



Empathy in patient-clinician interactions when using telecommunication: A rapid review of the evidence

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ABSTRACT

Objectives: The COVID-19 pandemic accelerated the replacement of many face-to-face healthcare consultations with telephone consultations. Little is known about the extent to which empathy can be expressed in telephone consultations. Our objective is to review evidence related to empathy in telephone consultations including clinical outcomes, and patient/practitioner experiences.

Methods: Searches of Medline/Ovid and PsycINFO/Ovid were undertaken. Titles and abstract screening, data extraction, and risk of bias were undertaken by two reviewers. Discrepancies were resolved in discussion with additional reviewers. Included studies were specific to tele-communications with empirical data on empathy related to patient outcomes/views, published (in English), 2010–2021. Studies that did not mention empathy explicitly were excluded.

Results: Our search yielded 740 individual records and 8 studies (527 patients, 20 practitioners) met inclusion criteria: Some barriers to expression of empathy were noted, but no major obstacles were reported. However, data was sparse and most studies had a high risk of bias.

Conclusion: Empathy in telephone consultations is possible, (though the loss of non-verbal cues and touch can present barriers) however the research does not yet identify how.

Innovation: It is possible to establish and display empathy in telephone consultations, but future research needs to identify how this can be optimized.

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1. Introduction

Empathic communication (which includes the communication of hope and positivity) [30] between healthcare practitioners and their patients positively impacts patient satisfaction, quality of life, patient pain, and may extend life [6,11,16,25,42,43]. Related studies suggests that empathic care is likely to reduce practitioner stress and burnout [36,41]. However, the degree to which patients experience practitioner empathy varies widely [15] and empathy can be experienced differently in different situations and specialties.

Most of the research on empathy in clinical practice has focused on face-to-face consultations [16]. The COVID-19 pandemic restricted practitioners' capacity to conduct face-to-face consultations [40] and led to increased use of telephone and video consultations. In tandem with the pandemic, the technology for conducting tele- and video consultations became more widespread. Immediately prior to the pandemic only around 10% of general medical interactions were considered telemedicine. During the peak of the pandemic video, telephone and other electronic communication technology were used in 75% of consultations [28]. A review published in 2020 [23] found that between February and May 2020, telephone consultations increased by 106%, and while we endeavour to navigate out of acute phase of the pandemic, it is likely that the face of medicine will see lasting change toward such approaches.

The recently-accelerated increase in telephone consultations has presented several challenges. These include general difficulties communicating with patients [45,29], and specific difficulties establishing empathy [14]. It is impossible, for example, to use body language and physical comforting in a telephone consultation whereas body language has been shown to be an effective way of expressing empathy [27]. Several tools have been recommended to help practitioners overcome barriers to empathic communication in telephone consultations including team reflection on cases, engagement of family members, exploring technology preference, developing a team wide prompt list, use of silence, training on 'telepresence' and adequate pre-communication preparation [12,14,45]. However, their developers acknowledge that these tools are not yet fully developed.

A recent systematic review compared telephone with face-to-face consultations [22] and found a lack of evidence that the telephone adversely impacts communication. However, their review included many older studies from the 1970s that may not reflect modern patient experiences and attitudes and telephone technology has evolved considerably since then.

In this study, we aimed to examine the evidence of the effects and experiences of empathy in telephone consultations for both patients and practitioners.

1.1. Objective

To review the qualitative and quantitative evidence related to empathy in telephone consultations. This includes impact on clinical outcomes, and descriptions of patient or healthcare practitioner experiences of empathy in telephone consultations.

2. Patient involvement

This article is linked to the NIHR-School for Primary Care Research funded EMPATHICA project: developing a brief training intervention for practitioners in empathy and optimistic communication. The EMPATHICA project involved four public contributors living with osteoarthritis who contributed to the design, development, management, interpretation, and publication of findings. This work identified the evidence gap and need for a greater understanding of empathic communication in telephone consultations. Jennifer Bostock, our lead public contributor for EMPATHICA, has contributed to the development of this review and interpretation of the findings.

3. Methods

3.1. Study design

This was a rapid systematic review. Rapid reviews are similar to systematic reviews and are becoming increasingly common. They use the same methods as systematic reviews, but use techniques which speed up the process. For our rapid review, we searched two databases instead of several. We also used a narrow search strategy. Two independent reviewers selected studies for inclusion and extracted data whereas many rapid reviews use single reviewers. We conducted a rapid review because we wanted to quickly produce a high quality evidence synthesis to inform practice and training in this emerging priority area [20,33].

3.2. Eligibility criteria

Inclusion criteria: We included studies of any patient or client population interacting with a healthcare professional via the telephone which

discussed experiences of, changes in, or effects of empathy in telephone consultations. This includes studies that:

- explored patients' perception of practitioner empathy in telephone consultations,
- explored practitioners' experiences of (including barriers and facilitators to) empathy in telephone consultations,
- compared the effect of empathic with 'usual' tele-consultations, for example, on patient satisfaction.

Because of the difficulty in defining empathy [17], we adopted a pragmatic approach which has been used in other systematic reviews of empathic care [16]. A limitation of this approach is that there is overlap between empathy, compassion, sympathy, and a variety of other concepts. However, our previous research has shown that until the terminology in this area is standardized, it is most feasible to limit our studies to those that mention empathy explicitly [16]. We also limited our search to those published between January 2010 to May 2021. This is because telephone technology has evolved, and older studies may not reflect current devices or usage.

Exclusion criteria: Studies that did not mention empathy, had no empirical data or were reviews were excluded, as were studies that were not written in English. Dissertations were excluded if the full text was not available.

3.3. Search strategy

An information specialist (ND) developed a strategy and searched PsycINFO/Ovid and MEDLINE/Ovid (see appendices A and B). The information was saved in an EndNote file [10], deduplicated, and then exported to Rayyan [34].

Selection process: Titles and abstracts were screened for potential inclusion by two independent researchers (DG, GB). Any discrepancy was resolved by discussion with two other researchers (JV, JH). Full texts were retrieved and assessed for suitability by two review authors (DG, GB).

Data collection and data management process: A standardised piloted form was used for data extraction and the following information was extracted: title; objective (as stated by authors); country; type of practice (primary care, hospital, other); number of patients included; patient demographics (age, gender, ethnic background); if clinicians are included in the study; number of clinicians included; clinician demographics (age, gender, ethnic background); if the study includes qualitative data; key findings from qualitative data (if relevant); risk of bias from qualitative study; if the study includes quantitative data; key findings from quantitative data (if relevant); main limitations of quantitative studies; risk of bias from quantitative studies. Two review authors (DG, GB) independently extracted data and worked with a third author (JH) when needed to resolve discrepancies. Any missing data was requested from the original authors.

3.4. Data synthesis

Because we included a variety of study designs, data was narratively summarized to reflect the major findings on empathy within each study. There were insufficient studies with sufficiently similar data to pool results. Instead, we reported the studies narratively and described their design, number of patient and practitioners, study design, and summary of results.

3.5. Risk of bias in individual studies

Two reviewers (GB, DG) independently assessed risk of bias. We selected a range of study designs, and therefore used a range of risk of bias assessment tools. We used Cochrane's RoB2 [13] for randomised trials, ROBINS-I [39] for observational studies, CASP [5] for qualitative data, and MMAT [19] for mixed methods studies, the JBI Critical Appraisal Checklist for Prevalence Studies [27], and the Risk of Bias Instrument for Cross-Sectional Surveys of Attitudes and Practices for cross-sectional

studies [1]. Disagreement regarding risk of bias was discussed between two review authors (DG, GB), and a third author (JH or JV) where necessary.

4. Results

4.1. Study selection

Our search yielded 740 records after duplicates were removed. 728 of these were removed at the abstract screening stage for not meeting the inclusion criteria. Of the 12 full texts screened, 8 met the inclusion criteria (Fig. 1). The methodologies were heterogeneous, with 2 randomised trials, 2 mixed methods studies, 2 qualitative studies, 1 prevalence study, and 1 cross-sectional survey (Table 1). These studies included a total of 527 patients and 20 practitioners. (See Table 2.)

4.2. Characteristics of included studies & Risk of Bias (by study design)

4.2.1. Randomised trials

Klemperer et al. [25] included 347 participants receiving telephone consultations involving motivational interviews to quit smoking. Motivational interviewing is an evidence-based counselling technique, where empathy is a core feature of the approach [21]. Paradoxically, while motivational interviews with the clinician increased empathy, and a good working alliance was found to significantly increase the likelihood of a quit attempt, increased empathy alone was found to decrease the likelihood of quit attempt. The authors hypothesized that increased empathy may have been interpreted by participants as support for their perceived inability to quit. These findings contrast previous evidence on the positive impact of empathy on outcomes, however, do suggest that empathy was felt in telecommunication format. This study was found to have a high risk of bias, mostly due to the inability to blind the interventions and missing outcome data due to high dropout rates.

In the other randomised trial, Reese et al. [35] evaluated whether the medium of psychotherapy (videoconferencing, telephone, or in-person) affected therapist empathic accuracy and clients' perceptions of the therapeutic alliance. Six therapists were included in the study, the practitioner's empathic accuracy did not significantly differ between formats. The main limitation of this study was the sample, both in composition and size in that it was small (58 patients). In addition, the study looked at volunteer clients attending a single session, making it impossible to ascertain if technology formats would affect empathy over the course of ongoing treatment. There was also a lack of control of theoretical approach and therefore it is possible some approaches are better suited to a telepsychology format. We found this study to have a high risk of bias, mostly because the interventions could not be blinded, the process of randomization was not detailed, and there was lack of clarity about missing outcome data.

4.2.2. Mixed methods studies

Barnes et al. [3] evaluated the BATHE (Background, Affect, Trouble, Handling and Empathy) intervention for frequent attenders to daytime GP surgeries. Within practices using the BATHE, approach teleconsultations were used more frequently, (4.6% increase) compared with the control group (3.5% increase). The authors of the study noted that one of barriers to telephone consultation use was GPs who preferred face-to-face consultations and experienced practical constraints on the length, frequency, and availability of telephone consultations within practices. However, there were imbalances in patient demographics between practices using or not using the BATHE approach so comparisons are not robust. The study was assessed as being of low risk of bias, however, there was uncertainty about blinding of quantitative outcomes and insufficient description of qualitative data to interpret the results.

Dion et al. [7] evaluated patients and patient supporters rated their satisfaction with telephone consultations highly, (4 or 5 in the 5-point Likert scale), in the context of Medical assistance in dying. Patients and their

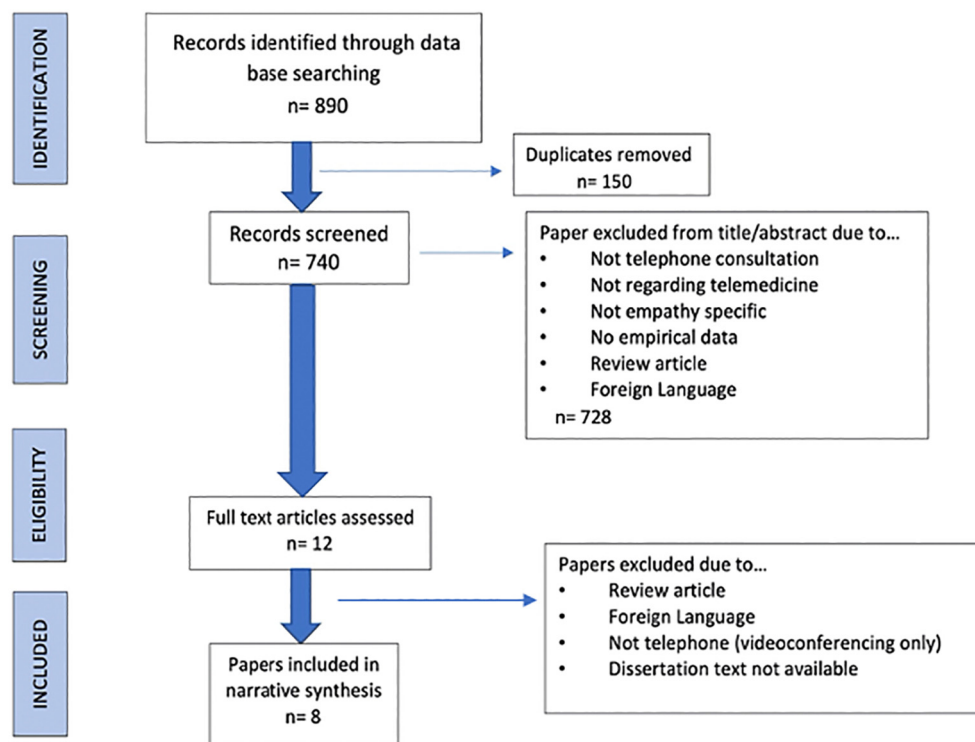


Fig. 1. PRISMA Flow Chart.

supporters also reported that the assessment was easier, more convenient, and more accessible over the telephone. It should be noted here that the majority of data was collected from patient relatives/supporters. Having family members or representatives is standard practice when a patient is too unwell to interact with their clinician, and it was deemed that these acted as surrogate patients so met the inclusion criteria for this review. This study was found to have a low risk of bias, although there was lack of clarity regarding whether the sampling strategy was appropriate. Additionally, the sample was not particularly representative with a high dependence on the experience of the patient supporters and clinicians with data from only one patient. This limits the generalisability of the results.

4.3. Qualitative studies

Kennedy et al. [24] explored the experience of patients and clinicians in the context of COVID-19 patients in the ICU at a time when most interactions were switched to telephone and video. Clinicians found the telecommunication to be fairly helpful in the circumstances, but as in Dion et al. [7], rated the experience less positively than the patient/relative, ($M = 7.0$ SD 1.6: $M = 6.2$ SD 2.2). In terms of empathy there was disagreement among clinicians, who had particular concerns about their ability to convey empathy via the telephone, due to lack of non-verbal cues and physical comfort, in addition to drawbacks in the use of silence. It was generally felt that in-person contact would still be favoured, especially in 'high stakes' discussions, (which is perhaps where empathy is perceived as more crucial), but this was echoed in the patient/relative interviews. The small sample in this study (71% white patients, 95% white relatives; 76% college level education or above) limited its generalisability. Also, the recruitment process by nurses trained specifically in communication could have led to some selection bias. We found this study to have a low risk of bias, although there was a lack of description regarding potential ethical considerations.

Torres-Vigil et al. [44] assessed the experience of 95 advanced cancer patients to explore key themes within nurse telephone conversations that may have contributed to the improvement of patients receiving this intervention as a previous study by this group revealed significant improvements in patient anxiety when nurse telephone consultations were a part of their therapy.

Empathy emerged as the main theme in their analysis. Sub-themes were also related to empathy and included understanding patient experience, communicating this understanding to the patient (for example through humour and validation), and acting on this understanding by problem solving and providing support. These findings supported the hypothesis that empathy was the leading factor causing improved patient outcomes in those who received nurse telephone contact versus researcher contact only. A limitation is that this was a secondary analysis of 8-year-old data that did not follow a conceptual framework in which the mechanism of clinician empathy could be investigated. Overall, we assessed the study as having a low risk of bias.

4.4. Prospective cohort study

In the only prospective cohort study, Mesters et al. [31] evaluated 20 min of a random sample of 336 motivational interviewing sessions aimed at changing lifestyle behaviours in primary care. The interviews were coded representing 232 counselees. The counsellors were master's students of Health Sciences or Psychology, and the raters were master's students or graduates of Health Promotion. Counsellors trained in motivational interviewing were rated higher ($M = 4.10$, $SD = 0.69$) than the Motivational Interviewing Treatment Integrity (MITI) 3.0 threshold of 3.5. However, only 'fair' inter-rater agreement was found for the empathy component. The study was assessed as being of low risk of bias.

4.5. Cross-sectional survey

Arullapan et al. [2] conducted a cross sectional study of telephone calls from 'mystery clients' to a HIV helpline. In their study 83% of all calls were deemed to be empathetic by the 'mystery client' researcher. This may have come in the form of the counsellor being perceived as 'supportive,' 'patient,' or 'well-informed,' while the 'mystery client' researchers expressed that they felt reassured and listened to. The generalizability of this study is limited as no real patients calling the HIV helpline were used for this analysis, rather, researchers who knew the aims of the study acted as "mystery clients". This therefore may limit both internal and external validity of the findings. We assessed this study as an unclear risk of bias according to

Table 1

Assessment of bias in included studies.

First author (year)	Country	Type of practice	Patient demographics	Practitioner demographics	Objective	Concerns about bias
Randomised Control Trial (RCTs)						
Klemperer et al. 2017	United States	Smoking cessation counselling service	$n = 347$, mean age 52 67% female, 88% caucasian	NR	To investigate why an empathy-focused motivational interview intervention tested in a randomised trial was effective	High
Reese et al. (2016)	United Kingdom	Outpatient Psychology	$n = 58$, age 18–45 (mean 22), 59% female, 81% white	6 practitioners (demographic details not provided)	The primary purpose of this study was to evaluate whether psychotherapy format (videoconferencing, telephone or in-person) influenced therapist empathic accuracy and clients' perceptions of the therapeutic alliance. We also evaluated whether client attitudes towards using telepsychology influenced the therapeutic alliance in the telepsychology formats.	High
Mixed Methods						
Barnes et al. (2019)	United Kingdom	Primary care	Mean age of patients in intervention group 58.7, range 19–98 Mean age of patients in control group	NA	To assess the feasibility of a consultation-level intervention to improve care and address service use of frequent attenders (FA).	Low
Dion et al. (2019)	Canada	Medical Assistance in Dying care	1 patient with 7 support persons with patients, 41–80 years old, 62.5% female		To assess the quality of care be met with the use of telemedicine for MAiD eligibility assessments?	Unclear
Qualitative						
Kennedy et al. (2020)	United States	Hospital	21 patients mean age 65 (SD = 13.8), 76% female, 95% white	14 practitioners, 36% female	Perspectives on Telephone and Video Communication in the ICU during COVID-19	Low**
Torres-Vigil et al. 2020	United States	Hospital advanced cancer care	95 patients median age 59 (range 29–84), 65% female, 74% white	NR	To describe the nature and key elements of therapeutic calls made by nurses to understand what contributed to improvement in these patients.	Low**
Prevalence						
Mesters (2017)	The Netherlands	Primary care	NA	16 counsellors: mean age 22.7, 87.5% female 7 raters: mean age 25.5, 85.7% female	To investigate whether empathy can be preserved in telephone (and face-to-face) consultations among frequent visitors to general practice.	Low**
Cross-sectional survey						
Arullapan et al. (2018)	South Africa	HIV/AIDs Helpline	5 (Mystery clients) Age range 30–56 100% female	NA	To evaluate the quality of the South African (SA) National AIDS Helpline.	Unclear**

* A variety of scales were used to assess risk of bias, not all of which included an overall judgment (such as high, low, or unclear), we therefore reported whether there were concerns about bias; NR = not relevant; NA = not available; SD = standard deviation.

the Risk of Bias Instrument for Cross-Sectional Surveys of Attitudes and Practices [1] as the survey questionnaires were not validated and the sample of mystery clients and counsellors were not well-defined.

5. Summary of reporting biases

The evidence investigating empathy in tele-consultations is heterogeneous. Half of the included studies had high or unclear concerns about bias (see Table 1). Both randomised trials were rated as having a high risk of bias, the mixed methods studies had low or unclear risk of bias, the qualitative studies had a low risk of bias, the prevalence study had a low risk of bias, and the cross-sectional survey had an unclear risk of bias.

5.1. Results according to study objectives (practitioner experiences, patient experiences, and clinical outcomes)

Two studies investigated clinician experiences, Dion et al. [7] and Kennedy et al. [24]. While neither measured empathy quantitatively both reported that clinicians found that they could express empathy via telecommunication, but that it was more difficult than in face-to-face consultations. Dion et al. specifically described focusing on the experience of illness rather than the person themselves and both studies highlighted the barriers such as lack of non-verbal cues, difficulty using silence. However, studies that looked specifically at practitioners' empathic ability, namely Reese et al. [35] and Mesters [31], respectively found no difference in empathic accuracy between formats and that a minimum threshold of treatment integrity was reached.

This is reflected in the majority of studies where patient experiences were addressed [2,7,24,35]. All of these studies suggested that patients rated their teleconsultations as being empathic. Specifically in Reese et al. [35] teleconsultation format did not alter clients' perceptions of therapeutic alliance, and one of the main indicators of a better therapeutic alliance was empathic accuracy.

Finally, two studies tested the effects of empathy on clinical outcomes and both found that empathy expressed via the telecommunication enhanced clinical outcomes. However, Klemperer et al. [25] found that this positive effect of empathy was only found if a good working alliance was also present, while Torres-Vigil et al. [44] found empathy was a key factor in accounting for the significantly increased positive outcomes in cancer patients receiving nurse led telephone calls as a part of their cancer treatment.

6. Discussion

Despite the high degree of heterogeneity, we did not identify major obstacles to empathy within telephone consultations. However, there was a clear paucity of strong evidence evaluating the subject, with many of the studies suffering from high or unclear risk of bias.

From the studies we looked at the main conclusions suggest that...

1. Telecommunications are acceptable to populations, including high stakes situations e.g. end of life and ICU.
2. Clinicians were able to express empathy in this format, but remain conscious of challenges such as lack of verbal cues.

Table 2

Summary of methods and measures used to assess empathy [4,32].

First author (year)	Type of practice	Objective	Methods & Measures
Randomised Control Trial (RCTs)			
Klemperer et al 2017	Smoking cessation counselling service	To investigate why an empathy-focused motivational interview intervention tested in a randomised trial was effective	<ul style="list-style-type: none"> • Mediation analysis of data from 347 participants in an RCT about smoking cessation. • Looked specifically at the interplay of working-alliance and empathy on the likelihood of quit attempt in patients who did not feel ready to quit smoking. • The intervention involved three 10–15-minute counselling telephone calls at baseline, week 2 and week 4. • Empathy was assessed using a 10-item empathy scale on which answers could range from -15 (lowest empathy) to +15 (highest empathy).
Reese et al (2016)	Outpatient Psychology	To evaluate whether psychotherapy format (videoconferencing, telephone or in-person) influenced therapist empathic accuracy and clients' perceptions of therapeutic alliance. Also evaluated whether client attitudes towards using telepsychology influenced this	<ul style="list-style-type: none"> • Telehealth attitude questionnaire (TAQ) (internal consistency of 0.88 in a previous study) followed by a single simulated 30-minute counselling session in their allocated format. • Both participants and therapists were blind to each other prior to the study • Each therapist worked with at least 2 clients in each of the 3 formats. • Empathy in the sessions was evaluated by the Session Rating Score (SRS), the Working Alliance Inventory-Short Revised (WAI-SR), and empathic accuracy (the level of correspondence between client and therapist on the content and valence of the identified responses rated on a 3-point scale). • During these sessions clients could stop the recording a minimum of 6 times, (noting the time) and record what they were feeling. Therapists were then asked to review the recordings to note the perceived emotion including whether negative or positive, and intensity level. This data was then used to analyse empathic accuracy. • Correspondence between the two was then rated on a three-point scale. 0=essentially different content, 1=somewhat similar but not the same content, 2=essentially the same content).
Mixed Methods			
Barnes et al (2019)	Primary care	To assess the feasibility of a consultation-level intervention to improve care and address service use of frequent attenders (FA).	<ul style="list-style-type: none"> • GPs were trained for one-hour by a trained BATHE* trainer, and one-hour follow up sessions were administered four and seven months later. (It should be noted here that this intervention was designed for both face to face use and telephone consultations.) • Four GP practices were randomized to the intervention and two to usual care. • 96 participants were eligible and enrolled in the trial, completing a total of 577 consultations over the study period. Of these, 119 (20.6%) were over the telephone
Dion et al (2019)	Medical Assistance in Dying care	To assess the quality of care met with the use of telemedicine for MAiD eligibility assessments.	<ul style="list-style-type: none"> • Surveys measured experience with telemedicine on a 5-point scale (ranging from 'no experience' to 'highly experienced') and satisfaction with the consultation (also on a 5-point scale ranging from 'highly dissatisfied' to 'highly satisfied').

Qualitative			
Kennedy et al (2020)	Hospital	Perspectives on Telephone and Video Communication in the ICU during COVID-19	<ul style="list-style-type: none"> An intentional sample of patients/families identified by the nursing teams were included.
			<ul style="list-style-type: none"> Interview guides were used to collect open ended statements on this format of communication from patient's families and clinicians. They used a scale of 1-10 for overall effectiveness of communication, (1=ineffective, 10=equally as effective as in person), concerns over privacy (1=not concerned about privacy, 10=extremely) and patient family's comfortability with the technology used, (1= not comfortable with technology, 10=extremely comfortable with technology).
Torres-Vigil et al 2020	Hospital advanced cancer care	To describe the nature and key elements of therapeutic calls made by nurses to understand what contributed to improvement in these patients.	<ul style="list-style-type: none"> Re-examined the data from 95 cancer patients receiving nurse led telephone calls as part of their cancer care, due to a previous study finding improvement in this group Recorded telephone interactions between patients and specialist advanced cancer care nurses were transcribed and coded and analysed to investigate what could have driven improvement.
Prevalence			
Mesters (2017)	Primary care	To investigate whether empathy can be preserved in telephone (and face-to-face) consultations among frequent visitors to general practice.	<ul style="list-style-type: none"> Assessed newly trained Dutch counsellors' ability to conduct telephone-based motivational interviewing (MI) by comparing their performance to the Motivational Interviewing Treatment Integrity (MITI 3.0) rating system. Sixteen counsellors were assessed by seven raters, and 20 minutes of a random sample of 336 MI sessions were coded, which represented 232 counselees. The MITI 3.0 asks a series of questions assessing counsellor's competency on a Likert scale from one ("Clinician has no apparent interest in client's worldview. Gives little or no attention to the client's perspective") to five ("Clinician shows evidence of deep understanding of client's point of view, not just for what has been explicitly stated but what the client means but has not yet said").
Cross-sectional survey			
Arullapan et al (2018)	HIV/AIDs Helpline	To evaluate the quality of the South African (SA) National AIDS Helpline	<ul style="list-style-type: none"> Five researchers conducted content analysis of 200 'mystery client' anonymous calls to the helpline over a period of six months, and semi-structured questionnaires were completed following each call and then analysed. This questionnaire was designed <i>de novo</i> by the team of researchers due to a lack of appropriate and validated measures for this purpose. This questionnaire included a question in which the researcher reported if the nature of the call was empathetic, concerned, neutral, brusque (rude or brief), or unhelpful.

NR = not relevant; NA = not available; SD = standard deviation.

*(Background, Affect, Trouble, Handling and Empathy).

- Despite these challenges patient experience did not note significant barriers to empathy via telecommunication, despite variable levels of patient satisfaction with teleconsultations.
- Empathetic consultations have a general positive effect on patient satisfaction and can improve clinical outcomes

Our findings reflect evidence from other reviews of quantitative studies showing that empathy has a general positive impact on patient outcomes [16], that empathic behaviours vary and can be taught [37]. However, more than anything it also reiterates the call for more evidence in this growing area [8].

The review had several limitations. We only included English language studies, and we searched only two databases. Completeness of searching were determined by time constraints.

These limitations are mitigated by the need to use rapid review methodology in this quickly evolving field. In addition, due to the heterogeneous nature of the included studies, we were unable to pool the data. There were a small number of studies, the studies were mostly small, half of the studies were at a high risk of bias, and the demographics of participants (both patients and practitioners) was not very diverse, limiting the generalizability of these findings. Another limitation is that the concept of empathy

is difficult to define [9], and empathy (however defined) overlaps with other concepts such as compassion, as well as other approaches to communication including motivational interviewing [17]. This limitation is impossible to overcome completely. We addressed it by including studies that mentioned empathy explicitly, which is the approach used by other related studies in this field, [18] so helps provide a foundation for future studies of empathy that can appeal to better defined boundaries around the concept. Finally, the evidence we have presented in this paper is from diverse settings, practitioner types, and patient categories; therefore, the results are difficult to generalise.

7. Innovation

Never before have so many of our health interactions happened over the telephone. As we know that empathy is a key factor in patient-clinician interaction and it becomes increasingly clear that this novel format has a permanent place in healthcare, we must consider how we preserve and optimise empathy. Our review identified several potential barriers to expressing empathy in tele-consultations, the evidence to date does not suggest that any are insurmountable. However, the evidence in this field is very limited and of limited quality. Considering the recent increased reliance on telehealth, and its likely expansion in the near future, high quality trials should investigate how to overcome barriers and reduce variability of empathy in teleconsultations.

8. Conclusion

Empathy is a key component of the patient-clinician interaction. With the move to more of these interactions taking place via telecommunication it is important to assess the extent to which empathy can be experienced via the telephone. We found that conveying empathy over the telephone is possible, however, clinicians are underconfident and concerned about showing empathy in this format. Also, the evidence in this area was heterogeneous, limited in quantity and at a high or unclear risk of bias, leading to low generalisability. Going forward, more research is needed in this area to form suggestions for training and guidance for clinicians in the practicalities of this growing form of health interaction.

Registration and protocol

A protocol for this paper has been registered on PROSPERO (CRD42021238087).

Support

This was supported by NIHR school for primary care research (SPCR).

Availability of data

Data for this study is available from corresponding author.

Statement of confidentiality

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

Credit authorship contribution statement

Georgina Budd: Writing – original draft, Methodology, Formal analysis, Data curation, Writing – review & editing, Visualization. **Dan Griffiths:** Writing – original draft, Methodology, Formal analysis, Data curation. **Jeremy Howick:** Conceptualization, Data curation, Writing – review & editing, Supervision. **Jane Vennik:** Conceptualization, Data curation, Writing – review & editing, Supervision. **Felicity L. Bishop:** Conceptualization, Project administration, Conceptualization, Writing – review & editing,

Supervision. **Nancy Durieux:** Methodology, Formal analysis, Data curation. **Hazel A. Everitt:** Conceptualization, Project administration, Funding acquisition, Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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Appendix A

APA PsycInfo Search Strategy.

Database: APA PsycInfo <1806 to February Week 3 2021>.

Search Strategy:

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1 empathy/ (13975).
2 empath*.ti,ab,id. (32794).
3 1 or 2 (33372).
4 exp. telemedicine/ (9410).
5 exp. Telephone Systems/ (7753).
6 mhealth.ti,ab,id. (1104).
7 m-health.ti,ab,id. (155).
8 tele*.ti,ab,id. (59416).
9 (Ehealth or econsult* or erehabilitat* or ecounsel* or ecare* or
ehealthcare or emedic* or etherap* or epracti* or E-health or e-consult*
or e-rehabilitat* or e-counsel* or e-care* or e-healthcare or e-medic* or e-
therap* or e-practi*).ti,ab,id. (2552).
10 ((health or Consult* or rehabilitat* or counsel* or care* or
healthcare or medic* or therap* or practi*) adj3 (mobile or remote* or vir-
tual* or distan* or electronic* or online or digital* or internet or web-
based)).ti,ab,id. (19699).
11 phone*.ti,ab,id. (28338).
12 smartphone*.ti,ab,id. (4530).
13 videoconferenc*.ti,ab,id. (1554).
14 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 (110928).
15 3 and 14 (670).
16 limit 15 to yr="2010 - 2021" (417).
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Appendix B

MEDLINE Search Strategy.

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations and Daily <1946 to February 23, 2021>.

Search Strategy:

```

1 Empathy/ (19641).
2 empath*.ti,ab,kf. (17334).
3 1 or 2 (30067).
4 Telemedicine/ (26532).
5 Remote Consultation/ (5045).
6 Telerehabilitation/ (476).
7 telephone/ (12122).
8 cell phone/ (8840).
9 smartphone/ (5322).
10 videoconferencing/ (1799).
11 m-health.ti,ab,kf. (624).
12 mhealth.ti,ab,kf. (5589).
13 tele*.ti,ab,kf. (168848).
14 (Ehealth or econsult* or erehabilitat* or ecounsel* or ecare* or
ehealthcare or emedic* or etherap* or epracti* or E-health or e-consult*

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or e-rehabilitat* or e-counsel* or e-care* or e-healthcare or e-medic* or e-therap* or e-practi*).ti,ab,kf. (9094).

15 ((health or Consult* or rehabilitat* or counsel* or care* or healthcare or medic* or therap* or practi*) adj3 (mobile or remote* or virtual* or distan* or electronic* or online or digital* or internet or web-based)).ti,ab,kf. (86561).

16 phone*.ti,ab,kf. (40479).

17 smartphone*.ti,ab,kf. (13736).

18 videoconferenc*.ti,ab,kf. (2547).

19 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 (307463).

20 3 and 19 (625).

21 limit 20 to yr = "2010–2021" (473).

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