“Bridge over troubled water”: A first look at adolescent psychiatric outpatients transited from regular care to teletherapy during the COVID-19 outbreak using quantitative and qualitative analyses.

Mercedes Maria Hucsaava  
Medical University of Vienna  
https://orcid.org/0000-0003-0089-5505

Christian Scharinger  
Medizinische Universität Wien

Paul L. Plener  
Medizinische Universität Wien

Oswald D. Kothgassner  
osalw.kothgassner@meduniwien.ac.at  
https://orcid.org/0000-0002-3243-0238

Research article

Keywords: child and adolescent psychiatry, adolescents, mental health, psychiatric disorders, COVID-19, pandemic, teletherapy

DOI: https://doi.org/10.21203/rs.3.rs-40679/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.  Read Full License
Abstract

Background

Adolescents suffering from psychiatric disorders are at risk of disproportionally suffering from the current COVID-19-pandemic. We aimed to assess their specific needs and to evaluate factors influencing a successful transition into teletherapy.

Methods

Thirty adolescent psychiatric outpatients participated in a series of interviews. The primary outcome was the level of psychosocial functioning. Secondary outcome were potential changes in differential symptom domains. Additionally, answers to open questions were analysed qualitatively.

Results

Within-group effect size estimates revealed a significant decrease in the level of functioning within the first two months after transition from face-to-face therapy ($M = 2.7$, $SD = 1.258$) to teletherapy ($M = 3.0$, $SD = 1.245$) ($T_{29} = -2.536$, $p = 0.017$, $d = 0.46$). Qualitative analysis revealed a marked difference in the level of perceived social support in the subgroup of patients who deteriorated in their level of functioning. Those patients also showed a lower degree of verbal differentiation concerning emotions and affect, as well as a higher degree of introspection and rumination.

Conclusions

Despite an overall deterioration, in absolute numbers most patients showed a stagnation in their level of functioning, even if difficulties were expressed. The most prominent difference in the subgroup who showed a decreased level of functioning, was the lack of perceived social support. Provision of strategies to enhance verbalisation and differentiation of emotions and affect might be beneficial.

Background

The COVID-19-pandemic had a huge impact on affected countries worldwide, demanding sacrifices from individuals and systems. Restrictions set to ensure minimum spreading of SARS-Cov-2 entailed considerable changes in many aspects of daily life, including clinical work. First observations of the COVID-19-pandemic suggest disproportional consequences for psychiatric patients (1–4), even a potentially increased suicide risk (5, 6). Following the need to continuously serve patients, a lot of effort went into provision of care through other means not including physical contact, such as teletherapeutic offers (7–11). In line with this argument, and given COVID-19-associated restrictions and changes in several legal regulations, an ad hoc switch from face-to-face appointments to teletherapy for current outpatients took place in many departments of child and adolescent psychiatry.

Considering the novelty of the situation and rapid changes in the process of the pandemic, teletherapy was started without prior training of the providing staff. In order to ensure continuation of high-quality services and to provide a basis for strategic planning of continued patient care, especially in expectance of potential sequelae of the COVID-19-pandemic (13–15), we aimed at systematically evaluating patients’ needs during the crisis and teletherapy as such. This was also motivated by the fact that, following an extensive literature research, the group of adolescents with mental health disorders has neither gained much research attention in prior situations including measures of quarantine and school-closures, nor in association with the current COVID-19-pandemic. It seems that research focus mainly concentrates on overall mental health aspects, especially on stress reactions and service provision to mitigate the effects of the crisis for the general population. (13, 16–20) Topics evolving and insights gained in the process form the base for further steps, especially concerning positive lessons and pitfalls of teletherapy and screening for those, who might rather benefit from teletherapy. This might be especially relevant in case of a potential second wave of the current pandemic.
Methods

Participants

Ethical approval was obtained from the institutional review board of the Medical University of Vienna (#1383/2020) and patients and guardians gave written consent for study participation. Only patients between 12 and 18 years in well established, frequent treatment – i.e. at least weekly contacts – were invited to participate by their respective psychiatrists. 32 adolescent patients with mental health disorders were eligible and agreed to participate in the study. Two participants refused to participate. The mean age of the sample was 16·21 years (SD = 1·567; ranging from 12 to 18). 86·7% were female, 83·3% of the patients went to school or to work (at the time via distance-learning), 10% were the only child in the family, 90% lived with both or at least one parent in the same household. Table 1 gives an overview of the sample characteristics and diagnoses. There were no no-shows during teletherapy; one patient had a suicide attempt after the evaluated 4 weeks period and had to admitted to one of the inpatient units of the clinic.
Table 1
Description of the study sample (N = 30)

| No. (%)                                                                 |
|------------------------------------------------------------------------|
| Hardware used for internet-based therapy                               |
| Smartphone                                                            | 9 (30%)               |
| Laptop/PC                                                             | 14 (46·7%)            |
| Other                                                                 | 7 (23·3%)             |
| Siblings                                                              | 2 (6·7%)              |
| No siblings                                                           | 14 (46·7%)            |
| One sibling                                                           | 13 (42·4%)            |
| Two or more                                                           | 1 (3%)                |
| No answer                                                             |                       |
| Persons living in the same household                                  | 16 (53·3%)            |
| Two – Three                                                           | 14 (46·7%)            |
| Four or more                                                         |                       |
| Diagnosis                                                             |                       |
| F28 Psychotic disorders, otherwise specified                         | 11 (37%)              |
| F32 Depressive episode                                                | 1 (3%)                |
| F41.0 Panic disorder episodic paroxysmal anxiety                      | 6 (20%)               |
| F43.1 Post-traumatic stress disorder                                  | 4 (13%)               |
| F42.2 Obsessive-Compulsive Disorder                                   | 1 (3%)                |
| F50 Eating disorders                                                 | 1 (3%)                |
| F60.3 Emotionally unstable personality disorder                      | 2 (7%)                |
| F60.8 Personality disorder, otherwise specified                      |                       |
| F62.0 Enduring personality change after catastrophic experience      |                       |

Table 2. Correlations of reported symptom changes in response to teletherapy for patients with mental health disorders (N = 30)

|                                  | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      | 11      | 12      |
|----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 response to internet-based therapy | **0·547** 0·285 0·094 0·213 **0·394** -0·092 -0·188 -0·28 0·11 0·095 0·085 |
| 2 reported symptom improvement  | -       | 0·335   -0·024 0·036 **0·671** 0·081 -0·071 0·041 **0·469** **0·495** **0·543** |
| 3 anxiety                        | -       | 0·21    0·188 **0·557** 0·122 -0·089 0·062 0·29 0·201 0·429 |
| 4 compulsions                    | -       | 0·669   -0·061 0·089 0·03 0·145 -0·023 -0·131 0·123 |
| No. (%) | 5 obsessions | 6 mood | 7 tension | 8 alcohol use | 9 tobacco use | 10 self-harm thoughts | 11 self-harm behavior | 12 suicidal ideations |
|---------|--------------|--------|-----------|--------------|--------------|----------------------|----------------------|---------------------|
|         | - 0.138 | -0.313 | -0.103 | -0.011 | 0.106 | 0.011 | -0.031 |
|         | 0.389 | 0.332 | 0.609 |
|         | -0.104 | -0.154 | 0.31 | 0.14 | 0.181 |
|         | 0.023 | -0.106 | 0.081 | 0.062 |
|         | 0.017 | 0.007 | 0.01 |
| 0.68    | 0.336 |
| 0.287   |       |

Note: Values in bold indicate significant results (p < 0.05)

**Procedure**

We used the means of teletherapy available at our Department. Instahelp (brand of Insta Communications GmbH / Up to Eleven Digital Solutions GmbH), an existing platform conforming to Austrian data safeguarding measures, provided the platform for videocalls. The study was set up as a multi-layered project targeting differential research questions, so that a series of interviews (around 30 minutes each) was planned. The analysis of the first set of interviews aimed at forming a grounded hypothesis on specific needs of adolescents with mental health disorders during the COVID-19-pandemic and to gain insight into factors influencing the transition from face-to-face contacts into teletherapy. Upon interest, patients and guardians were contacted and informed by the study team. Since ethical approval was sought right after the onset of the lockdown, we were able to recruit patients when lockdown measures were still at their maximum (i.e. home quarantine). Upon arrival of a mailed written informed consent, dates for the interviews were set. Patients were asked if they would rather be interviewed via telephone or via videocall. Interviews were carried out by two 5-year residents in Child and Adolescent Psychiatry, both working at the out-patient unit.

**Measurements**

Interviews were semi-structured, containing questions to be rated on 3-, 4-, or 5-point Likert-scales, respectively, as well as open questions. Questions centred around following content: basic demographic data (as provided in Table 1), teletherapy (subjective rating in contrast to face-to-face contacts, device used, advantages and disadvantages), symptoms (subjective changes, specific psychopathology – thought disorder, anxiety, obsessions, compulsions, mood, tension –, non-suicidal self-injury (NSSI), suicidal ideations), substance use (alcohol and cigarettes), social context (family, friends, perceived social support), perception of COVID-19-associated measures including advantages and disadvantages and current thoughts. Where applicable, questions always included a contrast in the sense of relative change (before start of the pandemic-associated lockdown measures and at the time of the interview). Traumatic experiences (past and present) in the areas of physical and sexual abuse, as well as neglect were captured by three selective items from the Adverse Childhood Experiences (ACE) Study (21). In case of reports of child abuse or neglect, patients were explored in-depth concerning the potential need for immediate childhood protection measures and relevant steps were taken (as communicated beforehand with patients and guardians when obtaining informed consent). Assessment of functioning (before start of the pandemic and in the process) was obtained from the respective psychiatrists and cross-checked with the interview data, applying the criteria of axis VI of the multiaxial classification of child and adolescent psychiatric disorders.(22)
Statistical And Qualitative Analysis

Quantitative data were analysed using IBM SPSS version 23 (SPSS, Inc. Chicago, USA), considering a significance level of p < 0.05. T-tests for dependent variables were used to analyse differences between pre- and post-treatment effects, coefficient r describes correlations between treatment responsiveness and assessments describing changes in symptomatology. Effect sizes (Cohen's d) are reported wherever results were significant.

Language inquiry and word count (LIWC, Pennebaker Conglomerates, Inc.), a computerised method for text analysis, was conducted in order to characterise specific quantitative linguistic features of the open interview questions. The LIWC-categories tone, affect, posemo (positive emotions), negemo (negative emotions), anx (anxiety), anger, sad, social, fried, family, and affiliation have been selected for the analysis. For conduction and documentation of further in-depth qualitative analysis, following the principles of Grounded Theory, the computerised qualitative data analysis tool ATLAS.ti 8 (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) has been used.

Results

Symptom changes and adversities during the COVID-19 pandemic

Within-group effect size estimates revealed a significant decrease in the level of functioning, captured by an increase in the global assessment of functioning scores, from face-to-face therapy (M = 2.7, SD = 1.258) to within the first two months of teletherapy (M = 3.0, SD = 1.245) \( (T_{29} = -2.536, p = 0.017, d = 0.46) \), indicating that the lockdown situation led to deterioration of mental health. However, the majority of patients showed constant symptomatology (n = 21), while more patients deteriorated (n = 8) than improved (n = 1).

More patients reported that anxiety symptoms got worse (43.3%) rather than improved (10%). Moreover, the majority of patients reported a decline in mood (73.3%), although 16.7% reported an improvement in mood. 40% of patients described an increase in the frequency of feeling tense as compared to before the crisis, while 30% reported less tension. Obsessive-compulsive behaviour and thoughts were characterised as constant by over 80% of the patients suffering from those symptoms. Additionally, only 6.7% stated to drink more alcohol and 16.6% reported an increase in the number of tobacco usage, however, most of the patients reported no changes in both (66.7% and 70% respectively).

An additionally conducted LIWC revealed that those, who presented with decreasing levels of functioning showed a significantly higher word count (M = 358.88, SD = 155.82) as compared to the rest of the sample (M = 199.14, SD = 61.33) \( (T = 2.81, df = 7.84, p = 0.023) \). Independent of the diagnosis and the level of functioning, patients who reported NSSI expressed significantly more anger (M = 1.24, SD = 0.98) than those who did not report NSSI (M = 0.47, SD = 0.45) \( (T = -2.92, df = 28, p = 0.007) \). Independent of the level of functioning, the subgroup of patients suffering from posttraumatic stress disorder (PTSD) and complex PTSD showed higher levels of social communication (M = 15.06, SD = 3.28) than patients suffering from a depressive disorder (M = 12.31, SD = 2.31) \( (T = 2.24, df = 19, p = 0.038) \). All other comparisons did not yield any significant differences.

Considering evidence of potentially increased levels of adversities, especially domestic violence, in times of crisis and quarantine, we asked all patients regarding adverse experiences during lockdown measures. 20% of the patients reported childhood adversities. 33.3% of patients reported that they experienced an increase in physical violence in the household within the first 2 months of lockdown, while 10% of patients reported a decrease of physical violence in the same time period. Moreover, 80% of the patients who reported a history of sexual abuse noted a decrease in sexual abuse during the crisis, while 20% stated that there was no change since onset of the lockdown. In addition, 50% of the patients stating a history of neglect, reported increased neglect in the family within the first 2 months of lockdown, while 40% of these patients reported a decrease in neglect during the crisis. All other participants reported adverse experiences neither before nor during the crisis.
Figure 1 shows the integration of the statistically significant correlations resulting from quantitative data analysis of rated interview questions (all shown in orange) into a broader qualitative network (shown in grey and turquoise).

**Responsiveness To Teletherapy During The Covid-19 Crisis**

Further, we measured how patients responded to teletherapy. We found that 36.6% of the patients rated the teletherapy as better than face-to-face treatment during the crisis. However, 26.6% rated teletherapy as worse than the face-to-face therapy regarding the effect on personal well-being and symptom improvement. 36.7% of the patients rated the treatment neutral. As shown in Table 2, a high responsiveness to teletherapy is significantly correlated with general symptom improvement ($r = 0.54$) and increased positive mood ($r = 0.39$).

In order to gain maximum output of the question which factors possible contribute to a successful transition into teletherapy, qualitative data analysis – guided by the principles of Grounded Theory (24) –, was conducted starting with the interview of the patient who showed an increase in the level of functioning followed by a 2:1 analysis of the interviews from those who held their level of functioning against those who showed a deterioration. Saturation in the sense of no further codes arising from the data was reached after analysis of 19 interviews. The remaining 11 interviews were cross-checked against the codes and the qualitative narrative.

Patients who showed a deterioration in their level of functioning distinctly reported quantitatively more and qualitatively more differentiated negative aspects of teletherapy with a focus on perceptions as *unsafe*, *superficial*, and *less private*. In contrast to those who improved, or held their level of functioning, the patients with a lowered level of functioning showed a lower degree of verbal differentiation concerning their expression of emotions and affective response to the crisis and expressed a higher degree of introspection and rumination. And, most importantly, the patients with a decrease in their level of functioning communicated a lower level of (perceived) social support from their families, and especially their friends.

Overall, the themes *future*, *family*, *friends*, and *school* present the most prominently arising themes communicated within the interviews.

All patients who attended school (home schooling at that time) expressed school related thoughts. In the sample, positive (e.g. less stress and pressure) and negative (e.g. loss of structure, reduced activity) aspects seemed to balance another. No differences could be found between those patients who deteriorated in their level of functioning and those who showed constant, or improved symptomatology and functioning.

**Conclusions**

It has been suggested that patients with a psychiatric disorder might be at increased risk of deterioration in times of lockdown or quarantine (1, 2), but only very little data is available to differentially evaluate the involved process and patients’ needs. A detailed look at the content of the available literature on teletherapy (25, 26) revealed that teletherapy generally seems to be beneficial, but none of these studies assessed a switch from ongoing face-to-face therapy to teletherapy. We conducted this study to listen to service users’ views in adolescent psychiatric outpatients.

We could show that overall, the level of psychosocial functioning of adolescent psychiatric outpatients decreased during the current COVID-19-pandemic, but also provided evidence for a differentiated view on this topic. None of our patients dropped out of teletherapy, so it was possible to hold the respective therapeutic relationship. Although almost all patients experienced technical problems and expressed further negative aspects of teletherapy, the benefit of seamless frequent continuation of treatment was valued by most of them. Only a subgroup of patients, those who showed a deterioration in their level of functioning, rated teletherapy negatively. When we explored those patients in more detail, the notable difference was their perceived level of social support.
Although the generalisation of results is limited by the sample size and the methodology, we present first results indicating that teletherapy can serve as an alternative treatment approach for adolescents with a psychiatric disorder in times of quarantine. Moreover, results hint towards the notion that screening patients before offering teletherapy and, if possible, continue face-to-face contacts if patients express low levels of social support might be a helpful strategy to optimise individualised treatment. Albeit the promising character of the presented results, further research is necessary to challenge and refine these findings and explore teletherapeutic offers in more detail.

List Of Abbreviations

ACEs Adverse Childhood Experiences
COVID-19 Name given by the World Health Organization to the disease resulting from an infection with SARS-Cov-2
LIWC Language Inquiry and Word Count
NSSI Non-suicidal self-injury
SARS-Cov-2 Severe acute respiratory syndrome by the novel coronavirus (discovery 2019)

Declarations

Ethics approval and consent to participate
Ethical approval has been granted by the institutional review board of the Medical University of Vienna (#1383/2020) and patients and guardians gave written consent for study participation.

Availability of data and materials
The datasets generated and/or analysed during the current study are not publicly available due data safety restraints, but are available from the corresponding author on reasonable request.

Competing interests
Mercedes Huscsava, Christian Scharinger, and Oswald Kothgassner have no conflict of interest to declare.

Paul Plener has received research funding from the German Federal Institute for Drugs and Medical Devices (BfArM), German Federal Ministry of Education and Research (BMBF), VW-Foundation, Baden-Württemberg Foundation, Lundbeck, and Servier. He received a speaker’s honorarium from Shire.

None of the authors holds no stocks of pharmaceutical companies.

Funding
This research has been conducted without a specific grant from funding agencies in the public, commercial, or not-for-profit sector.

Authors’ contributions
All authors contributed equally in researching the literature, designing the study, interpreting the data and writing the manuscript.

Data were collected by Mercedes M. Huscsava and Christian Scharinger.
Qualitative data analysis was performed by Mercedes M. Huscsava and quantitative data were analysed by Oswald D. Kothgassner.

Acknowledgements

We are extremely grateful to our patients for their insight, their endurance and their enthusiastic participation in this project.

References

1. Druss BG. Addressing the COVID-19 Pandemic in Populations With Serious Mental Illness. JAMA Psychiatry. 2020.
2. Yao H, Chen J-H, Xu Y-F. Patients with mental health disorders in the COVID-19 epidemic. The Lancet Psychiatry. 2020;7(4):e21.
3. Cui Y, Li Y, Zheng Y, Chinese Society of C, Adolescent P. Mental health services for children in China during the COVID-19 pandemic: results of an expert-based national survey among child and adolescent psychiatric hospitals. Eur Child Adolesc Psychiatry. 2020.
4. Fegert JM, Vitiello B, Plener PL, Clemens V. Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. Child Adolesc Psychiatry Ment Health. 2020;14:20.
5. Gunnell D, Appleby L, Arensman E, Hawton K, John A, Kapur N, et al. Suicide risk and prevention during the COVID-19 pandemic. The Lancet Psychiatry. 2020;7(6):468–71.
6. Hoekstra PJ. Suicidality in children and adolescents: lessons to be learned from the COVID-19 crisis. European Child Adolescent Psychiatry. 2020;29(6):737–8.
7. Torous J, Jan Myrick K, Rauso-Ricupero N, Firth J. Digital Mental Health and COVID-19: Using Technology Today to Accelerate the Curve on Access and Quality Tomorrow. JMIR Ment Health. 2020;7(3):e18848.
8. Torous J, Wykes T. Opportunities From the Coronavirus Disease 2019 Pandemic for Transforming Psychiatric Care With Telehealth. JAMA Psychiatry. 2020.
9. Zho X, Snoswell CL, Harding LE, Bambling M, Edirippulige S, Bai X, et al. The Role of Telehealth in Reducing the Mental Health Burden from COVID-19. Telemedicine eHealth. 2020;26(4):377–9.
10. Liu S, Yang L, Zhang C, Xiang Y-T, Liu Z, Hu S, et al. Online mental health services in China during the COVID-19 outbreak. The Lancet Psychiatry. 2020;7(4):e17–e8.
11. Wind TR, Rijkeboer M, Andersson G, Riper H. The COVID-19 pandemic: The 'black swan' for mental health care and a turning point for e-health. Internet Interv. 2020;20:100317.
12. Witt A, Ordóñez A, Martin A, Vitiello B, Fegert JM. Child and adolescent mental health service provision and research during the Covid-19 pandemic: challenges, opportunities, and a call for submissions. Child Adolescent Psychiatry Mental Health. 2020;14(1):19.
13. Lee J. Mental health effects of school closures during COVID-19. The Lancet Child & Adolescent Health. 2020;4(6).
14. Liu JJ, Bao Y, Huang X, Shi J, Lu L. Mental health considerations for children quarantined because of COVID-19. The Lancet Child Adolescent Health. 2020;4(5):347–9.
15. Ornell F, Schuch JB, Sordi AO, Kessler FHP. "Pandemic fear" and COVID-19: mental health burden and strategies. Braz J Psychiatry. 2020.
16. Fiorillo A, Gorwood P. The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. Eur Psychiatry. 2020;63(1):e32.
17. Galea S, Merchant RM, Lurie N. The Mental Health Consequences of COVID-19 and Physical Distancing: The Need for Prevention and Early Intervention. JAMA Intern Med. 2020.
18. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, et al. Mental health problems and social media exposure during COVID-19 outbreak. PLoS One. 2020;15(4):e0231924.
19. Golberstein E, Wen H, Miller BF. Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. JAMA Pediatrics. 2020.

20. Ho CS, Chee CY, Ho RC. Mental Health Strategies to Combat the Psychological Impact of COVID-19 Beyond Paranoia and Panic. Ann Acad Med Singapore. 2020;49(3):155–60.

21. Felitti VJMD, FACP, Anda RFMD, MS, Nordenberg DMD, Williamson DFMS, et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study. Am J Prev Med. 1998;14(4):245–58.

22. Organisation WH, Rutter S. Multiaxial Classification of Child and Adolescent Psychiatric Disorders: The ICD-10 Classification of Mental and Behavioural Disorders in Children and Adolescents. Cambridge: Cambridge University Press; 1996.

23. Pennebaker JW, Booth RJ, Boyd RL, Francis ME. Linguistic Inquiry and Word Count: LIWC2015. Austin: Pennebaker Conglomerates; 2015.

24. Corbin JM, Strauss AL. Basics of Qualitative Research. Techniques and Procedures for Developing Grounded Theory. 3rd ed. Thousand Oaks: Sage; 2008.

25. Vigerland S, Lenhard F, Bonnert M, Lalouni M, Hedman E, Ahlen J, et al. Internet-delivered cognitive behavior therapy for children and adolescents: A systematic review and meta-analysis. Clin Psychol Rev. 2016;50:1–10.

26. Issues AAoCaAPACoTaACoQ. Clinical Update: Telepsychiatry With Children and Adolescents. Journal of the American Academy of Child Adolescent Psychiatry. 2017;56(10):875–93.

**Figures**

[Diagram of mental health intervention pathways]

*Figure 1*
Integrative network of factors contributing to a deterioration in the level of functioning Legend: pos states statistically significant positive correlations as retrieved from quantitative data analysis; neg denotes negative connotation from the patients’ perspective; rel is used to label relations retrieved from qualitative analysis, low implies relatively lesser and more negative communication, high degree denotes relatively more frequent and intense communication, statistically significant correlations resulting from quantitative data analysis of rated interview questions are presented in orange, the broader qualitative network is shown in grey and turquoise.