

# Innovative Approaches in Pediatric Psychiatry Evaluating the Effectiveness of Telepsychiatry in Children and Adolescents

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## Author's Contribution

<sup>1,4</sup>Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, <sup>2,3</sup>Drafting the work or revising it critically for important intellectual content, Proof read, <sup>5,6</sup>Analysis, Active participation in active methodology

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## ABSTRACT

**Objective:** The purpose of this research was to compare the efficacy of conventional in-person psychiatric therapy with telepsychiatry in terms of treatment adherence, patient satisfaction, and clinical improvement in pediatric populations.

**Methodology:** A prospective cohort research with 518 individuals aged 5 to 18 years who had been diagnosed with mental problems was carried out from January to December 2023 at Bacha Khan Medical College, Mardan. Either the in-person care group (n=195) or the telepsychiatry group (n=323) received the participants' assignments. The Children's Global Assessment Scale (CGAS) and Clinical Global Impressions (CGI) scores were used to quantify clinical improvement, and structured questionnaires and session attendance records were used to examine patient satisfaction and treatment adherence. Baseline characteristics were summed up using descriptive statistics, and independent t-tests were used to compare clinical outcomes between the two groups for continuous variables. P-values less than 0.05 were regarded as statistically significant.

**Results:** Both groups exhibited significant clinical improvements over 12 months. The telepsychiatry group (n=323) demonstrated an increase in CGAS scores from a baseline of 45.25 (SD  $\pm 10.37$ ) to 78.62 (SD  $\pm 5.37$ ) (p=0.048), while the in-person care group (n=195) improved from 44.81 (SD  $\pm 10.54$ ) to 80.35 (SD  $\pm 4.96$ ) (p=0.048). For patient satisfaction, the telepsychiatry group reported a mean score of 8.29 (SD  $\pm 1.58$ ), compared to 8.53 (SD  $\pm 1.37$ ) in the in-person group (p=0.211). Treatment adherence rates were 80.86% in the telepsychiatry group (1,310 of 1,620 sessions attended) and 84.52% in the in-person group (989 of 1,170 sessions attended). Overall, 186 participants (57.58%) in the telepsychiatry group reported significant clinical improvement compared to 119 participants (61.02%) in the in-person care group (p=0.134).

**Conclusion:** Telepsychiatry is an effective alternative to traditional care for children and adolescents, yielding comparable clinical outcomes and patient satisfaction while improving access to mental health services.

**Keywords:** telepsychiatry, pediatric psychiatry, mental health, clinical outcomes, patient satisfaction, treatment adherence.

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## Introduction

The increasing number of children and adolescents experiencing mental health issues has led to a rise in the need for psychiatric therapies that are timely, accessible, and effective.<sup>1,2</sup> Families often face major obstacles when it comes to traditional in-person psychiatric consultations, especially in underprivileged and isolated places.<sup>3</sup> Long wait periods, remote locations, and the stigma attached to getting mental health treatment are some of these obstacles.<sup>4</sup> Telepsychiatry is one of the alternative care

models that have been investigated in response to these difficulties.<sup>5</sup> Telepsychiatry, a subspecialty of telemedicine, uses telecommunications technology to provide mental health care remotely, perhaps getting around some of the drawbacks of traditional in-person consultations.<sup>6</sup>

Telepsychiatry has gained popularity recently as a cutting-edge method of providing mental health treatment, especially to younger populations.<sup>7, 8</sup> Its introduction was hastened by the COVID-19 pandemic,

as healthcare institutions throughout the globe quickly adjusted to reduce in-person encounters while preserving vital services.<sup>9</sup> Telepsychiatry has been shown to offer several advantages, such as shorter travel times, more convenient access to patients, and the capacity to assist underprivileged and rural communities.<sup>10</sup> But there are still concerns regarding its effectiveness in comparison to conventional psychiatric treatments, particularly when it comes to younger groups who may need more complex, in-person therapy procedures.<sup>11</sup>

The usefulness of telepsychiatry in treating children and adolescents is still not well understood, despite its increasing usage. There is little information on how telepsychiatry affects younger patients' clinical outcomes, therapeutic engagement, and treatment adherence since the majority of research concentrate on adult populations. Furthermore, a lack of uniform methodology in the literature creates a void in our knowledge of its actual efficacy in comparison to conventional pediatric psychiatric therapy.

This research compared the results of telepsychiatry with conventional in-person psychiatric therapy in terms of clinical improvement, patient satisfaction, and treatment adherence in order to assess the efficacy of the practice in children and adolescents.

## Methodology

This research was carried out in the Department of Psychiatry, Pakistan Institute of Medical Science (PIMS), Islamabad, and was planned as a prospective cohort study. The one-year research, which ran from January 2023 to December 2023, compared clinical outcomes, patient satisfaction, and treatment adherence between conventional in-person psychiatric care and telepsychiatry in order to assess the efficacy of the latter in treating children and adolescents.

The study's inclusion criteria included participants who were willing to participate in either in-person or telepsychiatric care for the duration of the study, as well as children and adolescents aged 5 to 18 who had a confirmed diagnosis of a psychiatric disorder and access to computers, smartphones, or tablets for telepsychiatry sessions. On the other hand, patients with neurological or mental disorders necessitating emergency hospitalization, those without reliable internet access or telecommunications equipment, and people incapable of giving informed permission or whose guardians declined consent were among the exclusion criteria.

The World Health Organization's (WHO) method for determining sample size was used to determine the sample size. With a 95% confidence interval, 80% power, and an anticipated improvement rate of 70% in the telepsychiatry group and 85% in the in-person treatment group, a total of around 518 individuals were needed to detect a significant difference between the two groups. This ensured sufficient representation for both treatment modalities, with 323 individuals for the telepsychiatry group and 195 people for the in-person care group.

During the course of the one-year study period, follow-up examinations were planned every three months after the first assessments conducted at enrollment. Standardized psychiatric assessments, such as the Clinical Global Impressions Scale (CGI) and the Children's Global Assessment Scale (CGAS), were used to evaluate clinical progress. Structured questionnaires were used to assess patient satisfaction, and medication compliance records and session attendance were used to track treatment adherence. Psychiatry Department was the location for in-person consultations, while secure, HIPAA-compliant video platforms were used for telepsychiatry sessions.

SPSS version 25 was used to analyze the data. Baseline characteristics were summed up using descriptive statistics, and independent t-tests were used to compare clinical outcomes between the two groups for continuous variables. P-values less than 0.05 were regarded as statistically significant.

The Institutional Review Board (IRB) granted ethical permission for the research. Before the trial began, all participants or their guardians provided written informed permission.

## Results

The study presents demographic and baseline characteristics of participants in Table I. The In-Person Care Group (n=195) had a mean age of 11.03 years (SD  $\pm 3.64$ ), while the Telepsychiatry Group (n=323) had a mean age of 11.29 years (SD  $\pm 3.47$ ). Gender distribution was similar, with males comprising 49.54% (telepsychiatry) vs. 46.15% (in-person) and females 50.46% vs. 53.85%, respectively. Socioeconomic status was also comparable, with 46.43% (telepsychiatry) vs. 46.15% (in-person) classified as poor, and around 40% in the intermediate class for both groups. Diagnoses included anxiety disorders (30.94% vs. 33.33%), mood disorders (37.10% vs. 35.90%), and behavioral problems (31.94% vs. 30.77%) (Table I).

**Table I: Demographic and Baseline Characteristics of Participants.**

| Characteristic              |                      | Telepsychiatry Group (n=323) | In-Person Care Group (n=195) |
|-----------------------------|----------------------|------------------------------|------------------------------|
| Age (years)                 | (Mean $\pm$ SD)      | 11.29 $\pm$ 3.47             | 11.03 $\pm$ 3.64             |
| Gender (n, %)               | Male                 | 160 (49.54%)                 | 90 (46.15%)                  |
|                             | Female               | 163 (50.46%)                 | 105 (53.85%)                 |
| Socioeconomic Status (n, %) | Low                  | 150 (46.43%)                 | 90 (46.15%)                  |
|                             | Middle               | 130 (40.25%)                 | 80 (41.03%)                  |
|                             | High                 | 43 (13.31%)                  | 25 (12.82%)                  |
| Diagnosis (n, %)            | Anxiety Disorders    | 100 (30.94%)                 | 65 (33.33%)                  |
|                             | Mood Disorders       | 120 (37.10%)                 | 70 (35.90%)                  |
|                             | Behavioral Disorders | 103 (31.94%)                 | 60 (30.77%)                  |

**Table II: Clinical Improvement Metrics and Patient Satisfaction**

| Metric/Measure              |   | Telepsychiatry Group (n=323) | In-Person Care Group (n=195) | p-value |
|-----------------------------|---|------------------------------|------------------------------|---------|
| CGAS Scores                 | Baseline Score (Mean $\pm$ SD)          | 45.25 $\pm$ 10.37            | 44.81 $\pm$ 10.54            | 0.712   |
|                             | 3-Month Follow-Up (Mean $\pm$ SD)       | 60.12 $\pm$ 8.53             | 61.54 $\pm$ 7.98             | 0.354   |
|                             | 6-Month Follow-Up (Mean $\pm$ SD)       | 70.43 $\pm$ 6.75             | 73.21 $\pm$ 5.48             | 0.014*  |
|                             | 12-Month Follow-Up (Mean $\pm$ SD)      | 78.62 $\pm$ 5.37             | 80.35 $\pm$ 4.96             | 0.048*  |
| CGI Scores                  | Baseline Score (Mean $\pm$ SD)          | 4.59 $\pm$ 0.83              | 4.61 $\pm$ 0.74              | 0.501   |
|                             | 3-Month Follow-Up (Mean $\pm$ SD)       | 2.85 $\pm$ 0.62              | 2.58 $\pm$ 0.53              | 0.118   |
|                             | 6-Month Follow-Up (Mean $\pm$ SD)       | 2.24 $\pm$ 0.57              | 2.12 $\pm$ 0.46              | 0.324   |
|                             | 12-Month Follow-Up (Mean $\pm$ SD)      | 1.98 $\pm$ 0.47              | 1.85 $\pm$ 0.36              | 0.236   |
| Significant Improvement     | (n, %)                                  | 186 (57.58%)                 | 119 (61.02%)                 | 0.134   |
| Patient Satisfaction Scores | Mean Satisfaction Score (Mean $\pm$ SD) | 8.29 $\pm$ 1.58              | 8.53 $\pm$ 1.37              | 0.211   |
|                             | Positive Experience (n;%)               | 258 (79.87%)                 | 166 (85.12%)                 | 0.189   |

**Table III: Treatment Adherence Metrics.**

| Measure               |                          | Telepsychiatry Group (n=323) | In-Person Care Group (n=195) |
|-----------------------|--------------------------|------------------------------|------------------------------|
| Session Attendance    | Total Scheduled Sessions | 1,620                        | 1,170                        |
|                       | Total Attended Sessions  | 1,310                        | 989                          |
|                       | Adherence Rate (%)       | 80.86%                       | 84.52%                       |
| Medication Compliance | Full Adherence (n;%)     | 210 (65.01%)                 | 145 (74.35%)                 |

Patient satisfaction and clinical improvement (Table II) showed significant gains in both groups. The Telepsychiatry Group (n=323) had a baseline CGAS score of 45.25 (SD  $\pm$ 10.37), improving to 70.43 at 6 months (p=0.014) and 78.62 at 12 months (p=0.048). The In-Person Care Group (n=195) started at 44.81 (SD  $\pm$ 10.54), rising to 73.21 (6 months, p=0.014) and 80.35 (12 months, p=0.048). CGI scores also improved, with the In-Person Care Group decreasing from 4.61 to 1.85 after 12 months (p=0.236), whereas the Telepsychiatry Group's baseline was 4.59 (SD  $\pm$ 0.83). Comparing the Telepsychiatry Group (n=186) to the In-Person Care Group (n=119), 61.02% (n=119) indicated substantial improvement overall (p=0.134). The Telepsychiatry

group's average patient satisfaction score was 8.29 (SD  $\pm$ 1.58), whereas the In-Person Care group's average score was 8.53 (SD  $\pm$ 1.37) (p=0.211). Of the Telepsychiatry participants, 79.87% (n = 258) had a pleasant experience, while 85.12% (n = 166) in the In-Person Care group said the same (p=0.189).

The two groups' differences are emphasized by treatment adherence indicators (Table III). With 1,320 of the 1,620 planned sessions in the Telepsychiatry Group (n=323) being attended, the adherence rate was 80.86%. With 989 of the 1,170 planned sessions in the In-Person Care Group (n = 195) being attended, the adherence rate was higher at 84.52%. 65.01% (n=210) of individuals in the Telepsychiatry Group showed complete adherence to medication, whereas 74.35% (n=145) in the In-Person Care Group did the same.

Several distinct obstacles affected treatment adherence in both groups (Figure 1). In the Telepsychiatry Group (n = 323), 19 participants encountered technology-related issues, which were absent in the In-Person Care Group. Scheduling difficulties were more prevalent in the Telepsychiatry Group, with 28 participants reporting challenges, compared to 11 in the In-Person Care Group. Other barriers included insufficient knowledge (3 in the In-Person Care Group vs. 2 in the Telepsychiatry Group), privacy concerns (2 vs. 1), environmental distractions (4 vs. 2), family support issues (12 vs. 7), and

communication problems (6 vs. 4). Notably, transportation challenges were exclusive to the In-Person Care Group, with 5 participants citing this as an obstacle.

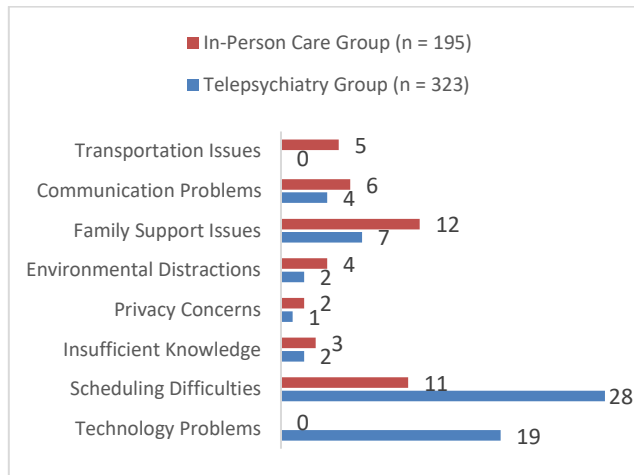


Figure 1. Barriers Faced by Telepsychiatry and In-Person Care Participants.

## Discussion

The study's conclusions show a noteworthy 12-month increase in clinical outcomes for both the in-person treatment group and the telepsychiatry group. At the 12-month follow-up, the CGAS scores of the Telepsychiatry Group showed improvement from a baseline of 45.25 (SD  $\pm 10.37$ ) to 78.62 (SD  $\pm 5.37$ ), whereas the In-Person Care Group showed an improvement from 44.81 (SD  $\pm 10.54$ ) to 80.35 (SD  $\pm 4.96$ ). These findings are consistent with other studies showing that, particularly in pediatric populations, telepsychiatry may provide therapeutic outcomes that are equivalent to those of conventional approaches.<sup>12</sup> Similar improvements in CGAS scores were seen in a research by Hilty et al.<sup>13</sup>, demonstrating the efficacy of telepsychiatry in providing mental health care to minors.

Metrics measuring patient satisfaction also highlight how effective both therapy approaches are. The In-Person Care Group scored better at 8.53 (SD  $\pm 1.37$ ) than the Telepsychiatry Group, which reported a mean satisfaction score of 8.29 (SD  $\pm 1.58$ ). In spite of this discrepancy, the ratings indicate high levels of satisfaction with both modalities, which is in line with other research showing that patients often see telepsychiatry as practical and efficient.<sup>14</sup> Barrett and Murphy<sup>15</sup> have underlined the intrinsic significance of in-person contacts, which is shown in the somewhat greater satisfaction of the In-Person Care Group. They have observed that in-person visits may strengthen therapeutic alliances.

The In-Person Care Group had a better rate of 84.52% treatment adherence than the Telepsychiatry Group, which obtained 80.86%. These findings support past research that discovered that because of the controlled atmosphere of clinical settings, in-person therapy usually resulted in greater adherence rates.<sup>16</sup> Interestingly, 65.01% of the Telepsychiatry Group and 74.35% of the In-Person Care Group reported complete drug adherence. This discrepancy emphasizes the difficulties telepsychiatry has in guaranteeing treatment compliance, and it implies that medication adherence may be problematic for distant therapy because of things like a lack of in-person monitoring.<sup>17</sup>

Notable variations were also seen in treatment adherence barriers. The In-Person Care Group did not experience the technological problems that 19 individuals in the Telepsychiatry Group experienced. Only 11 individuals in the in-person care group had scheduling issues; 28 people in the telepsychiatry group did. This result is in line with other studies that found logistical issues to be important roadblocks to the effectiveness of telehealth.<sup>18</sup> Resolving these obstacles is essential to maximizing telepsychiatry's efficacy for future research and clinical applications.

**Study Limitations:** It is important to recognize the limitations of this research. First off, the sample size could not accurately reflect the variety of pediatric populations across various areas, even if it is sufficient for preliminary comparisons. Furthermore, bias may be introduced by using self-reported metrics to gauge patient satisfaction and treatment adherence. The study's limited applicability to other healthcare settings stems from its single-setting design. Moreover, although a one-year follow-up offers insightful information, it may not be enough to evaluate long-term results and the durability of treatment benefits. Finally, the technical problems that a few members of the telepsychiatry group experienced highlight the need of enhanced infrastructure in order to properly enable remote mental health treatment.

## Conclusion

This research shows that for children and adolescents, telepsychiatry is a useful substitute for conventional in-person mental health treatment. Significant clinical improvements, great patient satisfaction, and similar treatment adherence rates were the outcomes of both therapy regimens. Even while telepsychiatry has some difficulties like technological obstacles and worse drug adherence it also has significant advantages, especially

when it comes to improving accessible for marginalized groups. These results highlight telepsychiatry's potential to address young patients' increasing need for mental health treatments, which calls for further research and incorporation into pediatric psychiatric practice.

## References

- McGorry PD, Mei C, Chanan A, Hodges C, Alvarez-Jimenez M, Killackey E. Designing and scaling up integrated youth mental health care. *World Psychiatry*. 2022 Feb;21(1):61-76. Available from: <https://doi.org/10.1002/wps.20938>
- De Girolamo G, Dagani J, Purcell R, Cocchi A, McGorry PD. Age of onset of mental disorders and use of mental health services: needs, opportunities and obstacles. *Epidemiol Psychiatr Sci*. 2012 Mar;21(1):47-57. Available from: <https://doi.org/10.1017/S2045796011000746>
- Mseke EP, Jessup B, Barnett T. A systematic review of the preferences of rural and remote youth for mental health service access: Telehealth versus face-to-face consultation. *Aust J Rural Health*. 2023 Jun;31(3):346-60. Available from: <https://doi.org/10.1111/ajr.12961>
- Wang L, Alexander CA. Telepsychiatry: Technology progress, challenges, and language and transcultural issues. *J Transl Med Dev Disord*. 2014;1(1):1-1. Available from: <https://doi.org/10.12691/jtmd-1-1-1>
- Vadlamani LN, Sharma V, Emani A, Gowda MR. Telepsychiatry and outpatient department services. *Indian J Psychol Med*. 2020 Oct;42(5 Suppl):275-335. Available from: <https://doi.org/10.1177/0253717620960694>
- Cho CH, Lee HJ, Kim YK. Telepsychiatry in the Treatment of Major Depressive Disorders. *Recent Advances and Challenges in the Treatment of Major Depressive Disorder*. 2024 Sep 13:333-56. Available from: [https://doi.org/10.1007/978-981-97-4402-2\\_17](https://doi.org/10.1007/978-981-97-4402-2_17)
- Valentine AZ, Hall SS, Young E, Brown BJ, Groom MJ, Hollis C, Hall CL. Implementation of telehealth services to assess, monitor, and treat neurodevelopmental disorders: systematic review. *J Med Internet Res*. 2021 Jan 20;23(1):e22619. Available from: <https://doi.org/10.2196/22619>
- Folk JB, Schiel MA, Oblath R, Feuer V, Sharma A, Khan S, Doan B, Kulkarni C, et al. The transition of academic mental health clinics to telehealth during the COVID-19 pandemic. *J Am Acad Child Adolesc Psychiatry*. 2022 Feb 1;61(2):277-90. Available from: <https://doi.org/10.1016/j.jaac.2021.06.003>
- Appleton R, Williams J, Vera San Juan N, Needle JJ, Schlieff M, Jordan H, et al. Implementation, adoption, and perceptions of telemental health during the COVID-19 pandemic: systematic review. *J Med Internet Res*. 2021 Dec 9;23(12):e31746. Available from: <https://doi.org/10.2196/31746>
- DeHart D, King LB, Iachini AL, Browne T, Reitmeier M. Benefits and challenges of implementing telehealth in rural settings: A mixed-methods study of behavioral medicine providers. *Health Soc Work*. 2022 Feb 1;47(1):7-18. Available from: <https://doi.org/10.1093/hsw/hlab036>
- Malhotra S, Chakrabarti S, Shah R. Telepsychiatry: Promise, potential, and challenges. *Indian J Psychiatry*. 2013 Jan 1;55(1):3-11. Available from: <https://doi.org/10.4103/0019-5545.105499>
- Pakyurek M, Yellowlees P, Hilty D. The child and adolescent telepsychiatry consultation: can it be a more effective clinical process for certain patients than conventional practice?. *Telemed e-Health*. 2010 Apr 1;16(3):289-92. Available from: <https://doi.org/10.1089/tmj.2009.0130>
- Hilty DM, Shoemaker EZ, Myers K, Snowdy CE, Yellowlees PM, Yager J. Need for and steps toward a clinical guideline for the telemental healthcare of children and adolescents. *J Child Adolesc Psychopharmacol*. 2016 Apr 1;26(3):283-95. Available from: <https://doi.org/10.1089/cap.2015.012>
- Feng J. Telemedicine for Mental Disorders: A Review of Treatment Outcomes, Patient Satisfaction, and Reliability Comparisons with In-Person Care. *Undergrad Res Nat Clin Sci Technol J*. 2023 Nov 10;7:1-5. Available from: <https://doi.org/10.26685/urncst.508>
- Barrett AK, Murphy MM. Feeling supported in addiction recovery: Comparing face-to-face and videoconferencing 12-step meetings. *West J Commun*. 2021 Jan 1;85(1):123-46. Available from: <https://doi.org/10.1080/10570314.2020.1786598>
- Ruskin PE, Silver-Aylai M, Kling MA, Reed SA, Bradham DD, Hebel JR, Barrett D, Knowles III F, Hauser P. Treatment outcomes in depression: comparison of remote treatment through telepsychiatry to in-person treatment. *Am J Psychiatry*. 2004 Aug 1;161(8):1471-6. Available from: <https://doi.org/10.1176/appi.ajp.161.8.1471>
- Shulman M, John M, Kane JM. Home-based outpatient telepsychiatry to improve adherence with treatment appointments: A pilot study. *Psychiatr Serv*. 2017 Jul 1;68(7):743-6. Available from: <https://doi.org/10.1176/appi.ps.201600244>
- Schaffer CT, Nakrani P, Pirraglia PA. Telemental health care: A review of efficacy and interventions. *Telehealth Med Today*. 2020 Nov 27;5(4). Available from: <https://doi.org/10.30953/tmt.v5.218>