SYSTEMATIC REVIEW

Models of remote professional supervision for psychologists in rural and remote locations: A systematic review

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Abstract

Introduction: Psychology workforce shortages in geographically rural or remote contexts have highlighted the need to understand the supervisory experiences of psychologists practising in these locations, and the models of supervision employed to support their practice and improve client safety.

Objective: To review the models of remote professional supervision and the supervisory experiences of psychologists practising in rural and remote locations.

Design: Using the Joanna Briggs Institute methodology for mixed-methods systematic review, 8 health and education databases were searched using keyword and subject heading searches.

Findings: The initial search identified 413 studies. A full-text review identified 4 papers that met the inclusion criteria and were subjected to a methodological appraisal by 2 reviewers. Three studies included qualitative data, with 2 using transcribed interviews. Two studies reported quantitative data, with only one study including a statistical analysis of the outcomes.

Discussion: The results for the efficacy of the current models of remote supervision being used within the allied health and psychology professions are limited, with methodological limitations cautioning generalisability of results. The experiences of psychologists engaged in remote supervision do not appear to have changed over the past decade despite technological advances.

Conclusions: Quality professional supervision is critical for the sustainability of the psychology workforce in rural and remote locations, reducing professional isolation, and for improved patient outcomes. This review identified a need for improved evidence for remote supervision models for psychologists working in geographically rural and remote locations. Lessons can be learned from other health professions' models of remote supervision.

KEYWORDS

models of remote supervision, professional supervision, psychologists, rural and remote practice, supervisory experiences

1 | INTRODUCTION

Geographically rural and remote health service delivery brings many challenges related to cost, distance, highly dispersed and diverse populations and access to profession-specific expertise, particularly in psychology.[1-3] Over the past few decades, psychology has increasingly become an urbanised profession, with the number of psychologists currently practising in geographically rural and remote location estimated to be <8% of the psychology workforce.[4,5] Developing the geographically rural and remote health workforce faces challenges, with rural and remote practitioners often having higher workloads and more complex cases than their urban colleagues.[6] Additionally, rural and remote located health professionals are more likely to experience professional isolation, with limited access to supervision and peer networks.[6,7] These challenges notably affect the recruitment and training of the geographically rural and remote health workforce, with psychology workforce impacted more directly because of the structure of psychology postgraduate training and the absence of clinical placements in undergraduate degrees.[5]

One key strategy that has been successful in addressing these workforce and training issues in other health professions has been remote supervision models using videoconferencing technology.[6,8] In Australia, the medical profession has led the way in developing remote supervision, training models and pathways.[8,9] Over the past few decades, significant funding has been invested into medical training pathways to increase access to rural background applicants, invest in training infrastructure in regional and rural communities, and provide a recognised career pathway for rural and remote doctors.[8,9] These investments have resulted in an increase in the number of rural and remote trained and practising doctors, with medicine leading the research focusing on standards and models of supervision, particularly in the area of remote supervision.[9] For non-medical health professionals in Australia, there has been a historical bias towards regional and urban training, with rural and remote career pathways and remote supervision being a more recent addition for psychologists in training.[2,5,6,10] Although the introduction of remote supervision models was a welcome change for psychologists in rural and remote practice, there have been little data collected about the effectiveness of models of remote supervision in psychology, or the experiences of psychologists who are receiving or providing remote supervision within the rural and remote context.[11]

With recent attention on addressing the workforce needs of rural and remote communities to better meet the health needs of residents, and remote supervision being identified as a strategy for increasing the rural and remote health workforce, there is an urgent need to understand the current state of the evidence in this area for non-medical health professionals. The current mixed-methods systematic review aimed to address this need by identifying models of remote

What is already known on this subject:

- Traditional clinical supervision models do not meet the psychology workforce needs across rural and remote Australia

- Supervision is a critical component of the education of psychologists, for training, for meeting ongoing registration requirements and for ensuring patient safety

- To address the issue of a largely urbanised psychology workforce, Australia has adopted remote supervision to support psychologists working in rural and remote locations

- There is limited research investigating the effective models of remote supervision for psychologists, or the experiences of psychologists using this type of supervision

What this study adds:

- Models of supervision for psychologists working in rural and remote locations are often traditional models that are not purpose-built for remote practice

- There is a critical need for the efficacy of models of remote supervision to be evaluated, to ensure the sustainability of the rural and remote psychology workforce, reduce professional isolation and improve patient outcomes and safety

- If remote supervision is to successfully meet the needs of the rural and remote psychology workforce, the profession needs to learn from remote supervision models developed for other health professions, such as rural and remote medical training programs

professional supervision being employed for psychologists practising in geographically rural and remote locations; and developing a broad understanding of the remote supervision experiences of psychologists working in geographically rural and remote locations.

2 | METHODS

2.1 | Ethics approval

This systematic review forms part of a project approved by the Human Research Ethics Committee, James Cook

University (H7961). This review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology for MMSR. The PROSPERO protocol registration number is CRD42020148792.

2.2 | Inclusion and exclusion criteria

This review included quantitative, qualitative and mixed-methods studies. The review considered studies where part or all of the sample included psychologists who engaged in remote supervision. The quantitative component of the review considered studies that evaluated models of rural and remote supervision. The qualitative component of this review considered studies that explored psychologists' experiences of remote supervision. No limits were placed on year of publication or country. This review excluded studies that did not include psychologists who were practising rurally and remotely, studies that were not published in English, theses or dissertations, conference papers and all other reviews.

2.3 | Search strategy

The systematic review search strategy was piloted in August 2019 on CINAHL, with minor adjustments made to keyword order and parameters to ensure all possibly relevant articles were found (Appendix 1). A final systematic search of health and education databases CINAHL, EmCare, MEDLINE (Ovid), PubMed, ERIC (ProQuest), Scopus, PsycINFO (ProQuest) and Web of Science was conducted in May-June 2020. For thoroughness, searches were also conducted in Google Scholar and manual checks were completed.

2.4 | Study selection

Following the search, all identified citations were collated and uploaded into EndNote X9 2013 and duplicates removed. Titles and abstracts were screened against the inclusion and exclusion criteria by the first 2 authors. Potentially relevant studies were retrieved in full and critically appraised for methodological quality.

2.5 | Critical appraisal

The full text of selected citations was critically appraised using the Mixed Methods Appraisal Tool version 2018 [MMAT v2018] because JBI does not currently provide a mixed-methods appraisal tool.[13] The MMAT v2018 included the required appraisal criteria outlined in the JBI MMR methodology. Reasons for the exclusion of full-text studies were

recorded. Any disagreements that arose between the reviewers at each stage of the study selection process were resolved through discussion.

2.6 | Data extraction

The data from the included studies were extracted by 2 independent reviewers using the standardised Joanna Briggs Institute System for the Unified Management, Assessment and Review of Information (JBI SUMARI) data extraction tool.[14] The data extracted for each study included research focus, research methodology, analysis and conclusions.

2.7 | Data synthesis and integration

Following extraction, the quantitative data from the 2 mixed-methods studies were converted into qualitative data through qualitisation, to describe the quantitative data and allow for comparison with the qualitative data and identify similarities and contradictions in the findings.[15] A convergent integrated approach was used to assemble the qualitised data with the qualitative data. Assembled data were then categorised and divided into themes to produce a set of integrated findings. The first reviewer synthesised the data from the qualitative studies, and the second reviewer reviewed the resulting themes and integrated the qualitised quantitative data into the synthesis. Any disagreements were resolved through discussion.

2.8 | Establishing confidence in results

A moderate confidence in the outcomes of this review was established using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) and the Confidence in the Evidence from Reviews of Qualitative Research (GRADE-CERQual) approaches.[16,17] However, caution needs to be taken in interpreting the results of this review because mixed-methods reviews include transformation and integration of data that can impact the grading process.

3 | RESULTS

3.1 | Search results

The initial search identified 413 studies. Subsequently, duplicates were removed before the titles were screened by the first reviewer. After the title screening, both reviewers screened the abstracts for inclusion or exclusion. The remaining 28 articles were assessed for inclusion, with 4 papers meeting

the inclusion criteria.[18-21] Agreement was reached through discussion. A summary of the search results is presented in Figure 1 using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.[22]

3.2 | Critical appraisal

Results from the MMAT v2018 critical appraisal are presented in Table 1.[13] All studies were appraised as meeting the qualitative data quality threshold.[18-21] However, only 2 studies were found to include consideration of the researchers' influence (including representation of participants' voices),[18,19]

with 2 studies not adequately addressing this criterion.[19,20] The 2 mixed-methods studies[19,21] were also appraised against the 'quantitative descriptive' criteria and the 'mixed-methods' criteria.[13] One study met all criteria,[18] with the other study not including an acceptable response rate (44%) or giving adequate consideration to the study limitations.[21]

3.3 | Characteristics of studies

The summary of the characteristics of each study is presented in Table 2, including the aims, participants, methods, results and limitations. All studies had small sample
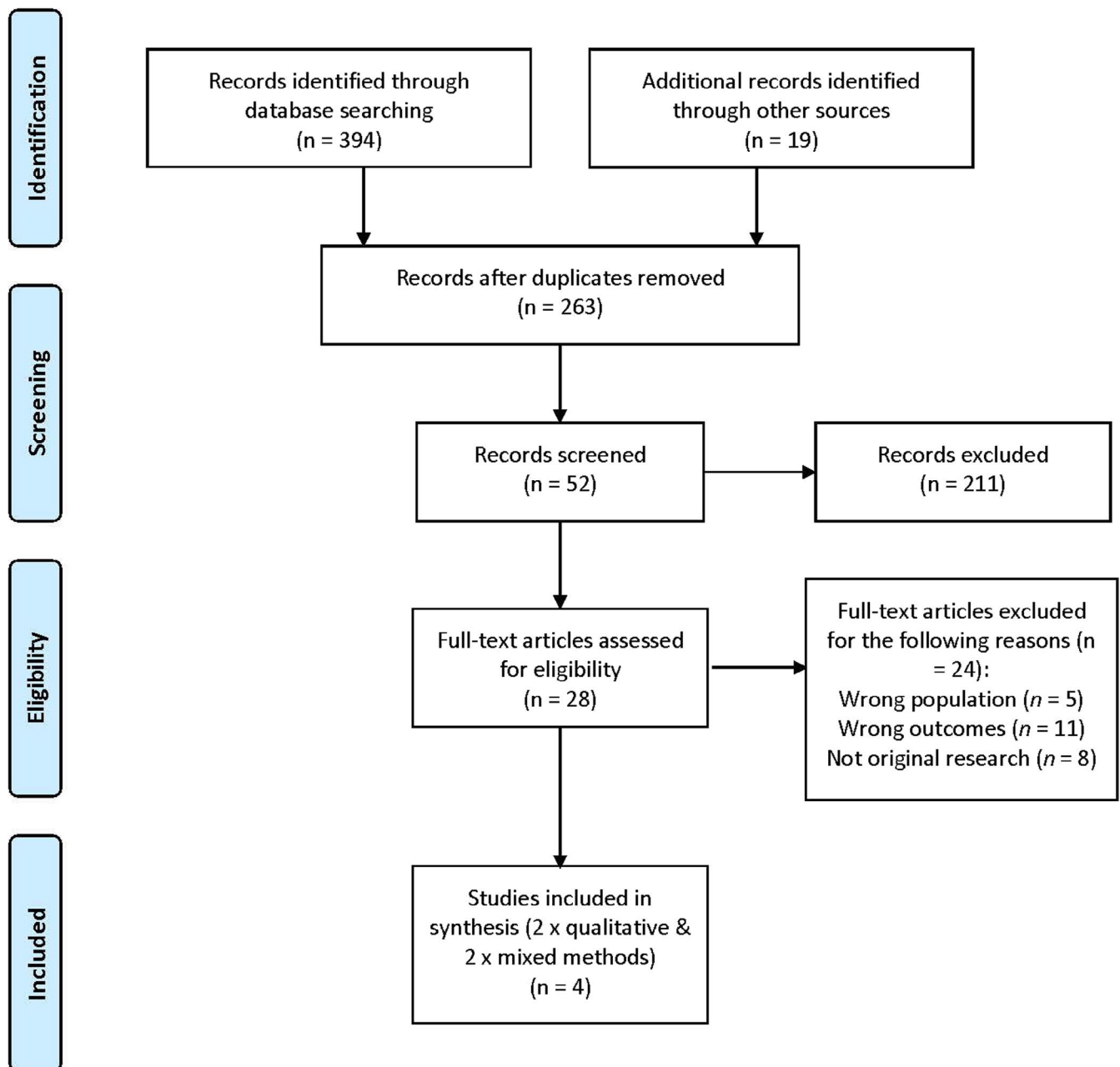

FIGURE 1 Study selection: PRISMA flow diagram

TABLE 1 Critical appraisal summary of included studies using MMAT v2018[13]

	Ducat et al[17] [QUAL]	Inman et al[18] [MM]	Miller & Gibson[19] [QUAL]	Xavier et al[20] [MM]
Screening questions (all study types)				
Are there clear qualitative and quantitative research questions or objectives, or a clear mixed-methods questions or objectives?	Y	Y	Y	Y
Do the collected data allow to address the research question (objective)? For example, consider whether the follow-up period is long enough for the outcome to occur (for longitudinal studies or study components).	Y	Y	Y	Y
1. Qualitative				
1.1. Is the qualitative approach appropriate to answer the research question?	Y	Y	Y	Y
1.2. Are the qualitative data collection methods adequate to address the research question?	Y	Y	Y	Y
1.3. Are the findings adequately derived from the data?	Y	Y	Y	Y
1.4. Is the interpretation of results sufficiently substantiated by data?	Y	Y	N	N
1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?	Y	Y	Y	Y
2. Quantitative randomised controlled (trials)	N/A. No studies included a randomised control trial.			
2.1. Is randomisation appropriately performed?				
2.2. Are the groups comparable at baseline?				
2.3. Are there complete outcome data?				
2.4. Are outcome assessors blinded to the intervention provided?				
2.5 Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomised	N/A. No studies included a non-randomised trial.			
3.1. Are the participants representative of the target population?				
3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
3.3. Are there complete outcome data?				
3.4. Are the confounders accounted for in the design and analysis?				
3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				

(Continues)

TABLE 1 (Continued)

	Ducat et al[17] [QUAL]	Inman et al[18] [MM]	Miller & Gibson[19] [QUAL]	Xavier et al[20] [MM]
4. Quantitative descriptive				
4.1. Is the sampling strategy relevant to address the research question?	N/A	Y	N/A	Y
4.2. Is the sample representative of the target population?	N/A	Y	N/A	Y
4.3. Are the measurements appropriate?	N/A	Y	N/A	Y
4.4. Is the risk of non-response bias low?	N/A	N	N/A	Y
4.5. Is the statistical analysis appropriate to answer the research question?	N/A	Y	N/A	Y
5. Mixed methods				
5.1. Is there an adequate rationale for using a mixed-methods design to address the research question?	N/A	Y	N/A	Y
5.2. Are the different components of the study effectively integrated to answer the research question?	N/A	Y	N/A	Y
5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	N/A	Y	N/A	Y
5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	N/A	N	N/A	Y
5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	N/A	Y	N/A	Y

Notes: Research designs of included studies are mixed methods (MM) and qualitative (QUAL). Quality criteria are assessed as: Y = criteria met; N = criteria not met; ? = not reported in study; N/A = not applicable.

TABLE 2 Characteristics of studies: results from JBI SUMARI data extraction tool[12,14]

Study	Ducat et al[18]	Inman et al[19]	Miller and Gibson[20]	Xavier et al[21]
Country/region	Australia, Queensland	USA, Pennsylvania	Australia, South-West Victoria	Australia, New South Wales
Setting/context/culture	Allied health training program; public health; rural and remote	University; supervisors-in-training program; remote models of supervision	University; remote supervision; rural and remote	Public health; cancer care; rural and remote; teaching hospital
Participants	42 rural and remote allied health professionals: dietetics (4); medical radiation (2); nutrition (7); occupational therapy (8); physiotherapy (6); psychology (1); social work (11); speech pathology (3).	15 alumni and current doctoral psychotherapy students who completed the supervision apprenticeship course at Lehigh University (female: n = 12; male: n = 3; aged between 25 and 39 years). A 44.12% response rate was reported.	26 psychologists from regional Australia. Four had recently attained registration through face-to-face supervision; 18 had recently attained registration through remote supervision, and 4 were university supervisors adept at both remote and face-to-face supervision.	18 psycho-oncology staff who were participating in group supervision and education sessions by videoconference. Seven were psychologists, and 11 were social workers. 11 were working in a rural setting, and 7 were working in an urban setting.
Aims	The study aimed to understand allied health professionals' experiences of supervision, with a focus on what has been useful, what effect it has had on practice and barriers to participating (in supervision).	The study aimed to evaluate the developed model of remote supervision by understanding the experiences of supervisors who had or were completing the skills training for engaging in remote supervision.	The study aimed to explore the experiences of psychologists who had participated in remote supervision and to validate a framework for further study.	The study aimed to identify whether remote provision of clinical supervision and education was feasible and acceptable. The efficacy of the model in the context of cancer care was also analysed.
Methods	A qualitative, descriptive research design was applied using thematic analysis. Interviews were semi-structured telephone interviews (20–40 min). Interviews were transcribed verbatim by an independent transcriber. Quality processes were employed to ensure rigour. Ethics were disclosed. Purposive sampling was used to ensure a represented sample. Response rates were not disclosed.	An online mixed-methods survey design was applied. The online survey consisted of 5 open-ended questions that asked about the challenges, benefits, ethical dilemmas and effectiveness of face-to-face vs remote supervision. Participants were also asked one Likert-scale question that included 7 items that needed to be answered from strongly disagree (1) through to strongly agree (5). A consensual qualitative research-modified approach was used to analyse the qualitative data, with data being presented in themes and frequencies (to identify the number of responses that aligned with a particular category). Frequency statistics were also used to report the results of the Likert-type items.	Semi-structured interviews were conducted with small groups and individuals. The 3 key areas targeted were as follows: general experience of videoconferencing and face-to-face supervision; supervision roles and content areas of discussion; and the relevance of power and involvement to supervision interactions. Interviews averaged 60 min and were transcribed. The interviews were coded into categories by 2 individual raters. Inter-rater reliability was calculated as the kappa coefficient of agreement. Data were presented in categories as frequencies and percentages, within identified themes.	A purposive sampling design was applied. 26 supervisees from 13 cancer centres were invited to participate in supervision and education sessions that were provided from a metropolitan teaching hospital. The final analysis was based on 18 participants who attended more than 25% of the sessions. Pre-post design was used, with data collected on confidence, effectiveness, education preferences and evaluation of the program.

(Continues)

TABLE 2 (Continued)

Study	Ducat et al[18]	Inman et al[19]	Miller and Gibson[20]	Xavier et al[21]
Results	Results were discussed under the broad themes of effectiveness of supervision (skills, knowledge and confidence; reduced professional isolation; enhanced professional enthusiasm; patient safety; usefulness) and facilitators and barriers of supervision (supervision culture; supervisee-supervisors fit). A model of effective supervision was proposed to address the concerns raised and build on the strengths of supervision: the Y model of effective supervision in rural and remote settings.	Qualitative results were discussed under the broad themes of challenges while engaging in remote supervision; supervisor benefits; supervisee benefits; ethical concerns; and the working in alliance in face-to-face/remote supervision. Quantitative results were discussed narratively with no ranges or means provided. Results indicated that preference for remote supervision vs face-to-face supervision remains a largely person one. The majority of participants noted that both were effective, both enabled a strong alliance to be built and for supervisees to stay on task. Many of the concerns raised indicated technology issues remained a concern (eg connectivity issues, ability to see and read non-verbals) and ethical issues (eg privacy, confidentiality, access to resources).	Results were discussed within 6 topic areas: practical problems of videoconferencing; participants emotional and cognitive responses to the experience of videoconferencing; main roles of supervisors from an uncued question; cued responses for activities completed by supervisors; power balances perceived between supervisor and supervisee; and features associated with social and emotional presence during videoconferencing. The face-to-face trainee voice was included in 4 topic areas; the supervisors' voice was included in 5 topic areas; and the videoconference trainees' voice was included in all topic areas. The study identified that technical issues were frequently experienced when participating in videoconferencing, including those who are experienced in using the technology. Reduced non-verbal cues and spontaneity in conversation were identified as issues associated with the use of the technology. Privacy was also raised as a concern, with the need for a soundproofed private space identified. Negative reactions were identified from the supervisee and supervisor who both reported irritation and discomfort with the technology. The study proposed that videoconferenced supervision can be understood with the prosed model of supervision, and dimensions of power and involvement.	Results indicated that comfort with the technology increased over time and that preferences (for the format and type of supervision) were individual. Supervisees identified that their effectiveness and confidence increased from attending the supervision and education sessions.

TABLE 2 (Continued)

Study	Ducat et al[18]	Inman et al[19]	Miller and Gibson[20]	Xavier et al[21]
Limitations	Response rates were not disclosed. Psychology was grossly under-represented in the sample; discipline-specific results were not discussed.	Small sample size with low response rate. Qualitative data were open-ended online responses, rather than transcribed interviews. Quantitative data were descriptive only. It is unclear what process was followed for ethical approval.	Participant voices were not adequately represented. Despite interviews being transcribed, no direct quotes were provided. Participant voices were reduced to categories and the authors' interpretation of their responses. It is unclear what process was followed for ethical approval.	The sample was small, with no rural/urban or social worker/ psychologist comparisons when analysing results. There was also varied attendance at the sessions, with a very low required attendance rate that would have impacted on results. It is unclear what process was followed for ethical approval.

sizes, with generalisability of results affected by sampling and methodological limitations. Two of the included studies were conducted more than a decade ago, with technological advances possibly affecting the replicability of results.

3.4 | Synthesis of results

An overview of the supervision models used in the selected studies has been presented in Table 3. Two studies proposed a model of remote supervision that considered the unique needs of remote practice.[18,21] One study proposed an apprenticeship model of supervision,[19] and one study proposed a traditional model of supervision,[20] with remote supervision included as a mode of supervision delivery rather than as a model of supervision.[19,20] All studies looked at the effectiveness of remote clinical supervision within their proposed models. These models will be discussed within the 4 remote supervision themes identified: barriers and challenges; enablers and benefits; ethical considerations and patient safety; and the supervisor-supervisee working alliance. The results of the mixed-methods studies are discussed within these themes using a narrative approach.

3.5 | Barriers and challenges

The most common barriers to effective remote supervision included technology and software-related difficulties, communication and observation issues, and scheduling.[18-21] Internet connection difficulties including 'lag(s) in the internet service', the reliability of software used for supervision ('one of us would freeze and we had to reboot')[19 (p297)] and limited access and functionality of technology in regional and remote Queensland[18] were described as major barriers to remote supervision. These difficulties had also been identified over a decade earlier, demonstrating that advances in technology had not improved the experience of using videoconferencing technology in remote settings.[20]

The two studies that included remote supervision as a mode identified communication issues such as lack of eye contact, difficulties understanding non-verbal communication and a difficulty in judging how supervisees were responding to feedback. These issues impacted the ability of the supervisor to build a positive learning alliance with the supervisee, with some supervisees noting videoconferencing felt impersonal and lacked warmth.[19,21] One supervisor who was struggling with her access to non-verbal cues reported:

> …as a supervisor, I felt the need to get to know [supervisee] much more personally during tele-supervision because I lacked so much informal

TABLE 3 Reviewed models of supervision

Description	Ducat et al[18]	Inman et al[19]	Miller & Gibson[20]	Xavier et al[21]
Program	Allied Health Rural and Remote Training and Support (AHRRTS) Program	Lehigh University's Master's and Doctoral Supervision Program	Deakin University Supervision Program	Clinical Supervision and Education Program for Psycho-oncology Health professionals (Psychologists and Social Workers)
Model	The 'Y model' of remote supervision.	Supervision apprenticeship training model	Traditional clinical supervision model for trainee psychologists	Hub-and-spoke clinical supervision and education model[23]
Details	Clinical education and support (mentoring and supervision) that is based on providing useful and effective remote supervision through investing in organisational factors (investment in technology, supervision as a value and support); and supervisor-supervisee fit (matching supervisee to a supervisor where a positive supervisory relationship can be developed).	Supervisors matched to remote supervisees (1-2) and local supervisees (1-2). Supervisees attend a weekly clinical supervision session, either face-to-face or remote (using videoconferencing technology) depending on location on their location. Email and case review were also used to support the supervisor process.	A traditional supervision model was used with supervisees having to meet a minimum of 100 supervision hours within their education and training program, with remote supervision being provided through videoconferencing technology.	The model included monthly group supervision and education sessions (1-4 session per supervisee) through videoconference (3-5 supervisees from 1 to 3 sites). The education component was recorded with slides and copies of the video provided to all supervisees on the program (regardless of attendance). Additionally, supervisees received monthly individual telephone supervision for 30 min per session (1-4 session per supervisee).
Comments	Model aimed to reduce professional isolation, improve retention and increase patient safety.	Supervisors were matched with students in master's and doctoral counselling and counselling psychology programs. Supervisors were considered to be in training. Supervision sessions were recorded for training purposes.	Bernard's discrimination model was applied as a framework to investigate the effectiveness of videoconferenced supervision vs face-to-face supervision.	The clinical education program provided support to 13 cancer centres (spokes) from the teaching hospital (hub)

data that is present during in-person communication [eg, body language, eye contact].[19] (p299)

These issues became more pronounced if telephone communication methods were used instead of videoconferencing. Ducat et al[18] reported that it could be difficult to meet the supervisee's needs at times during telephone supervision, as the supervisor was unable to observe during new client presentations. Miller and Gibson[20] identified that, when compared to face-to-face (FF) supervision, remote supervision can be perceived by supervisees as creating a greater power imbalance, where supervisees (VC) feel the supervisor holds the greater power. Scheduling time for supervision was also a challenge, with issues such as different time zones (across states or countries) and managing other projects and roles.[19,21] This barrier was described in the rural and remote Australian context in Ducat et al[18]:

> Time is the biggest one … and my time management. Because my supervisor only works part-time and I'm on outreach almost all the time and he's on outreach all the time, finding time when we can both access a phone … and have the internet in front of us is tricky.[18] (p32)

Other barriers cited included differences between supervisor and supervisee clinical setting, anxiety for new supervisors, lack of clinical resources for remote supervisees and organisational barriers, where supervision was not prioritised by management and was unable to take place; and differences in skill development when compared to FF supervision.[18-20]

3.6 | Enablers and benefits

Enablers and benefits of effective remote supervision included increased access to professional development and satisfaction levels for both supervisor and supervisee, increased flexibility and increased availability of support.[18,19] In the apprenticeship supervision model, exposure to diverse cultures, clinical settings, contexts and perspectives were perceived to be of benefit to both supervisors and supervisees.[19] When the model included a formalised educative component, remote supervision was reported to have also resulted in improvements in knowledge, confidence, application of clinical techniques, and clinical reasoning and skills of both supervisor and supervisee, in addition to increased enthusiasm, perceived professional growth and organisational commitment.[18,19,21]

In the apprenticeship supervision model, remote supervision was reported to have resulted in supervisors adopting a flexible approach to supervision and adapt to the individual needs of their supervisees.[19] An important benefit described by one supervisor was:

> Being able to impact the profession even when not geographically close to potential supervisees, being able to provide quality service that might not be offered in the supervisee's geographic area and staying up to date with technology and the progression of the field.[19] (p297)

The Y model also found that increased flexibility was both a benefit and an enabler for remote supervision, with supervisees able to access support outside of normal work hours, in different locations, as long as they had a computer and webcam.[19] Supervisees who were located remotely from their supervisors appreciated the accessibility to expert support that remote supervision provided, reducing their feelings of professional isolation:

> I think for me, as a new graduate, it's having that clinical support there and being able to, when you get a difficult case, be able to have someone really clearly identify this is the person you can call when you're having an issue clinically in this case. [18] (p31)

When remote supervision was a model[18,21] and not a mode of delivery,[19,20] it was found to facilitate the creation and maintenance of professional connections and support. Despite the geographical distance, the use of videoconferencing, email and telephone supervision alleviated the time, cost and resources required to travel for FF supervision.[18,21] Xavier et al[21] noted that the 'hub-and-spoke' remote supervision model also resulted in participants reporting increases in perceived confidence, effectiveness and competence in the context of cancer care.

The Y model accounted for organisational support of clinical supervision as an enabler of remote supervision.[21] Inman et al[19] also identified that remote supervision was enabled when organisational managers were supportive, and supervision and education were prioritised. Overall, the feasibility of remote supervision was identified as being high across all models,[18-21] with Xavier et al[21] finding that most supervisees indicate satisfaction with access to remote supervision and noting that confidence in the technology was developed over time.

3.7 | Ethical considerations and patient safety

In the apprenticeship supervision model, patient safety and ethical considerations were mostly a concern for supervisors, who found that differences in ethical codes and practice guidelines between learning institutions, organisations, and professional bodies and associations sometimes caused

misunderstandings and confusions.[19] Miller and Gibson[20] also raised concerns about the confidentiality of Internet security, audio-visual transmission of patient counselling sessions. However, participants in the study by Ducat et al[18] reported that the Y model of remote supervision improved the best practice, evidence-based practice and clinical governance, all of which contribute to improved patient safety.

3.8 | Supervisor-supervisee working alliance

The apprenticeship supervision model found that the characteristics that facilitated a positive supervisor/supervisee working alliance included supervisee conscientiousness and attitudes to receiving supervision, particularly when engaging with a remote supervisor in training in addition to a local supervisor.[19] Supervisor approach and style, and familiarity with their supervisee's clinical setting was also found to be an important factor in the traditional model of supervision.[19,20] Additionally, a review of the Y model of remote supervision identified that positive relationships were enabled by reciprocity between supervisor and supervisee and were related to the perceived 'usefulness' of the supervision.[18] Ducat et al[18] included the following description of a good supervisor-supervisee fit from an occupational therapist participating in remote supervision:

> I've found it great. The two people who I have been matched up with over the last eighteen months have both come from very similar caseloads in terms of smaller towns and using an outreach model. They've have also come from similar multi-disciplinary teams where they've either been the sole OT or working with only one other OT. It's been really good.[18 (p32)]

4 | DISCUSSION

The results for the efficacy of the current models of remote supervision being used within the allied health and psychology professions are limited, with small sample sizes and methodological limitations cautioning any generalisability of results. Furthermore, when remote supervision was provided as a mode of delivery rather than a model of supervision, organisational and structural concerns were not adequately addressed.[19,20] The advantages of applying a model of remote supervision to the supervisory needs of rural and remote health workers can be seen in the Y model and the 'hub-and-spoke' models of remote supervision where clinical and education support, and organisational systems/technologies were embedded in the model.[18,21]

Interestingly, the Y model also included supervisee-supervisor fit. Although this is not always practical, the quality of the supervision relations can be an important factor for the building of trust in the supervision relationship. However, with only one psychologist involved in the Y model study and small sample numbers, the model would need to be tested on a larger scale before it could be considered efficacious for the remote supervision of psychologists in the rural and remote context.[18]

Another important finding was that remote supervision required a positive supervision culture to be effective,[18,21] with the Y model identifying the need for models of remote supervision to be supported and valued within the organisational systems and culture where the psychologist is practising.[18] These results are similar to a review on remote supervision conducted by Martin et al,[24] where it was identified that suitability (for remote supervision) also needed to be considered. While there is an assumption that a supervisee would be within an organisation where they would be able to draw from interprofessional support,[18] this is not always the case for trainee psychologists in rural and remote settings where the burden of clinical support often falls on the primary supervisor. If the rural and remote psychology workforce is to be increased and supported, the need for these organisational supports and structure will need to be addressed across organisation types.

When reviewing the experience of remote supervision, it is clear that there is a mixed response to participating in remote supervision that can be influenced by individual preferences and needs, with little change in issues and opportunities over the last decade.[18-21] Technology remained both a barrier and an enabler from the perspective of the supervisor and supervisee, with access to secure rooms and reliable technology continuing to be an ongoing concern despite the increased use of the technology over time.[18-21] These issues, along with the issues of reduced visual feedback, an over-reliance on structure and lack of spontaneity, are similar to findings in other research.[25,26]

Interestingly, research by Miller and Gibson[20] also proposed power as a factor to consider in remote supervision, with supervisees reporting the power imbalance a greater concern for remote supervision. Although caution should be taken in interpreting these results due to unequal group sizes (VC: $n = 15$; FF: $n = 4$), power is an interesting consideration that has not been discussed by other researchers in this area. It is unclear why supervisees felt power was a greater issue for remote supervision, but a result that might need further investigation when considering effective models of remote supervision.[20]

Overall, there was general support for remote supervision that is also confirmed in other reviews.[24] The influence of demographic, professional and skill factors would need to be explored within larger sample sizes to fully understand

the differences in experiences of psychologists engaging in remote supervision. Exploring confidence and competence in the technology would also be an important factor to understand.

4.1 | Limitations and future directions

There are several limitations that need to be noted. The focus on psychologists and remote supervision might have limited the studies included in this review. Additionally, the included studies had methodological limitations that do not allow for the generalisability of results, with psychologists under-represented in some of the samples. It is also a possibility that only including published studies increased the risk of selection bias. Despite these limitations, the results from this review provide insights into future directions for research into remote models of clinical supervision. It might be that psychology could learn from medicine in order to develop sustainable and replicable models of remote supervision that would effectively train the rural and remote psychology workforce of the future.

Medicine has successfully implemented a remote vocational training scheme that provides a training program for postgraduate rural and remote medical practice, where a learner provides professional services without on-site supervision, but with substantial support from a distant supervisor (or supervisors), often assisted by technology for the supervision and delivery of the service.[8] Success depends on the matching of learners, supervisors and communities to gain the most from learning opportunities while clinical services are provided locally with supervision from an experienced clinician at a distant location.[8] Place and belonging have often been overlooked when identifying models of supervision for rural and remote practice, despite having support in the literature as an important area for workforce retention.[1] Further, the theoretical basis of the medical remote supervision model is supported by adult learning, situated learning and workplace immersion literature.[8,9] Certainly, the research conducted by Xavier et al[2] indicates that a model that incorporates remote learning and remote supervision, with flexibility over how it is delivered, would be beneficial to trainee psychologists' confidence, knowledge development and effectiveness, resulting in improved patient outcomes and safety.

5 | CONCLUSIONS

Quality professional supervision is critical for the sustainability of the psychology workforce in rural and remote locations, reducing professional isolation, and for improved patient outcomes and safety. This review identified a need for improving the evidence for remote supervision models in psychology. It will be important to identify the conditions under which remote supervision is effective or ineffective for psychologists working in rural and remote locations. Current evidence suggests that for a remote model of supervision to be efficacious, it would need to be holistic, including mentoring, teaching, education and supervision. Future research needs to focus on implementing models of remote supervision that are purpose-built for the psychology remote workforce and draw from the learnings of medicine.

CONFLICT OF INTEREST
Sharon Varela, Catherine Hays, Sabina Knight and Richard Hays declare that they have no conflict of interest.

AUTHOR CONTRIBUTIONS
SMV: Conceptualisation (equal); formal analysis (equal); methodology (equal); project administration (supporting); writing—original draft (lead); writing—review and editing (lead). CH: Conceptualisation (supporting); data curation (lead); formal analysis (equal); methodology (equal); project administration (lead); writing—review and editing (supporting). SK: Conceptualisation (supporting); resources (lead); writing—original draft (supporting); writing—review and editing (supporting). RH: Conceptualisation (equal); supervision (lead); writing—original draft (supporting); writing—review and editing (supporting).

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APPENDIX 1

PILOTED SEARCH STRATEGY FOR CINAHL

1. remote OR "very remote" OR isolat* OR rural OR distan*

2. supervision [MeSH] OR "clinical supervision" OR "professional supervision" OR "student supervision" OR "placement supervision" OR "internship supervision"

3. model* OR framework*

4. placement OR "student placement" OR internship OR postgraduate or training pathway

5. provisional OR student OR intern OR trainee

6. psycholog* [MeSH] OR "allied health" OR "health profession*" OR "health practitioner"

7. "supervision by distance" OR "remote supervision" OR "virtual supervision" OR "e?supervision"

8. 1 AND 2 AND 3 AND 4 AND 6

9. 1 AND 2 AND 3 AND 5 AND 6

10. 1 AND 2 AND 3 AND 6 AND 7

Pilot search was conducted on 26 August 2019, with search terms adjusted based on piloting of terms.