

## Case Report

# Quantitative Documentation of the Therapeutic Efficacy of Adolescent Telepsychiatry

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### ABSTRACT

The following is a case report of a 15-year-old adolescent who was evaluated and treated via telepsychiatry as part of an ongoing project at the University of Michigan Health System and the Hiawatha Community Mental Health Center in Michigan. In addition to clinical information, prospective quantitative data was collected at baseline, 6 weeks, and 3 months. Measures included the Youth Self Report (YSR), Child Behavior Checklist (CBCL), Suicide Probability Scale (SPS), Reynold's Adolescent Depression Scale (RADs), Connor's Global Index—Parent Version (CGI-P), and the Children's Global Assessment Scale (CGAS). Prior to the telepsychiatry intervention, the patient was diagnosed as having bipolar disorder with psychosis. During the telepsychiatry intervention, the diagnosis was altered to a posttraumatic stress disorder; medications were discontinued and the patient improved. All scales showed reductions in severity of symptoms after the telepsychiatry interventions. This case represents the first application of adolescent telepsychiatry for the diagnosis, treatment, and tracking of clinical symptoms.

### INTRODUCTION

**A**MONG RECENT TELEPSYCHIATRY PUBLICATIONS, a number have appeared emphasizing the need for greater data-oriented studies that prove the feasibility, applicability, and reliability of telepsychiatry.<sup>1</sup> Although telepsychiatry has dealt almost exclusively with adults, these research issues are as pertinent for children and adolescents as they are for adults. A review of child and adolescent telepsychiatry publications demonstrates the same strategies with their inherent limitations, including satisfaction, reliability, and organizational structure.<sup>2-5</sup> Needed are studies that utilize standardized instruments for the characterization of the psychopathology, and the prospective collection of

data to document therapeutic effectiveness. Standardized quantitative information is a prerequisite for the wide adoption of this practice.

There are no reports dealing with adolescents, despite the obvious significance being the age of onset for many major psychiatric disorders and the high rates of suicide, homicide, and substance abuse. Of further importance is the significance of co-morbidity and the use of multiple medications, which have become quite common in child and adolescent psychiatry. Any application of telepsychiatry would need to prove that it can be utilized in such a clinical situation.

The following case report is an example of the application of standardized instruments to characterize and track the result of the treat-

ment intervention for an adolescent seen upon request.

## MATERIALS AND METHODS

### *Program*

The University of Michigan Telepsychiatry Program was developed to test the feasibility of adolescent telepsychiatry. Among the primary goals were the investigation of organizational issues involved in the development and maintenance of a clinical research operation, the types of telepsychiatry activity, and the quantitative instrumentation that would be possible in this setting. The program interfaces with the Hiawatha Community Mental Health (CMH) Program in the Upper Peninsula region of the State of Michigan. Hiawatha CMH provides services to approximately 800 children per year.

### *Quantitative instrumentation*

Currently, the program uses the following instruments for clinical characterization of these adolescent patients. The Youth Self-Report (YSR), the Child Behavior Checklist (CBCL), Suicidal Probability Scale (SPS), Reynold's Adolescent Depression Scale (RADS), the Conner's Global Index—Parent (CGI-P), and the Children's Global Assessment Scale (GAS).<sup>6-13</sup> The CBCL and the CGI-P were collected from the patient's parents; the YSR, and RADS, and the SPS were collected from the adolescent and the treating psychiatrist provided the CGAS. Information was collected at baseline, 6 weeks, and 3 months.

All sessions were performed over three ISDN lines (384 Kb). Interactive sessions were coordinated via a project coordinator on each end of the clinical connection.

## CASE REPORT

### *Clinical summary*

A.A. is a 15-year-old girl who is referred for an evaluation, due to truancy from school, substance abuse, and difficulties with anxiety and depression. Her problems with substance

abuse began when living with her father approximately 1 year prior to being seen for the telepsychiatry appointment. After moving to live with her mother, she was sexually assaulted. Following this episode, she had increased difficulties in school, feeling depressed and anxious. These problems continued to increase until approximately 6 months prior to being seen in her telepsychiatry appointments, resulting in her not attending school. During this time period, she described having a black-out spell when she became intoxicated and aggressive toward herself and friends. She was hospitalized for 7 days. At that time, she was diagnosed as having a bipolar disorder with severe psychosis, a dissociative disorder, a post-traumatic stress disorder (PTSD), and a borderline personality disorder. Her Global Assessment Scale was 40 at the time of her initial telepsychiatry appointment. During the psychiatric hospitalization, she was started on Depakote 1000 mg daily. The patient indicated that she never felt good while taking Depakote, and did not feel that it helped her out at all. However, she did reach therapeutic levels.

Except for the previous hospitalization and the time she had begun being seen through the CMH, she had no previous psychiatric history. Past medical history is negative. Educational history is significant. The patient noted that she had been an extremely good student until her difficulties arose, but subsequently she had poor concentration, feelings of anger, and difficulties with her teacher. There is a family history of substance abuse and criminality.

At the time of the initial telepsychiatry session, the patient appeared attractive, articulate, and responsive. She was appropriate, cooperative, and friendly. Her appearance was normal. She was able to talk about her difficulties in a matter-of-fact, but very reasonable manner. There was no suggestion of psychomotor retardation, agitation, tics, or stereotomies. There was no hostility, anger or defensiveness. Her affect appeared to be slightly depressed and sad, and there was a mild degree of anxiety; no lability or anger noted. The patient denied having difficulties with sleep. She described herself as being depressed and her energy as being lower; but generally speaking, she was much better than she had felt previously. She

denied suicidal and homicidal ideation. She did not exhibit hallucinations or delusions. There did not appear to be any cognitive difficulties. The blackout episodes that she had in the past seemed to have been related to drugs and had only occurred once.

On the basis of the initial telepsychiatry session and a review of her psychiatric history, it was thought that the diagnoses appeared to be more consistent with PTSD and polysubstance abuse, with potential diagnoses of dysthymia, major depressive disorder, and dissociative disorders. There did not appear to be evidence of a bipolar disorder or borderline personality disorder. Her GAS was normal. A request was made to obtain her previous psychiatric records to clarify the diagnoses of bipolar and borderline personality disorders.

During her second session, her hospital records were reviewed. These did not document phenomena consistent with the diagnoses noted in her chart. During this session, there were no symptoms consistent with either a bipolar or a borderline personality disorder. The course of her difficulties appeared to have begun with substance abuse and worsened after she was sexually assaulted. Given this history, the Depakote was discontinued after the second appointment. It was felt that the medication was causing her to be sedated and to have difficulties with concentration, somnolence, and depression.

After the Depakote was discontinued, the patient's condition improved. She described one episode of drinking, and, after doing so, acting out with a number of adolescents. Nevertheless, during this session, she did not appear to be depressed, anxious, or aggressive. Her mother substantiated the fact that she appeared to be doing much better and that there did not appear to be any need for the continuation of the Depakote. The diagnosis at that time continued to be PTSD and polysubstance abuse. There was no evidence of depression.

In the subsequent two appointments, the patient continued to do much better. Her mother indicated that she was doing better, and had almost no difficulties. In fact, what became more apparent was that she was quite a bright young woman and had been placed into advanced level courses in Chemistry and Physics

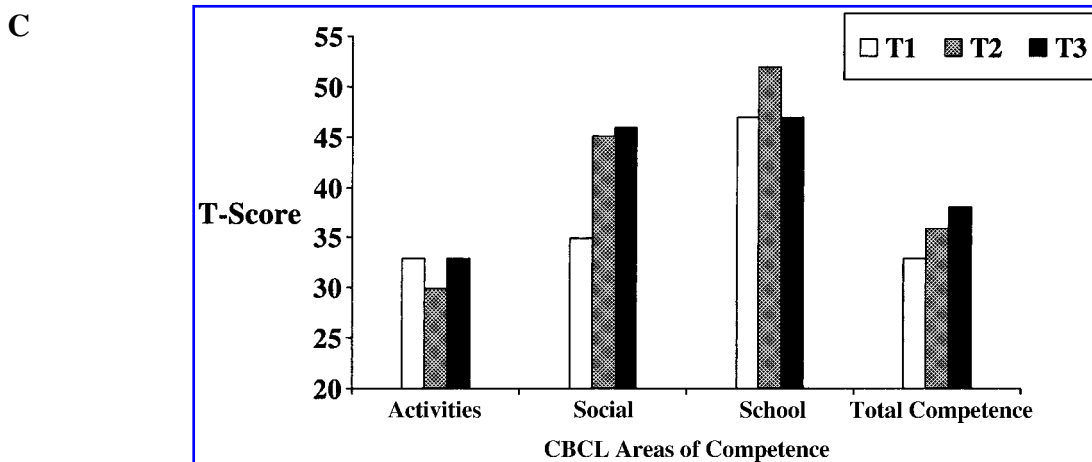
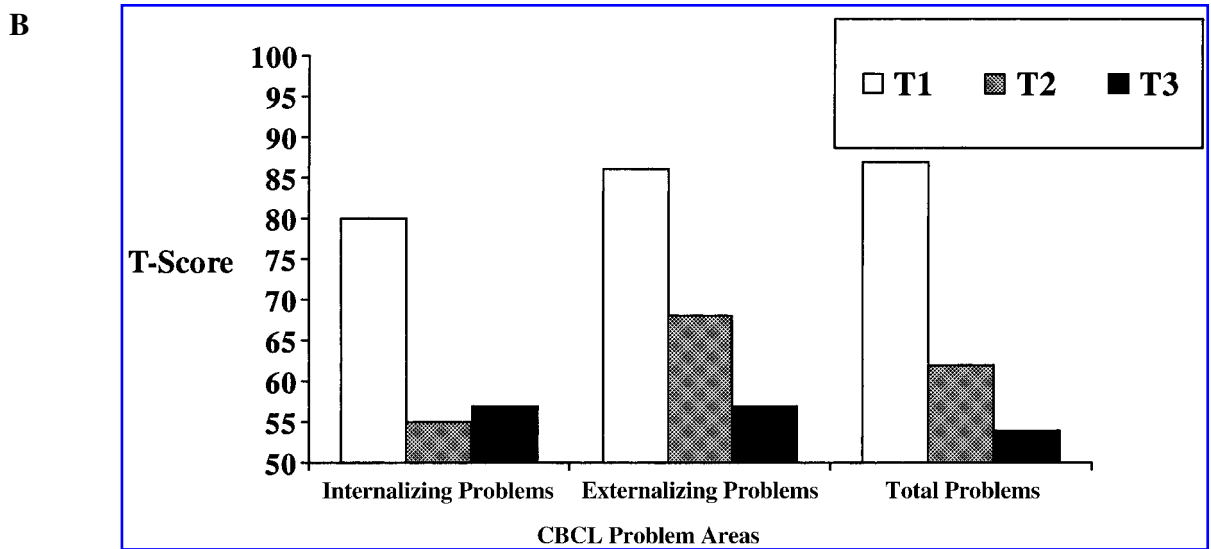
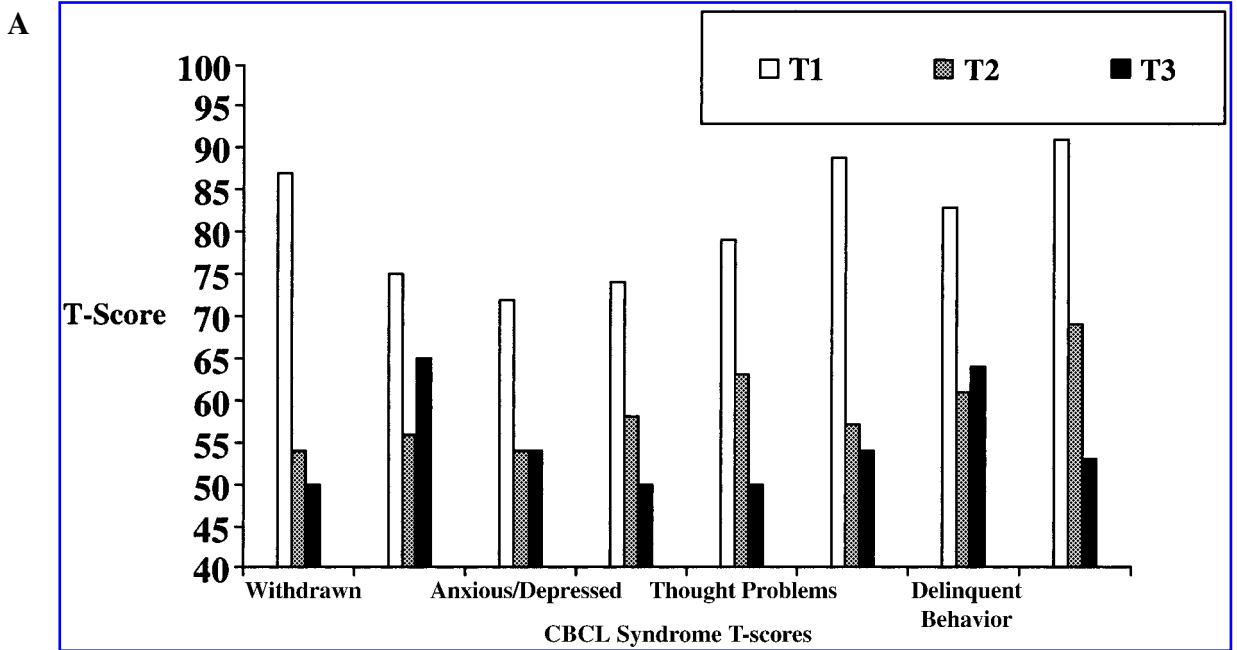
and made all 100s and As. This seemed to be consistent with her previous history prior to the episodes that happened approximately a year prior to the telepsychiatry contact. At the time of her initial psychiatric evaluation, her GAS was 65 and at the time that the patient was last seen, her GAS was 85.

### *Behavioral measures*

*Child Behavior Checklist (CBCL):* Figure 1A shows the results of the CBCL obtained from the patient's mother. There are elevations in each of the CBCL problem areas reaching pathological levels at baseline. At 6 weeks, all areas have shown a decrease to within the normal range except for aggressive behavior. At 3 months, all areas have entered in to the normal range, except for somatic complaints. Figure 1B shows the results when the data are summarized into Internalizing and Externalizing Problems. The same pattern as noted for the individual syndromes is present here as well, with each problem area and the total problems decreasing within the first 3 weeks, most notably the internalizing problems, and both by 3 months. Figure 1C demonstrates the parallel increase in competency in each area, activities, social and school, as well as in total competence. These improved into the normal range as well.

*Youth Self-Report (YSR):* Figure 2A was derived from the data provided by the patient. All the problem areas are within the normal range except that for delinquent behavior. This area was initially in the pathological range, but by 3 weeks had become normal. Figure 2B demonstrates a similar pattern with elevations for the externalizing problems. Nevertheless, both internalizing and externalizing problem areas showed decreases at 6 weeks and 3 months. Areas of competency were all elevated and in the normal range (Fig. 2C) and did not show marked change during the interventions.

*Suicidal Probability Scale (SPS), Conner's Global Index—Parent Version (CGI-P), Reynolds Adolescent Depression Scale (RADS), and the Children's Global Assessment Scale (CGAS):* Table 1 presents the patient's SPS, CGI-P, RADS, and CGAS scores at initial assessment, 6 weeks, and 3 months. The patient's SPS scores (total, hope-



**FIG. 1.** (A) CBCL syndrome T-scores for telepsychiatry patient at initial assessment (T1), 6 weeks (T2), and 3 months (T3). (B) CBCL internalizing, externalizing, and overall problems T-scores for telepsychiatry patient at initial assessment (T1), 6 weeks (T2), and 3 months (T3). (C) CBCL competence T-scores at initial assessment (T1), 6 weeks (T2), and 3 months (T3).

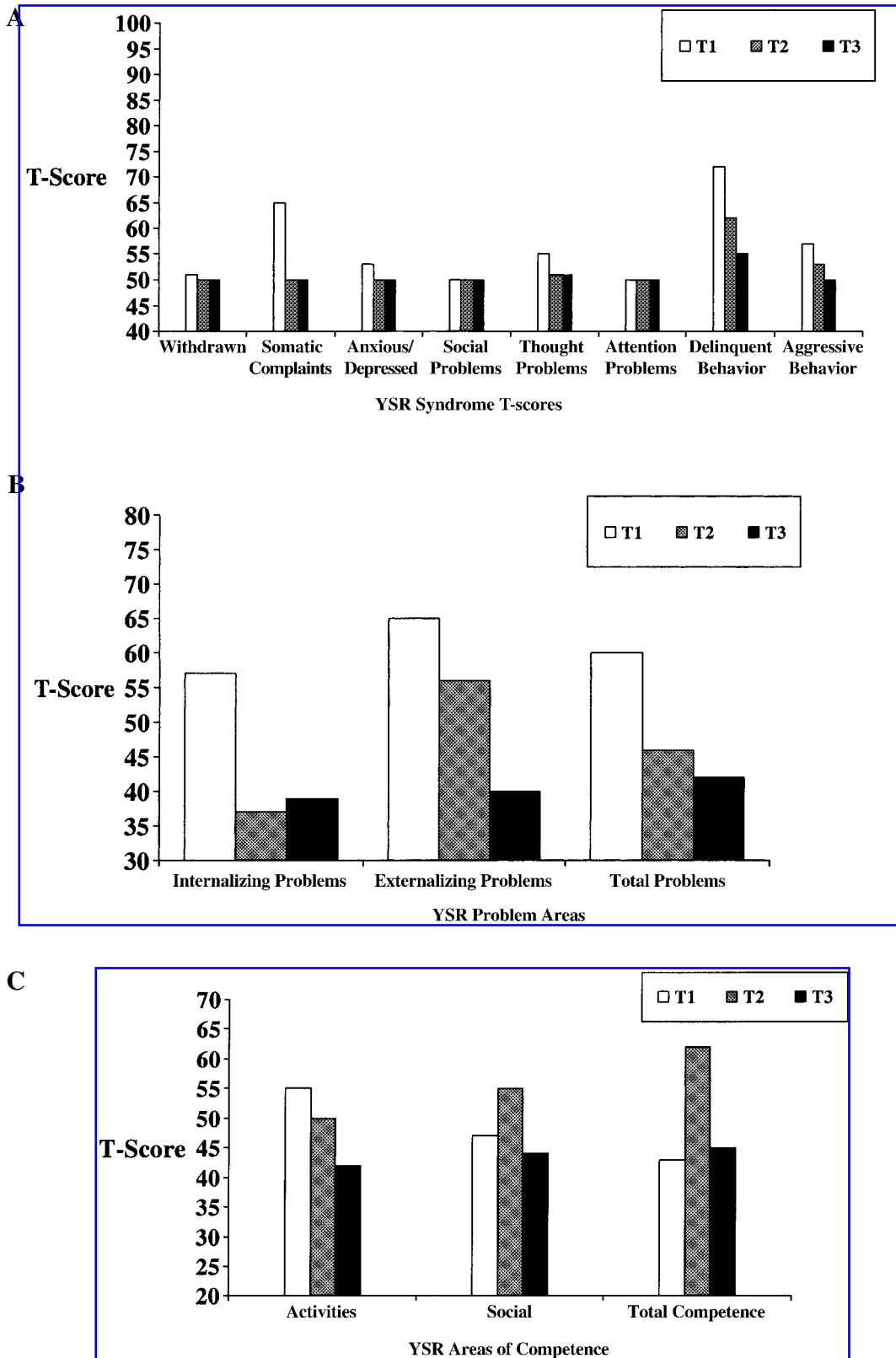


FIG. 2. (A) YSR syndrome T-scores for telepsychiatry patient at initial assessment (T1), 6 weeks (T2), and 3 months (T3). (B) YSR internalizing, externalizing, and overall problems T-scores for telepsychiatry patient at initial assessment (T1), 6 weeks (T2), and 3 months (T3). (C) YSR competence T-scores at initial assessment (T1), 6 weeks (T2), and 3 months (T3).

TABLE 1. SPS, CGI-P, RADS, AND CGAS STANDARD SCORES FOR TELEPSYCHIATRY PATIENT

	<i>Initial assessment</i>	<i>6 weeks</i>	<i>3 months</i>
SPS (T-Scores)			
Hopelessness	58	48	45
Suicide Ideation	44	44	44
Negative Self-Evaluation	44	44	51
Hostility	55	52	40
Total	53	46	44
CGI-P (T-Scores)			
Restless-Impulsive	78	64	50
Emotional Lability	48	54	43
Total	68	61	47
RADS (Percentiles)	10th%ile	9th%ile	1st%ile
CGAS	65	75	85

lessness, suicide ideation, negative self-evaluation, and hostility) were all within the normal range throughout the 3-month time period.

With regard to the CGI-P, at initial assessment, the patient's overall score evidenced clinically significant behavior problems. At 6 weeks and 3 months, her overall score was within the normal range. More specifically, the patient's Restless-Impulsive subscale score was clinically significant at initial assessment, but fell to within the normal range at 6 weeks and 3 months. Her Emotional Lability subscale score remained within the normal range throughout the 3-month time period. The patient's RADS scores steadily declined, while they also remained within the normal range throughout the 3-month time period. Additionally, the patient's CGAS score dropped 20 points over the 3-month time period.

## DISCUSSION

Adolescent telepsychiatry appears to be effective in providing care. In this case report, the provision of care via teleconferencing allowed proper diagnosis of an adolescent who suffered from posttraumatic stress disorder and poly-substance abuse. This allowed the discontinuation of medications and a return of the patient to her previous level of functioning. Most importantly in this case was the relationship that developed between the psychiatrist and the patient that led to a more accurate assessment of her psychopathology. Of note, whereas most

psychiatric interventions result in medications being started and monitored, in this case the opposite occurred. Quality psychiatry is based on thorough evaluations that result in the correct diagnoses being made and case conceptualization occurring. Only then can the correct treatment intervention be made. In this case, the discontinuation of the medication and support around the issues of the rape were most important.

The improvements that were noted by the clinician were paralleled by those noted by the patient and the patient's mother. Of interest was the marked difference in how the mother and daughter saw the psychopathology. The mother saw her daughter as having marked difficulties in all of the CBCL problem areas, whereas the daughter saw them only in the delinquent area of the YSR. Is this a trend for all adolescents and parents? The literature has referred to the difference of perception of parents and adolescents, but usually with parents and adolescents agreeing about the externalizing problems, but parents underestimating the internalizing problems. Nevertheless, both agreed with the improvement in both areas and the increase in competency. All other scores did not demonstrate pathology, but they did demonstrate an improvement during the telepsychiatry intervention period.

Of course the most fundamental question in a case is "Would the patient have gotten better if the telepsychiatry interventions had not occurred?" What difference did the discontinuation of the medication have on her condition?

These are critical questions that cannot be answered at this time. We know she improved, and we have compelling data from the patient, her mother, and the clinician, but the reason for improvement is unclear. At a minimum, we can conclude that in this case the telepsychiatry intervention did not make her worse.

To our knowledge this is the first report of an adolescent with a psychiatric condition to be diagnosed and treated via telepsychiatry. Not only seen for consultation but seen and treated over several sessions, during which time diagnostic impressions were clarified and a treatment plan was implemented. Furthermore, this is the first telepsychiatry adolescent report that uses objective, standardized instruments to document the patient's condition at the time of contact and subsequently as she received treatment. This report clearly demonstrates that such studies can be carried out via telepsychiatry, lending credence to its potential clinical value. Further research based on adequate samples and appropriate controls is needed in all areas of telepsychiatry in prospective studies that collect data longitudinally with standardized behavioral instruments.

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