

## Review article



# Communication between healthcare providers and communicatively-vulnerable patients with associated health outcomes: A scoping review of knowledge syntheses

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## ABSTRACT

**Objective:** Summarize literature on provider-patient communication linked to health outcomes in communicatively-vulnerable patient populations.

**Methods:** Scoping review of reviews: systematically searched six databases. Inclusion criteria: systematic searches and syntheses of literature; one or more providers and communicatively-vulnerable patients; synchronous in-person communication; intermediate or health outcome linked to communication.

**Results:** The search yielded 14,615 citations; 47 reviews – with wide range of providers, communication vulnerabilities, communication practices, and health outcomes – met inclusion criteria. Methodology included qualitative, quantitative, and mixed approaches. Quality ranged from *very low* to *high*. Six categories of communication practices linked to health outcomes were identified: 1) motivation-based; 2) accommodation of language, culture, gender, sexual identity, and other concordance with the patient; 3) cultural adaptations of interventions; 4) use of interpreters; 5) other provider-patient communication practices; 6) patient communication practices.

**Conclusion:** Communication practices were studied in a wide range of providers, with common themes regarding best practices. A unique finding is the role of the patient's communication practices. The specificity of communication practices studied is heterogeneous, with many reviews providing insufficient details.

**Practice implications:** Motivation-based practices and culturally- and linguistically-appropriate care have impacts on patient outcomes across a range of settings with different professions and communicatively-vulnerable groups.

## 1. Introduction

Healthcare provider-patient<sup>2</sup> (henceforth “provider-patient”) communication can have a positive impact on health outcomes [1]. Communication practices such as providers listening effectively, giving clear explanations, and engaging patients in care decisions, can contribute to better health outcomes [2–4]. There is uncertainty about

which communication practices lead to the best health outcomes. Attempts to find patterns have led to knowledge synthesis reviews for many individual disciplines. By examining these questions within each discipline, we neglect to learn from progress and innovation in other disciplines. Pooling findings from across disciplines can give a clearer picture of the provider-patient communication practices that are most likely to be effective.

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<sup>2</sup> The term “Patient” is used broadly to include family, caregivers, and close communication partners of patients.

Street [5] provides a framework for understanding how provider-patient communication affects health outcomes. In this model, provider-patient communication influences health outcomes through different pathways. Provider-patient communication practices can affect health outcomes directly. For example, the use of empathic communication by nurses has been associated with reduced pain in patients with irritable bowel symptoms [6]. More often, this model proposes that communication influences health outcomes via an indirect pathway, through proximal outcomes (e.g., a shared understanding, better motivation to adhere, improved satisfaction with care). These proximal outcomes can affect intermediate outcomes (e.g., improved patient treatment adherence, better self-management). These intermediate outcomes can contribute to health outcomes (e.g., improved physiological functioning, better emotional well-being).

Provider-patient communication practices are important for patients who are communicatively vulnerable [7]. Communication vulnerability refers to the inherent or circumstantial factors that create a “diminished capacity of an individual to speak, hear, understand, read, remember, or write” [7, p. 13]. Blackstone identified five communicatively vulnerable groups: 1) people with communication disorders such as hearing loss or aphasia; 2) people with limited proficiency in the dominant language of the community; 3) people with limited health literacy for “find[ing], understand[ing], and us[ing] information and services to inform health-related decisions and actions for themselves and others” [8]; 4) people with personal characteristics, practices, and/or preferences that differ from the dominant culture of the community; and 5) people who are unable to communicate because of situational or contextual factors such as an intensive care patient who is intubated. Blackstone [7] noted that people can have more than one communication vulnerability such as an individual who has both post-stroke aphasia and limited proficiency in the dominant language. Communicatively vulnerable patients are often not considered in studies or guidelines focusing on best communication practices [9]. Yet, these patients face multiple barriers such as providers not giving enough time to communicate their health concerns or not giving verbal or written health information that they can understand [10]. These patients are at higher risk for preventable adverse events [11], potentially leading to unnecessary patient suffering, death, hospital readmission, and increased healthcare costs [12]. Ineffective communication with communicatively vulnerable patients can lead to increased stress for the patient and the provider and reduced patient satisfaction with care [12]. Use of a range of communication strategies that are appropriate for a patient with a particular communication vulnerability [10] could have an impact on optimizing healthcare delivery and improving efficiency by reducing adverse events for these individuals.

There is a need to identify the best practices for provider-patient communication, particularly for individuals who are communicatively vulnerable. To date, no prior review has synthesized the literature across disciplines linking provider-patient communication practices with health outcomes. Therefore, the goal of the current scoping review of reviews was to summarize the literature on healthcare provider-patient communication practices linked to health outcomes in communicatively vulnerable patient populations. Understanding the specific communication practices that support provider-patient communication can also assist in training healthcare providers in these important skills. Furthermore, improving our understanding of this area can support patients to develop an active and participatory role in managing their health, improve patients’ experience of care, and optimize primary healthcare delivery for patients using one or multiple services. The specific research questions addressed by this scoping review of reviews were:

1. What are the characteristics of reviews examining the link between provider-patient communication practices and health and intermediate outcomes in communicatively vulnerable populations?

2. Which provider-patient communication practices are linked to health and intermediate outcomes in communicatively vulnerable populations?

## 2. Material and methods

We conducted a scoping review of reviews, following the six-step plan recommended by Schultz et al., [13], which is a refinement of the scoping review methods developed by Arksey and O’Malley [14] and adapted by Daudt et al. [15] and Levac et al. [16]. This type of review allows for a broader overview and map of existing research than is possible with systematic or scoping reviews focused on a narrower question [13], while keeping the number of included articles reasonable for the time frame.

We used the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews; [17]) to provide a comprehensive description of the process as well as the number, characteristics, and sources of articles identified, included, and excluded in this synthesis. The PRISMA-ScR checklist, showing where we have addressed all criteria, can be seen in Appendix A. We registered the study protocol on Open Science Framework (OSF) December 3 2018, prior to conducting the literature searches: <https://osf.io/hu6zg/>. Variations from the registered protocol are noted where applicable.

The specific elements of the “PICOT” question are further defined in Table 1. This has been an iterative process, as recommended by Schultz et al. [13].

### 2.1. Search strategies and study selection

We conducted searches in six databases in December 2018: Medline (Ovid), Embase (Ovid), Cochrane Database of Systematic Reviews (CDSR; Ovid), CINAHL (Ebsco), PsycINFO (Ebsco), and Linguistics and Language Behavior Abstracts (LLBA; ProQuest). The search strategies were developed by a health sciences librarian and a library studies student. Medline (Ovid) was used as the benchmark strategy for the other searches, which were designed to replicate it insofar as possible given the scopes, capabilities, and functionalities of the different

**Table 1**  
PICOT (Population/ Intervention/(Comparison)/Outcome/Type of study) question and inclusion criteria.

Category	Description
P (Patient/ Population)	Any group (dyad or more) that includes one or more healthcare providers and one or more patients/caregivers/ family members. Patients met one or more criteria to be defined as communicatively vulnerable based on Blackstone et al. (2015): 1. People with communication disorders; 2. People with limited proficiency in the dominant language of the community; 3. People with limited health literacy; 4. People with personal characteristics, practices, and/or preferences that differ from the dominant culture of the community; 5. People who are unable to communicate because of situational or contextual factors. Based on input from our scoping review patient stakeholder group, we included two additional communicatively vulnerable groups in this review: people with addiction or dependency issues which contribute to communication breakdowns with providers, and people who have mental health factors which contribute to communication breakdowns with their providers. <sup>a</sup>
I (Intervention)	Synchronous (i.e., real-time), in-person communication, including linguistic (spoken, signed) and paralinguistic (gestures, body language) elements
C (Comparison)	No explicit comparison
O (Outcomes)	Any reported intermediate or health outcome (based on Street et al., 2009)
T(Type of Study)	Any systematic literature search with knowledge synthesis

<sup>a</sup> The vulnerability criterion was added after the protocol was published.

databases. The Medline search incorporated both subject heading searches and keyword-focused searches in each of the three elements of the research question: patient (and/or caregiver)-provider relations, health outcomes, and communication. Subject heading searches were also used for each element of the search in Embase and CINAHL, and for those areas which have appropriate equivalent subject headings in PsycINFO and LLBA (subject headings are not available in CDSR). Keyword searches in each of the other five databases used the same keywords as in Medline, insofar as possible. All search strategies are given in [Appendix B](#).

The patient-provider element included a large number of terms for health professionals, patients, and caregivers. These terms were based in large part on the search strategy used by Howick et al. [18], as well as on the judgments of the librarian and library studies student, with several additional sources to identify a comprehensive list of health professionals and specialists, including the specialties of departments in the UBC Faculty of Medicine [19–21].

The Medline, Embase, CINAHL, and CDSR searches were re-run in August 2020, May 2022, and August 2023, to collect references which had been published since the time of the first searches in December 2018. PsycINFO and LLBA were not searched again, as they had not provided any relevant results in the original searches which had not been found through the other four databases.

## 2.2. Reference collection and de-duplication procedure

The references identified by the searches were downloaded into a Refworks legacy account, then copied to a second Refworks legacy account for de-duplication. De-duplication was done initially using the inbuilt Refworks tool with further de-duplication during title and abstract screening. Duplicate references were deleted. In our most research search, we used Covidence [22] for reference collection, de-duplication, and screening.

Articles for full-text screening were accessed through the library services available to the researchers. For materials such as theses and conference proceedings, authors were contacted to retrieve copies and to ask whether the work has been published. In the case of protocols, the references were checked to see if the full studies had been collected during the original searches; if not, the authors were contacted to determine if a full study was available for review.

## 2.3. Inclusion and exclusion criteria and procedure

The entire team (researchers, knowledge users [both clinicians and policy-makers], patients) had input regarding inclusion and exclusion criteria through an iterative process that involved reading 40 articles retrieved via a test run of the Medline search, discussing them as a group, and coming to consensus on how to structure and word the criteria so as to best meet the goals of our overview.

Inclusion criteria: a) knowledge synthesis article (systematic review, scoping review, meta-synthesis, etc.), in which the literature search strategy was systematic and b) the review must have attempted to find literature related to all three elements of our research question (i.e., clinician-patient communication and health outcomes or intermediate health outcomes). See [Table 1](#) for more details.

Exclusion criteria: Articles were excluded if not written in a language understood by one of our team members (English, French, Italian, German); if the focus was on provider-to-provider communication, training providers, simulations, or non-human patients (e.g., veterinarians); or if the communication was solely asynchronous, digital (including telehealth), or focused on the context of communication (e.g., group vs. individual therapy).

No restrictions were placed on geographical location, practitioner type or condition being treated. Quality assessment was not used to decide inclusion, although it was assessed.

A small team (JA, GM, LJ) reviewed titles and abstracts of the

references remaining after de-duplication for inclusion/exclusion. Each title/abstract was reviewed by two reviewers. References passed to full-text screening if at least one reviewer did not exclude it. The references considered for full-text screening were then retrieved. For full-text screening, pairs of team members independently reviewed a portion of the full-text reviews for inclusion/exclusion. A third team member broke ties if necessary. This process follows the models of Daudt et al. [15] and Valaitis et al. [23].

## 2.4. Data extraction, analysis and quality assessment procedures

The entire team (researchers, knowledge users, patients) had input regarding the relevant characteristics to be extracted from the reviews. This process started with the frameworks developed by Street and colleagues in which they define proximal, intermediate, and health outcomes that may be affected by patient-provider communication [5] and specific communication measures [1], then reading multiple articles and discussing them together to further specify characteristics of interest to all stakeholders. The data extraction tool was developed in Google Forms (see [Supplementary Materials](#) for a sample of a completed data extraction form), and included both data extraction and preliminary data coding.

Initially, the full team independently extracted data and performed coding for five selected reviews for calibration purposes, then met to discuss coding and data extraction. Following Daudt et al. [15] once initial calibration was completed, pairs of team members independently performed data extraction on a portion of the reviews, then met to reach consensus on data extraction and coding. A third team member broke ties when necessary. The pairs also independently conducted quality assessment using the Joanna Briggs Institute Critical Appraisal Checklist for Systematic Reviews and Research Syntheses [24]; a third team member broke ties if necessary. A quality score (very low, low, moderate, or high) was assigned to each review based on its score on the checklist [25]. Because we included many types of research syntheses, not all items on the checklist were applicable for each review; therefore, the relationship between the numeric score and the quality category varied by synthesis type ([Appendix C](#)).

Results relevant to the second research question (i.e., provider-patient communication practices linked to health and intermediate outcomes in communicatively vulnerable populations) were grouped into related categories through consensus discussions between two authors (TH, GB). The results for the review's two research questions were then presented in a tabular form and as a narrative summary.

## 3. Results

The search yielded 14,615 citations. 9873 records were screened at the title and abstract level, and 1572 publications were screened at the full-text level. One additional record was identified from the references of another record. Forty-seven reviews met our inclusion criteria (see [Fig. 1](#) PRISMA diagram, generated with Haddaway et al. [26]).

### 3.1. Characteristics of the included reviews

The included reviews comprised thirty-two systematic reviews, four systematic reviews with meta-analyses, four scoping reviews, two meta-analyses, two literature reviews, one meta-analysis and literature review, one qualitative meta-analysis, and one rapid evidence assessment. Quality assessment of the reviews rated 26 high, 11 moderate, 8 low, and 1 review very low. One of the reviews found no results and thus, could not be evaluated.

The number of primary studies in the included reviews ranged from 0 to 119; however, we only extracted the findings relevant to the aim of this scoping review. The findings that specifically related to provider-patient communication practices linked to health outcomes in communicatively vulnerable populations are reported in the next sections and

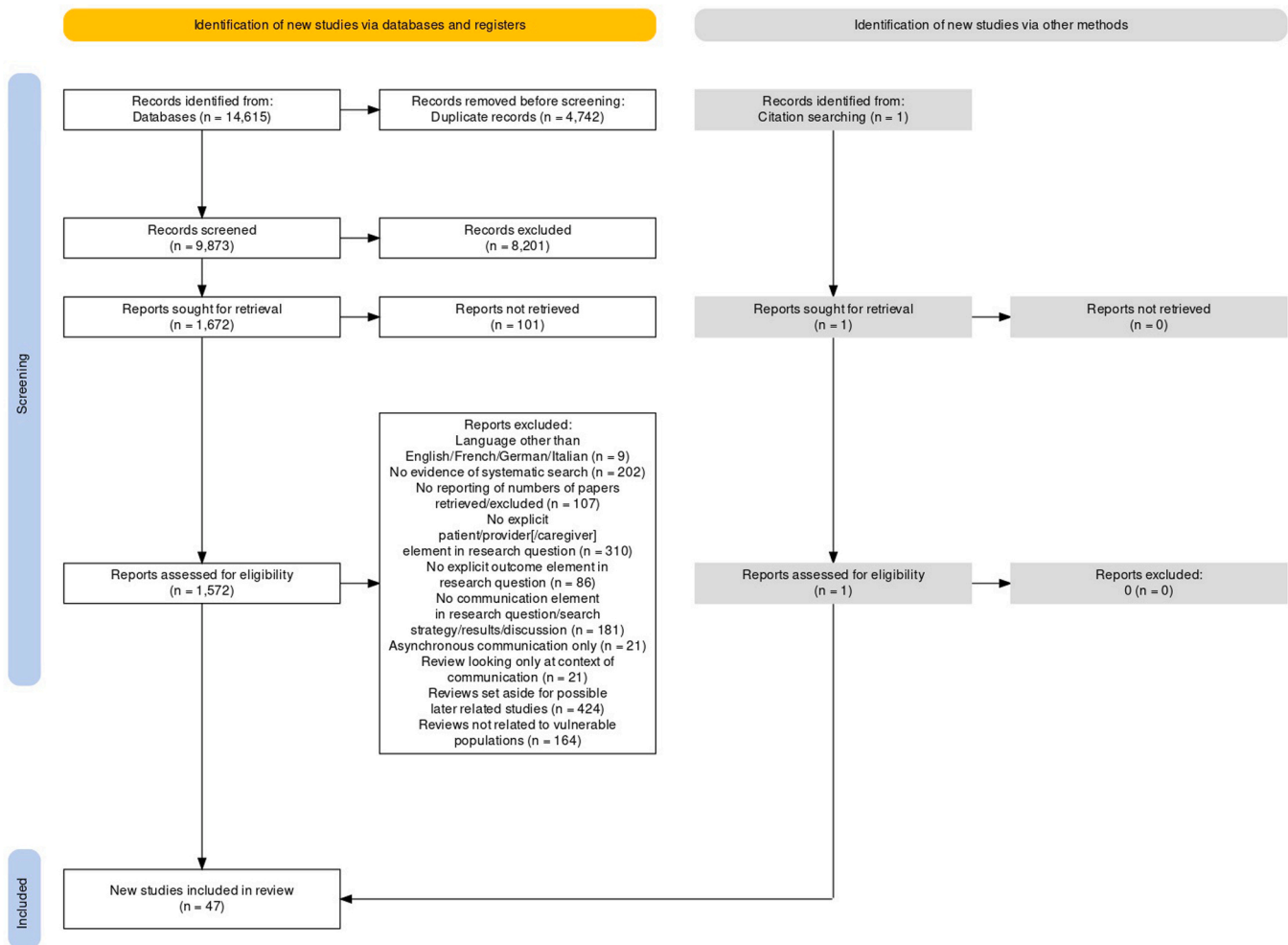


Fig. 1. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) diagram.

in Table 2.

### 3.2. Communicatively vulnerable populations

As adapted from Blackstone [7], the reviews reported on all seven types of communicatively vulnerable populations, with some reviews including more than one. The number of reviews that examined a single vulnerability were: mental health factors (nine), including patients with schizophrenia [27–30] and depression [30–32]; limited proficiency in the dominant language of the community (twelve); personal characteristics, practices, or preferences (seven) including patients from ethnic minorities [33–36] and lesbian, gay, and bisexual communities [37–39]; communication disorders (four) such as hearing impairment [40,41] and cognitive communication disorders resulting from dementia or brain injury [42,43]; situational/contextual factors (two) such as patients who are temporarily voiceless due to a medical intervention [44]; limited health literacy (one; [45]) and addiction and dependency involving patients with benzodiazepine use, abuse, or dependence (one; [46]). The remaining eleven reviews addressed more than one communication vulnerability. Five of these reviews included the communication vulnerabilities of personal characteristics, practices, and/or preferences along with limited proficiency in the dominant language of the community [47–51]; two included personal characteristics, practices, and/or preferences along with mental health factors [52,53]; one included personal characteristics, practices, and/or preferences along with addiction/dependence [54]; one included mental health factors along with addiction/dependence [55]; and one included

limited health literacy along with communication disorders [56]. One review included three communication vulnerabilities: personal characteristics, practices, and/or preferences; addiction, and dependency; and mental health factors [57].

Most reviews focused on adults, but two concerned parents of hospitalized children [58,59], and five included patients' families [48,50, 52,53,60].

### 3.3. Healthcare providers

The disciplines of the healthcare providers associated with the communication practices varied. Providers (with number of reviews) included nurses/nursing home staff (twenty-one; [14,29–31,33,35,36, 42–44,49,52,54,56–58,60–64]), physicians (fourteen; [39, 49, 51, 57, 58, 60–68]) psychologists (five; [30,35,52,54,60]), psychiatrists (three; [52,61,62]), pharmacists (four; [35,56,61,62]), social workers (five; [30,38,52,60,61]), audiologists (two; [40,41]), dietitians (two; [36, 54]), midwives (two; [31,52]), occupational therapists (one; [61]), physical therapists (one; [64]), psychotherapists (one; [52]), and chaplains (one; [60]). The discipline of the healthcare providers was not always specified in the reviews (twenty-one; [28–30,32,34,37,38, 45–47,50,53,55,58,59,63,67,69–72]).

### 3.4. Links between provider-patient communication practices and health outcomes

The provider-patient communication practices linked to health

**Table 2 –**  
 Summary of Relevant Findings - Healthcare Provider-Patient/Caregiver Communication Practices Linked to Health Outcome(s) in Communicatively Vulnerable Populations.

Review Information			Data from Relevant Studies			
Author (s), Year	Review Type; Total # Articles in Review	Review Quality Rating	Healthcare Provider (s)	Specific Communicatively Vulnerable Population (s)	Healthcare Provider-Patient/Caregiver Communication Practices Linked to Health Outcomes	Healthcare Provider-Patient/Caregiver Communication Practices* Linked to Intermediate Outcomes
<b>Communication Vulnerability: Addiction/Dependency</b>						
Darker et al. (2015)	systematic review; 25	high	not specified	patients with benzodiazepine harmful use, abuse, or dependence		motivational interviewing (MI)→ ~commitment, adherence, or compliance
<b>Communication Vulnerability: Communication Disorders</b>						
Fingfeld Connett (2009)	qualitative meta-synthesis; 7	low	nurses	patients with dementia or brain injuries	therapeutic management of aggression→ ↑psycho-social functioning or well-being nontherapeutic management of aggression→ ↓psycho-social functioning or well-being	
Ismail et al. (2019)	systematic review; 17	high	audiologists	patients aged 18 years or above receiving clinical consultations with hearing healthcare professionals	MI→ ↑physical functioning or well-being use of preferred narrative→ ↑physical functioning or well-being motivational engagement using motivational tools→ ~physical functioning or well-being performance perceptual counselling→ ~physical functioning or well-being	MI→ ↑commitment, adherence, or compliance motivational engagement using motivational tools→ ~commitment, adherence, or compliance performance perceptual counselling→ ~commitment, adherence, or compliance
Jutkowicz et al. (2016)	systematic review and meta-analysis; 19	high	nursing home staff	patients with dementia in nursing homes and assisted living facilities	emotion-oriented care→ ~physical functioning or well-being ~psycho-social functioning or well-being	
Meibos et al. (2017)	rapid evidence assessment; 18	low	audiologists	patients with hearing impairment using hearing technology	pre-fitting counselling→ ~physical functioning or well-being mixed evidence for post-fitting counselling→ ↑physical functioning or well-being	mixed evidence for pre-fitting counselling→ ↑commitment, adherence, or compliance mixed evidence for post-fitting counselling→ ↑commitment, adherence, or compliance
<b>Communication Vulnerability: Limited Health Literacy</b>						
Clement et al. (2009)	systematic review; 15	high	not specified	patients with limited literacy or numeracy	mixed evidence for complex interventions→ ↑disease markers or levels of suffering/pain ↑survival complex interventions→ ~psycho-social functioning or well-being	mixed evidence for complex interventions→ ↑commitment, adherence, or compliance ↑other (hospital admission)
<b>Communication Vulnerability: Limited Proficiency in the Dominant Language of the Community</b>						
Boylen et al. (2020)	systematic review; 6	high	physicians; nurses; others not specified	limited English proficiency parents with a hospitalized child (0–18 years)		use of in-person professional interpreter vs. telephone professional interpreter → ↑other (emergency department length of stay)
Cano-Ibanez et al. (2021)	systematic review; 15	high	physicians	patients seeking healthcare who were language discordant with their physicians	mixed evidence for accommodation of language discordance with patient→ ↑disease markers or levels of suffering/pain ↑psycho-social functioning or well-being accommodation of language discordance with patient→ ~survival	mixed evidence for accommodation of language discordance with patient→ ↑quality decision-making or elective choices ↑commitment, adherence, or compliance ↑self-care skills or self-management ↑other (number of emergency room visits)

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Table 2 – (continued)

Review Information			Data from Relevant Studies			
Author (s), Year	Review Type; Total # Articles in Review	Review Quality Rating	Healthcare Provider (s)	Specific Communicatively Vulnerable Population (s)	Healthcare Provider-Patient/Caregiver Communication Practices Linked to Health Outcomes	Healthcare Provider-Patient/Caregiver Communication Practices* Linked to Intermediate Outcomes
Clark et al. (2022)	systematic review; 20	moderate	not specified	limited English proficiency individuals who were at risk for, affected by, or recovering from a stroke	use of interpreter→ ↑physical functioning or well-being	lack of use of an interpreter→ ↓quality decision-making or elective choices
Diamond et al. (2019)	systematic review; 33	low	physicians	limited English proficiency patients	accommodation of language discordance with patient→ ↑disease markers or levels of suffering/pain	mixed evidence for accommodation of language discordance with patient→ ↑ access to care
Dooley et al. (2017)	scoping review; 42	moderate	physicians, others not specified	patients with limited English proficiency	physician-patient language discordance→ ↓disease markers or levels of suffering/pain	accommodation of language accordance with patient → ↑other (subsequent emergency department visits) use of interpreter→ ↑quality decision-making or elective choices
Flores (2005)	systematic review; 36	moderate	physicians	limited English proficiency patients (LEP)	accommodation of language concordance with patient → ↑physical functioning or well-being ↑psycho-social functioning or well-being	use of interpreter→ ↑quality decision-making or elective choices lack of use of an interpreter→ ↓quality decision-making or elective choices ↓other (hospitalization rate) use of untrained adhoc interpreter vs trained professional interpreter → ↓quality decision-making or elective choices
Heath et al. (2023)	systematic review; 29	high	not specified	non-native speaking patients		mixed evidence for use of interpreter→ ↑other (readmission)
Hsueh et al. (2019)	systematic review; 38	moderate	physicians, nurses, patient navigator; behavioural healthcare provider, others not specified	limited English proficiency patients	mixed evidence for accommodation of language concordance with patient→ ↑disease markers or levels of suffering/pain	mixed evidence for accommodation of language concordance with patient→ ↑commitment, adherence, or compliance
Karliner et al. (2007)	systematic review; 28	moderate	not specified	limited English proficiency patients	use of interpreter→ ↑disease markers or levels of suffering/pain	use of interpreter→ ↑ access to care
Lor et al. (2020)	scoping review; 50	high	physicians, nurses, physical therapists, counsellors	limited English proficiency patients	accommodation of language concordance with patient→ ↑disease markers or levels of suffering/pain	accommodation of language concordance with patient→ ↑ access to care mixed evidence for accommodation of language concordance with patient→ ↑commitment, adherence, or compliance
Luan-Erfe et al. (2023)	systematic review; 10	high	not specified	limited English proficiency patients/family members of patients who underwent surgery/procedure	lack of use of an interpreter→ ↓disease markers or levels of suffering/pain	use of an interpreter→ ↑other (length of hospital stay)
Timmins (2002)	systematic review; 14	low	not specified	Latino patients in the U.S.	mixed evidence for lack of language concordance with patient→ ↓physical functioning or well-being	lack of language concordance with patient→ ↓quality decision-making or elective choices mixed evidence for lack of language concordance with patient→ ↓access to care
<b>Communication Vulnerability: Mental Health Factors</b>						
Aoki et al. (2022)	systematic review; 15	high	nurses, physicians, pharmacists, case managers, peer supporters, family carers, occupational therapists, social workers, psychiatrists	people of all ages with mental health conditions	shared decision-making interventions→ ~disease markers or levels of suffering/pain	shared decision-making interventions→ ~commitment, adherence, or compliance ~other (hospital readmission rates)

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Table 2 – (continued)

Review Information			Data from Relevant Studies			
Author (s), Year	Review Type; Total # Articles in Review	Review Quality Rating	Healthcare Provider (s)	Specific Communicatively Vulnerable Population (s)	Healthcare Provider-Patient/Caregiver Communication Practices Linked to Health Outcomes	Healthcare Provider-Patient/Caregiver Communication Practices* Linked to Intermediate Outcomes
Desplenter et al. (2006)	systematic review; 17	high	psychiatrists, pharmacists, general practitioner, nurses, primary clinician	adult inpatients or outpatients with a mental illness	provision of educational interventions about medicines→ ~physical functioning or well-being ~psychosocial functioning or well-being	provision of educational interventions about medicines→ ~other (admission rates) mixed evidence for provision of educational interventions about medicines→ ↑commitment, adherence, or compliance
Farooq et al. (2017)	systematic review; 0	could not evaluate	not applicable	adults with schizophrenia or related disorders	no studies retrieved investigating an association between communication strategies to inform people about diagnosis and health outcomes	no studies retrieved investigating an association between communication strategies to inform people about diagnosis and intermediate outcomes
Lawrence et al. (2017)	systematic review and meta-analysis; 14	high	MI therapists	individuals who are treatment-seeking and non-treatment-seeking for mental health issues		pre-treatment MI → ↑commitment, adherence, or compliance
McIntosh et al. (2006)	systematic review; 1	high	not specified	people with schizophrenia or related psychoses	compliance therapy→ ~psycho-social functioning or well-being	compliance therapy→ ~commitment, adherence, or compliance
Singla et al. (2017)	systematic review; 25	low	community health workers, peers, nurses, mid-wives	adults with common mental disorders (depression, anxiety, and posttraumatic stress disorder) in low and middle income countries	psychological treatment delivered by nonspecialist providers→ ↑psycho-social functioning or well-being	
Thompson McCabe (2012)	systematic review; 23	high	not specified	patients with depression, psychotic disorder, or bipolar disorder		collaborative communication → ↑commitment, adherence, or compliance shared-decision-making→ ~commitment, adherence, or compliance patient question-asking→ ↓commitment, adherence, or compliance
Vanderwaal (2015)	literature review; 6	low	mental health nurses, therapists, others not specified	patients with schizophrenia	mixed evidence for MI/compliance therapy/adherence therapy→ ↑psycho-social functioning or well-being	MI/compliance therapy/adherence therapy→ ~commitment, adherence, or compliance mixed evidence for MI/compliance therapy/adherence therapy→ ↑other (rehospitalization rates)
Wong Anuchit et al. (2019)	meta-analysis; 16	moderate	nurses, psychologists, social workers, family/mental health therapists, others not specified	adults with severe mental illness (schizophrenia schizoaffective disorder, bipolar disorder, and major depressive disorder)	MI-based compliance/adherence therapy→ ↑psycho-social functioning or well-being	
<b>Communication Vulnerability: Personal Characteristics, Preferences, or Practices</b>						
Butler et al. (2016)	systematic review; 56	high	not specified	lesbian or bisexual women receiving counselling to improve breast self-exam and mammography		accommodation of sexual identity concordance with patient→ ~access to health care
Dangerfield et al. (2023)	scoping review; 7	high	clinicians, sexually transmitted infection clinic counselors, nurse counselors, social workers, others not specified	patients at risk for HIV		MI→ ~commitment, adherence, or compliance
Joo (2014)	systematic review; 9	moderate	bilingual nurses, bilingual community health workers	Asian immigrants with diabetes in the United States	culturally tailored diabetes intervention programs→ ↑disease markers or levels of suffering/pain ↑psycho-social functioning or well-being	culturally tailored diabetes intervention programs→ ↑self-care skills or self-management
Mead et al. (2013)	systematic review; 23	moderate	not specified	racial/ ethnic minority cancer patients	effective healthcare provider communication→	effective healthcare provider communication→

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Table 2 – (continued)

Review Information			Data from Relevant Studies			
Author (s), Year	Review Type; Total # Articles in Review	Review Quality Rating	Healthcare Provider (s)	Specific Communicatively Vulnerable Population (s)	Healthcare Provider-Patient/Caregiver Communication Practices Linked to Health Outcomes	Healthcare Provider-Patient/Caregiver Communication Practices* Linked to Intermediate Outcomes
					↑physical functioning or well-being ↑psycho-social functioning or well-being	↑commitment, adherence, or compliance
Palacio et al. (2016)	systematic review and meta-analysis; 17	high	nurses, psychologists, pharmacists, health educators, health workers, counsellors, research assistants	patients from ethnic or racial minorities		MI→ ↑commitment, adherence, or compliance
Ruben Fullerton (2018)	meta-analysis and literature review; 35	low	primary care physicians, healthcare providers	patients from lesbian, gay, and bisexual communities	patients' verbal disclosure of sexual orientation to healthcare providers→ ↑physical functioning or well-being ↑psycho-social functioning or well-being	patients' verbal disclosure of sexual orientation to healthcare providers→ ↑quality decision-making or elective choices
Zeh et al. (2012)	systematic review; 11	high	nurses, dietitian, bilingual health educators, nurse educator, multilingual link workers, bilingual health advocates	ethnic minority populations with diabetes	mixed evidence for culturally competent interventions→ ↑disease markers or levels of suffering/pain	culturally competent interventions→ ~self-care skills or self-management
<b>Communication Vulnerability: Situational/Contextual Factors</b>						
Cahill et al. (2017)	systematic review; 13	high	social workers, physicians, nurses, psychologists, chaplains, palliative care team members	patients with life-limiting illnesses and their families	palliative care family meetings→ ~psycho-social functioning or well-being	
Carruthers et al. (2017)	systematic review; 12	high	nurses	patients who are temporarily voiceless due to medical intervention	augmentative and alternative communication (AAC) strategies→ ~disease markers or levels of suffering/pain	
<b>Reviews Focusing on More Than One Communication Vulnerability</b>						
Chanut et al. (2005)	literature review; 30	very low	not specified	psychiatric patients with or without substance use disorders		MI→ ↑commitment, adherence, or compliance
Chowdhary et al. (2014)	systematic review; 20	high	specialist and nonspecialist therapists including social workers, nurses, midwives, psychologists, psychotherapists, psychiatrists	ethnic minorities in Western countries and culturally diverse populations in non-Western countries with depressive disorder	cultural adaptations of psychological treatments→ ↑psycho-social functioning or well-being	
Davies et al. (2017)	systematic review; 11	high	not specified	patients receiving inpatient stroke care	mixed evidence for accommodation of cultural and language concordance with patient → ↑physical functioning or well-being accommodation of cultural concordance with patient→ ~physical functioning or well-being mixed evidence for accommodation of cultural concordance with patient → ↑survival	accommodation of cultural and language concordance with patient→ ~other (length of stay) mixed evidence for accommodation of cultural concordance with patient → ↑other (length of stay)
Dawson Estrada et al. 2015	scoping review; 59	moderate	wide range of health care disciplines, including nursing, medicine, public health	patients with culturally and linguistically diverse backgrounds		use of interpreter→ ↑ access to health care ↑other (emergency department return rate)
Degnan et al. (2017)	systematic review and meta-analysis; 46	high	mental health professional, some co-facilitated by family members, others not specified	patients with schizophrenia from minority ethnic populations in a Western country or any non-Western population	culturally-adapted psychosocial interventions→ ↑disease markers or levels of suffering/pain ↑psycho-social functioning or well-being	
deSilva et al. 2016	systematic review; 38	high	MI trained community therapists/ local South Asian women trained as MI counsellors	caregivers of children aged birth to five years in disadvantaged communities	mixed evidence for MI with oral health education→ ↑disease markers or levels of suffering/pain	

(continued on next page)



Table 2 – (continued)

Review Information			Data from Relevant Studies			
Author (s), Year	Review Type; Total # Articles in Review	Review Quality Rating	Healthcare Provider (s)	Specific Communicatively Vulnerable Population (s)	Healthcare Provider-Patient/Caregiver Communication Practices Linked to Health Outcomes	Healthcare Provider-Patient/Caregiver Communication Practices* Linked to Intermediate Outcomes
Dunn et al. (2001)	systematic review; 29	low	MI interventionists including health counselor, nurses, dietitians, PhD psychologists, doctoral students, specialist substance abuse clinician, college degree and undergraduate students	substance abuse patients HIV-risk patients		MI → ↑commitment, adherence, or compliance mixed evidence for MI → ↑commitment, adherence, or compliance
HaDinh et al. 2016	systematic review; 10	moderate	nurses, pharmacists, health educators, research assistants case managers	adult patients with chronic diseases and limited health literacy adult patients with chronic diseases and mild cognitive impairment	teach-back method → ~psycho-social functioning or well-being	teach-back method → ↑self-care skills or self-management ~commitment, adherence, or compliance ~other (hospital admissions/readmissions) teach-back method → ~self-care skills or self-management
Harun et al. (2013)	systematic review; 7	high	not specified	adults aged 18 years or older with a diagnosis of cancer and from a culturally and linguistically diverse (CALD) background	mixed evidence for interventions to improve CALD patient participation → ↑psychosocial functioning or well-being interventions to improve CALD patient participation → ~survival	interventions to improve CALD patient participation → ~commitment, adherence, or compliance ~self-care skills or self-management
Lundahl et al. (2010)	meta-analysis; 119	moderate	varied health professionals including medical doctors, nurses, mental health providers, mental health counselors, students supervised by someone with a master's or PhD degree	patients with substance abuse behaviours; patients with risk-taking behaviours (e.g., unprotected sex) patients with varying levels of distress (e.g., depression) surgical patients	MI → ~psychosocial functioning or well-being	MI → ↑commitment, adherence, or compliance
Zhao et al. (2019)	systematic review; 16	high	physicians			accommodation of race, gender, and language concordance with patient → ~commitment, adherence, or compliance accommodation of race concordance with patient → ~quality decision-making or elective choices accommodation of gender concordance with patient → ↑quality decision-making or elective choices

Notes: \* - healthcare communication practices described further in text; → = associated with; ~ = insufficient evidence for an association with; ↑ = improved; ↓ = poorer

outcomes in communicatively vulnerable populations could be assigned to one of six categories: 1) motivation-based practices; 2) accommodation of the healthcare provider language, cultural, gender, and/or other concordance with the patient; 3) cultural adaptations of interventions/culturally appropriate care; 4) use of interpreters; 5) other provider-patient communication practices; 6) patient communication practices.

### 3.4.1. Motivation-based practices

Twelve reviews reported on motivation-based practices. These practices included motivational interviewing (MI) compliance/adherence therapy and the use of motivational tools [28–30,35,38,40,46,48,54,55,57,73]. MI is a client-centered style of counseling that aims to increase readiness for change and develop self-efficacy [74,75]. Key principles are to build trust, and avoid pushing for change prematurely. MI focuses on achievable positive lifestyle and behaviour choices; providers seek to elicit motivational statements by supporting patients' examination of perceived discrepancies between actual and ideal

behaviors.

MI or MI-based approaches were associated with both health and intermediate outcomes in a variety of patient populations. The use of MI-based communication was associated with improved psychiatric symptoms in patients with severe mental illness [30]; improved treatment attendance for patients with mental health issues [73]; improved treatment engagement and adherence in psychiatric patients with or without substance use disorders [55]; improved treatment adherence in patients with substance abuse behaviours [54,57]; improved medication adherence among patients from ethnic or racial minorities [35]; and increased hearing aid benefit and use in patients with hearing impairments [40].

### 3.4.2. Accommodation of the healthcare provider language, cultural, gender, or other concordance with the patient

Ten reviews investigated concordance between healthcare providers and patients in relation to language, culture, gender, and other

characteristics. Most of these reviews focused specifically on language concordance [63–68,72], one focused on cultural concordance in addition to language concordance [47], one focused on race and gender concordance in addition to language concordance [51], and one focused on sexual identity concordance [37]. Language concordance involves ensuring the provider can speak the language of a patient who communicates in a different language from the dominant one of the community. Other concordances involved matching patients with providers on the basis of shared culture, race, gender, or sexual identity. Language concordance was associated with better health outcomes including improved glycemic control and blood pressure in patients with diabetes [64,66] and improved physical and psychosocial functioning in patients with hypertension or diabetes [68]. Language concordance was also associated with improved intermediate outcomes including access to care [64], and fewer emergency department visits [67]. Gender concordance was associated with improved quality of care [51].

### 3.4.3. Use of interpreters

Eight reviews reported on using interpreters during communication between healthcare providers and patients with limited English proficiency (LEP; [49,58,59,67–71]). The use of interpreters was associated with improved quality of care [67,68], improved disease markers [71], improved physical functioning or well-being [69], better access to care [71], reduced length of hospital stay [59], and reduced emergency department return rates [49]. Positive effects on preventive cancer screening rates were associated with use of either professional or ad hoc (e.g., family, untrained staff) interpreters [68].

### 3.4.4. Cultural adaptations of interventions/culturally appropriate care

Five reviews described cultural adaptations of interventions linked to health outcomes [33,36,50,52,53]. Culturally-tailored diabetes interventions for ethnic minorities with diabetes were associated with improvements in various health outcomes including A1C levels, a measure of blood glucose, and quality of life [33]. The cultural adaptations included the use of bilingual providers, education about culture-specific nutrition, and counseling about culture-specific myths. For patients from ethnic minorities with depressive disorders, symptom improvement was associated with psychological treatment adaptations that included culturally-appropriate metaphors, and communication of the presenting problems and their constructs in a culturally-appropriate manner [52]. For patients with schizophrenia, a meta-analysis showed an association between improved psychosocial functioning and interventions adapted through the use of culturally-appropriate language, and culturally-appropriate methods for dealing with conflict and problem-solving [53].

### 3.4.5. Other provider-patient communication practices

Twelve reviews focused on a wide variety of other communication practices including augmentative and alternative communication strategies [44], emotion-oriented care [43], palliative care family meetings [60], shared decision-making [61], pre-fitting and post-fitting hearing aid counselling [41], educational interventions about medicines for psychiatric patients [62], and complex interventions to improve the health-related outcomes of people with limited literacy [45].

Two reviews concerning patients with communication disorders found positive associations between communication practices and health or intermediate outcomes. In the first review, a qualitative meta-synthesis, therapeutic management of aggression for patients with the cognitive communication disorders of dementia or brain injuries [42] was associated with diminished patient aggression. Therapeutic management of aggression involves the core concept of entering the patient's world using approaches such as mutually working through problems with the patient, developing a positive interaction style, and being flexible. In the second review, for patients with hearing impairment, greater hearing aid benefit was associated with the audiologist's use of a patient's preferred clinical interaction style (i.e., diagnostic or

interactive; [40]).

Four additional reviews found positive links between other provider-patient communication practices and health and intermediate outcomes. First, collaborative communication, in which the provider explains medications, addresses questions and concerns, and acts in a friendly manner throughout the consultation, was associated with improved treatment adherence in patients with mental health disorders [32]. Second, effective provider communication, albeit unspecified, was associated with improved physiological and psychosocial functioning and increased treatment adherence in cancer patients [34]. A third review examined nonspecialists' delivery of psychological treatments to patients with mental illness from low and middle-income countries; improved symptoms were associated with practices of engaging in problem-solving, identifying or eliciting affect, and linking affect to events [31]. Finally, for adult patients with chronic diseases and limited health literacy, improved self care was associated with the teach-back method; i.e., a questioning process for evaluating and increasing patients' understanding of disease information communicated by the provider [56].

Two reviews included research on patient communication practices associated with health outcomes [32,39]. In the first review, patients' verbal disclosure of their sexual orientation to healthcare providers, either voluntarily disclosed or asked by a provider, was found to be associated with better self-reported health and psychosocial well-being one year after disclosure [39]. The second review found that the patient communication practice of question-asking was associated with poorer treatment adherence in patients with mental health disorders, while more collaborative communication between patient and provider was associated with improved commitment to treatment [32].

## 4. Discussion and conclusions

### 4.1. Discussion

Our study adds to the literature on patient-provider communication practices in communicatively vulnerable groups by examining a large breadth of healthcare providers involved in this communication dyad, and then reviewing how these practices relate to patients' intermediate and health outcomes.

While many of the studies included nurses or nursing home staff [29–31,33,35,36,38,42–44,49,52,54,56–58,60–64] and physicians [39, 49,51,57,58,60–68], our study also examined the role of less-studied professions such as pharmacists [35,56,62], social workers [30,52,60], and audiologists [40,41]. By including a range of professions, we could make transferrable assumptions about how effective patient-provider communication can improve patient outcomes in many settings.

Another unique finding of our study was the role of patient communication practices, and their impact on patient outcomes. Only two reviews [32,39] examined this aspect. These findings highlight the interactive nature of patient-provider communication and the importance of considering the contribution of both the patient and the provider to establishing a shared meaning within the encounter [76]. Future research on the impact that patient communicative practices in patient-provider interactions have on health outcomes would be a valuable undertaking.

Our study expanded on Blackstone et al.'s [7] conceptualization of "communicatively vulnerable" populations. Based on the recommendation of the patient stakeholders, our investigation added people with addictions or dependency issues and people with mental health factors to the five "communicatively vulnerable" populations originally proposed. Individuals with addictions or dependency issues [77] or those experiencing mental health difficulties [78] face challenges when communicating with healthcare providers. Including these groups as "communicatively vulnerable" populations draws attention to their underrecognized communication needs and highlights the importance of including them in future research on "communication vulnerability."

The research included is characterized by a heterogeneity in the definition or description of the provider-patient communication or communicative intervention across reviews. While some reviews provide extensive details on the nature of the provider-patient communication or communicative intervention that they focus on, such as specific definitions, comprehensive descriptions of the intervention, or references to established interventions like MI, others are vague, providing little to no detail. The vague descriptions leave the reader uncertain about the meaning of terms like “communication”, “communication style”, “patient-centered communication”, “a positive interaction style”, “effective provider communication”, and similar terminology that does not consistently refer to the same process or behaviour.

Identifying best practices in provider-patient communication that impact health outcomes can only be accomplished if we can pinpoint the characteristics of these best practices, so they can be replicated and validated in future research across different health contexts, and most importantly, can be implemented in clinical practice.

Our review revealed several gaps in the literature that form the basis of recommendations for future research. We identified research priorities related to patient population, design and reporting considerations, and outcomes. In terms of patient populations, we identified a need for more varied participant representation. Most research has been conducted in the United States and among English or Spanish speakers. There needs to be more representation of some populations such that there is an increased variety of nationalities, chronic conditions as well as spoken languages represented. More research with vulnerable populations, including those in the 2SLGBTQ+ population would also strengthen the literature. Finally, there is a need for research that addresses intersectionality particularly by having more diverse representation within study populations [37,39], specifically including people with multi-minority or racial status. Patient-provider communication may be affected by diversity and intersectionality and in turn may influence people’s risk, vulnerability, and outcomes.

In terms of study design and reporting, many authors identified the need for more randomized control trials (RCTs) across health conditions and communication interventions [27,33,40,41,43,44,61,63,68]. Additional designs recommended were prospective (e.g., for the use of interpreters with stroke patients from CALD backgrounds [47]; medication adherence and clinician-patient alliance in mental health care [32]), qualitative (e.g., to understand the experience of clinicians regarding family meetings [60]; to explore which elements of health literacy interventions are most effective in the local context [45]), and systematic reviews to fill knowledge gaps [30,40,46]. Multiple authors identified the need for designs that allow isolation of the effects of moderators, mediators, and intervention components. Many review authors called for better reporting of intervention details to allow for replication, for example following CONSORT guidelines [45].

Regarding gaps in research outcomes, the reviews identified the need to examine cost-effectiveness of interventions [28,33,44,62,68,71], the use of patient-centered outcomes [37,40], and the transferability of the interventions based on local needs [31,45,48,53]. In terms of Street et al. [5], we found that most intermediate and health outcomes from the framework were studied in the reviews we examined. The most commonly reported intermediate health outcome was the patient’s commitment to treatment, reported in multiple reviews. The findings linking communication to this intermediate outcome were variable (positive, negative, and equivocal) across conditions and communication practices. Several reviews reported on access to care, quality medical decision, and self-care skills. None of the reviews reported on the remaining three intermediate outcomes: trust in system, social support, or emotional management, at least in regards to communicatively-vulnerable populations.

With respect to Street et al.’s [5] health outcomes, multiple reviews reported on survival, less suffering (including pain control), emotional well-being, and functional ability. We did not identify the health outcomes of cure/remission, or vitality for the population of interest. In our

data extraction we identified additional outcomes associated with provider-patient communication, including measures such as hospital or emergency department admissions/ readmissions, or length of stay in hospital or emergency department. These outcomes may be proxies for health outcomes, but are better classified as health system usage.

Ten of the reviews noted suggestions that could increase knowledge uptake by practitioners. Specifically, reviews noted that uptake of best practice will need a paradigm shift that includes having designated champions of best practice on the team and using interdisciplinary approaches where possible [49,55]. Another suggestion includes the use of pragmatic incentives (e.g., identify cost efficiencies associated with best practice, or become aware of the legal mandates and implications regarding best communication [49,55,72]. Finally, although we excluded reviews that focused on training of best communication practice, several reviews identified some specific training strategies that are important: namely, train practitioners early, while they are still students or residents and provide sufficiently intense training with time, resources, and feedback to learners (e.g., [41,44,55]).

There are some limitations of this study. First, although we included reviews written in four different languages, we may have excluded relevant findings published in other languages. Second, we excluded reviews when the interventions were focused on provider training. For example, Butler [37] identified a large body of literature regarding mental illness that focused on interventions to change stigma and attitudes among health providers. Third, a scoping review of reviews methodology we used means that we did not directly examine primary research, and thus may have missed some important, relevant findings that have not yet been included in a scoping or systematic review. Additionally, scoping reviews are limited in conclusions that can be drawn about findings, given that data synthesis can be narrative, as we have done, and that quality assessment is not typically used as an inclusion/exclusion criterion.

## 4.2. Conclusions

Our review considered patient-provider communication in terms of its impact on health outcomes, across a diverse group of health professions, and using a variety of communication approaches. Some of the communication approaches that had a direct impact on patient outcomes for individuals with communication vulnerabilities included MI/MI-based approaches, accommodation of language or cultural concordance, use of interpreters (either professional or ad-hoc), and culturally-adapted or sensitive interventions.

## 4.3. Practice implications

We identified several best practices for patient-provider communication: motivation-based practices and culturally- and linguistically-related practices. The use of motivation-based practices (such as motivational interviewing) has a positive impact on outcomes, specifically adherence to treatment. Culturally- and linguistically-related practices (including language, cultural, and gender-concordant care, the use of language interpreters, and culturally-adapted interventions) has a positive impact on a range of patient outcomes. These practices have clinical relevance across a range of health settings with different professions and communicatively-vulnerable groups.

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**CRedit authorship contribution statement**

**Lorienne M. Jenstad:** Conceptualization, Funding acquisition, Investigation, Methodology, Project admin, Supervision, Writing - Original Draft, Writing - Review & Editing. **Tami Howe:** Formal Analysis, Methodology, Investigation, Writing - Original Draft, Visualization, Writing - Review & Editing. **Genevieve Breau:** Formal Analysis, Methodology, Investigation, Writing - Original Draft, Visualization. **Jennifer Abel:** Conceptualization, Methodology, Investigation, Data Curation, Writing - Original Draft. **Paola Colozzo:** Methodology, Investigation, Writing - Review & Editing. **Gayle Halas:** Funding acquisition, Methodology, Investigation, Writing-review and editing. **Glenda Mason:** Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing. **Caroline Rieger:** Investigation, Methodology, Writing - Original Draft, Writing - Review & Editing. **Leora Simon:** Investigation, Methodology, Writing - Original Draft. **Shaelyn**

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**Declaration of Competing Interest**

None.

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This work is dedicated to Eric Vatikiotis-Bateson, who first suggested the topic.

**Appendix A. Completed PRISMA-ScR checklist**

Section	Item	Prisma-ScR checklist item	Reported on page #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	1
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	1-2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	2
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	2
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	2-3, <a href="#">Table 1</a>
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	2-3
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Appendix B
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	3
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	3, <a href="#">Supplemental materials</a>
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	<a href="#">Supplemental materials</a>
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	p 3, <a href="#">Table 2</a> , Appendix C
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	p 3
<b>SECTION</b>	<b>ITEM</b>	<b>PRISMA-ScR CHECKLIST ITEM</b>	<b>REPORTED ON PAGE #</b>
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	<a href="#">Figure 1</a>
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	<a href="#">Table 2</a>
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	<a href="#">Table 2</a>
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	3-11
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	11-12
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	p1 12
Limitations	20	Discuss the limitations of the scoping review process.	12
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	12
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	12

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

\* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. doi: 10.7326/M18-0850.

## Appendix B. Search strategies

Set #	Search Term
1	professional-family relations/ or professional-patient relations/ or dentist-patient relations/ or nurse-patient relations/ or physician-patient relations/
2	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an?esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn?ecologist* or geriatrician* or gerontologist* or p?ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel?or* or staff) adj2 (patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom#n or child* or adolescent*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an?esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn?ecologist* or geriatrician* or gerontologist* or p?ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel?or* or staff or healthcare or health care) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
4	((allergist* or andrologist* or cardiologist* or dermatologist* or electrophysiologist* or endocrinologist* or epidemiologist* or gastroenterologist* or gyn?ecologist* or h?ematologist or hepatologist* or immunologist* or internist* or neonatologist* or nephrologist* or neurologist* or ophthalmologist* or optometrist* or orthodontist* or orthop?edist* or osteopath* or otolaryngologist* or otorhinolaryngologist* or perinatologist* or periodontist* or physiatrist* or podiatrist* or proctologist* or prosthodontist* or pulmonologist* or respirologist* or rheumatologist* or specialist* or urologist*) adj2 (patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom#n or child* or adolescent*).mp.
5	((allergist* or andrologist* or cardiologist* or dermatologist* or electrophysiologist* or endocrinologist* or epidemiologist* or gastroenterologist* or gyn?ecologist* or h?ematologist or hepatologist* or immunologist* or internist* or neonatologist* or nephrologist* or neurologist* or ophthalmologist* or optometrist* or orthodontist* or orthop?edist* or osteopath* or otolaryngologist* or otorhinolaryngologist* or perinatologist* or periodontist* or physiatrist* or podiatrist* or proctologist* or prosthodontist* or pulmonologist* or respirologist* or rheumatologist* or specialist* or urologist*) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).mp.
6	((patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom#n or child* or adolescent*) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
7	2 or 3 or 4 or 5 or 6
8	exp patient compliance/ or patient dropouts/ or exp treatment refusal/ or treatment outcome/ or treatment failure/
9	((patient* or treatment* or medicat*) adj3 (outcome* or decision-making or decision making)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
10	(treatment outcome* or treatment failure* or clinical outcome* or birth outcome* or adherence or non-adherence or compliance).mp.
11	9 or 10
12	exp Communication/
13	(communicat* or language* or verbal* or talk* or motivational interview*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
14	1 and 8 and 12 [MeSH headings searches only]
15	limit 14 to systematic reviews [MeSH heading searches only]
16	7 and 11 [keywords only, people and outcomes]
17	13 and 16 [keywords only, people + outcomes and communication]
18	((systematic or scoping or mapping or evidence synthes* or rapid or critical) adj2 review* ).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
19	(meta analys* or meta-analysis* or meta synthes* or meta-synthes*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
20	18 or 19 [combining keyword limiting lines]
21	17 and 20 [keywords, limit via.mp search]
22	15 or 21 [searching the professional-patient interaction combinations both ways]

(continued on next page)

(continued)

23	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an?esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn?ecologist* or geriatrician* or gerontologist* or p?ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel?or* or staff).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms])
24	((allergist* or andrologist* or cardiologist* or dermatologist* or electrophysiologist* or endocrinologist* or epidemiologist* or gastroenterologist* or gyn?ecologist* or h?ematologist or hepatologist* or immunologist* or internist* or neonatologist* or nephrologist* or neurologist* or ophthalmologist* or optometrist* or orthodontist* or orthop?edist* or osteopath* or otolaryngologist* or otorhinolaryngologist* or perinatologist* or periodontist* or physiatrist* or podiatrist* or proctologist* or prosthodontist* or pulmonologist* or respirologist* or rheumatologist* or specialist* or urologist*).mp.
25	23 or 24
26	25 and 11 [professionals only and outcomes]
27	26 and 13 [professionals + outcomes and communication]
28	27 and 20 [limiting professionals only search]
29	22 or 28 [prof-patient interaction searches or professionals-only search]

## B. Embase

Set #	Search Term
1	exp doctor patient relation/ or exp nurse patient relationship/
2	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an?esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn?ecologist* or geriatrician* or gerontologist* or p?ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel?or* or staff) adj2 (patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom#n or child* or adolescent*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
3	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an?esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn?ecologist* or geriatrician* or gerontologist* or p?ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel?or* or staff or healthcare or health care) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
4	((patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom#n or child* or adolescent*) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
5	1 or 2 or 3 or 4
6	exp patient compliance/ or exp dietary compliance/ or exp medication compliance/ or treatment outcome/ or clinical outcome/ or critical care outcome/ or disease free interval/ or patient-reported outcome/ or treatment failure/
7	((patient* or treatment* or medicat*) adj3 (outcome* or decision-making or decision making)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
8	(treatment outcome* or treatment failure* or clinical outcome* or birth outcome* or adherence or non-adherence or compliance).mp.
9	6 or 7 or 8
10	interpersonal communication/ or exp nonverbal communication/ or exp persuasive communication/ or exp verbal communication/
11	((communicat* or language* or verbal* or talk* or motivational interview*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
12	10 or 11
13	5 and 9 [combining providers-patients and outcomes]
14	12 and 13 [combining providers-patients + outcomes and communication]
15	((systematic or scoping or mapping or evidence synthes* or rapid or critical) adj2 review* ).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
16	(meta analys* or meta-analys* or meta synthes* or meta-synthes*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
17	15 or 16
18	14 and 17 [combining PICO elements and review limiters]
19	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an?esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn?ecologist* or geriatrician* or gerontologist* or p?ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel?or* or staff).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word])
20	19 and 12 [providers only and communication]
21	20 and 9 [providers+communication and outcomes]
22	21 and 17 [combining provider-only PICO and review limiters]
23	18 or 22 [both types of searches]

## C. Cochrane Database of Systematic Reviews

Set #	Search Term
1	(doctor-patient relation* or doctor-family relation* or professional-family relation* or professional-patient relation* or dentist-patient relation* or dentist-family relation* or nurse-patient relation* or nurse-family relation* or physician-patient relation* or physician-family relation* or clinician-patient relation* or clinician-family relation*).ti,ab.
2	((physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an#esthetist* or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn#ecologist* or geriatrician* or gerontologist* or p#ediatrician* or radiologist* or dieti#ian* or psychologist* or psychiatrist* or counsel#or* or staff) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).ti,ab.
3	((patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom#n or child* or adolescent*) adj2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*).ti,ab.
4	(outcome* or adherence or non-adherence or compliance or dropout* or drop out* or refus* or attrition).ti,ab.
5	(communication* or language* or verbal* or talk* or motivational interview*).ti,ab.
6	1 or 2 or 3
7	4 and 6
8	5 and 7
9	limit 8 to full systematic reviews

## D. CINAHL

Set #	Search Term
S1	(MH "Professional-Patient Relations+") OR (MH "Dentist-Patient Relations") OR (MH "Nurse-Patient Relations") OR (MH "Physician-Patient Relations") OR (MH "Professional-Family Relations")
S2	(physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an#esthetist* or an#esthetists or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn#ecologist or gyn#ecologists or geriatrician* or gerontologist* or p#ediatrician or p#ediatricians or radiologist* or dieti?ian or dieti?ians or psychologist* or psychiatrist* or counsel#or or counsel#ors or staff or specialist*) N2 (patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom?n or child* or adolescent*)
S3	(physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an#esthetist* or an#esthetists or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn#ecologist* or gyn#ecologists or geriatrician* or gerontologist* or p#ediatrician or p#ediatricians or radiologist* or dieti?ian or dieti?ians or psychologist* or psychiatrist* or counsel#or or counsel#ors or staff or specialist* or healthcare or health care) N2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*)
S4	(patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom?n or child* or adolescent*) N2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*)
S5	S1 OR S2 OR S3 OR S4
S6	(MH "Patient Compliance+") OR (MH "Medication Compliance") OR (MH "Outcomes (Health Care)+ ")
S7	(patient* or treatment* or medicat*) N3 (outcome* or decision-making or decision making)
S8	(MH "Communication+")
S9	(communicat* or language* or verbal* or talk* or motivational interview*)
S10	S8 OR S9
S11	(treatment outcome* or treatment failure* or clinical outcome* or birth outcome* or adherence or non-adherence or compliance or dropout* or drop out* or attrition)
S12	S6 OR S7 OR S11
S13	S5 AND S12
S14	S10 AND S13
S15	(MH "Meta Analysis") OR (MH "Meta Synthesis") OR (MH "Systematic Review") OR (MH "Scoping Review")
S16	(systematic or scoping or mapping or evidence synthes* or rapid or critical) N2 review*
S17	(meta analys* or meta-analys* or meta synthes* or meta-synthes*)
S18	S15 OR S16 OR S17
S19	S14 AND S18
S20	physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an#esthetist* or an#esthetists or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn#ecologist or gyn#ecologists or geriatrician* or gerontologist* or p#ediatrician or p#ediatricians or radiologist* or dieti?ian or dieti?ians or psychologist* or psychiatrist* or counsel#or or counsel#ors or staff or specialist*
S21	S10 AND S20
S22	S12 AND S21
S23	S18 AND S22
S24	S19 OR S23



E. PsycINFO	
Set	Search Term
S1	(physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an#esthetist or an#esthetists or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn#ecologist or gyn#ecologists or geriatrician* or gerontologist* or p#ediatrician or p#ediatricians or radiologist* or dieti?ian or dieti?ians or psychologist* or psychiatrist* or counsel#or or counsel#ors or staff) N2 (patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom?n or child* or adolescent*)
S2	(physician* or dentist* or doctor* or nurse* or professional* or clinician* or provider* or practitioner* or therapist* or speech-language pathologist* or audiologist* or physiotherapist* or pharmacist* or an#esthetist or an#esthetists or midwi* or hospitalist* or surgeon* or oncologist* or obstetrician* or gyn#ecologist or gyn#ecologists or geriatrician* or gerontologist* or p#ediatrician or p#ediatricians or radiologist* or dieti?ian or dieti?ians or psychologist* or psychiatrist* or counsel#or or counsel#ors or staff) N2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*)
S3	(patient* or client* or inpatient* or outpatient* or parent* or caregiver* or family or families or wom?n or child* or adolescent*) N2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*)
S4	S1 OR S2 OR S3
S5	SU(Communication) OR SU(Interpersonal Communication) OR SU(Nonverbal Communication) OR SU(Persuasive Communication) OR SU(Verbal Communication) OR SU (Communication Skills) OR SU(Augmentative Communication)
S6	communicat* or language* or verbal* or talk* or motivational interview*
S7	S5 OR S6
S8	SU(Treatment Outcomes) OR SU(Psychotherapeutic Outcomes) OR SU(Treatment Dropouts) OR SU(Treatment Compliance) OR SU(Client Attitudes) OR SU(Treatment Refusal) OR SU(Client Attitudes) OR SU(Cooperation)
S9	(patient* or treatment* or medicat*) N3 (outcome* or decision-making or decision making)
S10	(treatment outcome* or treatment failure* or clinical outcome* or birth outcome* or adherence or non-adherence or compliance or dropout* or drop out* or attrition)
S11	S8 OR S9 OR S10
S12	S4 AND S7
S13	S11 AND S12
S14	S11 AND S12, Limiters - Methodology: -Systematic Review, META ANALYSIS, METASYNTHESIS
S15	systematic review OR scoping review OR critical review OR meta-analys* OR metaanalys* OR meta-synthes* OR metasynthes* OR overview OR umbrella OR mapping OR evidence synthes* or rapid review
S16	S13 AND S15
S17	S14 OR S16
F. LLBA	
Set	Search Term
1	su(Practitioner Patient Relationship)
2	(patient* OR client* OR parent* OR child* OR family OR families OR caregiver*) N/2 (physician* OR dentist* OR doctor* OR nurse* OR professional* OR clinician* OR provider* OR specialist* OR surgeon* OR practitioner* OR therapist*)
3	(physician* OR dentist* OR doctor* OR nurse* OR professional* OR clinician* OR provider* OR specialist* OR surgeon* OR practitioner* OR therapist*) N/2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*)
4	(patient* OR client* OR parent* OR child* OR family OR families OR caregiver*) N/2 (relation* or communication* or consult* or discussion* or dialog* or counsel* or interact*)
5	1 OR 2 OR 3 OR 4
6	(patient* OR treatment* OR medicat*) NEAR/3 (outcome* OR decision-making OR "decision making")
7	"treatment outcome*" OR "treatment failure*" OR "clinical outcome*" OR "birth outcome*" OR "adherence" OR "non-adherence" OR "compliance" OR "dropout*" OR "drop out*" OR "attrition"
8	6 OR 7
9	su(Communication)
10	communicat* OR language* OR verbal* OR talk* OR "motivational interview*"
11	9 OR 10
12	5 AND 8
13	12 AND 11
14	"systematic review" OR "scoping review" OR "critical review" OR "meta-analys*" OR "metaanalys*" OR "meta-synthes*" OR "metasynthes*" OR "overview" OR "evidence synthes*" OR "rapid review" OR "mapping review" OR "umbrella review"
15	13 AND 14

### Appendix C. Relationship between quality assessment score and quality rating category for each review type

We used the Joanna Briggs Institute (JBI) quality appraisal checklist for systematic reviews (Aromataris et al., 2015). The mapping between the numeric score and the rating category is taken from Conneely et al. (2020) for the systematic review of effectiveness, in which the maximum possible score on the JBI quality assessment rating is 11. However, for scoping reviews and some types of systematic reviews, not all of the quality assessment

items apply. For example, for scoping reviews quality appraisal is not required; therefore, the questions about appraisal do not apply. Depending on the review type, the maximum possible score varies, and the Conneely et al. quality rating categories do not apply directly. The table shows how we converted the quality rating score to a quality rating category.

Systematic review of effectiveness (Quality score, up to a maximum of 11)	Systematic review (Quality score, up to a maximum of 10)	Scoping review (Quality score, up to a maximum of 7)	Quality rating category assigned
0	0	0	very low
1	1	1	very low
2	2		very low
3	3	2	very low
4	4	3	low
5	5		low
6			low
7	6	4	moderate
8	7	5	moderate
9	8		moderate
10	9	6	high
11	10	7	high

## Appendix D. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.pec.2023.108040](https://doi.org/10.1016/j.pec.2023.108040).

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