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Title

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https://escholarship.org/uc/item/94t405t6

Journal

Psychological Medicine, 52(13)

ISSN

0033-2917

Authors

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Publication Date

2022-10-01

DOI

10.1017/s0033291720004584

Peer reviewed

Psychological Medicine

cambridge.org/psm

Original Article

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Cite this article: Kinoshita S et al (2020). Changes in telepsychiatry regulations during the COVID-19 pandemic: 17 countries and regions' approaches to an evolving healthcare landscape. Psychological Medicine 1–8. https://doi.org/10.1017/S0033291720004584

Received: 4 August 2020 Revised: 24 October 2020 Accepted: 5 November 2020

Key words:

COVID-19; government regulation; health insurance reimbursement; telemedicine; telepsychiatry

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Changes in telepsychiatry regulations during the COVID-19 pandemic: 17 countries and regions' approaches to an evolving healthcare landscape

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Abstract

Background. During the COVID-19 pandemic, the use of telemedicine as a way to reduce COVID-19 infections was noted and consequently deregulated. However, the degree of telemedicine regulation varies from country to country, which may alter the widespread use of telemedicine. This study aimed to clarify the telepsychiatry regulations for each collaborating country/region before and during the COVID-19 pandemic.

Methods. We used snowball sampling within a global network of international telepsychiatry experts. Thirty collaborators from 17 different countries/regions responded to a questionnaire on barriers to the use and implementation of telepsychiatric care, including policy factors such as regulations and reimbursement at the end of 2019 and as of May 2020.

Results. Thirteen of 17 regions reported a relaxation of regulations due to the pandemic; consequently, all regions surveyed stated that telepsychiatry was now possible within their public healthcare systems. In some regions, restrictions on prescription medications allowed via telepsychiatry were eased, but in 11 of the 17 regions, there were still restrictions on prescribing medications via telepsychiatry. Lower insurance reimbursement amounts for telepsychiatry consultations ν . in-person consultations were reevaluated in four regions, and consequently, in 15 regions telepsychiatry services were reimbursed at the same rate (or higher) than inperson consultations during the COVID-19 pandemic.

Conclusions. Our results confirm that, due to COVID-19, the majority of countries surveyed are altering telemedicine regulations that had previously restricted the spread of telemedicine. These findings provide information that could guide future policy and regulatory decisions, which facilitate greater scale and spread of telepsychiatry globally.

Introduction

The pandemic caused by the novel coronavirus disease of 2019 (COVID-19) has already negatively impacted mental health across the world (Holmes et al., 2020; Rajkumar, 2020; Torales, O'Higgins, Castaldelli-Maia, & Ventriglio, 2020). COVID-19 is highly contagious, and physical distancing is recommended to prevent its transmission (Chu et al., 2020). Nevertheless, health professionals need to effectively and safely continue to provide psychiatric care to those in need. Telemedicine has been heralded as a way to reduce COVID-19 infections for both healthcare professionals and patients, while still allowing access to medical care (Hollander & Carr, 2020; Wosik et al., 2020). Consequently, the use of telemedicine has been expanding globally (Fisk, Livingstone, & Pit, 2020; Mann, Chen, Chunara, Testa, & Nov, 2020; Teles, Sacchetta, & Matsumoto, 2020; Yellowlees et al., 2020).

In psychiatry, examinations, diagnoses, and symptom evaluations are largely based on interviews and observations of patients, making psychiatric practice readily adaptable for telemedicine; many studies have substantiated the effectiveness of telepsychiatry (Basit, Mathews, & Kunik, 2020; Hilty et al., 2013; Hyler, Gangure, & Batchelder, 2005). However, there remain barriers to the use and implementation of telepsychiatric care, including policy factors such as regulations and reimbursement (Cowan, McKean, Gentry, & Hilty, 2019; Scott Kruse et al., 2018).

In response to the COVID-19 pandemic, some countries have revisited such regulations in order to facilitate access to care via telemedicine, as it has become an essential healthcare tool

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in the face of pandemic-related restrictions (Fisk et al., 2020; Ohannessian, Duong, & Odone, 2020; Teles et al., 2020; Wosik et al., 2020). This change is expected to advance telepsychiatry on a global scale. However, comprehensive information on the current regulatory situation in each country is lacking. Collating this information can enrich discussions on how to further adapt, or modify decisions made regarding access to and reimbursement of telemedicine as part of psychiatric care. A comparative approach across countries and contexts could facilitate the development and sharing of best practices. This study, therefore, aimed to investigate and summarize policies and regulations relevant to the practice of telepsychiatry, both before and during the COVID-19 pandemic, from the perspective and understanding of experts across multiple countries/regions.

Methods

Beginning 7 May 2020, the first author and corresponding author for this study (S.K. and T.K.) used snowball sampling within a network of international telepsychiatry experts to identify the 30 co-authors of this study, across 17 countries/regions [Australia, Brazil, Canada (Ontario), China, Denmark, Egypt, Germany, India, Italy, Japan, South Africa, South Korea, Spain (Madrid), Taiwan, Turkey, UK (England), and USA (New York)]. Each of the respondents completed a questionnaire (see online Supplementary material) specifically designed to assess changes in telepsychiatry regulations related to the onset of the pandemic and the prevalence of telepsychiatry within their respective regions. After consulting with the survey respondents (who are also the co-authors on this study) as to whether they felt there should be additional questions included in the survey, the survey was refined and a second set of survey questions was added on 24 May 2020 (see online Supplementary material). Because the aim of the survey was to collect and summarize information regarding telemedicine policies and regulations, there was a need for critical expert scrutiny of how the survey questions were worded, how the survey results were interpreted and discussed, etc.; therefore, it was decided that the co-authors would also act as the survey respondents.

For the purposes of this study, telepsychiatry is defined as twoway, synchronous video and/or phone calls. The questions addressed the following areas of telepsychiatry practice: (1) general regulations related to telepsychiatry [e.g. presence of national regulations for telepsychiatry (or telemedicine as a whole), and deregulation of, or changes in, telepsychiatry services associated with the COVID-19 pandemic]; (2) practical implementation and prescription regulations for telepsychiatry (e.g. security guidelines, internet speed, prescription regulations including types of medications that can be prescribed via telepsychiatry, and duration of prescriptions); (3) insurance reimbursement for telepsychiatry (e.g. whether telepsychiatry is covered by public insurance, how reimbursement compares with rates for in-person services); and (4) personal impressions regarding telepsychiatry's ease of use. Because clinical interventions and personal information requiring confidentiality were not components of this study, it was not necessary to obtain ethics approval before conducting this study.

Data for each region were provided by the authors responsible for their respective regions. Each author was required to respond regarding the status of regulations for, and dissemination of, telepsychiatry in their region at two time points (retrospectively to the end of 2019 and currently, during May 2020). For regions

where regulations varied significantly from area to area, the authors responded based upon the areas with which they were most familiar. In the cases of Canada, Spain, the UK, and the USA, responses represent the areas of Ontario, Madrid, England, and New York, respectively.

Results

All 30 co-authors identified through the snowball sampling process provided responses to the study survey. All 30 participants/co-authors were either clinical practitioners or researchers in the field of psychiatry, and of this sample, 29 people worked at a university or hospital, and one person worked at a company.

Based on the survey responses we collected, we created tables to display the major changes in telepsychiatry regulations. It should be noted that full details concerning the unique characteristics and exceptions for each region, as well as the full survey questions, cannot be adequately captured within a simplified table format. Further details have been included separately in the online Supplementary eTables.

General regulations related to telemedicine

The general regulations for telemedicine in each region surveyed are shown in Table 1 and online Supplementary eTable 1.

In 13 of the 17 regions surveyed, the COVID-19 pandemic resulted in the expansion of common telemedicine regulations.

However, 8/13 regions noted that these regulatory changes are only intended to be temporary. Brazil and South Korea, which did not previously recognize telemedicine, began allowing telemedicine during the pandemic.

Among regions that had restrictions on areas where telemedicine could be practiced, Australia and Japan relaxed their restrictions, and 16/17 regions reported there were no restrictions on where telemedicine could be practiced as of May 2020. Taiwan relaxed a portion of their location restrictions, but some restrictions still remain. Additionally, with regard to licensing requirements for doctors using telemedicine, regulations were eased in the USA, but 5/17 regions reported that a specific license was still required to practice telemedicine.

For confirming patient identity, some regions required patients to provide an ID, insurance card, or other means of identification, while some regions did not. Due to the pandemic, Japan, Taiwan, and the USA relaxed patient identification requirements, leading to 9/17 regions reporting that patients could receive telemedicine even without such forms of identification.

Some regions surveyed required the applications and software used in telemedicine to meet certain security standards. A subset of regions relaxed these requirements, but as of May 2020, such software requirements were still in place in Denmark, Germany, Italy, and the USA.

Practical implementation of and prescription regulations for telepsychiatry

Regulations for the practical implementation of telepsychiatry and providing drug prescriptions as part of telepsychiatry are shown in Table 2 and online Supplementary eTable 2.

As a result of the pandemic, six regions relaxed regulations concerning whether telepsychiatry could be used for a patient's first visit. Consequently, apart from Italy, 16/17 regions stated that telepsychiatry could now be used for a patient's first visit.

Table 1. General regulations and deregulations related to telemedicine (summary version)

	Deregulation of rules related to COVID-19?	Deregulation temporary or not?	Limitations on areas where telemedicine can be provided?		Qualifications required for doctors who practice telemedicine?		Is there a defined method of patient identification, such as presenting a personal number or insurance card?		Restrictions on the applications/ software that can be used for telemedicine?	
			Until December 2019	As of May 2020	Until December 2019	As of May 2020	Until December 2019	As of May 2020	Until December 2019	As of May 2020
Australia	Yes	Undecided	Yes	No	No		Yes		No	
Brazil	Yes	Temporary	N/A ^a	No	No		No		No	
Canada (Ontario)	Yes	Undecided	No		No		No		Yes	No
China	Yes	Undecided	No		Yes		No		No	
Denmark	Yes	Temporary	No		No		Yes		Yes	Yes (restrictions slightly eased)
Egypt	None	Not specified	No		Yes		No		No	
Germany	Yes	Temporary	No		No		No		Yes	
India	Yes	Undecided	No		Yes		No		No	
Italy	Yes	Temporary	No		No		Yes (first visit only)		Yes	
Japan	Yes	Temporary	Yes	No	No (planned to start April 2020)	No (temporarily)	Yes	Yes (restrictions slightly eased)	No	
South Africa	Yes	Temporary	No		Yes		No		No	
South Korea	Yes	Temporary	N/A ^b	No	N/A ^b	No	N/A ^b	Yes	N/A ^b	No
Spain (Madrid)	None	Not specified	No		No		No		No	
Taiwan	Yes	Temporary	Yes	Yes (restrictions slightly eased)	Yes	Yes (restrictions slightly eased)	Yes	Yes (restrictions slightly eased)	No	
Turkey	None	Not specified	No		No		No	Yes	No	
UK (England)	None	Not specified	No		No		Yes		No	
USA (New York)	Yes	Undecided	No		Yes	No	Yes	No (registered patients exempt)	Yes	Yes (restrictions slightly eased)

N/A, not applicable.

^aTelemedicine available only under certain conditions such as a second opinion.

^bTelemedicine not established for general patient care.

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 Table 2. Practical implementation and prescription regulations for telepsychiatry (summary version)

	Telepsychiatry care available at first visit?		Conditions for patient eligibility?		Prescriptions possible via telepsychiatry?		Restrictions on types of medications that can be prescribed?		Possible to receive prescriptions outside pharmacy?	
	Until December 2019	As of May 2020	Until December 2019	As of May 2020	Until December 2019	As of May 2020	Until December 2019	As of May 2020	Until December 2019	As of May 2020
Australia	Yes		Yes	No	Yes		No		No	
Brazil	N/A ^a	Yes	N/A ^a	No	N/A ^a	Yes	N/A ^a	Yes	N/A ^a	No
Canada (Ontario)	Yes		No		Yes		Yes		No	
China	No	Yes	No		Yes		Yes		Yes	
Denmark	No	Yes	No		Yes		Yes	Yes (restrictions slightly eased)	Yes	
Egypt	Yes		No		Yes		Yes		No	
Germany	No	Yes	No		Yes (repeat visits only)	Yes	Yes	Yes (restrictions slightly eased)	No	
India	Yes		Yes		Yes		Yes (not clearly defined)	Yes (clearly defined)	No	Yes
Italy	No		Yes		Yes		Yes		Yes	
Japan	No	Yes	Yes	No	Yes (repeat visits only)	Yes	Yes	Yes (restrictions slightly eased)	No	Yes
South Africa	No	Yes	No		Yes (repeat visits only)	Yes	No		No	
South Korea	N/A ^b	Yes	N/A ^b	No	N/A ^b	Yes	N/A ^b	No	N/A ^b	Yes
Spain (Madrid)	Yes		No		Yes		No		No	
Taiwan	Yes (conditions apply)	Yes (restrictions slightly eased)	Yes	Yes (restrictions slightly eased)	Yes (designated hospitals only)	Yes (restrictions slightly eased)	Yes	No	Yes	
Turkey	Yes		No		Yes		Yes		No	
UK (England)	Yes		No		Yes		No		Yes	
USA (New York)	No	Yes	No		Yes (repeat visits only)	Yes	Yes	Yes (restrictions slightly eased)	No	

N/A, not applicable.

^bTelemedicine available only under certain conditions such as a second opinion.

^bTelemedicine not established for general patient care.

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Table 3. Insurance reimbursement for telepsychiatry (summary version)

	Is telepsychiatry covered by public health insurance?		that are cover	diseases, regions, etc. red by public health or telepsychiatry?	Is the price for telepsychiatry care equal to or more than that of in-person care?		
	Until December 2019	As of May 2020	Until December 2019	As of May 2020	Until December 2019	As of May 2020	
Australia	Yes		Yes	No	Yes		
Brazil	Yes		No		Yes		
Canada (Ontario)	Yes		No		Yes		
China	a Yes (only some regions)		No		Prices vary by region		
Denmark	Yes		No		No	Yes (conditions apply)	
Egypt	Yes		No		Yes		
Germany	Yes		Yes	No	No	Yes	
India	No	Yes (conditions apply)	No	Yes (conditions apply)	Yes		
Italy	Yes		Yes		Yes		
Japan	Yes		Yes	No	No	No (price difference lessened with easing of restrictions)	
South Africa	Yes		Yes	Yes (restrictions slightly eased)	Yes		
South Korea	N/A ^a	Yes	N/A ^a	No	N/A ^a	Yes	
Spain (Madrid)	Yes (conditions apply)	Yes	Yes	No	Yes		
Taiwan	Yes		No		Yes		
Turkey	Yes		No		Yes		
UK (England)	Yes		No		Yes		
USA (New York)	Yes (conditions apply)	Yes	Yes	No	Yes		

N/A, not applicable.

Regarding patients' eligibility to receive telepsychiatry treatment, until the end of 2019, patients in Australia had to be referred by a general practitioner; in Japan, a prior treatment plan have been developed; and in Taiwan, certain conditions had to be met. During the pandemic, each of those regions relaxed their restrictions for eligible patients, and ultimately 14/17 regions stated they no longer have conditions for patient eligibility for telepsychiatry.

Regarding drug prescriptions conducted via telepsychiatry, prescriptions are generally possible in all regions surveyed, but due to the pandemic, Germany, Japan, South Africa, and the USA began to allow prescriptions from patients' first visits as well.

Regarding types of drugs that can be prescribed via telepsychiatry, there are many restrictions on medications such as sleep aids and antipsychotics, but Australia, South Africa, Spain, and the UK had the same prescribing rules as for in-person care at the end of 2019, prior to the pandemic. In regions that had additional restrictions for remote prescribing, they were eased in part due to the pandemic, but in 11/17 regions, telepsychiatry prescriptions were still more restricted when compared with prescription allowances for in-person visits. Specifically, there are still some restrictions on opioids, methadone,

benzodiazepines, narcotics, psychotropics, and anticancer drugs depending on region.

Some regions only allow prescriptions to be obtained at pharmacies, but some regions also allow prescriptions to be shipped to patient homes. Under pandemic conditions, India and Japan have begun to allow pharmacies to mail medications directly to patients' homes. Taiwan is allowing patients' family members or other representatives to obtain medication at hospitals. In total, 8/17 regions reported that prescriptions could be obtained at locations other than pharmacies during the pandemic.

Insurance reimbursement for telepsychiatry

Information on public insurance reimbursement for telepsychiatry practices is shown in Table 3 and online Supplementary eTable 3.

At the end of 2019, India, South Korea, and Spain did not provide insurance reimbursement for telepsychiatry practices. However, due to the pandemic, all regions surveyed reported that insurance reimbursement is now allowed for telemedicine, although conditions for reimbursement differed slightly between regions.

^aTelemedicine not established for general patient care.

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Until the end of 2019, Italy and Japan placed restrictions on which diseases were eligible for insurance reimbursement. During the pandemic, Japan has relaxed restrictions for reimbursement eligibility.

When comparing insurance reimbursement for in-person and telepsychiatry services, Denmark, Germany, and South Korea had lower reimbursement rates for telepsychiatry services, or did not reimburse at all, at the end of 2019. However, regulatory changes in these regions during the pandemic now allow for comparable insurance reimbursement for both in-person and telepsychiatry consultations. Japan increased telepsychiatry reimbursement compared to previous rates, but reimbursement remained lower than for in-person care.

Personal impressions regarding telepsychiatry's ease of use

Accounts regarding how telemedicine is being utilized in each region, reasons why telemedicine has not gained more acceptance/use, and how easy telemedicine is to use are included in online Supplementary eTable 4. In most regions surveyed, respondents reported telemedicine being easier to use during the pandemic. The majority of respondents noted that one main reason for the increased use of telepsychiatry during the pandemic was to reduce the risk of infection, but some respondents also said that regulation easement allowing for increased insurance reimbursement, etc., was a factor in telepsychiatry's spread. However, 9/17 regions responded that there are still barriers to implementing telemedicine when compared to in-person care.

Discussion

This study investigated general regulations and insurance reimbursement rules surrounding telepsychiatry in 17 different regions across all inhabited continents from the perspective and understanding of the survey respondents. There have already been several studies reporting changes in telemedicine regulations and reimbursement during the COVID-19 pandemic (Fisk et al., 2020; Shachar, Engel, & Elwyn, 2020; Teles et al., 2020; Wosik et al., 2020), but this is the first study to comprehensively investigate conditions across such a wide range of locations. Much of the information included here will have an effect on regulation changes and medical policy decisions made when the predicted second wave of COVID-19 occurs, or for when another new pandemic emerges. Differences in the extent of pre-existing regulations were observed across regions, but the results confirmed that in the majority of regions surveyed, the COVID-19 pandemic acted as a catalyst for the easing of telemedicine regulations and expansion of insurance reimbursement. This is likely a watershed moment not only for telepsychiatry, but telemedicine as a whole.

Main findings

Based on the information gathered from the 17 countries/regions surveyed, it appears that changes to general regulations and insurance reimbursement policies brought about by the pandemic have had the greatest impact on reducing obstacles to the expansion, facilitation, acceptance, reimbursement, and implementation of telemedicine. For example, in several regions that already allowed telemedicine, only patients in remote areas or areas with a lack of medical services were previously eligible; however, those rules were relaxed. Telemedicine licensing requirements for doctors, which had so far been a major obstacle in the growth of

telemedicine use in all medical fields, including psychiatry (Cowan et al., 2019; Rogove, Amoateng, Binner, Demaerschalk, & Sanders, 2015; Scott Kruse et al., 2018; Shachar et al., 2020), were also relaxed in several regions. Additionally, many regions surveyed reported that, during the pandemic, insurance reimbursement was expanded for telemedicine services; unequal or low reimbursement has also previously been an obstacle for telemedicine expansion within all medical fields (Cowan et al., 2019; Mehrotra et al., 2017; Scott Kruse et al., 2018; Weinstein et al., 2014). The potential for telemedicine expansion across all medical fields is particularly dependent on regulations concerning licensing and reimbursement, etc. It is hoped that these deregulations will continue, or even improve, moving forward.

Challenges for the further growth of telepsychiatry

The increased ease of use of telepsychiatry afforded by pandemic-related regulation changes has better equipped healthcare professionals for handling the current and future waves of COVID-19 and its aftermath, as well as future pandemics. However, 8/17 regions' regulatory changes were reported as temporary. Therefore, it is unclear how much this rapid expansion of telepsychiatry will be sustained and integrated within each region's healthcare system (Shachar et al., 2020). It is also important to observe the ways in which changes in regulations have allowed telemedicine expansion, and to revisit the content and stringency of those regulations for the future. Additionally, looking at the respondents' personal impressions, several respondents report that, although there are no longer large differences in regulations and reimbursement between telemedicine and in-person services, they are not observing an increase in telemedicine use in their area. Reasons for this lack of expansion may include patients' or healthcare professionals' inadequate proficiency with telemedicine technology, their psychological resistance to new methods, cultural preference and background (e.g. a cultural background such as importance for meeting with doctors in-person), availability of information and communications technology (ICT), or patients' and providers' ICT literacy (Cowan et al., 2019; Scott Kruse et al., 2018; Torous, Myrick, Rauseo-Ricupero, & Firth, 2020; Yellowlees et al., 2020). Since cultural background and patients' and healthcare professionals' preferences often dictate how medicine is practiced, these factors most likely have a large impact on whether there is demand for telemedicine, and whether a region relaxes regulations for telemedicine. Further research is warranted to characterize the reasons for a given region's lack of expansion of telepsychiatry, and strategies by which this can be addressed. For example, large pragmatic trials comparing effectiveness outcomes (emergency room visits, hospitalizations, suicide rates, etc.) across regions with liberal or more restricted use of telepsychiatry would provide critically important evidence upon which policy changes and clinical guidelines could be based.

Potential issues with the rapid expansion of telepsychiatry and its extended use

Attention should be paid to issues that may arise with expanded use of telepsychiatry. For example, it is possible that a rapid expansion of telemedicine may hinder access to care for patients who are not technologically literate, and/or are unable to afford the necessary technology. Because of this, it is important to ensure that digital healthcare remains equitable in its distribution as telemedicine grows (Beaunoyer, Dupéré, & Guitton, 2020; Crawford

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& Serhal, 2020; Torous et al., 2020). Additionally, it is important to be aware of the disadvantages of using telemedicine for extended periods. For example, there have been multiple reports stating that when telepsychiatry is used appropriately, it can be useful in maintaining or even improving medication adherence (Basit et al., 2020; Schulze et al., 2019). However, there are also several reports that when telemedicine is used for long periods (several months to more than a year), patient adherence may decrease (Basit et al., 2020; Krzystanek, Krysta, & Skałacka, 2017; Spaniel et al., 2015). Furthermore, in cases such as the current pandemic, where healthcare professionals who are not acclimated to telemedicine must utilize it in a less-than-organized manner, telemedicine may not be practiced effectively. Therefore, there is a need for further research into the feasibility of telemedicine for long-term care, and it is important to establish guidelines for combining telemedicine with in-person visits to an appropriate degree, so that patients are not negatively affected.

Regardless, with the possibility of future pandemics, it is important that as deregulations progress, healthcare professionals become educated about their region's rules regarding telemedicine and gain proficiency in its use. Moreover, as telepsychiatry becomes more widely used, it is likely that the positive and negative aspects of telepsychiatry will become apparent based on clinical data and outcomes, so it is vital that as those aspects are determined, regulations are adjusted to reflect those findings.

Limitations

Our study had several limitations. First, we were not able to collect representative accounts from all the world's countries/regions. Additionally, in cases where regulations varied widely within the same region, we were only able to collect accounts for a subset of areas, which may not represent the region's practices overall. Second, although a number of factors likely affected each country's deregulation practices (such as how strict regulations were to begin with at the end of 2019, what circumstances led to those regulations, what the current political conditions were, how severely the country was impacted by COVID-19, etc.), this study did not address these aspects. Third, this study attempted to present fragmented information regarding changes to laws and guidelines, governmental policies, how insurance reimbursement is handled, etc., in a unified manner, and most of this information would be difficult for someone outside any of the respective regions to validate. Currently, in most regions, there are no publicly available official documents concerning telemedicine regulation changes that provide a clear summary of or basis for those changes, so it is not possible to provide a list of references for this information beyond what the co-authors are able to contribute from their own knowledge base. Additionally, healthcare systems vary by region, and 'regulations' can encompass many legal aspects of those systems, such as national laws, guidelines, and insurance reimbursement rules (especially instances where there are differences between insurance payers). Therefore, a fourth limitation of this study is the fact that a single questionnaire cannot capture the intricacies of all surveyed regions' differing regulatory environments. Finally, this study focused on changes in the regulations and use of telepsychiatry before and during the COVID-19 pandemic, but we did not assess the outcomes of these regulatory changes. The clinical and economic impact of an increased use of telepsychiatry should be the subject of additional research in order to provide an evidence base for its general or targeted, and global or regional, expansion.

Conclusions

The regulations for telepsychiatry differ around the world, but, in response to the COVID-19 pandemic, many areas have relaxed these restrictions, and it has become possible to provide telemedicine services at almost the same level of care as in-person treatments. Additionally, many regions have expanded definitions for reimbursement eligibility. The potential for telemedicine expansion across all medical fields is dependent on regulations concerning licensing, reimbursement, etc., and ideally, access to telemedicine will continue to improve in accordance with each region's needs from here on.

In this study, we have demonstrated the different ways in which each region's telemedicine restrictions have changed due to the pandemic, as well as which regulations and reimbursement restrictions remain strong, and which have been relaxed. To what degree expanded access and reimbursement of telemedicine will outlive the COVID-19 pandemic, and what the effects of a return to more stringent regulations and restricted use could be remains to be seen. Although the magnitude of effect between regulation changes and the expansion of telemedicine needs to be documented over time, it is important that each region continues to establish rules that allow the provision of telepsychiatry services to those in need.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0033291720004584

Financial support. This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

Conflict of interest. Christoph U. Correll has been a consultant and/or advisor to, or has received honoraria from: Alkermes, Allergan, Angelini, Boehringer-Ingelheim, Gedeon Richter, Gerson Lehrman Group, Indivior, IntraCellular Therapies, Janssen/J&J, LB Pharma, Lundbeck, MedAvante-ProPhase, Medscape, Merck, Neurocrine, Noven, Otsuka, Pfizer, Recordati, Rovi, Servier, Sumitomo Dainippon, Sunovion, Supernus, Takeda, and Teva. He provided expert testimony for Janssen and Otsuka. He served on a Data Safety Monitoring Board for Lundbeck, Rovi, Supernus, and Teva. He has received grant support from Janssen and Takeda. He is also a stock option holder of LB Pharma. David Dines reported receiving financial support from Lundbeck. Mohammad ElShami works in a Shezlong telepsychiatry company as a medical director, and is a co-founder of the company. Daniel Guinart has been a consultant for and/or has received speaker honoraria from Otsuka America and Janssen Pharmaceuticals. Hakan Karas is a co-founder of a Steto telemedicine company. Yuya Mizuno reported receipt of grants/fellowships, manuscript fees, and consultant fees from Japan Society for the Promotion of Science, Astellas Foundation for Research on Metabolic Disorders, Japanese Society of Clinical Neuropsychopharmacology, Mochida Memorial Foundation for Medical and Pharmaceutical Research, Sumitomo Dainippon Pharma, Signant Health, and WCG MedAvante-ProPhase. Gonzalo Salazar de Pablo reported receiving financial support from the Alicia Koplowitz Foundation. John Torous reported receiving research support from Otsuka Pharmaceutical. Kazunari Yoshida reported receiving manuscript fees from Sumitomo Dainippon Pharma, fellowship grants from the Japan Research Foundation for Clinical Pharmacology and Azrieli Adult Neurodevelopmental Centre Postdoctoral Fellowship at CAMH, and consultant fees from Signant Health and VeraSci. Taishiro Kishimoto reported receiving consultant fees from Dainippon Sumitomo, Novartis, and Otsuka, and speaker's honoraria from Eli Lilly, Dainippon Sumitomo, Janssen, Lundbeck, Novartis, Otsuka, and Pfizer. He has received grant support from Dainippon-Sumitomo and Otsuka. The rest of the authors report no financial interests or potential conflicts of interest.

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References

- Basit, S. A., Mathews, N., & Kunik, M. E. (2020). Telemedicine interventions for medication adherence in mental illness: A systematic review. *General Hospital Psychiatry*, 62, 28–36. doi: 10.1016/j.genhosppsych.2019.11.004
- Beaunoyer, E., Dupéré, S., & Guitton, M. J. (2020). COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. *Computers in Human Behavior*, 111, 106424. doi: 10.1016/j.chb.2020.106424
- Chu, D.K., Akl, E.A., Duda, S., Solo, K., Yaacoub, S., Schünemann, H.J., & COVID-19 Systematic Urgent Review Group Effort (SURGE) study authors. (2020). Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: A systematic review and meta-analysis. *Lancet (London, England)*, 395, 1973–1987. doi:10.1016/S0140-6736(20)31142-9.
- Cowan, K. E., McKean, A. J., Gentry, M. T., & Hilty, D. M. (2019). Barriers to use of telepsychiatry: Clinicians as gatekeepers. Mayo Clinic Proceedings, 94, 2510–2523. doi: 10.1016/j.mayocp.2019.04.018
- Crawford, A., & Serhal, E. (2020). Digital health equity and COVID-19: The innovation curve cannot reinforce the social gradient of health. *Journal of Medical Internet Research*, 22, e19361. doi: 10.2196/19361
- Fisk, M., Livingstone, A., & Pit, S. W. (2020). Telehealth in the context of COVID-19: Changing perspectives in Australia, the United Kingdom, and the United States. *Journal of Medical Internet Research*, 22, e19264. doi: 10.2196/19264
- Hilty, D. M., Ferrer, D. C., Parish, M. B., Johnston, B., Challahan, E. J., & Yellowlees, P. M. (2013). The effectiveness of telemental health: A 2013 review. Telemedicine Journal and e-Health, 19, 444–454. doi: 10.1089/tmj.2013.0075
- Hollander, J. E., & Carr, B. G. (2020). Virtually perfect? Telemedicine for Covid-19. New England Journal of Medicine, 382, 1679–1681. doi: 10.1056/NEJMp2003539

Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., ... Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet. Psychiatry*, 7, 547–560. doi: 10.1016/S2215-0366(20)30168-1

- Hyler, S. E., Gangure, D. P., & Batchelder, S. T. (2005). Can telepsychiatry replace in-person psychiatric assessments? A review and meta-analysis of comparison studies. CNS Spectrums, 10, 403–415. doi: 10.1017/s109285290002277x
- Krzystanek, M., Krysta, K., & Skałacka, K. (2017). Treatment compliance in the long-term paranoid schizophrenia telemedicine study. *Journal of Technology in Behavioral Science*, 2, 84–87. doi: 10.1007/s41347-017-0016-4
- Mann, D. M., Chen, J., Chunara, R., Testa, P. A., & Nov, O. (2020). COVID-19 transforms health care through telemedicine: Evidence from the field. *Journal of the American Medical Informatics Association*, 27, 1132–1135. doi: 10.1093/jamia/ocaa072
- Mehrotra, A., Huskamp, H. A., Souza, J., Uscher-Pines, L., Rose, S., Landon, B. E., ... Busch, A. B. (2017). Rapid growth in mental health telemedicine use among rural medicare beneficiaries, wide variation across states. *Health Affairs*, 36, 909–917. doi: 10.1377/hlthaff.2016.1461
- Ohannessian, R., Duong, T. A., & Odone, A. (2020). Global telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: A call to action. *JMIR Public Health and Surveillance*, 6, e18810. doi: 10.2196/18810
- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. doi: 10.1016/j.ajp.2020.102066
- Rogove, H. J., Amoateng, B., Binner, J., Demaerschalk, B. M., & Sanders, R. B. (2015). A survey and review of telemedicine license portability. *Telemedicine journal and e-Health*, 21, 374–381. doi: 10.1089/tmj.2014.0116
- Schulze, L. N., Stentzel, U., Leipert, J., Schulte, J., Langosch, J., Freyberger, H. J., ... van den Berg, N. (2019). Improving medication adherence with telemedicine for adults with severe mental illness. *Psychiatric Service*, 70, 225–228. doi: 10.1176/appi.ps.201800286
- Scott Kruse, C., Karem, P., Shifflett, K., Vegi, L., Ravi, K., & Brooks, M. (2018).
 Evaluating barriers to adopting telemedicine worldwide: A systematic review. *Journal of Telemedicine and Telecare*, 24, 4–12. doi: 10.1177/1357633X16674087
- Shachar, C., Engel, J., & Elwyn, G. (2020). Implications for telehealth in a post-pandemic future: Regulatory and privacy issues. *JAMA*, 323, 2375–2376. doi: 10.1001/jama.2020.7943
- Spaniel, F., Novak, T., Motlova, L. B., Capkova, J., Slovakova, A., Trancik, P., ... Höschl, C. (2015). Psychiatrist's adherence: A new factor in relapse prevention of schizophrenia. A randomized controlled study on relapse control through telemedicine system. *Journal of Psychiatric and Mental Health Nursing*, 22, 811–820. doi: 10.1111/jpm.12251
- Teles, M., Sacchetta, T., & Matsumoto, Y. (2020). COVID-19 pandemic triggers telemedicine regulation and intensifies diabetes management technology adoption in Brazil. *Journal of Diabetes Science and Technology*, 14, 797–798. doi: 10.1177/1932296820930033
- Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 66, 317–320. doi: 10.1177/0020764020915212
- Torous, J., Myrick, K. J., Rauseo-Ricupero, N., & Firth, J. (2020). Digital mental health and COVID-19: Using technology today to accelerate the curve on access and quality tomorrow. *JMIR Mental Health*, 7, e18848. doi: 10.2196/18848
- Weinstein, R. S., Lopez, A. M., Joseph, B. A., Erps, K. A., Holcomb, M., Barker, G. P., & Krupinski, E. A. (2014). Telemedicine, telehealth, and mobile health applications that work: Opportunities and barriers. *The American Journal of Medicine*, 127, 183–187. doi: 10.1016/j.amjmed.2013.09.032
- Wosik, J., Fudim, M., Cameron, M., Gellad, Z. F., Cho, A., Phinney, D., ... Tcheng, J. (2020). Telehealth transformation: COVID-19 and the rise of virtual care. *Journal of the American Medical Informatics Association*, 27, 957–962. doi: 10.1093/jamia/ocaa067
- Yellowlees, P., Nakagawa, K., Pakyurek, M., Hanson, A., Elder, J., & Kales, H. C. (2020). Rapid conversion of an outpatient psychiatric clinic to a 100% virtual telepsychiatry clinic in response to COVID-19. *Psychiatric Service*, 71, 749–752. doi: 10.1176/appi.ps.202000230