Telepsychiatry after COVID-19 crisis: a new opportunity for Mental Health in Italy

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Summary

Objective. To conduct a review of telepsychiatry literature in order to evaluate its possible integration into CMHCs and other settings increasing access to specialized care.

Methods. we conducted a review of literature based on multiple keywords (“telepsychiatry”, “telemental health” and “telemedicine”). To be included studies had to: 1) be published from January 2015 to May 2020 on peer-reviewed journals; 2) be written in English; 3) be original studies; 4) delivered therapy, services and treatment sessions through telephone or video technology. Articles were selected and screened in two phases to minimise the bias. In the first phase two authors conducted the literature search and reviewed all the abstracts of the studies to identify eligible ones. In the second step full-text articles that suited our inclusion criteria were reviewed and, eventually, selected. Out of 351 articles, 111 met our inclusion criteria and were fully analyzed. Some articles were found not to fit our main categories and, after reassessing studies’ characteristic, 47 articles were included into our review.

Results. we identified a total of 351 full-text articles based on our literature search and, after a screening and eligibility process we identified 46 articles. Of these 15 evaluated the use of telepsychiatry in primary and consultations settings, 6 its application in emergency settings and 25 in secondary and specialized settings with 11 specifically focusing on psychotherapy and psycho-education delivered through new technologies. Evidences suggest that telepsychiatry can be used into primary settings and mental health services with high efficacy, applicability and satisfaction of both patients and providers.

Conclusion. Integration of telepsychiatry into CMHCs would represent the true post-COVID revolution into our National Health System in terms of higher accessibility to care for our patients with lower costs and comparable efficacy and effectiveness.

Key words: telepsychiatry, mental health services, telemedicine, telemental health, consultation

Introduction

The COVID-19 crisis has highlighted the role of telepsychiatry as an important tool into mental health care setting in Italy. Telepsychiatry refers to the use of information and communication technologies, often using videoconferencing, to provide psychiatric services from a distance and can involve direct interaction between a mental health worker and the patient or his family 1.

The rapid widespread of the coronavirus disease 2019 pandemic and the resulting lockdown has forced mental health workers to change their traditional practice and rapidly virtualize their operations. These activities have included the use of videoconferencing, in particular to
monitor the mental health status of patients or to conduct team meetings, as well as the possibility to conduct administrative operations through new technologies. This rapid and historical change was possible because Community Mental Health Centers (CMHCs) were the only outpatient health services opened during the Covid-19 pandemic and there was the need to ensure both mental health care and safety of patients, citizens and mental health workers.

As in other countries, implementation in Italy has occurred at a pace never experienced in telemedicine, but at the same time the implementation was unorganized, based on local resources (i.e. the presence or absence of web-camera) and without specific guidelines or previous training. Nevertheless, the COVID-19 crisis has helped to overthrow the historical cultural resistance to telepsychiatry and to highlight that both clinicians and patients can adapt with satisfaction to it and organizational barriers can be overcome.

Before this health emergency clinical experiences in Italy concerning telepsychiatry were fragmented and limited only to experimental project in limited areas with no extensive studies on the applicability and sustainability of this kind of tool carried out in the public sanitary context. Several obstacles have hampered the spread and integration of telemedicine into routine care delivered through the National Public Health System, that with its rigid structure has difficulty to be contaminated by new technologies and changes. This crisis has presented a unique opportunity not only to extend the use of telepsychiatry nationwide for future health emergencies, but also to permanently integrate this instrument into mental health services practice in order to increase access to care.

The aim of the study is to evaluate how and where telepsychiatry is more effective and easily implementable in order to use it as a new tool in CMHCs and other settings (e.g. primary care and emergency department) increasing access to specialized care. Therefore, this study provides a systematic review on most recent evidences on the use of telepsychiatry in different settings and analyzes, for each one of those, patients and providers’ satisfaction, efficacy (in terms of treatment outcomes), applicability and cost-effectiveness.

Materials and methods

We conducted a review of telepsychiatry literature searching on PubMed, Scopus and PsychInfo for titles and abstracts relevant to our search. The search was based on multiple keywords (“telepsychiatry”, “telemental health” and “telemedicine”). When the abstract seemed suitable for our review we examined the full-text to evaluate if it fitted our inclusion criteria: 1) studies published from January 2015 on peer-reviewed journals; 2) written in English; 3) original studies with an accurate prospective or respective design; 4) therapy, services and treatment sessions delivered through telephone or video technology. The last search was conducted in May 2020.

Articles were selected and screened in two phases to minimize the bias. In the first phase two authors (SP e GP) conducted the literature search and reviewed all the abstracts of the studies to identify eligible ones. In the second step full-text articles that suited our inclusion criteria were reviewed and, eventually, selected. The remaining studies were divided into three main categories: 1) telepsychiatry in primary setting; 2) telepsychiatry in emergency department; and 3) telepsychiatry in mental health care setting with a focus on telepsychiatry as a tool for psychotherapy in secondary setting. Every main category had the same four subcategories: a) applicability; b) efficacy (treatment outcomes); c) satisfaction; and d) cost-effectiveness.

Some articles were found not to fit our categories and, after reassessing studies’ characteristics, were discussed with the first author (LG), who reanalyzed them and made the final decision.

**Data collection process**

345 articles were obtained by the database search. Other 6 studies were extracted from the reference list of these articles. From the total of 351 articles, 32 were excluded because they were duplicates and then 208 because they did not fit our inclusion criteria. Other 48 were excluded in a second step because they did not describe the use of telepsychiatry in the setting we listed before.

We extracted 63 articles of the 385 retrieved at the beginning and excluded other 17 because they did not report any data regarding our sub-categories and reviewed the remaining 46 articles (Fig. 1).

![Data collection process flow diagram](image-url)
Results
We identified a total of 351 full-text articles based on our literature search and, after a screening and eligibility process we identified 46 articles (fig.1). Of these 15 evaluated the use of telepsychiatry in primary and consultations settings (3 were randomized controlled trials, RCTs), 6 its application in emergency settings and 25 (of which 11 were RCTs) in secondary and specialized settings with 11 of those with a specific focus on psychotherapy and psycho-education delivered through new technologies.

Telepsychiatry in primary setting (Tab. I)

Primary care setting is crucial to identify and deliver care to people who suffer from mental disorders, but there is a lack of services in remote and rural areas worldwide, where the shortage of psychiatrists and mental workers leads to poor outcomes and increased the use of emergency department and hospitalization 8. Primary-care providers (PCPs) report lack of competence in treating psychiatric problems in children with a drastic reduction of in-person visits 12. Efficacy has been demonstrated in few studies as improvement of global functioning or reduction or remission of symptomatology 15,16. Hill and colleagues described an integrated care model to manage behavioural and psychiatric problems in children with a drastic reduction of onerous referral forms and length between consultations, but, on the other hand, PCPs perceived an increase of confidence through specialists’ consultation in providing case appropriate care and making suitable treatment decisions 7. In general allied providers have expressed high level of satisfaction, especially those in rural and remote areas where patients have accessed much easier to healthcare with implementation and integration of primary care with telemental health 12. Although patients and providers have shown concordance recognizing the importance of the telepsychiatry instrument, patients usually reported higher levels of satisfaction, correlated with the number of sessions attended 9, feeling comfortable and able to communicate adequately, founding sessions as beneficial as direct physical presence and almost all of them would had used it again. For example, Schubert and colleagues have found that almost 80% of patients agreed that TP sessions were easier to attend, allowed them to get healthcare sooner and the vast majority (89.1%) reported that TP saved their and their families’ time reducing travel requirement. Overall, 96.3% of patients were satisfied with the use of telepsychiatry and would have used it again stating that consultations via videoconference were as good as in-person visits 12.

Efficacy has been demonstrated in few studies as improvement of global functioning or reduction or remission of symptomatology 15,16. Hill and colleagues described an integrated care model to manage behavioural and psychiatric problems in children with a drastic reduction of

Table I. Review of telepsychiatry: primary setting and consultation.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>N</th>
<th>Recruitment source</th>
<th>Participants</th>
<th>Target disorder/Population characteristics</th>
<th>Type and structure</th>
<th>Intervention</th>
<th>Provider</th>
<th>Results</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hill JR et al.</td>
<td>229</td>
<td>Medicaid and Foster Care Division</td>
<td>0-18 y</td>
<td>Each pt had diagnostic issues: disruptive behaviour disorder (52%); depressive disorder (42%); ADHD (39%); PTSD (38%); anxiety (28%)</td>
<td>1) Medication reviews 2) Medication reviews (2nd opinion) 3) ETC</td>
<td>229 MDTs 125 medication reviews 277 ETC</td>
<td>Team of TM child and adolescent psychiatrists of University of Washington School of Medicine</td>
<td>Efficacy: with TP implementation children &lt; 5 y using psychotrophic medication decreased by 42% (p&lt;0.001) and children using psychotropic doses &gt; 150% of FDA maximum decreased by 52% (p&lt;0.001). Cost 1.82 return on investments (net savings/opening expenses)</td>
<td>Efficacy: only 24% reported psychiatry referral. No pt admitted into psychiatry wards.</td>
</tr>
<tr>
<td>Shore JR et al.</td>
<td>135</td>
<td>Urban outpatient women’s clinic</td>
<td>29.6 y</td>
<td>Depression and other mood-related disorders, adjustment disorder and anxiety.</td>
<td>Universal depression screening and virtually embedded BCH and virtual integration of TP services into collaborative care model.</td>
<td>834 contacts between BCH and pt SOB contacts between BCH and social and community support agencies</td>
<td>BHC Psychiatrists, Psychologists</td>
<td>Efficacy: reportdiscomport managing VP with MD issues. 49% made 5-30 referrals/year.</td>
<td>Satisfaction: 51.3% of PCPs rated the recommendations received as good/very good, 7% as excellent/very good. 23% of PCPs rated the recommendations received as good/very good, 7% as excellent/very good.</td>
</tr>
<tr>
<td>Pignatiello et al.</td>
<td>43 rural PCPs from a pool of 174 (24.7% response rate) AND 12 (43.2%) of the 26 TP child and adolescent psychiatrists</td>
<td>Telelink Mental Health Program in rural area</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Survey and semi-structured interview</td>
<td>n/a</td>
<td>Efficacy: 58.1% PCPs: reported complaints managing VP with MD issues. 49% made 5-30 referrals/year.</td>
<td>Satisfaction: 51.3% of PCPs rated the recommendations received as good/very good, 7% as excellent/very good.</td>
</tr>
<tr>
<td>Christensen LF et al.</td>
<td>199 patients</td>
<td>Primary setting</td>
<td>51.63 y (SD = 15.56)</td>
<td>Moderate-severe depression</td>
<td>1. VCs between specialists and/or GP without the pt. 2. VCs between specialist and GP with the patient present. 3. Follow-up or output care of the pt at home. 4. VC from acute ward to a specialist.</td>
<td>Mean n of session 9.79 (SD = 9.03)</td>
<td>Psychiatrists and mental health workers</td>
<td>Efficacy: significant positive correlation between number of sessions attended [Pearson’s r = 0.5777, p &lt; 0.001] and CSQ 8 total score. Correlation persisted after adjusting for age, gender, region, symptoms score, and education level in a multiple linear regression model [p = 0.004].</td>
<td>Satisfaction: providers had a mean total CSQ 8 score = 9.17 (95% CI = 8.90-9.45) and pt mean score = 9.70 (95% CI = 9.44-9.98). Total satisfaction was higher in pt than providers.</td>
</tr>
</tbody>
</table>
| Christensen LF et al. | 203 pt and 161 providers | Primary setting | Pt: 51.59 y (SD = 15.53) | As above | n/a | Psychologists and mental health workers | Satisfaction: providers had a mean total CSQ 3.3 score = 9.17 (95% CI = 8.90-9.45) and pt mean score = 9.70 (95% CI = 9.44-9.98). Total satisfaction was higher in pt than providers. | (continues)
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<table>
<thead>
<tr>
<th>Authors</th>
<th>N/A</th>
<th>Setting</th>
<th>Psychiatrists:</th>
<th>Psychiatric post</th>
<th>n/a</th>
<th>n/a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wybuzek M et al.</td>
<td>207</td>
<td>(psychiatrists=105; pt=102)</td>
<td>26-75 y</td>
<td>Psychiatric pt and psychiatrists</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Schubert NJ et al.</td>
<td>110 pt and 10 providers</td>
<td>Rural primary care clinics</td>
<td>40.5 y</td>
<td>Outpatients attended to TP consultations appointments</td>
<td>n/a</td>
<td>9 Psychiatrists and 1 psychiatric consultant nurse from urban tertiary academic health center</td>
</tr>
<tr>
<td>Seritan AL et al.</td>
<td>33</td>
<td>Movement disorders and Neuromodulation Centre</td>
<td>61.1 y (SD= 10.5)</td>
<td>Movement disorders with multiple concurrent psychiatric diag (1-5; mean = 2.5 per pt). Most common diag: 79% depressive disorders, 70% anxiety disorders and 39% MND.</td>
<td>119 TP consultation and 62 in-ps visits</td>
<td>30-60 min</td>
</tr>
<tr>
<td>Mayworm AM et al.</td>
<td>270</td>
<td>25 Baltimore public school</td>
<td>-</td>
<td>High school students, care givers and providers</td>
<td>-</td>
<td>7 Child and adolescent psychiatrists from University of Maryland School Mental Health Program</td>
</tr>
<tr>
<td>Dham P et al.</td>
<td>101</td>
<td>Primary settings (referral from GP)</td>
<td>75.89 y (SD=7.55)</td>
<td>Older adult resident in rural areas with psychiatric disorders (100%) and comorbid medical illness (83.5%). Mean MMSE score =24.4 (SD = 4.98)</td>
<td>TP consultation in community hospital or health center in rural and remote regions of South Australia. 51.5% accompanied by clinician from community team, 39.6% by family members.</td>
<td>134 TP consultations: 64.9% recommendations included meds changes with/without psychosexual assessments/treatments and 25.4% recommended in-ps treatment</td>
</tr>
</tbody>
</table>

Applicability:
- Pt: 60% no knowledge about TP; 15% found it difficult to understand the meaning. 18% general knowledge; 1% wide knowledge.
- Psychiatrists: 15% extensive knowledge; 76% general knowledge; 9% just heard about it; 3% do not know what it means. Only 16% used TP.

Satisfaction:
- Pt: 50% answered positively about TP. Psychiatrists: majority perceive positive aspects but 60% are against general insertion of TP.

Pt: 95.2% were comfortable with TP, 92.9% were able to communicate adequately; 84.5% found sessions as beneficial as direct physical presence; 98.8% reported that they would use the service again.

PT: Applicability: 76.2% pt agreed that TP sessions were easier to attend, saved time (89.1%), allowed them to get healthcare sooner (75.4%) and reduced travel requirement (79.8%), made easier to get healthcare (79.9%) and that is a convenient form of healthcare (86.2%). Satisfaction: 96.3% were satisfied with TP sessions.

Providers: Applicability: compared to in-person visit, 100% providers agreed that TP sessions saved their patient time and 94.9% that TP provided pts with earlier access. Satisfaction: 100% would use TP again and 100% would recommend TP to their colleagues.

Applicability: 76% pt reported high satisfaction, 19% satisfaction and 5% problems with technical quality of TP.

Efficacy: of 124 scheduled TP visits, there were 5 no-shows (90% visit completion rate).

Satisfaction: Pt were very satisfied with care (95%), convenience (100%), comfort (95%) and overall visit (95%). 100% would recommend TP to their family or friends.

Applicability: no difference in psychiatrists’ ratings of their ability to identify presenting concerns or in their perception of pt satisfaction across TP and in-ps sessions (p=0.05).

Satisfaction: Parents: High satisfaction (mean > 4.5 on 5 Likert scale). Mean scores were not significantly different between TP and in-ps sessions (p=0.05). Students: Mean scores were not significantly different between TP and in-ps sessions (p=0.05).

Provider: high level of satisfaction with both TP and in-ps sessions (all items mean scores <4.00). Providers reported higher levels of satisfaction for in-ps compared with TP sessions (p < 0.01 for all item comparisons).

Applicability: Mean scores (on a 5 points Likert scale) feedback ranging between 3.88-4.41, with scores= 4.0 across domains of process of referral, waiting times, technical aspects, comfort and satisfaction with the consultation and recommendation. Satisfaction with consultation had a mean score= 4.14 (SD = 0.73); whereas overall expression of dissatisfaction was minimal (3.11-2.4). Community GP and nurses: mean score of the feedback ranged from 4.36-4.73 (w=59, response rate 57.8%), on all questions with> 90% satisfaction.

Psychiatrists: (response rate = 81.3%); mean scores ranged between 3.67-4.45. Highest mean score was 4.45 (SD = 0.8) for encouraging the use of TP. Lowest mean score was 3.67 (SD = 1.39) for preference for TP vs face to face consultation.
hospitalizations and accesses to emergency department and a decreased of inappropriate psychotropic dosage (over 150% of Food and Drug Administration maximum) of medication in young patients. Also drop-out and missing sessions seemed to be reduced with TP compared to in-person care. Moreover, telepsychiatry has been applied with benefit with patients of all ages, multiple settings of care, as for perinatal screening for depressive disorders, movement disorders, surgical and medical inpatients and also in schools.

Only 2 of the studies we have included reported data on cost-effectiveness, one reporting data of self-reported time for assessments compared to face-to-face consultation via videoconference and another no difference with reported a significant lowering after specialized consultation of self-reported time 26. Hulsbosch and colleagues showed a significant greater improvement over time in HDRS (p < 0.001), CGI-S (p = 0.003) and CGI-I (p = 0.02) scores.

**Telepsychiatry in emergency department (Tab. II)**

There is a burden of psychiatric emergencies that, due to the shortage of specialized mental health workers and psychiatrists in local and community centers, increase the amount of access to emergency department (EDs), where a dearth of psychiatrists leads to problems and inability to correctly manage patients with acute psychiatric disorders increasing hospitalizations and costs for the Health System. TP has been introduced as a fundamental instrument, especially in remote areas, to enhance the ability to treat psychiatric emergencies. Consultations with psychiatrists via telephone or videoconference substantially decrease the number of EDs accesses after TP introduction. Moreover, telemental health in emergency department reduces significantly the length of stay of patients who will not be admitted and the turnaround time for assessments compared to face-to-face consultation. Data on admission rates are mixed, with one study reported a significant lowering after specialized consultation via videoconference and another no difference with the introduction of TP programs. 3 studies indicated a reduction of health care costs with TP compared to in-person consultation, with also one study underlying a lowering of specialists’ dwelling time.

**Telepsychiatry in mental health care setting (Tab. III)**

We included 13 studies on the use of telepsychiatry in specialized settings, including psychiatric inpatients clinic and outpatient mental health community centers. One main question is to understand if the use of telepsychiatry in secondary care achieve similar or better outcomes than treatment as usual delivered face-to-face. Most of these studies were randomized controlled trials that evaluated treatment outcomes of mental health specialized intervention delivered via TP. Most of these studies were conducted with outpatients, one showing that there was no difference in therapeutic alliance at the follow up visits between TP and face-to-face interventions (p < 0.005) and others reporting positive relationships between TP and completion of follow-up visits (p < 0.005) with lower drop-out rates compared to TAU. Hulsbosch and colleagues showed a significant reduction of severity symptomatology and increase.

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ADHD = attention-deficit hyperactivity disorder; ATP = asynchronous telepsychiatry; BD = bipolar disorder; BN = behavioural health clinician; CGI-S = Clinical Global Impression-Improvement; CGI-I = Clinical Global Impression Severity of Illness; CAMHUCC = Child and Adolescent Mental Health Urgent Consult Clinic; CI = confidence interval; CMHA = children’s mental health agencies; CSQ = Client Satisfaction Questionnaire; ED = emergency department; ETC = Elective Telephone Consultation; FDA = Food and Drug Administration; FtF = face to face; GP = General Practitioner; MDD = major depressive disorder; MDTs = Televideo consults for Multidisciplinary Teams; MH = mental health; M.I.N.I. = MINI International Neuropsychiatric Interview; MMSE = Mini-Mental State Examination; MND = major neurocognitive disorder; n/a = not applicable; OCD = Obsessive-Compulsive Disorder; PCP = Primary Care Physicians; pt = person; pt = patient; PTSD = Post-Traumatic Stress Disorder; SD = standard deviation; STP = synchronous telepsychiatry; TM = telemedicine; TAU = treatment as usual; TP = telepsychiatry; YP = young people.
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Table II. Review of telepsychiatry: emergency department.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>N</th>
<th>Recruitment source</th>
<th>Participants</th>
<th>Mean age or range</th>
<th>Target disorder/Population characteristics</th>
<th>Type and structure</th>
<th>Intervention Duration/ Frequency</th>
<th>Provider</th>
<th>Results/Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maeng et al.</td>
<td>452 pt in the PAO groups and 761 non-PAO comparison group</td>
<td>Three rural hospital EDs</td>
<td>44.1 y and 38.4 y</td>
<td>n/a</td>
<td>n/a</td>
<td>PAO TP program: on site PAO into ED to perform psychiatric- and behavioural health examinations; Telementoring between psychiatrists and PAOs; Direct psychiatric consultation</td>
<td>n/a</td>
<td>University of Rochester Medical Centre PAOs and psychiatrists</td>
<td>Effectiveness: following PAO treatment a reduction in ED visit rates 36.2% per 30-day period (p=0.031) in the 90-day period was observed and a reduction of 44.2% (p=0.011) persisted into the subsequent 90-day period.</td>
</tr>
<tr>
<td>Fairchild RM et al.</td>
<td>87</td>
<td>4 Rural ED</td>
<td>5-17 y</td>
<td>Depression or anxiety-related disorders (49%), suicidal ideation/attempt or self-harm (46%), with substance abuse in 5% of cases</td>
<td>3.1 pp/teleprovider interviews using video-based interaction in a ED examination room for TP visits with distant psychiatric specialist.</td>
<td>n/a</td>
<td>24/7 ED Telehealth Network providing specialist-based psychiatric care via TP</td>
<td>n/a</td>
<td>Washabi Valley Rural Telehealth Network</td>
</tr>
<tr>
<td>Brenner R et al.</td>
<td>206 pt in TP group and 186 pt in control group</td>
<td>General hospital non-psychiatric ED</td>
<td>&lt;18 y</td>
<td>n/a</td>
<td>Emergency psychiatric consultation using TP in general hospital ED vs FTF traditional consultation</td>
<td>n/a</td>
<td>Mental health care psychiatrists</td>
<td>Effectiveness: 84% reduction in the turnaround time for TP compared to FTF consultation Sati sfaction: 97% of the pt were satisfied with TP services.</td>
<td></td>
</tr>
<tr>
<td>Narasimhan, M et al.</td>
<td>7261 ED psychiatric pts treated via TP vs 7261 matched psychiatric pts treated in ED without mental health personnel</td>
<td>Nonpsychiatric ED</td>
<td>35.7 (SD = 14.9)</td>
<td>Psychiatric admission diagnosis (schizophrenia, BD, MDD; substance use disorder, MDD, other (ICD codes 290–319))</td>
<td>TP referral: review ED intake form, health record, conduction of a standard history and MISE, elaboration of treatment plan with recommendations, management in ED, 2nd visit or consultation if warranted</td>
<td>n/a</td>
<td>South Carolina Department of Mental Health (SCDMH) TP Department</td>
<td>Effectiveness: TP pts were less likely satisfied with TP services compared to FtF consultation Efficiency: TP vs FtF, n=64) Effectiveness: following PAO treatment a reduction in ED visit rates 36.2% per 30-day period (p=0.031) in the 90-day period was observed and a reduction of 44.2% (p=0.011) persisted into the subsequent 90-day period.</td>
<td></td>
</tr>
<tr>
<td>Reiford A et al.</td>
<td>-</td>
<td>Pediatric ED</td>
<td>-</td>
<td>Evaluation by the physician on duty through TP</td>
<td>n/a</td>
<td>Child and adolescent psychiatrist</td>
<td>Effectiveness: TP pts were less likely satisfied with TP services compared to FtF consultation Efficiency: TP vs FtF, n=64) Effectiveness: following PAO treatment a reduction in ED visit rates 36.2% per 30-day period (p=0.031) in the 90-day period was observed and a reduction of 44.2% (p=0.011) persisted into the subsequent 90-day period.</td>
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<tr>
<td>Thomas JF et al.</td>
<td>494</td>
<td>Pediatric psychiatric ED in rural areas</td>
<td>&lt;18 y</td>
<td>Pediatric pts presenting to ED with acute behavioral health condition: suicide intent with plan (26.1%), Self-harm no plan (43.7%); harm to others (9.1%); depression or anxiety (14.6%); hallucinations or delusions (3%); unknown (3%)</td>
<td>TP intervention with synchronous consultation vs TAU</td>
<td>n/a</td>
<td>Children’s Hospital Colorado providing ED TP consultation</td>
<td>Effectiveness: TP vs FtF, n=64) Effectiveness: following PAO treatment a reduction in ED visit rates 36.2% per 30-day period (p=0.031) in the 90-day period was observed and a reduction of 44.2% (p=0.011) persisted into the subsequent 90-day period.</td>
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Note: Bipolar disorder; ED = emergency department; freq; = frequency; FTF = face to face; h = hours; IC = International Classification of Diseases; Pt = Inpatient; min = minutes; MDD = major depressive disorder; MND = major neurocognitive disorder; MISE = mental state examination; LOS = length of stay; OP = outpatient; n/a = not applicable; PAO = Psychiatric Assessment Officer; pt = patient; t = time; TAU = treatment as usual; TP = Telepsychiatry; y = year

Table III. Review of telepsychiatry: specialized settings.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>N</th>
<th>Recruitment source</th>
<th>Participants</th>
<th>Mean age or range</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Lal S et al.</td>
<td>51</td>
<td>FEP Clinic of the University of Montreal Hospital Centre</td>
<td>26.1 y (SD = 4.3) (18-38)</td>
<td>FEP</td>
<td>Questionnaire</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Satisfaction: 49% (n = 25) were very favorable</td>
</tr>
<tr>
<td>Das S et al.</td>
<td>50</td>
<td>Mental Health Centre, pt after discharge from inpatient unit in rural area (India)</td>
<td>35.8 y (SD = 15.1)</td>
<td>Schizophrenia and related disorders (38%); BD (12%); Anxiety disorders (18%); depression (8%); organic disorder and alcohol dependence (2%). Mean DOI = 10.1 y (SD = 30.5)</td>
<td>After discharge consultation video-based TP consultation (halfway between discharge data and regular in-pat follow up date).</td>
<td>1</td>
<td>Tele Medicine Centre, Department of Psychiatry</td>
<td>Applicability: 100% pt attended to TP consultation; 22% video-consultation received scanned copy of original prescription through emails. Sati sfaction: 96% pt wanted to repeated TP consultations. Cost: TP saved a mean of $30000 (SD = 31279) for pt and their family. Efficiency: 1 pt who received TP consultation also stayed longer: mean LOS in days (TP group 134.8 (SD = 69.5) and 110.3 (SD = 76.3) in control group (p &lt; 0.001), 60.2% pt in TP group and 44.7% of control group completed treatment (p = 0.03). Odds of treatment completion 90% greater for pt in TP group than those in control group (OR = 1.99, 95% CI = 1.12-3.46; p &lt; 0.001).</td>
<td></td>
</tr>
<tr>
<td>Legha RK et al.</td>
<td>103</td>
<td>TP group and 103 in control group</td>
<td>Residential substance abuse treatment program in Alaska Native community</td>
<td>38.6 y (SD = 11.5) 38.7 y (SD = 10.9)</td>
<td>SUD AND at least one psychiatric comorbidity (most frequent: depression, BD, PTSD)</td>
<td>2/h TP services leads by psychiatrists. Staff support through TP (phone contact daily and VC weekly) including supervision, training, case coordination and planning and program development.</td>
<td>6.1 (SD = 4.3)</td>
<td>Psychiatrists</td>
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<tr>
<td>Mazhan S et al.</td>
<td>50</td>
<td>IP psychiatry department of a university-affiliated hospital</td>
<td>35.2 y (SD = 21-62)</td>
<td>n/a</td>
<td>All patients were interviewed by a psychiatrist once FtF and once by VC by another psychiatrist.</td>
<td>n/a</td>
<td>n/a</td>
<td>Psychiatrists</td>
<td>Applicability: 85% patients found TP easy to use. Efficacy: diagnostic agreement between the 2 interviewers was 75%. Satisfaction: 82.5% patients would recommend TP; 85% would prefer TP for follow-up visits; 77.5% felt they could express everything they wanted through VC. Satisfaction: 90% reported liking or even preferring TP as an option to receive psychiatry service. Cost: Participants saved an average of 168 driving miles (SD = 59.2; range =2480 miles) each visit.</td>
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<tr>
<td>Harriette et al.</td>
<td>40</td>
<td>Western Telemental Health Network of Veterans Affairs, an expansion of MHS</td>
<td>7.14 y (SD = 5.6) [65-88]</td>
<td>MODD (20%), PTSD (18%) or co- occurring (33%), anxiety disorder (30%), BD (18%), schizoaffective disorder (3%), ADHD (3%), delusional disorder (3%), and MND (6%).</td>
<td>n/a</td>
<td>Telegropsychiatry (assessment, medication reviews, etc.)</td>
<td>Psychiatrists</td>
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<tr>
<td>Farabie et al.</td>
<td>104 (TP, n=40 vs FTF, n=64)</td>
<td>OP psychiatric care</td>
<td>38.1 y (SD = 10.3)</td>
<td>Paroxys referred to psychiatric care</td>
<td>Evaluation of satisfaction with treatment, therapeutic alliance, medication adherence</td>
<td>n/a</td>
<td>n/a</td>
<td>Psychiatrists</td>
<td>Applicability: 100% pt attended to TP consultation; 22% video-consultation received scanned copy of original prescription through emails. Sati sfaction: 96% pt wanted to repeated TP consultations. Cost: TP saved a mean of $30000 (SD = 31279) for pt and their family. Efficiency: 1 pt who received TP consultation also stayed longer: mean LOS in days (TP group 134.8 (SD = 69.5) and 110.3 (SD = 76.3) in control group (p &lt; 0.001), 60.2% pt in TP group and 44.7% of control group completed treatment (p = 0.03). Odds of treatment completion 90% greater for pt in TP group than those in control group (OR = 1.99, 95% CI = 1.12-3.46; p &lt; 0.001).</td>
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(continues)
in mental status both after treatment delivery via TP and in-persons (p < 0.01), significantly lower rates of drop-out in TP treatment at 6 and 12 months follow-up (p = 0.004) and a better compliance in TP group 12. Interestingly, applicability of a large number of different types of interventions have been shown to be delivered via telehealth delivery in both young and elderly population 34,35 in substance abuser both in residential facilities and outpatients clinics 36,37, in paroles and outpatients in custody 38, from mild-severe neurotic to severe psychotic patients 31,32, with satisfaction and benefits. Few studies reported data regarding cost-efficiency, some of those with self-questionnaire completed by patients and their families on the saving of their time and money with psychiatric intervention delivered through telepsychiatry 34,35 some others focusing on the reduction of services’ costs with TP 29,33. Even if there is not standardized method reporting satisfaction, there is quite an agreement on determine high
satisfaction both from patients and providers with tele-delivered interventions.  

**Telepsychiatry as a tool for psychotherapy in secondary setting (Tab. IV)**

We included 11 studies on the use of blended therapy, stepped or fully in-person delivered cognitive behavioural therapy. Only five of these articles had RCT design with quantitative data on outcomes of the therapy. Friedl and colleagues reported that patients' more severe symptomatology and worse general functioning at the baseline predicted worse outcome with face-to-face CBT compared to internet-based CBT. Some studies demonstrated a trend of equivalence of in-person and CBT delivered through telepsychiatry and at post-treatment assessment equivalent therapy alliance in both arms (p < 0.001). Lower drop-out rates in iCBT arm and significant reduction of symptomatology comparable with the two different types of intervention. Population of the studies included only neurotic diagnosis (mostly mood, anxiety and stress-related disorders), where iCBT has demonstrated to be an applicable and effective instrument, comparable to traditionally delivered psychotherapy.

An interesting type of intervention is the stepped program, where iCBT, considered as a low-intensity care, is given to all patients at the beginning and, for those who do not respond, the treatment is stepped up to face-to-face CBT (fCBT), considered as a higher-intensity level of care. Nicholas et colleagues reported that more than 75% of participants did not need to be stepped to fCBT, indicating that psychotherapy delivered through TP could be an effective instrument for many patients, increasing their access to psychotherapy also at the CMHCs. Both by participants and providers reported high levels of satisfaction, with some studies highlighting a trend of satisfaction's increase with treatment sessions with videoconference-delivered therapy and a decrease with in-person therapy.

**Conclusion**

Our study confirmed that there is a solid evidence for the use of telepsychiatry as a tool to deliver mental health care in different settings. Implementation of telepsychiatry in primary settings and CMHCs has shown strong evidences, whereas we still lack solid data regarding hospital and liaison medicine, despite the fact that few studies showed a good efficacy, especially in remote areas. Nonetheless, it's worth to be highlighted that emergency departments of these articles differ from Italian ones, because in US, where most of these studies are conducted, lots of hospital and emergency facilities do not have psychiatric service on site. Evidences suggest interesting applications for our National Health System in the context of primary care, integrating telepsychiatry as a facility into collaborative care programs. In this context it could be used both to carry out diagnostic assessments and therapeutic reviews of mild-moderate disturbances and to give a second consult to PCPs (e.g. introducing or reviewing pharmacological treatment). As our review shows, implementation with telepsychiatry in this setting is easy to perform, cost-efficient and lead to good satisfaction's response from both patients and providers. Positive outcomes were highlighted also in specialized settings (CMHCs), where different types of interventions (psychotherapy, psychoeducation and pharmacological follow ups) can be delivered from different mental workers profiles in an integrated model of care.

Integration of telepsychiatry into CMHCs would represent the true post-COVID revolution into our National Health System in terms of higher accessibility to care for our patients with lower costs and comparable efficacy and effectiveness. For example, a blended model of care could be used to monitor patients living in remote areas, far away from CHMC, in order to extend the possibility to access to care, including psychotherapy, and to closely monitor therapeutic program of patients living into residential facilities. Furthermore, the opportunity to remotely supervise different mental workers professional profiles by those more specialized and experienced, would enlarge the possibility to deliver high standard of care also in remote clinic and centers and residential facilities.

It is essential, in order to achieve a higher diffusion of telepsychiatry, to overcome administrative and bureaucratic problems (e.g. informed consent), cultural oppositions of mental workers and to develop digital system to be used into CHMC. Nevertheless, these problems seem to have been overcome during COVID-19 pandemic emergency and this could represent a new opportunity to improve the use of telepsychiatry in mental health services.

Lastly, although there are solid evidences supporting the implementation of mental health services with telepsychiatry programs worldwide, we are not aware of literature regarding diffuse and consistent experiences in Italy before COVID-19 pandemic emergency. The rapid spread of telepsychiatry during this period should represent a stimulus to realize studies and pilot projects to start integrating this fundamental tool into mental health care.

**Take home messages for psychiatric care**

- Telepsychiatry represents a valid and cost-effective tool to increasing access to specialized care for patients
- Patients and providers reported satisfaction with the use telepsychiatry
- Telepsychiatry can be integrated as an instrument into our model of care, overcoming bureaucratic, administrative and cultural limitations
Table IV. Review of telepsychiatry: psychotherapy.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>N</th>
<th>Recruitment source</th>
<th>Participants</th>
<th>Target disorder/Population characteristics</th>
<th>Type and structure</th>
<th>Intervention</th>
<th>Duration/frequency</th>
<th>Provider</th>
<th>Results</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhee et al.</td>
<td>3</td>
<td>Primary care</td>
<td>58 y</td>
<td>Mild-moderate depression (HAM-D &gt;16) in HIV-Positive Adults</td>
<td>CBT/CBT TP</td>
<td>11</td>
<td>Psychiatrist</td>
<td>Effectiveness: HAM-D had a reduction of the 29.4% at wk 4 and of 26.7% wk 8 with CBT. TP</td>
<td>Satisfaction: 85.7% of providers were totally satisfied with TP. 100% of pt were comfortable, satisfied and would use TP again.</td>
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<tr>
<td>Fried N et al.</td>
<td>251</td>
<td>Primary and specialized MHC</td>
<td>43.0 y (SD = 13.7)</td>
<td>MDD (M.I.N.I. and PHQ &gt; 5)</td>
<td>Blended treatment (CBT combined with CBT vs TAU)</td>
<td>11-20</td>
<td>CBT therapists</td>
<td>Effectiveness: higher baseline symptomatology predicts better outcomes in CBT, whereas Pt’s symptomatology and general functioning predicted worse TAU outcomes</td>
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<tr>
<td>Mold M et al.</td>
<td>21 Therapists</td>
<td>Mental Health Care Organization</td>
<td>38 y (SD = 5.5)</td>
<td>n/a</td>
<td>Integrated ICT protocol when ICTB and ICTB sessions were alternated.</td>
<td>10</td>
<td>CBT trained psychologists, MH nurses and psychiatrists</td>
<td>Effectiveness: 77% of therapists stated that bCBT met all their needs, 94% were overall very or mostly satisfied with ICTB and 97% would recommend ICTB in the future to improve depression outcomes.</td>
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<tr>
<td>Nicholas J et al</td>
<td>312</td>
<td>Randomized participants (151 ICTB stepped care arm)</td>
<td>General Population</td>
<td>33 y (27-49)</td>
<td>MDE (M.I.N.I. and QIDS &gt;12)</td>
<td>Stepdown program: ICTB if non-responders (PHQ &gt; 16 between 4th-8th w or &gt; 12 btw 9th-13th w or &gt; 8 after 13th w) stepped up to ICTB</td>
<td>ICTB: 20 wk modular program via audio-video clips + 15 min calls from therapists. ICTB: 1 h phone session per wk + strategies and social skills training.</td>
<td>Therapists</td>
<td>Effectiveness: 76.2% of participants did not meet criteria to be stepped up from ICTB, 23.8% during the treatment period. Pre-treatment PHQ-9 score was significantly associated with meeting stepping criteria within the treatment period (p=0.049). Participants who stepped early had a higher mean pre-treatment depression severity.</td>
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<tr>
<td>Maierisch K et al.</td>
<td>90</td>
<td>Veterans of Iraq/Afghanistan conflict from two VHA hospitals in USA</td>
<td>30.93 y (SD=6.05)</td>
<td>PTSD at SCID I (CAPS &gt;45)</td>
<td>CPT in pt or as over VC</td>
<td>50 min</td>
<td>8 CPT-trained doctoral level psychologists</td>
<td>Effectiveness: Trend of equivalence between treatment arms (p=0.094)</td>
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<tr>
<td>Kemmeren Li ET al.</td>
<td>200</td>
<td>Mental Health Setting</td>
<td>41.7 y (SD = 12.9)</td>
<td>MDD (M.I.N.I. and PHQ &gt; 5)</td>
<td>ICTB (minimum 1/3 of ICTB sessions + minimum 1/5 of ICTB sessions vs TAU (psychotherapy and/or pharmacotherapy)</td>
<td>ICTB</td>
<td>Effectiveness: drop out rate of ICTB was lower (13.5%) never starting treatment and 22.5% not completing.</td>
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<tr>
<td>Mathiassen K ET al.</td>
<td>60 TP treated depression; 143 CT treated for anxiety</td>
<td>ICTB clinic (second) OPs clinic</td>
<td>Pt with depression ≥36.03 y (SD = 9.97) (19-67); Pt with anxiety ≥ 36.80 y (SD = 13.55) (19-69)</td>
<td>Dq (ICD-10); MDD, PD, agoraphobia, social phobia, specific phobia, GAD</td>
<td>ICTB treatment program and weekly biweekly clinical support</td>
<td>Licensed clinical psychologists</td>
<td>Effectiveness: Applicability of all pt with depression 61.7% completed the treatment. Among pt with anxiety, 39.9% completed treatment. Effectiveness: significant reduction in depressive symptoms on PHQ-9 (p=0.001) with a large effect size (d=1.3). Pt with anxiety had a significant reduction in the symptom level on the GAD-7 (p=0.001) with a large effect size (d=1.3). Noncompleters showed a significant decrease in symptom severity (p=0.004), with a lower yet moderate-to-large effect size (d=0.7). There was a nonsignificant trend in the interaction between treatment effect and comorbidity (p=0.18). Applicability: 37% of veterans attended at least one therapy visit. On average, veterans attended 5.2 (SD =4.6; range 1-23). Effectiveness: significant difference in the n of appointments based on dp (p=0.02) with a medium-to-large effect (partial n=.09). Veterans with mood disorder attended significantly more appointments than those with anxiety disorders (67 vs 38.8 visits). Scores on GAD-7 were negatively correlated with n of CBT visits (p &lt; 0.05). Applicability: clients valued the ease of access. Effectiveness: completion rate 62.7%. Completers (n=67) large ES for post treatment PHQ-9 (6.10); GAD-7 (4.95) recovery rate 62% (95% CI 57-68),</td>
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<tr>
<td>Valentine LM ET al.</td>
<td>250</td>
<td>Clinical Video Telehealth service at a VHA hospital</td>
<td>45.4 y (SD=14.8)</td>
<td>Mood (42%) average PHQ-9=12.0 (SD = 5.0); anxiety (38%) (mean GAD=7.14 (SD=4.9) and other (20%) disorders (M.I.N.I.)</td>
<td>Psychotherapy via UC</td>
<td>154 (62%) referred for home-based CBT and 96 (38%) were referred for CBT to one of three CBOCs</td>
<td>Psychologists</td>
<td>Effectiveness: of all 62 veterans, 37% met the criteria for recovery. Among pt</td>
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<tr>
<td>Laas S ET al.</td>
<td>680</td>
<td>Pt after acute hospital admission for anxiety and depression</td>
<td>Completers 55.5 y (SD=15.6); Non-Completers 52.1 y (SD=16.3)</td>
<td>Depression or Anxiety</td>
<td>Mindstep: LICBT delivered by phone</td>
<td>LICBT coach under the clinical supervision</td>
<td>Patients</td>
<td>Effectiveness: at the end of the treatment 59% of pt met the criteria for recovery. 37% pt responded and provided data at 12 months follow up; they had significantly lower scores for GAD-7 (p&lt;0.01), PHQ-9 (p&lt;0.01) and WSAS (p&lt;0.01) than the rest of the sample. ANCOVA analysis showed significant improvement in PHQ-9, GAD-7 and WSAS at follow-up compared to initial assessment (p&lt;0.001).</td>
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<tr>
<td>Bidargaddi N ET al.</td>
<td>241</td>
<td>Pt after acute ED admission for anxiety and depression</td>
<td>37 y (SD=15.5)</td>
<td>-</td>
<td>Telephone-based LICBT after crisis presentation</td>
<td>At least 2 sessions over a duration varying 2-8 wk</td>
<td>On average 4.1 (SD=2.3) sessions, including initial FIF assessment</td>
<td>LICBT coach under clinical supervision</td>
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<tr>
<td>Gehrman ET al.</td>
<td>P</td>
<td>Veterans from VHA</td>
<td>57.8 y (SD=12.9)</td>
<td>Insomnia, medical (chronic pain) and psychiatric (PTSD and depression) comorbidities</td>
<td>CBT-TP for insomnia was delivered in a 6-session protocol. The target group size was 68 veterans.</td>
<td>6 total weekly sessions. Duration of sessions: 60-90 min</td>
<td>Clinical Psychologists</td>
<td>Effectiveness: high baseline symptomatology predicts better outcomes in CBT, whereas Pt’s symptomatology and general functioning predicted worse TAU outcomes Satisfaction: 77% of therapists stated that bCBT met all their needs, 94% were overall very or mostly satisfied with ICTB and 97% would recommend ICTB in the future to improve depression outcomes.</td>
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**Key**
- **bCBT**: Blended CBT
- **CAPS**: Clinician-administered PTSD scale
- **CBOC**: Community-based outpatient clinic
- **CBT**: Cognitive Behavioral Therapy
- **TP**: Telepsychiatry
- **CPT**: Cognitive Processing Therapy
- **ED**: Emergency Department
- **ES**: Effect size
- **ICTB**: Face-to-face CBT
- **IFT**: Internet-Based CBT
- **MMI**: Mini International Neuropsychiatric Interview
- **M.I.N.I**: Mini mental state examination
- **PTSD**: Post-Traumatic Stress Disorder
- **QIDS**: Quick Inventory of Depressive Symptomatology
- **SCID I**: Structured Clinical Interview for DSM Disorders
- **SCID II**: Structured Clinical Interview for DSM Disorders
- **TC**: Telephone CBT
- **TP**: Telepsychiatry
- **VHA**: Veteran’s Health Administration
- **WSAS**: Work and Social Adjustment Scale
References


34. Lal S, Abdel-Baki A, Sujanani S, et al. Perspectives of young adults on receiving telepsychiatry services in an urban early intervention program for first-episode psychosis: a cross-sec-