Efficacy of Remote as Compared to In-Person School Psychological Services:

A Rapid Systematic Evidence Review

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Abstract

As a consequence of the Covid-19 pandemic, remote school psychological services have increased notably in many countries. With the aim of supporting evidence-based practices, we conducted a rapid systematic evidence review on the efficacy of remote as compared to in-person school psychological services. From a total of 3,873 references identified through our search, only three ($< 1\%$) met eligibility criteria for this review. One of these studies showed serious risk of bias according to the ROBINS-I rating scale (Sterne et al., 2016) and was therefore excluded. Overall, the limited evidence that we identified indicates that the impact of remote school psychological services on consumer satisfaction and evaluated mental health outcomes of service users is equivalent or slightly higher to in-person school psychological services. However, this information needs to be interpreted with caution due to the scarcity of available data, as well as methodological limitations.

Keywords: school psychology, teleconsultation, telehealth, covid-19, systematic review

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Efficacy of Remote as Compared to In-Person School Psychological Services: A Rapid Systematic Evidence Review

As a consequence of the Covid-19 pandemic, school psychologists in many countries have seen themselves forced to deliver remote instead of business-as-usual in-person services. With little time to prepare for such a major change in service delivery, there are many challenges school psychologists need to overcome to fulfil their role in supporting the mental health of students, and help parents, teachers, school principals and other school staff arrange supportive environments. For instance, results from an online survey on the impact of the Covid-19 pandemic on school psychological practices in Australia, Canada, Germany and the U.S. by Reupert et al. (in press) revealed that some practitioners have limited access to telecommunication tools (e.g., webcams, laptops, videoconferencing tools, etc.), while others lack appropriate training or previous experience to use available resources. As a result, they may feel insecure or even reluctant to engage in telecommunication practices and express doubts about the efficacy of remote as compared to in-person school psychological services (Reupert et al., in press).

One way to address these concerns and provide evidence-based information on this matter is to rely on evidence coming from the broader field of mental health service provision for children and adolescents (e.g., psychotherapy, psychiatry, etc.). Remote services have the potential to increase cost-effectiveness (e.g., increased accessibility of services, savings in time, costs, and travel – e.g., Pesämaa et al., 2004). Therefore, already before the Covid-19 pandemic several evidence syntheses identified, summarized, and critically appraised the available evidence on this matter. Many of these reports indicate that the evidence-base is limited, and that future research is urgently needed (e.g., Boydell et al., 2014; Hollis et al., 2017; Pesämaa et al., 2004). These claims about remote mental health service provision for

children and adolescents certainly seem to gain a new level of urgency in light of the Covid-19 pandemic.

For instance, Hollis et al. (2017) completed a meta-review investigating the effectiveness of so-called ‘digital health interventions (DHIs)’ for children and adolescents with mental health problems and also updated a systematic review of randomized controlled trials (NCCMH, 2014; Pennant et al., 2015) on this same topic. They define DHIs as “interventions that provide information, support and therapy (emotional, decisional, behavioural and neurocognitive) for physical and/or mental health problems via a technological or digital platform (e.g., website, computer, mobile phone application (app), SMS, email, videoconferencing, wearable device)” (Hollis et al., 2017, p.475). The authors conclude that “overall, the heterogeneity of DHIs and poor quality of many studies make it difficult to draw definitive conclusions about the effectiveness of DHIs and the role they should play in mental health services” for children and adolescents (Hollis et al., 2017, p.493). One of the main problems they highlight is the broad range of interventions that, for example, involve different levels of interactivity (e.g., synchronous vs. asynchronous interventions), hardware use (e.g., telephone, mobile phone, or computer), and levels of human support (e.g., guidance by a trained professional or unguided access, for example, through an app) and the absence of an agreed taxonomy to describe this diversity (for further statements pointing towards the limitations of the available evidence-base see Boydell et al., 2014 and Pesämaa et al., 2004).

The above-mentioned evidence-base on the efficacy of remote services in the broader field of mental health service provision for children and adolescents certainly represents a first step to address current concerns and questions expressed by school psychologists. There are, however, also several idiosyncrasies involved in the delivery of school psychological services that warrant a separate examination. In contrast to other psychological services,

school psychologists work with a broad range of stakeholders involving children and adolescents of different age-groups and educational forms (e.g., general or special education), but also teachers, school principals, and other school staff (American Psychological Association [APA], 2020; Bundesverband Deutscher Psychologinnen und Psychologen [BDP], 2015; Jimerson et al., 2007; Skalski et al., 2015). They cater to different mental health needs focusing on behavior supports and social-emotional wellbeing at the individual level but are also involved in organizational development at the system level (APA, 2020; BDP, 2015; Jimerson et al., 2007; Skalski et al., 2015). Their services aim to ensure mental health at different time-points ranging from prevention, counselling and consultation, to assessment, intervention, and crisis management (APA, 2020; BDP, 2015; Jimerson et al., 2007; Skalski et al., 2015). It is, therefore, questionable if the evidence-base on the efficacy of remote services in the broader field of mental health service provision can also be used to guide practices in the domain of school psychological services or if further research is needed.

To the best of our knowledge, there are only two published evidence syntheses in the context of school psychological practice. The first contribution consists of a narrative review on school-based teleconsultation applications reported in a book chapter by Bloomfield et al. (2019) in the edited volume *Technology Applications In School Psychology Consultation, Supervision And Training* by Fischer et al. (2019). This report summarizes empirical evidence from 18 studies and selectively highlights implications for the acceptability, effectiveness, requirements, and financial benefits of teleconsultation in schools. Overall, the identified evidence points towards acceptable ratings for teleconsultation by teachers, school psychology practitioners and families. In addition, problem-solving consultation interviews and staff training in functional analyses methods delivered through teleconsultation seemed to be able to achieve comparable outcomes as in-person consultation.

While this contribution undoubtedly represents a first step towards an evidence-based exploration of this topic in the domain of school psychology, we believe that the narrative review methodology that was used limits the extent to which conclusions on the efficacy of remote services in school psychology can be drawn. It remains unclear, for example, if all of the relevant studies were identified through a systematic search including peer-reviewed, but also grey literature (i.e., non-peer-reviewed study reports – Giustini, 2019) to avoid publication bias. Furthermore, the eligibility criteria to include studies are not clearly reported, which makes it difficult to ensure that the evidence is based on interventions delivered by school psychologists (as opposed to researchers or other professionals). It also seems as if the eligibility criteria were not limited to studies that compared the impact of services provided remotely or in-person. Finally, there is no mention of an appraisal of the methodological quality of the included studies, which makes it difficult to estimate to what extent the evidence should be trusted to derive practical implications.

The second evidence synthesis in the context of school psychological practice represents a systematic review of school teleconsultation recently published by King et al. (2021). Based on a total of 13 articles that met the eligibility criteria for this review, the authors summarized the literature on school teleconsultation and provided details on the range of services delivered through teleconsultation, characteristics of the consultation triad, technologies that were used and other relevant aspects. They concluded that there is preliminary evidence to support the effectiveness of teleconsultation within the context of school psychological services.

This systematic review by King et al. (2021) represents an important source of information to guide an evidence-based implementation of one specific type of remote school psychological services, namely, teleconsultation. However, the scope of school psychological services also includes other types of services, such as counselling, assessment, intervention,

and crisis management (APA, 2020; BDP, 2015; Jimerson et al., 2007; Skalski et al., 2015). Furthermore, King et al. (2021) provide a summary of the school teleconsultation literature, but do not address the question to what extent similar outcomes can be achieved through remote as compared to in-person school psychological services.

Based on these limitations, we believe that in order to ensure an evidence-based implementation of remote school psychological services, a systematic synthesis of the available evidence on this matter is urgently needed. To address this gap, we conducted a rapid systematic evidence review (Polisena et al., 2015; Tricco et al., 2020) investigating the impact of remote as compared to in-person school psychological services on consumer satisfaction, therapeutic alliance, perceived and assessed mental health outcomes of service users. In addition, we explored if characteristics related to users, interventions, or outcomes influenced the impact of remote as compared to in-person school psychological services. On one hand, we selected these potential moderators based on information provided by past evidence syntheses on the heterogeneity and broad range of remote interventions to promote mental health in children and adolescents (e.g., Boydell et al., 2014; Hollis et al., 2017, Pesämaa et al., 2004). On the other hand, we also included potential moderators of practical relevance to practicing school psychologists suggested by members of our research team who are also actively engaged in providing school psychological services. In Table 1 we provide details of the 12 moderators that we set out to investigate.

-insert Table 1 here-

More specifically, we addressed the following two research questions: (1) What is the impact of remote as compared to in-person school psychological services on consumer satisfaction, therapeutic alliance, perceived or assessed mental health outcomes of service users? and (2) Do characteristics related to users (e.g., students, parents, teachers, etc.), interventions (e.g., individual case or group services), or outcomes (i.e., consumer

satisfaction, therapeutic alliance, perceived or evaluated mental health outcomes) influence the impact of remote as compared to in-person school psychological services? In this way, we aimed to provide useful and timely information to support school psychologists in making evidence-based decisions about remote services and to identify areas in which future research is needed.

Method

This study aimed to conduct a rapid systematic evidence review in order to disseminate findings in a timely manner (approx. 3 months based on data reported by Polisena et al., 2015). For this purpose, we simplified and omitted some methodological components of traditional systematic review processes, based on common rapid review methods reported by Polisena et al. (2015) and Tricco et al. (2020). More specifically, we limited the number of information sources to search in and only searched for study reports from the year 2000 onwards. Furthermore, we omitted hand-searching specific target peer reviewed journals, screening references of included studies, or implementing other snowball search procedures.

Before starting the literature search for this review, we registered a protocol following the “Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation” by Shamseer et al. (2015) on the Open Science Framework on July 1st, 2020 (please see blinded version for review purposes). Any differences between this report and the registered protocol are detailed in the supplemental materials S1 that are also available on the Open Science Framework.

Eligibility Criteria

We included reports written in English, German, or Spanish, as these are the languages the review team is fluent. Only reports published from the year 2000 onwards that consisted of peer reviewed or unpublished quantitative research studies including pre- and

post-test assessments, as well as the provision of a school psychological service as an intervention met the eligibility criteria for this review. Furthermore, studies had to focus on users of school psychological services as target participants (as opposed to school psychologists themselves), to be included. These could be students, parents, teachers, school principals, or other school staff.

In relation to the target intervention reported by each study, we only included studies investigating the impact of school psychological services delivered remotely, “[with] telecommunication technologies including but [are] not limited to telephone, mobile devices, interactive videoconferencing, email, chat, text, and Internet” (APA, 2013, p.3 cited in Bloomfield et al., 2019). While school psychological services exist in many countries, the scope of services (e.g., counselling individuals or groups of students or teachers, administering prevention programs, conducting interventions, consulting with school principals or policymakers, etc.) and the terms used to refer to different types of services (e.g., school counselling, consultation, psychoeducational support, etc.) may differ across and within countries (Dollase, 2010; Drewes, 2016a; Drewes, 2016b; Dunkel, 2016; Jimerson et al., 2004, 2006, 2007a, 2008a). Therefore, in this review, we used the term ‘school psychological services’ to encompass all types of services that aimed to support mental health of students, parents, teachers, school principals, and other school staff within the school context. This encompasses indirect services, often referred to as consultation services, that establish a triadic relationship between the school psychologist, a consultee (e.g., a parent or teacher) and the client (e.g., student), as well as counselling, or so-called direct services in which school psychologists interact directly with the final beneficiary of the service requiring support (e.g., student). The International School Psychology Association (ISPA) states that “the term school psychology is used in a general form to refer to professionals prepared in psychology and education and who are recognized as specialists in the provision of

psychological services to children and youth within the context of schools, families, and other settings that impact their growth and development. As such, the term also refers to and is meant to include educational psychologists (. . .)” (International School Psychology Association, 2021). In coherence, we used the term ‘school psychologists’ to refer to all types of professionals providing school psychological services including school counsellors, educational psychologists, and other professional naming conventions. In coherence, we used the term ‘school psychologists’ to refer to all types of professionals providing school psychological services including school counsellors, educational psychologists, and other professional naming conventions.

Furthermore, to meet the eligibility criteria for this review, studies had to include a comparison group of users receiving school psychological services delivered in-person. They also had to provide information on at least one outcome measure related to participants’ consumer satisfaction (e.g., waiting time for service delivery – see Stallard (1996) for an overview of consumer satisfaction studies in mental health services), therapeutic alliance (e.g., Revised Helping Alliance Questionnaire - HAq-II – Luborsky et al., 1996), perceived (e.g., self-perception questionnaire, observation or other experimental assessment tools) or evaluated mental health (i.e., standardized assessment tools).

Following the PRISMA-P guidelines by Shamseer et al. (2015), in Table 2, we summarize the PICO components used to define the scope of this review.

-insert Table 2 here-

To facilitate title and abstract as well as full text screening, we also summarized the above-mentioned eligibility criteria in seven signalling questions detailed in Table 3.

-insert Table 3 here-

Information Sources

Keeping in mind that we decided to conduct a rapid systematic review with reduced time- and human resources, we limited our search to the following databases:

- EBSCOhost: PsycInfo, PsycArticles, Medline
- ProQuest: ERIC
- Web of Science: Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI), Conference Proceedings Citation Index – Science (CPCI-S), Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH), Emerging Sources Citation Index (ESCI)

In addition, we searched ProQuest Dissertations & Theses Global to identify grey literature.

Search Strategy

We slightly modified the search strategy pre-specified in the protocol of this review to improve the specificity of our findings (see supplemental materials S1 for details). Figure 1 shows the final search strategy that we used.

-insert Figure 1 here-

For databases that offered language and date filters, we limited the search to reports written in English, German, or Spanish and published from the year 2000 onwards. Furthermore, whenever databases allowed for this option, we limited the search to reports that matched the search strategy based on their title and/or abstract.

Selection Process

As a first step, titles and abstracts of the studies identified from multiple information sources were imported into Covidence (see www.covidence.org). Duplications were automatically detected and excluded by the software. We also dismissed further studies that were clearly identified as duplicates throughout the entire screening process.

In a second step, two reviewers independently screened each title and abstract in Covidence and decided on the inclusion or exclusion of each study based on the signalling questions described above in Table 3. A third reviewer resolved any disagreements through a third independent judgement. We then downloaded the full version of the included studies and imported them to Covidence.

In a final selection step, two reviewers screened the full text of each report to assess eligibility. For this purpose, we again relied on the signalling questions detailed above in Table 3. If a report was excluded, the reason for exclusion was registered in Covidence. Once again, disagreements between two reviewers were resolved by an independent judgement of a third reviewer.

Data Extraction

For each of the studies that met eligibility criteria for this review, we extracted basic information on the report (e.g., complete APA reference, country of the study, etc.) and the twelve moderators related to the target population of the study (e.g., type of users: students, parents, teachers, etc.), characteristics of the remote intervention (e.g., number of users: individual case, group-based service, etc.) and type of outcomes measured by each study (e.g., consumer satisfaction, therapeutic alliance, etc. – see Table 1 for a list of moderators). As we were planning on summarizing data through meta-analysis, if at least two studies per outcome measure were available that fulfilled the eligibility criteria for this review (Littell et al., 2008), we also extracted pre- and/or post-test data (M , SD and n of participants) for the intervention and control group described and registered the directionality of the outcome measures (i.e., higher score indicates higher or lower consumer satisfaction/therapeutic alliance/mental health) for each study. Only one reviewer completed this process by entering data into a pre-specified data extraction form (see Open Science Framework), while another

reviewer then double-checked this process by comparing data entries to the original study reports.

Risk of Bias in Individual Studies

We used an adapted version of the ROBINS-I rating scale (Sterne et al., 2016) to assess the risk of bias of included studies (see supplemental materials S2 for the exact tool that we used). This tool suggests the following seven risk of bias domains: (1) confounding, (2) selection of participants into the study, (3) classification of interventions, (4) deviations from intended interventions, (5) missing data, (6) measurement of outcomes, and (7) selection of the reported result.

Two reviewers independently provided judgements for each of the studies included in this review based on the above-mentioned domains. In some cases, judgements were not only requested for each study, but also for each outcome reported in the study (i.e., domains (5) to (7)). Judgments from both reviewers were compared and disagreements discussed with all authors of this report to reach consensus.

The ROBINS-I tool suggests the following judgement categories: (a) low risk of bias, (b) moderate risk of bias, (c) serious risk of bias, (d) critical risk of bias, (e) no information. As indicated by Sterne et al. (2016), most non-randomized studies of interventions will present at least a moderate overall risk of bias. In our pre-registered protocol, we had, therefore, pre-specified that only studies with low and moderate risk of bias would be considered for inclusion in meta-analyses.

Results

Study Selection

Initially, we identified 3,873 study reports, of which 242 were automatically identified as duplicates and removed. Two reviewers independently screened titles and abstracts of the remaining 3,631 references and excluded 3,611 irrelevant studies based on

our inclusion criteria. During full text screening of the remaining 20 study reports, we excluded 17 studies for the following five reasons: (1) no quantitative research study with pre- and post-test data ($n = 5$ – see signalling question 3 in Table 3 above), (2) no delivery of remote school psychological services ($n = 5$ – see signalling question 5 in Table 3), (3) no control group of users receiving in-person school psychological services ($n = 5$ – see signalling question 6 in Table 3), (4) participants were not users of school psychological services ($n = 1$ – see signalling question 4 in Table 3), and (5) no measurement of consumer satisfaction, therapeutic alliance, perceived or evaluated mental health was reported ($n = 1$ – see signalling question 7 in Table 3– see supplemental materials S3 for a full list of the 17 studies excluded at this stage). Therefore, we ended up with three included studies that met the eligibility criteria for this review. Figure 2 summarizes the above-mentioned process.

-insert Figure 2 here-

Study Characteristics

The three studies that met eligibility criteria for this review were published between 2016 and 2020. Two of them were peer-reviewed articles (Fischer et al., 2016; Suranata et al., 2020), while one was a PhD dissertation (Hennigan, 2018). The studies reported were conducted in Indonesia, the U.S., and the UK and all of them were written in English. In relation to the types of research studies, we identified one randomized controlled trial (Suranata et al., 2020), one mixed methods study comprising a non-randomized between-subjects design (Hennigan, 2018), and one within-study design (Fischer et al., 2016). Overall, these studies reported information on 46 students receiving remote school psychological services and 82 in-person school psychological services, as well as 60 teachers participating in both conditions. In Table 4, we provide a summary of the study purpose, target interventions and outcomes of the included studies and further describe data extracted on the characteristics of participants in Table 5.

-insert Table 4 here-

-insert Table 5 here-

As mentioned above the available evidence focuses on the impact of remote as compared to in-person school psychological services for students ($n = 2$) and teachers ($n = 1$). An important detail to keep in mind concerning the available evidence on remote school psychological services with teachers is that the data is based on the simulation of a single behavioural consultation problem-solving stage, not an entire consultation process. More specifically, the “teacher was (also) given a list of common student problem behaviors in the classroom and asked by the research assistant to think of a student in his or her classroom exhibiting one or more of the problem behaviors whom they would be discussing with the consultant” (Fischer et al., 2016, p.246). In addition, there is no research investigating the implementation of remote school psychological services with parents, school principals, or other school staff. Concerning educational level, data refers to services in primary ($n = 1$) and secondary schools ($n = 2$) with no information on preschools. None of the studies reported information on the socio-economic status or linguistic background of participants and only one study provided information on the degree of familiarity of participants with the telecommunication tools that were used.

In relation to the characteristics of the interventions that were assessed in the included studies, all three focused on remote services delivered to individual participants with no information on the delivery of remote services to groups of users of school psychological services. Two studies conducted pure remote services, while one study reported aggregated data from participants receiving blended remote and in-person services, as well as pure remote services together with separate data on both types of delivery. The devices that were used were iPads in one study, while another one combined email, videoconferencing, audio, and chat messaging and the remaining study provided no information on the devices that

were used. None of the studies assessed the efficacy of telephone-based as compared to in-person services. Moreover, evidence on school psychologists' familiarity with telecommunication tools was unavailable for one study, while the other two studies reported that school psychologists had previous training in telecommunication tools. Only one study explained that some of the participants had already worked with the same school psychologist in the past, while for others this was the first contact. The overall duration of remote services ranged from one session to more than five sessions.

Regarding target outcomes, one study assessed the impact of remote services by measuring consumer satisfaction, one focused on measures of perceived mental health and two included evaluated mental health outcomes. More specifically, Fischer et al. (2016) used the Distance Communication Comfort Scale (DCCS; Schneider, 1999) and only analyzed the items for face-to-face (FtF) and two-way video communication (VC), which we categorized as a measure of consumer satisfaction. Hennigan (2018) relied on the Clinical Outcomes Routine Evaluation (CORE-10; Gray & Mellor-Clark, 2007; Barkham et al., 2006 & 2013) and the Goals Based Outcomes tool (GBO; Law, 2009 & 2012) that we categorized as a measure of evaluated and perceived mental health, respectively. Finally, Suranata et al. (2020) implemented the Indonesian Version of Resilience Youth Development Module for junior high school (Suranata et al., 2017b) that we understood as a measure of evaluated mental health. In some cases, study reports also included information on additional measurements that we did not include in this review, as they did not match the eligibility criteria for the outcome measures targeted by this review. The above-mentioned information is summarized in Table 6.

-insert Table 6 here-

The completed data extraction form with all the above-mentioned information is available on the Open Science Framework project page for this study.

Risk of Bias within Studies

In Figure 3 we summarize the results of the risk of bias assessment based on the ROBINS-I rating scale (Sterne et al., 2016) and explain our judgements for each domain in the following sections.

-insert Figure 3 here-

Confounding

Fischer et al.'s (2016) study showed low risk of bias in this domain, as they controlled for potential confounding variables by using a within-subject design and counterbalancing the order in which participants attended remote or in-person consultation. For Suranata et al.'s (2020) study, although there was no clear indication of potential bias, information on possible confounders such as gender or age were not reported. Therefore, we do not know if there was an equal distribution of these variables across participant groups and for this reason decided on moderate risk of bias.

In the case of Hennigan's (2018) study, we adjudicated serious risk of bias, because there was evidence that several confounding variables, such as gender proportions and the educational level participants attended were unequal across the remote and in-person service group (Sterne et al., 2016). Furthermore, no statistical procedure was used to control for the impact of these differences. It is important to clarify that this judgement does not necessarily apply in the broader context of the original study and the mixed methods study design employed by the author. However, keeping the aim of the present review in mind to summarize the empirical evidence on the efficacy of remote as compared to in-person school psychological services, controlling for potential confounding variables is an essential condition to avoid bias and facilitate valid interpretations of the evidence as stated by the ROBINS-I guidelines.

Selection of Participants

In this domain we identified low risk of bias for Fischer et al.'s (2016) and Hennigan's (2018) study, as there was no information in the reports that made us believe that data from participants was included into the study (or into the analysis) based on characteristics observed after the start of intervention (Sterne et al., 2016). In contrast, we assigned moderate risk of bias for Suranata et al.'s (2020) study, because only 90 of the 102 students that met the inclusion criteria set by the authors to participate in this study were actually randomly allocated to the intervention, active or passive control group (see pp.5-6 in Suranata et al., 2020). It is possible that the missing 12 participants were excluded for valid reasons, such as lack of parental consent or inability to attend the intervention. However, as this information is not reported, we assigned moderate risk of bias.

Classification of Interventions

All three studies were categorized as having low risk of bias in this domain, because remote and in-person services were clearly defined at the start of the intervention before outcomes were measured (Sterne et al., 2016).

Deviation from Intended Interventions

We also identified low risk of bias for all three studies in this domain, as there was no information indicating deviations from the intended intervention beyond usual practice (Sterne et al., 2016). It is possible that at least some of the students participating in Hennigan's (2018) and Suranata et al.'s (2020) studies received co-interventions, such as psychotherapy, and that this might have influenced the results. However, as none of the studies reported information in this respect, we have no reason to suspect risk of bias due to the presence of unbalanced co-interventions across groups.

Missing Data

Once more, low risk of bias was adjudicated to all three studies in this domain, although only Suranata et al.'s (2020) explicitly stated that there was no missing data.

Measurement of Outcomes

For this domain all three studies showed low risk of bias as the same instrument was used to measure outcomes across participant groups or service conditions. Furthermore, the measurements in all three studies consisted of self-report questionnaires completed by participants leaving no room for bias to be introduced by assessors being aware of the intervention received by each participant (Sterne et al., 2016).

Selection of Reported Results

As none of the included studies reported registration of a protocol prior to data collection, we have no possibility to confirm if all reported results correspond to the intended outcomes (Sterne et al., 2016). Therefore, following the ROBINS-I guidelines, we judged this domain with moderate risk of bias for all studies. Within the study reports, information on outcome measures and analyses were consistent and there was no indication of selection of outcomes or subgroups for analyses.

Overall Risk of Bias

The overall risk of bias of each study was derived from the highest risk of bias judgement received in any of the above-mentioned domains (Sterne et al., 2016). This means that the overall risk of bias for Fischer et al.'s (2016) and Suranata et al.'s (2020) study is moderate, while Hennigan's (2018) study overall shows serious risk of bias based on the domain of confounding. This led to the exclusion of this study from further analyses.

Synthesis of Results

As pre-specified in our protocol, we planned to summarize data for each of the four outcome measures investigated in this review (i.e., consumer satisfaction, therapeutic

alliance, perceived and evaluated mental health) through meta-analysis, if at least two studies per outcome measure were available that fulfilled the eligibility criteria for this review (Littell et al., 2008). Unfortunately, this condition was not fulfilled.

To overcome this limitation of the available evidence and nevertheless provide an overview of the strength of the impact of remote as compared to in-person school psychological services, we computed standard mean difference (*SMD*) effects sizes with Hedges correction *g* for small sample sizes (Borenstein et al., 2011) based on the statistical information reported in each individual study, as suggested by Tricco et al. (2020). For Fischer et al. (2016) we used post-test data reported on the face-to-face factor and the two-way video communication of the Distance Communication Comfort Scale (DCCS; Schneider, 1999). In contrast, for Suranata et al. (2020), we used post-test data and follow-up data on the Indonesian version of psychological subscale of resilience Youth Development Module for junior high school (Suranata et al., 2017b). Computations were completed in the statistical software *R* (R Core Team, 2013). The dataset and code can be accessed on the Open Science Framework project page for this study. Results are shown in Table 7.

-insert Table 7 here-

Insufficient data also prevented us from completing additional analyses anticipated in our pre-registered protocol, such as the assessment of publication bias, sensitivity analyses, and subgroup (for categorical variables) or meta-regression (for continuous variables) analyses for 12 moderator variables also pre-specified in the protocol for this review (see Table 1). With the purpose of providing a descriptive synthesis of the available evidence, we still extracted data for each of these variables and reported this information above in Table 4 and 5.

Discussion

Summary of Evidence

From a total of 3,873 references identified through our search, only three (< 1%) studies met eligibility criteria for this review and serve as an evidence-base on the impact of remote as compared to in-person school psychological services on consumer satisfaction, therapeutic alliance, perceived or assessed mental health outcomes of service users. Two of these studies showed low to moderate risk of bias, while we judged one study with serious risk of bias and therefore excluded it from further analyses. Due to insufficient data, we were unable to compute meta-analyses and for this reason summarized the available evidence in a narrative style. Overall, the limited evidence that we identified indicates that the impact of remote school psychological services on consumer satisfaction and evaluated mental health outcomes of service users seems to be equivalent or slightly higher to in-person school psychological services. Nevertheless, this information should be interpreted with caution due to several limitations discussed in the following sections.

Overall Completeness and Applicability of Evidence

The applicability of the available evidence is very limited, as there are at least three ways in which information is incomplete. First, in relation to outcome measures, data only support an equivalent or slightly higher impact of remote as compared to in-person school psychological services for one measure of consumer satisfaction (i.e., Fischer et al., 2016: Distance Communication Comfort Scale – DCCS - Schneider, 1999) and one evaluated mental health outcome (i.e., Suranata et al., 2020: Indonesian Version of Resilience Youth Development Module for junior high school - Suranata et al., 2017b). We found no evidence on the impact of remote services on measures of therapeutic alliance or perceived mental health outcomes or on other measures of consumer satisfaction or evaluated mental health outcomes.

Second, concerning users of school psychological services, the available evidence is applicable to secondary school students and teachers, but not to other service users (e.g., pre- or primary school students, parents, etc.). Concerning the implementation of remote school psychological services with teachers, it remains questionable to what extent the evidence can be applied to different types of services, as the data we identified is solely based on the simulation of a single behavioural consultation problem-solving stage. Furthermore, it remains unknown if potential moderators such as socio-economic status of service users, their linguistic background, and their familiarity with telecommunication tools influence the efficacy of remote services in school psychology.

Third, there are many open questions with respect to the way remote school psychological services need to be implemented to achieve an equivalent or higher impact than in-person school psychological services. The available evidence only refers to individual case services purely provided through remote modalities. Therefore, we do not know if similar results can be achieved when remote services are put in place for groups of users or in a blended format in combination with in-person sessions. Another potential moderator that, to-date, has not been investigated is the type of technological device used to communicate with users. Available evidence is based on the use of iPads (i.e., Fischer et al., 2016), but we do not know if remote services are effective when other devices such as telephones, desktop computers, laptops, or cell-phones are used.

Moreover, the evidence-base is solely derived from studies in which school psychologists received previous training in using telecommunication tools. This is an important aspect that needs further exploration to better understand what amount and type of previous training is needed to ensure school psychologists are well-prepared to deliver remote services. It also remains unclear if the impact of remote services depends on the type of contact (e.g., first vs. continuing contact) established between school psychologists and

service users. Finally, we do not know what role the duration of services plays in determining efficacy. The interventions included in this review range from one to more than five remote sessions but have not explored this potential moderator systematically.

These findings are consistent with results from evidence syntheses coming from the broader field of mental health service provision for children and adolescents (e.g., psychotherapy, psychiatry, etc. - Boydell et al., 2014; Hollis et al., 2017; Pesämaa et al., 2004). For instance, Hollis et al. (2017) alert that heterogeneity of target interventions, as well as poor methodological quality make it difficult to draw conclusions on the efficacy of remote services in the provision of mental health services for children and adolescents.

Despite the above-mentioned limitations on the overall completeness and applicability of the available evidence, we would like to acknowledge that there are several additional studies focusing on the acceptability, efficacy and effectiveness of remote school psychological services (e.g., Bassingthwaite et al., 2018; Ihorn & Arora, 2018; Margolis et al., 2018; Schultz et al., 2017 in the *Special Issue on Teleconsultation as the New Frontier of Educational and Psychological Consultation* in this journal and several of the studies reviewed by King et al., 2021). Most of these studies did not meet the eligibility criteria for this review, as they did not investigate the impact of remote as compared to in-person school psychological services, but rather addressed other research questions. For instance, Schultz et al. (2017) conducted an online survey with school psychology practitioners to investigate under which conditions school psychologists were willing to engage in teleconsultation with teachers in the context of varying commute time, consultee comfort levels and student problem severities. Although this extended body of evidence exceeds the scope of this review, it can represent a valuable source of information to guide an evidence-based implementation of remote school psychological services.

Confidence in Cumulative Evidence

To assess the strength of the body of evidence, we followed the Grades of Recommendation, Assessment, Development and Evaluation guidelines (GRADE, Schünemann et al., 2019), as shown in Table 8.

-insert Table 8 here-

The available evidence on the impact of remote in comparison with in-person school psychological services on consumer satisfaction and evaluated mental health outcomes fulfilled the criteria of being (a) evaluated with the ROBINS-I risk of bias assessment tool (Sterne et al., 2016) and/or (b) based on data from a randomized controlled trial (i.e., Suranata et al., 2020). Therefore, following Schünemann et al. (2019), we began by establishing an initial level of high certainty. In a next step, the available evidence for both outcome measures was downgraded by one level due to overall moderate ratings in the ROBINS-I risk of bias assessment described in detail in the results section. We identified no further reasons to down- or upgrade the level of certainty of the evidence in relation to any of the other domains proposed by the GRADE guidelines (i.e., inconsistency, indirectness, imprecision, publication bias, large effects, dose-response, plausible confounding – see Schünemann et al., 2019 for a detailed description on each of these domains). As a result, we obtained a final level of certainty rating of moderate for the available evidence on the impact of remote in comparison with in-person school psychological services on consumer satisfaction and evaluated mental health outcomes.

Potential Biases in the Review Process

The main motivation for this review was to respond to the needs of school psychologists that have seen themselves forced to deliver remote services instead of business-as-usual in-person services in light of the Covid-19 pandemic. In order to make our findings available in a timely manner, we decided to adopt a rapid review method (Polisena et al.,

2015; Tricco et al., 2015) and complete the project in a maximum of six months from protocol preregistration (i.e., 1st of July of 2020) to manuscript submission (29th of December of 2020). However, this approach entailed simplifying and omitting some methodological components of traditional systematic reviews that could have influenced our findings (e.g., limited number of information sources, search for reports from the year 2000 onwards - see methods section for further details). It is possible that due to these limitations, relevant studies that would have met the eligibility criteria for this review were missed. An extended search strategy would, however, also have increased the number of initial references identified in our information sources and extended the duration of the project, as well as the timely dissemination of results. Therefore, we invite the reader to interpret our findings in light of these limitations and encourage future research to extend this evidence synthesis by refining the parameters of the search that we conducted.

Implications for Practice

Although our findings underline that there is very limited information to guide evidence-based practices in the implementation of remote school psychological services, there are at least four implications for current practices. First, based on the GRADE assessment of the cumulative evidence that met the eligibility criteria for this review, practitioners can be moderately certain that the impact of remote school psychological services on consumer satisfaction and evaluated mental health outcomes of service users is at least equivalent to in-person services.

Second, the available evidence supports the implementation of remote services in individual sessions with teachers as well as with secondary school students. Despite the lack of evidence, we recommend that school psychologists play close attention to characteristics of the service users they cater for that could potentially influence the efficacy of the services they provide remotely (e.g., socio-economic status, linguistic background, familiarity with

telecommunication tools, etc.), just as they commonly do when providing in-person services. Particular caution should also be put in place when working with pre- and primary school students or in groups, as there is currently no evidence available to inform these applications of remote services.

As a third point, we would like to advise school psychologists to keep in mind certain characteristics of the specific remote service they engage in that can potentially influence results. While, to date, the available evidence only focuses on interventions completed purely through remote modalities, it is possible that in some cases blended modalities combining remote and in-person communication may lead to better results for certain groups of users (e.g., users with no previous experience with telecommunication tools) or under specific service circumstances (e.g., initial vs. ongoing service session). Another aspect that should be considered is the duration of the entire school psychological service process. It could be the case that shorter interventions consisting of one or two remote sessions pose larger challenges on school psychologists to establish a therapeutic alliance with service users. These challenges might decrease as both practitioners and users become familiar with digital tools and adapt to this new way of communicating. As there is currently no evidence available to reach a better understanding of the influence of these factors, we encourage school psychologists to keep these variables in mind and rely on their clinical expertise to make decisions.

Finally, we would like to emphasize the need for policymakers to ensure that school psychologists have access to the appropriate technical devices and training opportunities to develop competencies in remote school psychological services. Although in research on the efficacy of remote school psychological services these aspects are commonly considered pre-requisites to enable the implementation of remote services and carefully ensured, in the practical field there are still many school psychologists struggling to access reliable

technological devices and lacking appropriate training to engage in remote services (Reupert et al., in press). Especially, when in-person services are not a viable option, as during the Covid-19 pandemic, these obstacles can have detrimental effects on the emotional wellbeing of school psychologists and on the quality of the services they are able to provide.

Implications for Research

The main implication of this review is that future research is urgently needed to reach a better understanding of the efficacy of remote as compared to in-person school psychological services. We would like to encourage future research to investigate to what extent potential moderators related to users (e.g., students, parents, etc.), interventions (e.g., individual cases or groups), or outcomes (i.e., consumer satisfaction, therapeutic alliance, perceived or evaluated mental health outcomes) influence the impact of remote as compared to in-person school psychological services. Considering the broad range of users (e.g., children and adolescents of different age-groups and educational forms, teachers, school principals and other school staff), mental health needs (e.g., cognitive and socio-emotional wellbeing and organizational development) and services (e.g., prevention, consultation, counselling, assessment, intervention and crisis management) school psychologists are responsible for, it is important to reach a better understanding of what works for whom under which conditions when it comes to implementing remote services.

Furthermore, guided by the results of the risk of bias assessment we completed in this review, we would like to highlight two recommendations to increase the methodological quality of future contributions in this field. First, we would like to advise researchers to adhere more closely to the *journal article reporting standards* (JARS) developed by APA (2020), especially in relation to the description of participant characteristics and sampling procedures. In order to enable practitioners and policymakers to decide if the evidence is applicable to the target population they work with, it is imperative to report detailed

information on major demographic variables such as sex, socio-economic status, educational level and linguistic background. This is also important to ensure that the reader has sufficient information to assess if potential confounders could be influencing the results or if such variables were appropriately measured and controlled for (Sterne et al., 2016). Also, a more detailed description of the sampling procedures specifying “the percentage of the sample approached that participated” (APA, 2020, p.83) is needed to identify potential bias in the selection of participants into the study.

Second, we would like to encourage researchers to adopt pre-registration practices, especially in the case of quantitative research studies (Nosek et al., 2018). By registering a time-stamped document describing the research questions, measures to be collected and the analysis plan before data collection commences, the transparency of the research process is enhanced notably and questionable research practices, such as selective outcome reporting or p-hacking, can be more easily avoided or identified (D’Intino et al., 2018).

Conclusions

This report provides the first systematic synthesis and critical appraisal of the available evidence on the efficacy of remote as compared to in-person school psychological services. This represents a unique contribution, as the extent to which remote services achieve similar results as in-person school psychological services has so far only been investigated by individual studies. We therefore contribute an overview of the available evidence on this matter which can serve as a basis for policymakers and school psychologists to guide the implementation of remote services, as well as a starting point for researchers to build on previous work when designing future studies in this field.

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Table 1*Potential Moderators of the Efficacy of Remote School Psychological Services*

Moderators	Categories
User characteristics	
Type of users	Students Parents Teachers School principals Other school staff
Educational level	Preschool (approx. birth to 5 years) Primary school (approx. 6-11 years) Secondary school (approx. 12-18 years)
Socio-economic status	Low Moderate or high
Linguistic background	Native speaker of service delivery Non-native speaker of service delivery
Familiarity with telecommunication tools	Previous experience No previous experience
Intervention characteristics	
Number of users	Individual case Group
Degree of remote delivery	Blended in-person and remote Pure remote service
Remote service modality	Telephone Videoconference with desktop or laptop devices Videoconference with mobile devices (cell-phone or tablet)
School psychologists' familiarity with telecommunication tools	Previous training No previous training
Type of contact	First contact Continuing service
Duration	1 session 2-5 sessions More than 5 sessions
Outcome characteristics	
Type of outcome	Consumer satisfaction Therapeutic alliance Perceived mental health Evaluated mental health

Table 2*Scope of Review based on PICO Components*

PICO component	Delimitation
Participants	students, parents, teachers, school principals, other school staff
Intervention	all kinds of school psychological services delivered remotely
Comparison	school psychological services delivered in-person
Outcomes	consumer satisfaction, therapeutic alliance, perceived and/or evaluated mental health outcomes

Table 3*Eligibility Criteria*

Signalling question	Inclusion	Exclusion
1. Is the report in English, German, or Spanish?	Yes	No
2. Was the study published from the year 2000 onwards?	Yes	No
3. Is this a quantitative research study with pre- and post-test assessment?	Yes	No
4. Are the participants users of school psychological services?	Yes	No
5. Does the study report on remote school psychological services?	Yes	No
6. Does the study include a control group of users receiving school psychological services delivered in-person?	Yes	No
7. Does the study measure participants' consumer satisfaction, therapeutic alliance, perceived or evaluated mental health?	Yes	No

Table 4*Purpose, target intervention and outcomes of included studies*

Included study	Fischer et al. (2016)	Hennigan (2018)	Suranata et al. (2020)
Purpose	Evaluation of teachers' acceptability of videoconferencing as a medium for communication within a consultative framework	Exploration of usage and effectiveness of online counselling provision (as an adjunct to face-to-face provision) for secondary school students	Examination of the effectiveness of face-to-face group and Internet-based cognitive behavioral counselling to improve the resilience of junior high school students
Target intervention	Problem identification interview with teachers	Individual counselling with secondary school students	Individual Internet-based cognitive-behavioural counselling
Outcomes	Fast Form of the Technology Acceptance Model (FF-TAM; Chin, Johnson, & Schwarz, 2008); Distance Communication Comfort Scale (DCCS; Schneider, 1999); Semi-Structured PII Interview Form (based on Bergan & Kratochwill, 1990)	Clinical Outcomes Routine Evaluation (CORE-10; Gray & Mellor-Clark, 2007; Barkham et al., 2005, 2006 & 2012); Goals Based Outcome (GBO; Law, 2009 & 2012)	Indonesian version of psychological subscale of Resilience Youth Development Module (RYDM) for junior high school (Suranata et al., 2017b)

Table 5*Characteristics of Participants in Included Studies*

Characteristic	<i>n</i>	Fischer et al. (2016)	Hennigan (2018)	Suranata et al. (2020)
Type of users				
Students	2		X	X
Parents	0			
Teachers	1	X		
School principals	0			
Other school staff	0			
More than one category	0			
Educational level				
Preschool (approx. birth to 5 years)	0			
Primary school (approx. 6-11 years)	1	X		
Secondary school (approx. 12-18 years)	2		X	X
More than one category	0			
Socio-economic status				
Low	0			
Moderate or high	0			
More than one category	0			
No information	3	X	X	X
Linguistic background				
Native speaker of service delivery				
Non-native speaker of service delivery				
More than one category				
No information	3	X	X	X
Familiarity with telecommunication tools				
Previous experience	0			
No previous experience	0			
More than one category	1	X		
No information	2		X	X

Table 6*Characteristics of Interventions and Outcomes in Included Studies*

Characteristic	<i>n</i>	Fischer et al. (2016)	Hennigan (2018)	Suranata et al. (2020)
Number of users				
Individual case	3	X	X	X
Group	0			
More than one category	0			
Degree of remote delivery				
Blended in-person and remotely	1		X ^a	
Pure remote delivery	3	X	X ^a	X
More than one category	1		X ^a	
Remote service modality				
Telephone	0			
Videoconference with desktop or laptop devices	0			
Videoconference with mobile devices (cell-phone or tablet)	1	X		
More than one category	1		X	
No information	1			X
School psychologists' familiarity with telecommunication tools				
Previous training	2		X	X
No previous training	0			
No information	1	X		
Type of contact				
First contact	0			
Continuing service	0			
More than one category	1	X		
No information	2		X	X
Duration				
1 session	1	X		
2-5 sessions	0			
More than 5 sessions	1			X
More than one category	1		X	
No information	0			
Type of outcome				
Consumer satisfaction	1	X		
Therapeutic alliance	0			
Perceived mental health	1		X	
Evaluated mental health	2		X	X

Note. ^aData was reported separately for participants in the blended and purely online condition, as well as for the collapsed group.

Table 7*Standard Mean Differences (SMD) and Variance for Included Studies*

Study Reference	Outcome Measure	Remote Service Condition			In-person Service Condition			SMD	σ^2
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>		
Fischer et al. (2016)	Consumer satisfaction	60	5.64	0.97	60	5.20	1.54	0.34	0.03
Suranata et al. (2020) ^a	Evaluated mental health	30	45.80	3.11	30	45.43	3.05	0.12	0.07
Suranata et al. (2020) ^b	Evaluated mental health	30	47.96	1.35	30	47.96	1.35	0.00	0.07

Note. ^aBased on post-test data reported by Suranata et al. (2020). ^bBased on follow-up-test data reported by

Suranata et al. (2020).

Table 8*Levels of Certainty of the Body of Evidence based on the GRADE Approach*

Steps of the GRADE approach	Evidence on the impact of remote as compared to in-person school psychological services on	
	Consumer satisfaction	Evaluated mental health outcomes
Initial level of certainty	High (+)(+)(+)(+)	High (+)(+)(+)(+)
Downgrading of level of certainty		
Risk of bias	Overall moderate risk of bias in ROBINS-I	Overall moderate risk of bias in ROBINS-I
Inconsistency		
Indirectness		
Imprecision	One level downgrade	One level downgrade
Publication bias		
Upgrading of level of certainty		
Large effects	No upgrade	No upgrade
Dose-response		
Plausible confounding		
Final level of certainty	Moderate (+)(+)(+)(○)	Moderate (+)(+)(+)(○)

Figure 1

Search Strategy

Figure 2

Study Selection Process

Figure 3

Results of risk of bias assessment

ROBINS I risk of bias domain	Fisher et al. (2016)	Hennigan (2018)	Suranata et al. (2020)
Confounding	++	-	+
Selection of participants	++	++	+
Classification of interventions	++	++	++
Deviation from intended interventions	++	++	++
Missing data	++	++	++
Measurement of outcomes	++	++	++
Selection of reported results	+	+	+
Overall	+	-	+

++ Low risk + Moderate risk - Serious risk - Critical risk ? No information