] and those specifically with IBD[5, 20, 48]. These findings suggest an association between depressive symptoms and high healthcare utilization in pediatric patients with IBD, and support the hypothesis about the utility of psychotherapy for depression and reducing IBD-related healthcare utilization. However, this study does not clearly indicate that addressing depressive symptoms through psychotherapy not only results in improvement in depression but also reduced utilization of healthcare related to IBD.

Patients with IBD often do not receive preventive services, such as depression screening, at the same rate as general medical patients [49]. As such, these individuals are at increased risk for complications resulting from treatable mental health disorders [11, 49]. This study supports screening for and treating comorbid depression in this population, as depressive symptoms are amenable to psychotherapy in this population and may reduce potentially unnecessary healthcare utilization. As a significant proportion of patients with IBD are diagnosed in childhood[4, 7, 8], and the healthcare costs of pediatric patients with IBD are disproportionately higher than their adult counterparts[6]. Therefore, early identification and provision of psychotherapy for comorbid depression is crucial as it may lead to a reduction of unnecessary healthcare utilization.

This study suggests that the inclusion of targeted psychotherapy for pediatric patients with IBD and comorbid depression can be a relatively cost-reducing, time-limited adjunctive service for comprehensive IBD care. It is important to note that psychotherapy can be even more broadly delivered – via therapists through web-based modules and telepsychiatry [50–55], as well as through training nurses[56], making scalable delivery within pediatric gastroenterology feasible.

This study did have limitations. Though we did find psychotherapy for depression impacted healthcare utilization in pediatric patients with IBD, it is possible that the increased interpersonal interaction from therapy led to the decreased interpersonal time spent in the proxies for healthcare utilization that were examined. However, the broad decline in IBD-related healthcare utilization, including reduction of hospitalization times and procedures, mitigates the likelihood that increased interpersonal interaction could explain all of the study findings. We cannot state that change in depressive symptoms were the cause for the reduced healthcare utilization directly. However, based on findings from prior studies, depression and IBD activity improve over time after psychotherapy[31] and depressed subjects who received CBT improved more than those only receiving medical treatment as usual[29]. Further investigation in larger cohorts is warranted to further investigate the role of reductions in depressive symptoms on healthcare utilization for pediatric patients with IBD and depression.

Additionally, there are other measures of healthcare utilization in patients with IBD that were not included in this analysis. Surgical procedures were excluded from the analysis because this study included both CD and UC patients and surgery has different roles in those disease subtypes (palliative and curative; respectively). In patients with CD, it would be more helpful to look at surgical rates over longer than 1 year time periods. Additionally, time spent via phone and in person by the medical provider could not be accurately assessed as another potential variable impacting healthcare utilization. Finally, while a control group not receiving psychotherapy for depression would have more clearly suggested that psychotherapy played a causal role in reducing health care utilization, this was not possible due to ethical concerns (i.e., not treating patients who are depressed).

Additionally, somatic symptoms were not adjusted for in the measurement of depressive symptoms. This could potentially overestimate the presence of depressive symptoms. However, somatic symptoms were important to include given that they still may reflect functional symptoms secondary to depressive symptoms. Not all patients with active disease have high somatic depressive symptoms[57], and somatic depressive symptoms are not always differentially related to disease activity[58]. More importantly, we have shown in two different IBD pediatric samples that somatic symptoms, even in the presence of active IBD, have a robust response to psychotherapy[59, 60].

In addition to prospectively standardizing documentation, as well as accounting for phone messages, and laboratory orders, future prospective work could focus on the healthcare utilization effects of psychotherapy on comorbid depression in pediatric IBD patients, compared to a control group. With regards to the psychotherapeutic intervention, future research should focus on evaluating the components of psychotherapy that result in symptom reduction and decreased healthcare utilization. This will aid in determining whether other novel ways of providing psychotherapy may apply for pediatric patients with IBD.

From these analyses, we conclude that psychotherapy for comorbid depression in pediatric patients with IBD is associated with decreased medical utilization. This study highlights the importance of routine screening for depression in pediatric patients with IBD and the utility

of evidence-based psychotherapy for the treatment of major and minor depression in this population. Use of psychotherapy as an adjunct treatment to treatment as usual for pediatric patients with comorbid IBD and depression is associated with reduced IBD-related healthcare utilization. Given the brief nature of psychotherapy, long term effects on healthcare utilization after conclusion of therapy, and reduction in depressive symptom severity, evidence-based psychotherapy should be considered as a potential component for the overall longitudinal care of pediatric patients with IBD and depression.

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What is known about this subject?

- Pediatric patients with inflammatory bowel disease (IBD) are at increased risk of developing depression compared to community controls
- Depression can negatively influence illness-behaviors such as healthcare resource utilization
- Depression in pediatric IBD is highly responsive to psychotherapy

What are the new findings and/or what is the impact on clinical practice?

- Psychotherapy for depression in pediatric IBD was associated with decreased healthcare resource utilization
- It is important to screen for depression in pediatric IBD patients
- Psychotherapy is a reasonable adjunctive therapy for depression along with medical treatment for comprehensive management of IBD in depressed pediatric patients

Figure 1.
Effect of Psychotherapy on Healthcare Utilization^a
^ap-value obtained from Wilcoxon Rank Sum Test

Table 1

Clinical and Demographic Characteristics of Depressed IBD Patients (n=70)

Variable	Total (n=70)	CD Only (n=51)	UC Only (n=19)	p-value
Age (mean, sd)	14.11, 2.32	13.98, 2.29	14.45, 2.45	0.47
Gender (n, % female)	30, 42.9	24, 47.1	6, 31.6	0.24
Race (n, %)				
Caucasian	54, 77.1	37, 72.6	17, 89.5	0.45 ⁺
African American	10, 14.3	9, 17.6	1, 5.3	
Asian	2, 2.9	2, 3.9	0, 0.0	
Biracial	2, 2.9	1, 2.0	1, 5.3	
Other	2, 2.9	2, 3.9	0, 0.0	
Income (n, %)				
<\$30,000	16, 22.9	11, 21.6	5, 26.3	0.71 ⁺
\$30,000–59,999	13, 18.5	11, 21.6	2, 10.5	
\$60,000–89,999	17, 24.3	12, 23.5	5, 26.3	
\$90,000 ⁺	17, 24.3	13, 25.5	4, 21.1	
Declined	7, 10.0	4, 7.8	3, 15.8	
Caregiver relationship (n, %)				
Biological Parent	64, 91.4	46, 90.2	18, 94.7	0.32 ⁺
Adoptive Parent	2, 2.9	2, 3.9	0, 0.0	
Other	3, 4.3	3, 5.9	0, 0.0	
Not answered	1, 1.4	0, 0.0	1, 5.3	
Caregiver Status (n, %)				
Married	47, 67.1	32, 62.8	15, 78.9	0.57 ⁺
Single	8, 11.4	7, 13.7	1, 5.3	
Divorced/Separated	12, 17.1	10, 19.6	2, 10.5	
Living with Partner	3, 4.3	2, 3.9	1, 5.3	
Caregiver Education (n, %)				
< High School	3, 4.3	2, 3.9	1, 5.3	0.85 ⁺
High School	11, 15.7	7, 13.7	4, 21.0	
Some College	22, 31.4	16, 31.4	6, 31.6	
College Degree	19, 27.1	15, 29.4	4, 21.0	
Graduate School or Professional Degree	13, 18.6	10, 19.6	3, 15.8	
Not answered	2, 2.9	1, 2.0	1, 5.3	
Caregiver Employment (n, %)				
Employed	46, 65.7	35, 68.6	11, 57.9	

Variable	Total (n=70)	CD Only (n=51)	UC Only (n=19)	p-value
Not employed	22, 31.4	16, 31.4	6, 31.6	
Not answered	2, 2.9	0, 0.0	2, 10.5	0.09 ⁺
PCDAI (mean, sd)	–	19.55, 15.74	–	–
PUCAI (mean, sd)	–	–	22.63, 18.59	–
<u>Depression Diagnosis</u> (n, %)				
(KSADS-PL)	39, 55.7	31, 60.8	8, 42.1	
Major	31, 44.3	20, 39.2	11, 57.9	0.16
Minor				
Depression Severity (mean, sd) (CDRS-R)	44.47, 13.29	43.33, 12.26	47.53, 15.67	0.30
Number of Therapy Sessions (mean, sd)	10.17, 2.20	10.29, 2.34	9.82, 1.78	0.40
Number of Family Sessions (mean, sd)	2.35, 1.25	2.47, 1.24	2.00, 1.22	0.19
Number of Maintenance Sessions (mean, sd)	3.12, 2.19	3.02, 2.20	3.41, 2.18	0.53

⁺ based on Fisher's Exact test

Table 2

Healthcare Utilization & Depressive Severity Pre-Post Psychotherapy (n=70)

Health Care Utilization Measure	12 months prior to Psychotherapy	12 months after Psychotherapy	<i>p-value</i> [*]	<i>Pre-Post Effect Size</i>
	Mean (SD)	Mean (SD)		
Hospitalizations	0.59 (0.97)	0.27 (0.88)	0.002	0.33
Inpatient Days	3.19 (5.57)	1.30 (4.69)	0.0001	0.34
Emergency Room Visits	0.54 (0.94)	0.21 (0.80)	0.010	0.35
Radiologic Exams	1.24 (1.68)	0.49 (1.02)	0.0009	0.45
Endoscopies	0.99 (0.99)	0.37 (0.76)	<.0001	0.63
GI visits	3.96 (2.17)	2.21 (2.27)	<.0001	0.81
Depressive Severity	Baseline prior to Psychotherapy	12 months after Psychotherapy	<i>p-value</i> ⁺	
CDRS-R (n=45)	42.04 (12.84)	26.67 (10.55)	<0.0001	1.20
Disease Activity				
PCDAI (n=31)	21.10 (16.18)	11.85 (15.57)	0.009	0.57
PUCAI (n=8)	30.63 (23.06)	18.13 (18.50)	0.274	0.54

^{*} p-value based on Wilcoxon Signed Rank Test

⁺ p-value based on a Paired T-Test