ELSEVIER

Journal of Adolescent Health 38 (2006) 643–648

JOURNAL OF ADOLESCENT HEALTH

Original article

Telepsychiatry with incarcerated youth

Kathleen Myers, M.D., M.P.H.*, Jeanette Valentine, Ph.D., Roxanne Morganthaler, and Sanford Melzer, M.D., M.B.A.

Children's Hospital and Regional Medical Center, Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine, Seattle, Washington

Manuscript received February 26, 2005; manuscript accepted July 25, 2005

Abstract

Purpose: Incarcerated adolescents have a high prevalence of psychiatric disorders but lack psychiatrists to provide ongoing care. Telepsychiatry may provide one solution to treating this underserved population.

Methods: Interactive video conferencing was used to connect a minimum security correctional facility with a regional telemedicine program. Clinical records were reviewed to examine utilization, demographics, diagnoses, pharmacotherapy, and patient satisfaction.

Results: During the 29-month study period, 115 youth were treated using 275 telepsychiatry visits. Substance-use, behavioral, and emotional disorders were highly prevalent. Eighty percent (80%) of the youth were successfully prescribed medications. Youth expressed confidence with the psychiatrist's recommendations but expressed concerns about privacy.

Conclusions: Telepsychiatry can successfully deliver services to incarcerated adolescents with a wide range of psychiatric needs. A patient-centered approach that directly assesses adolescents' satisfaction is recommended to ensure youths' optimal involvement in needed services.

Keywords: Incarcerated youth; Telepsychiatry; Access to care; Psychiatric services

There is increasing evidence that telemedicine increases access to health care for underserved populations. One of the most common applications has been psychiatry. Telepsychiatry has shown feasibility in providing a range of services to diverse adult populations and acceptability to both providers and patients [1–4]. Telepsychiatry also is increasingly used to treat youth in underserved outpatient settings [5–9], and parents have endorsed high levels of satisfaction with their children's care [5,6]. Incarcerated youth represent another underserved population. Their rates of mental illness exceed that of the general population [10–13] and under-treatment contributes to their criminal behavior [14,15]. In the 1990s only a third of incarcerated youth with documented psychiatric disorders had received services and only 15% received services during their incarceration [14,15]. Over the past decade, the Juvenile Justice System and the United States Congress have recognized the central role of mental illness in juvenile crime and have called for more mental health services to youth during incarceration [15]. Many institutions have implemented mental health services, but formal psychiatric services remain scarce.

Telepsychiatry can help to rectify this inequity by telecommuting psychiatrists at regional medical centers to rural correctional facilities. Telepsychiatry provides a predictable service, obviates the personnel and financial costs of transporting youth to distant clinics, precludes youths' escape, saves youth the embarrassment of attending appointments in shackles, and allows the psychiatrist to participate in treatment planning with onsite staff. Here we describe our experience regarding the feasibility of establishing a telepsychiatry service in juvenile corrections, its acceptability to youth, tolerability by staff, and clinical profiles of youth served by this innovative service.

*Address correspondence to: Dr. Kathleen Myers, Department of Child and Adolescent Psychiatry and Behavioral Pediatrics, Children's Hospital and Regional Medical Center, 4800 Sand Point Way NE, 6F-1, Seattle WA 98105.

E-mail address: kathleen.myers@seattlechildrens.org

1054-139X/06/$ – see front matter
doi:10.1016/j.jadohealth.2005.07.015

Methods

Correctional program and subjects

Naselle Youth Camp (NYC) is a minimum-security juvenile correctional facility in rural Washington state, approximately 200 miles (a four-hour drive) from Seattle. Common offenses include theft, burglary, car theft, harassment, assault, and sex offenses. Less common offenses include rape, drug offenses, vehicular manslaughter, and murder. The average sentence is six months, ranging from 30 days to four years.

NYC partners with the Department of Natural Resources (DNR), the Department of Fish & Wildlife, and Naselle Youth Camp School to provide vocational and work opportunities to an average of 144 predominantly male (>80%) juvenile offenders 14–18 years old. In 2003, 23 residents graduated from high school and 77 others obtained their General Equivalency Diploma (GED).

Mental health services

In the mid 1990s, the Washington State Juvenile Rehabilitation Administration (JRA) developed the Integrated Treatment Model (ITM), which provides residents specialized programming for sexual offenses (18% of residents), substance abuse (80%), and mental health problems (> 40%). JRA's criteria of "Mental Health Target Population" include one or more of the following:

- Axis I DSM-IV [16] diagnosis, excluding sole diagnoses of Conduct Disorder, Oppositional Defiant Disorder, Pedophilia, Paraphilia, or Chemical Dependency
- Currently prescribed psychotropic medication
- Exhibited suicidal behavior within the last six months

Of these youth, 65–70% are prescribed psychotropic medication. Dialectic Behavior Therapy forms the foundation for psychosocial treatment.

Telepsychiatry service

Before the implementation of telepsychiatry, mental health services were provided by a *mobile mental health team* consisting of mental health practitioners from the adolescent state hospital, a Psychologist, Nurse Practitioner (ARNP), and variably a child and adolescent psychiatrist. NYC designated staff that presented cases for discussion with the mobile mental health team and determined what level of care youth needed. As the model incorporated more pharmacotherapy, an ARNP was hired to provide ongoing onsite services.

In 2002, JRA developed a contract with the University of Washington to provide telepsychiatric services. A Child and Adolescent Psychiatrist at Children's Hospital and Regional Medical Center (CHRMC) in Seattle who specialized in the care of youth in foster care and detention has provided 16 hours of telepsychiatric consultation per month.

The health services model of care was consultative. The telepsychiatrist conducted diagnostic evaluations, needs assessment, initial treatment, and brief follow-up. Treatment recommendations were then communicated to the NYC treatment team who participated in the youth's ongoing care. The ARNP prescribed all medication. Youth returned to telepsychiatric care as needed. Crisis care was contractually to be provided by the onsite ARNP and other mental health staff. However, staff frequently consulted with the telepsychiatrist by phone.

Youth were referred to telepsychiatry through multiple venues. Those arriving at NYC who were already prescribed medication were referred directly to telepsychiatry. For others, historical information was reviewed by NYC's Multi-Disciplinary Team that then referred youth to the NYC Psychologist. The Psychologist interviewed the youth, administered screening scales, and discussed treatment options with the youth, including telepsychiatry. Youth who developed problems during incarceration were referred to telepsychiatry by various staff or self-referred. At any point, parents could request services. Referral problems ranged from treatment of chronic disorders to poor adjustment to incarceration.

All NYC telepsychiatry patients were registered as patients of CHRMC. Clinical procedures included preview of pre-existing records and records or rating scales completed at NYC. Staff from the living units and case managers provided input regarding youths' treatment needs. The school provided educational information. Parents infrequently provided input. Youths provided their own perspectives. The NYC ethos was to encourage youth to take advantage of available resources, but to give them final control over decisions. Thus, the telepsychiatrist had some assurance that youths were voluntarily seeking care. Initially, youths were accompanied to their telepsychiatry sessions by various NYC staff, such as the ARNP, Psychologist, Mental Health Coordinator, Case Manager, or staff from the living units. Later, they were allowed to attend sessions accompanied only by the ARNP.

After reviewing records, the telepsychiatrist completed a typical 60-minute evaluation and developed a treatment plan regarding subsequent telepsychiatry care, collaboration with onsite staff, psychosocial treatment, and pharmacotherapy. A report was prepared that became part of the medical records at both CHRMC and NYC.

NYC was linked to CHRMC using Integrated Services Digital Network (ISDN). At 384 KB/second, ISDN provides near "TV quality" stable video transmission that meets the standards for confidentiality per the Health Information Portability and Accountability Act. Our program has established a credentialing procedure. Several sessions are required to learn the technology and troubleshoot minor problems, culminating in a 30-minute credentialing proce-

dure. The technical support staff remains available by pager for major technical problems that occur 3% of the time.

Study design

This report describes our experience based on review of all telepsychiatry services from July 2002 to December 2004. Data were extracted from the clinical service logs maintained by the project manager. Variables included names, gender, dates of birth, dates of service, diagnoses, and medications. To ensure accuracy of these logs, 25% were checked against the CHRMC medical record. There was over 90% concordance.

Many patients had more than one diagnosis and all diagnoses were recorded. Psychiatric diagnoses were grouped according to nomenclature of the DSM-IV [16]. For example, Major Depression and Dysthymic Disorder were grouped under *Depressive Disorders*. Generalized Anxiety Disorder, Obsessive-Compulsive Disorder, and Post Traumatic Stress Disorder (PTSD) were grouped under *Anxiety Disorders*. *Disruptive Behavior Disorders* (DBDs) include disorders such as Conduct Disorder, Oppositional Defiant Disorder, and Attention-deficit Hyperactivity Disorder (ADHD). However, as ADHD is reportedly so common in incarcerated populations, it was classified separately. *Substance-Use Disorders* (SUDs) included alcohol and illicit substances. Varied learning disabilities were grouped under *Learning Disorders*.

Youth completed a satisfaction questionnaire at the end of the evaluation. This 11-item questionnaire was based on questionnaires described in the telemedicine literature [17]. Three items covered technical aspects of the Interactive Videoteleconferencing (IVTC) transmission and seven items covered clinical aspects of the experience. One item rated global satisfaction. Unfortunately, no information is available on the psychometric functioning of this scale. Space was provided for youth to make comments. Over 80% of youth did so, stating forthrightly two to three sentences regarding their opinions. These comments were not made anonymously, as the staff wrote the youth's name across the top of the questionnaire as it was handed to the youth. This study was approved by the Institutional Review Board of CHRMC for review of existing records.

Data Analyses

Utilization, diagnoses, and prescribed medications were examined according to gender and age. Mean satisfaction ratings were calculated. Additionally, percentages were calculated for youth rating each item on *technical aspects* as "very good," "outstanding," or "very good or outstanding"; and percentages were calculated for youth rating each item on *clinical aspects* as "somewhat agree," "strongly agree," or "somewhat or strongly agree." Data are presented without statistical comparisons as no control groups were involved.

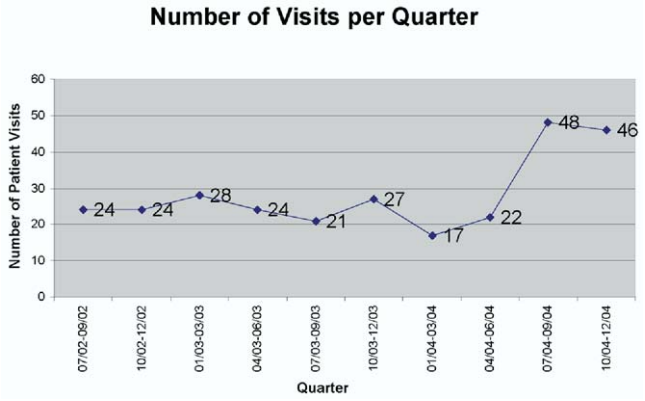

Figure 1. Number of visits per quarter.

Results

Few of the youth (6%) did not have previously diagnosed disorders. Those seven youth without prior diagnoses were well distributed over the four groups. According to NYC's Mental Health Coordinator, no youth refused services and our sample appears representative of youths who needed psychiatric care.

Figure 1 shows the quarterly utilization of the telepsychiatry service. For 24 months the census was steady, representing the quick saturation of the available time slots. The dip in the winter–spring of 2004 represents the unavailability of the telepsychiatrist. The increase of visits in the summer of 2004 represents quick saturation of additional slots made available to NYC.

Table 1 displays the demographic and utilization profile. A total of 115 youth were treated over 279 visits, with a range of one to nine visits and an average of 2.4 visits that was comparable across groups. Males outnumbered females (76% vs. 24%, respectively), consistent with the representation of males at NYC (80%). Older youth outnumbered younger inmates comparably among both males (70%) and females (75%).

The diagnostic profile is presented in Table 2. As expected, comorbidity was common, with an average of 2.4 disorders diagnosed per youth. SUD was the most common diagnosis made for the total sample (64%) and was consistently high in each group. This was followed by ADHD (53%) that was less common in older girls (29%). SUDs and ADHD frequently co-occurred across groups. Other DBDs (32%) affected a quarter to a half of each group. As other investigations have shown, emotional disorders are also common, particularly *Depressive Disorders* (44%). Six youth developed Adjustment Disorders secondary to their incarceration.

Prescribed medications are summarized in Table 3. By far the most commonly prescribed medications were the antidepressants (42%). Some of these prescriptions were for *Anxiety Disorders*. The next most commonly prescribed medications were stimulants or atomoxetine (36%). Boys

Table 1
Utilization of services by gender and age

	Males		Females		Total
	13–15 y/o	16–19 y/o	13–15 y/o	16–19 y/o	
Total patients	26	61	7	21	115
Total visits	67	140	17	55	279
Average visits	2.6	2.3	2.4	2.6	2.4

were more likely to be prescribed these ADHD medications (40% vs. 25%, respectively). Twenty percent (20%) of youth did not receive medication.

Patient satisfaction is summarized in Table 4. As seen, the item measuring "Overall satisfaction with the telepsychiatry visit" was high (4.16). In reviewing individual items, the item "Have no preference for seeing the psychiatrist in person" (3.07) indicated a slight preference for in-person sessions, an expectable outcome. The other two lowest rated items, "Ability to talk freely about your problems" (3.88) and "Was not concerned about being overheard by others" (3.68) were consistent with youths' written comments that they were dissatisfied with the presence of staff during telepsychiatry. The summary score for all 11 satisfaction items provides the most powerful and accurate measure of satisfaction as it contains multiple data points. The summary score was 3.97, supporting youths' satisfaction with telepsychiatry.

Discussion

This descriptive study provides preliminary evidence that telepsychiatry can be used to deliver services at a distance to incarcerated adolescents with a range of psychopathology. Our psychiatrist found that telepsychiatry provided adequate technical resolution and interpersonal rapport to diagnose and treat seriously impaired youth. Anecdotally, in 2005 the model changed. The psychiatrist provided telepsychiatric care and onsite visits during alternate weeks. Diagnoses made through telepsychiatry remained stable after in-person evaluation, suggesting accuracy of telepsychiatric assessment.

Demographic aspects of our sample cannot be readily compared with other studies as they focused on detention centers, not minimum security prisons, with naturalistic mixtures of the genders rather than the restricted mix of females admitted to NYC. Similarly, the diagnostic profile cannot be directly compared nationally, as other studies have reported the prevalence of disorders within the total incarcerated population rather than the profile of youths receiving services. Nonetheless, taking a broad stroke through our diagnostic profile at NYC and that at other centers, there are comparably large representations of SUDs, Disruptive Behavior Disorders, and Mood Disorders. It appears likely that telepsychiatry served youths who are diagnostically representative of other young people in juvenile corrections.

The successful provision of pharmacotherapy underscores the potential of telepsychiatry to improve access to services. Pharmacotherapy is one of the most frequently requested services by correctional facilities as psychosocial services are increasingly available onsite.

This is the first study to examine youths' satisfaction, rather than the satisfaction of their guardians. Overall, these youths were positive about their experience. They were also discriminating in their responses, differentially endorsing concerns about privacy. The initial lack of privacy concerned the telepsychiatrist as it interfered with obtaining an accurate history, establishing rapport, and determining treatment. Close collaboration with the

Table 2
Diagnostic profile of incarcerated youth by gender and age

Diagnoses	Males		Females		Total (n = 115)
	13–15 y/o (n = 26)	16–19 y/o (n = 61)	13–15 y/o (n = 7)	16–19 y/o (n = 21)	
Attention-deficit hyperactivity disorder	17 (65%)	34 (56%)	4 (57%)	6 (29%)	61 (53%)
Disruptive behavior disorders	13 (50%)	16 (26%)	3 (43%)	5 (24%)	37 (32%)
Substance use disorders	17 (65%)	37 (61%)	4 (57%)	16 (76%)	74 (64%)
Depressive disorders	11 (42%)	24 (39%)	4 (57%)	12 (57%)	51 (44%)
Bipolar disorders	0 (0%)	6 (10%)	1 (14%)	3 (14%)	10 (9%)
Anxiety disorders	5 (19%)	9 (15%)	2 (29%)	6 (29%)	22 (19%)
Adjustment disorders	1 (4%)	3 (5%)	0 (0%)	2 (10%)	6 (5%)
Eating disorders	0 (0%)	0 (0%)	1 (14%)	0 (0%)	1 (<1%)
Learning disorders	3 (12%)	4 (7%)	1 (14%)	4 (19%)	12 (10%)
Borderline personality	0 (0%)	0 (0%)	0 (0%)	1 (5%)	1 (<1%)
Total number of diagnoses	67	133	20	55	275
Average number of diagnoses per gender-age group	2.6	2.2	2.8	2.6	2.4

Note: Cells indicate the number of youth receiving that particular diagnosis, not the number of diagnoses. Therefore, numbers and percentages are not additive.

Table 3
Medications prescribed by gender and age

Medication class	Males		Females		Total (n = 115)
	13–15 y/o (n = 26)	16–19 y/o (n = 61)	13–15 y/o (n = 7)	16–19 y/o (n = 21)	
Stimulants/atomoxetine	11 (42%)	24 (39%)	2 (29%)	5 (24%)	42 (36%)
Alpha agonists	1 (4%)	3 (5%)	2 (29%)	1 (5%)	7 (6%)
Antidepressants	8 (31%)	24 (39%)	3 (43%)	13 (62%)	48 (42%)
Mood stabilizers	0 (0%)	9 (15%)	1 (14%)	3 (14%)	13 (11%)
Anxiolytics	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Antipsychotics	1 (4%)	3 (5%)	0 (0%)	0 (0%)	4 (4%)
Soporific agents	4 (15%)	7 (12%)	1 (14%)	4 (19%)	16 (14%)
No medications	6 (23%)	12 (20%)	1 (14%)	4 (19%)	23 (20%)

Note: Cells indicate the number of youth receiving that particular class of medication, not the number of medications/prescriptions provided. Therefore, numbers and percentages are not additive.

staff was needed to build trust so that they then allowed youths to participate in a less restrictive manner, i.e., with only the ARNP in attendance.

Another challenge to our telepsychiatry service related to the use of the psychiatrist's time. The consultation model intended for the psychiatrist to provide care during the telepsychiatry sessions and for onsite staff to provide interim care, including crisis care. However, the staff frequently contacted the telepsychiatrist by phone, straining the telepsychiatrist's time commitment. Efforts are ongoing to collaborate with staff to maintain the model and to improve staff's skills in integrating psychiatric care into the overall mental health model at NYC, for example, increasing understanding of how selected diagnoses relate to youths' disruptive behaviors and clarifying the role and limitations of pharmacotherapy. Records preview was also demanding on the telepsychiatrist's time. Time allocation and financial reimbursement for such time should be integrated into contracts so as to reasonably account for the telepsychiatrist's commitment to the program and prevent "burnout."

Limitations

This study was descriptive with limitations typical of most reviews of existing records. Therefore, the data are best used to generate hypotheses for future systematic investigations. Although reportedly no youth refused telepsychiatry, some youth likely did refuse but might have consented to on-site care. Thus, our sample might not have been representative. Accuracy of diagnoses, their relationship to prescribed medications, and the use of evidence-based practices could not be determined but are important to the future integration of telepsychiatry into routine care. Finally, youths' satisfaction with telepsychiatric care does not

Table 4
Telepsychiatry satisfaction of incarcerated youth

Satisfaction				
Self-rating of global aspects of the visit (n = 115) (1 = Poor to 5 = Outstanding)	Mean	% Very good	% Outstanding	% Very good or outstanding
Overall satisfaction with the telepsychiatry visit	4.16	39.5%	40.3%	79.8%
Self-rating of technical aspects of the visit (n = 115) (1 = Poor to 5 = Outstanding)				
Ability to see psychiatrist on TV screen	4.14	37.0%	40.3%	77.3%
Ability to understand the psychiatrist's recommendations	4.18	50.4%	34.5%	84.9%
Ability to talk freely about your problems	3.88	38.7%	30.3%	69.0%
Self-rating of clinical experience of the visit (n = 115) (1 = Strongly Disagree to 5 = Strongly Agree)		% Somewhat agree	% Strongly agree	% Somewhat or strongly agree
Could talk comfortably with the psychiatrist	4.03	51.3%	29.4%	80.7%
Was not concerned about being overheard by others	3.68	35.3%	30.3%	85.6%
Telepsychiatry makes it easier to see a specialist	4.08	36.1%	40.3%	76.4%
Willing to use telepsychiatry again	4.33	42.9%	46.2%	89.1%
Have no preference for seeing psychiatrist in person	3.07	16.4%	17.2%	33.6%
Would recommend telepsychiatry to friends	3.99	47.9%	29.4%	77.3%
Feel confident about the psychiatrist's recommendations despite that he/she was not in the same room with me	4.12	37.5%	40.8%	78.3%

equate to the quality of care received or to its comparability with in-person care.

Conclusions

Based on this experience, future research on the use of telepsychiatry with incarcerated youth seems warranted. This demonstration of the feasibility of establishing a telepsychiatry service, its solid acceptability to youth, and tolerability by staff opens the door for further investigation of the ability of telepsychiatry to deliver evidence-based, quality care that improves outcomes for high-risk incarcerated youth.

References

[1] Hersh W, Helfand M, Wallace J, et al. A systematic review of the efficacy of telemedicine for making diagnostic and management decisions. J Telemed Telecare 2002;8:197–209.

[2] Bishop JE, O'Reilly RL, Maddox K, Hutchinson LJ. Client satisfaction in a feasibility study comparing face-to-face interviews with telepsychiatry. J Telemed Telecare 2002;8:217–21.

[3] Hilty DM, Nesbit TS, Marks SL, Callahan EJ. Effects of telepsychiatry on the doctor-patient relationship: communication, satisfaction, and relevant issues. Prim Psychiatry 2002;9:29–34.

[4] Appel PR, Bleiberg J, Noiseux J. Self-regulation training for chronic pain: can it be done effectively by telemedicine? Telemed J E Health 2002;8:361–8.

[5] Myers KM, Sulzbacher S, Melzer S. Telepsychiatry in child and adolescent psychiatry: are patients comparable to those in usual outpatient care? Telemed J E Health 2004;10:278–84.

[6] Blackmon LA, Kaak HO, Ranseen J. Consumer satisfaction with telemedicine child psychiatry consultation in rural Kentucky. Psychiatr Serv 1997;48:1464–6.

[7] Elford R, White H, Bowering R, et al. A randomized, controlled trial of child psychiatric assessments conducted using videoconferencing. J Telemed Telecare 2000;6:73–82.

[8] Hilty DM, Sison JI, Nesbit TS, Hales RE. Telepsychiatry consultation for ADHD in the primary care setting. J Am Acad Child Adolesc Psychiatry 2000;39:15–6.

[9] Nelson EL, Barnard M, Cain S. Treating childhood depression over teleconferencing. Telemed J E Health 2003;9:49–55.

[10] Domalanta DD, Risser WL, Roberts RE, Risser JMH. Prevalence of depression and other psychiatric disorders among incarcerated youths. J Am Acad Child Adolesc Psychiatry 2003;42:477–84.

[11] Teplin LA, Abram KM, McClelland GM, et al. Psychiatric disorders in youth in juvenile detention. Arch Gen Psychiatry 2002;59:1133–43.

[12] Wasserman GA, Ko SJ, McReynolds LS. Assessing the Mental Health Status of Youth in Juvenile Justice Settings. Washington, DC: U.S. Department of Justice, 2004.

[13] Abram KM, Teplin LA, McClelland GM, Dulcan MK. Comorbid psychiatric disorders in youth in juvenile detention. Arch Gen Psychiatry 2003;60:1097–108.

[14] Pumariega AJ, Atkins DI, Rogers K, et al. Mental health and incarcerated youth. II: service utilization. J Child Fam Stud 1999;8:205–15.

[15] Committee on Government Reform. Incarceration of Youth who are Waiting for Community Mental Health Services in the United States. Washington, DC: United States House of Representatives, 2004.

[16] American Psychiatric Association. The Diagnostic and Statistical Manual of Mental Disorders, 4th edn. Washington, DC: APA Press, 1994.

[17] Hicks LL, Boles KE, Hudson S, et al. Patient satisfaction with teledermatology services. J Telemed Telecare 2003;9:42–5.