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RESEARCH ARTICLE

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A systematic review of research on empathy in health care

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Abstract

Objective: To summarize the predictors and outcomes of empathy by health care personnel, methods used to study their empathy, and the effectiveness of interventions targeting their empathy, in order to advance understanding of the role of empathy in health care and facilitate additional research aimed at increasing positive patient care experiences and outcomes.

Data Source: We searched MEDLINE, MEDLINE In-Process, PsycInfo, and Business Source Complete to identify empirical studies of empathy involving health care personnel in English-language publications up until April 20, 2021, covering the first five decades of research on empathy in health care (1971–2021).

Study Design: We performed a systematic review in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines.

Data Collection/Extraction Methods: Title and abstract screening for study eligibility was followed by full-text screening of relevant citations to extract study information (e.g., study design, sample size, empathy measure used, empathy assessor, intervention type if applicable, other variables evaluated, results, and significance). We classified study predictors and outcomes into categories, calculated descriptive statistics, and produced tables to summarize findings.

Principal Findings: Of the 2270 articles screened, 455 reporting on 470 analyses satisfied the inclusion criteria. We found that most studies have been survey-based, cross-sectional examinations; greater empathy is associated with better clinical outcomes and patient care experiences; and empathy predictors are many and fall into five categories (provider demographics, provider characteristics, provider behavior during interactions, target characteristics, and organizational context). Of the 128 intervention studies, 103 (80%) found a positive and significant effect. With four exceptions, interventions were educational programs focused on individual clinicians or trainees. No organizational-level interventions (e.g., empathy-specific processes or roles) were identified.

Conclusions: Empirical research provides evidence of the importance of empathy to health care outcomes and identifies multiple changeable predictors of empathy. Training can improve individuals' empathy; organizational-level interventions for systematic improvement are lacking.

KEYWORDS
empathy, health personnel, impact, intervention, patient experience, systematic review

What is known on this topic

- Empathy - understanding and responsiveness to others' thoughts and emotions - is discussed increasingly as a critical contributor to patient experience and patient-centered care.
- Research on empathy in health care has investigated what facilitates and hinders it, its outcomes, how to measure it, who is (un)likely to display it, and how to improve it.
- Empathy investigations have produced a large field that has remained disjointed with little summarizing or integrative work to date, limiting clarity about predictors, outcomes, gaps, opportunities, and intervention effectiveness.

What this study adds

- Our systematic review of research on empathy provides an integrative summary of what is known about predictors and consequences of empathy, methods to study it, and interventions targeting it.
- Our review reveals most studies are survey-based and cross-sectional, empathy predicts health care goals (better outcomes), and five factors predict empathy: provider demographics, characteristics, and behaviors; target characteristics; organizational context.
- Analysis of interventions to improve empathy suggests that empathy can be increased at the individual level via education, but we lack evidence on organizational-level interventions.

1 | INTRODUCTION

A good patient care experience is a core component of patient-centered care[1] and thus quality health care.[2] A positive care experience has occurred when patients report that they experienced what they desired during their interactions with care providers and the system, for example, respectful communication, coordinated care, and timeliness.[1,3] Such care demonstrates the ideal of patient-centered care in being "respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions."[2(p6)] Positive patient experiences are also important because they are associated with other desirable outcomes, including greater patient adherence to treatment recommendations, better health outcomes, less unnecessary health care utilization, higher staff satisfaction, and better financial performance.[4–9]

Despite the benefits, many adults in the United States who visited a doctor report undesirable care experiences,[10–13] and 2022 analyses of Centers for Medicare and Medicaid data show that only 6% (178) of 3121 hospitals received the highest score of five stars for patient experience.[14] Patient experience is particularly poor for members of minority groups with Black and Hispanic patients relative to Whites having lower scores for person-centered care (26% and 29% of measures lower, respectively) and care coordination (73% and 44% lower, respectively).[15] COVID-19 has further precipitated poor patient experiences across patient groups as patients report long wait times, issues with testing and treatment logistics, and poor facility hygiene, along with gratitude to caregivers and staff.[16,17] Much of the research on poor experiences has focused on structural issues such as conflicting incentives, physical and staffing constraints, and technology that limits access to information, and found that these issues can influence patient care experiences.[18–20] Increasingly though, research has highlighted relational issues such provider-patient conversation patterns (e.g., interruptions, not listening) and the superordinate role of empathy as a key influencer in care delivery, and thus experiences.[21–26] Specifically, insufficient empathy toward patients, coworkers, and self has been raised as a cause of poor patient and clinical outcomes.[27–30]

Across conceptualizations, empathy is regarded as understanding another person's feelings and thoughts, and feeling congruent emotions and states; some conceptualizations also include responding congruently,[21,24,30–33] implying affective, cognitive, and behavioral dimensions to empathy.[31,32] In health care, empathy is defined contextually as understanding and feeling a patient's emotions and perspective and offering a response (e.g., communication) that reflects understanding and aims to help.[27,30,33,34] Theoretically, insufficient empathy portends diminished understanding of patient perspective, whereas higher empathy indicates understanding, which should cultivate efforts to better meet patient needs via interpersonal and operational choices, for example, speaking with care and connecting patients with resources such as mental health providers and transportation.[27,30,35] Scholars argue that these efforts should, in turn, yield more patient-centered care plans, better patient experiences, and greater patient adherence to plans, leading to better patient, worker, and organizational outcomes (e.g., clinical outcomes, worker job satisfaction, and patient experience ratings).[21,24,27,35]

The COVID-19 pandemic has also led some experts to argue that empathy is a complement to biomedical science for preserving population health and providing the best care to patients with COVID-19, as well as those without COVID-19 who must navigate care for their conditions while health systems deal with COVID-19 circumstances.[36] Providing empathetic care is deemed evermore crucial now as patients and care providers still experience emotional challenges; workers take measures to protect their own health that make the physical demonstration of empathy harder (e.g., wear masks that hide facial expressions), family members' in-person support at health care

settings can still be limited; and systems seek ways to diminish inequities in care that disadvantage minority groups, as further revealed by COVID-19.[37,38]

The theorized importance of empathy has kindled the interest of health care organizations and researchers resulting in numerous investigations to advance understanding of what facilitates and hinders it, what outcomes ensue from it, how best to measure it, who is (un)likely to display it, and how to increase it. Investigations have occurred independently using different definitions of empathy and published in a wide variety of journals. The result is a body of work that has established empathy in health care as a research field. The field, however, has had little integrative work to summarize findings into a comprehensive model of empathy in health care, given existing knowledge. Although there have been several systematic reviews, none have covered the full scope of research as we do here. Past reviews tended to focus on specific groups (e.g., medical students),[39,40] relation to neurology,[41,42] programs for teaching empathy,[43–45] empathy behaviors (e.g., verbal and nonverbal expressions)[46,47] or outcomes,[48,49] with the most recent fulsome review of outcomes, which was specific to general practice, ending in 2011.[49]

We conducted a systematic review of empirical, quantitative research on empathy across all types of professionals and settings in health care to accomplish four objectives necessary for creating an integrated understanding of the field, and thus greater clarity about ongoing theory, research, and practice needs. Our four objectives were to:

1. Summarize methodological approaches to the study of empathy in health care, including research designs used, settings studied, measures of empathy used, and sources of reports on empathy
2. Identify hypothesized consequences of empathy, and the significance of the relationship between empathy and these outcomes
3. Identify hypothesized predictors of empathy, and the significance of the relationship between these factors and empathy
4. Summarize interventions used to improve empathy and their effectiveness

Our review yields a model for empathy and offers guidance on research needed to advance conceptual understanding and development of interventions to increase empathy in health care.

2 | METHODS

2.1 | Search strategy and eligibility criteria

In conducting this systematic review, we abided by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement.[50] With the assistance of our university librarian, we searched MEDLINE and MEDLINE In-Process, PsycInfo, and Business Source Complete to identify studies of empathy in health care delivery across the three fields that delve most into this subject: health services research, psychology, and general management. We imposed no date restriction on our search. Databases were searched for English-language publications up until April 20, 2021, using the code specified in Figure S1. In sum, in MEDLINE, we used "empathy" as our major topic and specified our interest in health care professionals by adding additional terms (physician, nurse, professional, health personnel, students, medical, internship and patient) and in relationships to empathy by adding more terms (impact*, effect*, outcome*, influenc*, consequence*, determinant,* associat*) or in intervention through other terms (intervention*, trial*, and task*). Since major topic specification was not available for MEDLINE In-process, we used keyword variations on empathy (e.g., empathetic) combined with personnel types and the relationship and intervention concepts outlined above. These searches generated 2112 articles. In PsycInfo, we used empathy as a major subject heading combined with subjects related to types of personnel (physician, nurs*, health personnel, therapist, medical residency, medical students) and practice (clinical practice, therapeutic processes, health personnel attitudes), as well as the keyword variations included in MEDLINE above related to relationship and intervention. This search produced 446 articles. Finally, in Business Source Complete, we used empathy as a subject with keywords for specific personnel areas (physician*, doctor, clinician*, nurs*, therapist*, health care personnel, medicine, health, medical) and the same relationships and intervention terms as in the other databases. This search produced 201 articles. In total, our searches generated 2759 articles for screening. All citations were imported into EndNote bibliographic software, which identified 350 duplicates that we removed, leaving 2409 citations for further screening for eligibility. During screening another 139 duplicates were found and excluded, leaving 2270 citations.

Articles were eligible for inclusion and thus detailed review if they met all of these criteria:

- Utilized empirical, quantitative data
- Measured empathy or at least one dimension of empathy (affect, cognition and/or behavior)
- Assessed empathy shown by health care professionals—clinicians or nonclinicians (e.g., social workers) and including trainees—regardless of where the encounter happened (hospital, office, training program, etc.)
- Measured empathy toward patients or coworkers, irrespective of who assessed (e.g., patient, self, coworker, manager, family member, etc.)
- Assessed empathy in relation to another variable, that is, empathy explained an outcome and/or empathy was explained by variable, which could include empathy at time 1

Articles were excluded if they failed to meet any of the criteria or used "empathy" but studied a related concept such as compassion or sympathy. While these concepts are often conflated, they are distinct. "'Compassion…can be thought of as observers *feeling for* social targets without *feeling as* those targets do'[51(p1632)]… Affective empathy involves the experience of affective states that are *congruent* with others' affective states. In contrast, sympathy does not involve experiencing the same affective state as the target.'"[31(p170)]

2.2 | Screening for study eligibility and inclusion

Five primary reviewers independently screened paper titles and abstracts for inclusion after they and the first and second authors ("the coding team") completed preliminary screening and extraction of 60 abstracts from MEDLINE to affirm the feasibility and usefulness of our inclusion and exclusion criteria, develop and refine our extraction fields for spreadsheet entry and analysis, and assess the reliability of screening and extraction among reviewers. In the preliminary screening process, the coding team independently coded 30 articles, then met to compare and discuss our screening and extraction decisions. After discussion of the two articles that garnered disagreement about inclusion, we refined our inclusion criteria to include studies with empathy directed not only to patients but also to others such as coworkers, and studies with any assessor of empathy (patient, self, manager, peer, or other) not only patients. With this inclusive approach, all coders agreed on article inclusion and extraction, and the primary reviewers proceeded to screen and extract data independently for the next 30 articles on our list, compare their decisions, and then discuss with the first and second authors the four articles with differing assessments. After these preliminary screening-extraction-discussion rounds and with confidence in inter-reviewer reliability, we divide the remaining articles among four reviewers to screen and extract independently. A fifth reviewer (third author) then independently coded all included articles, serving as the second reviewer for them. Articles that sparked uncertainty or disagreement went to the first author for decision making.

2.3 | Data extraction and analysis

Reviewers for each article independently extracted the following study information into a spreadsheet with fields upon which team members had agreed: author, year of publication, article title, research question/objective, empathy definition used, country, setting (e.g., hospital, clinic, medical school, etc.), population studied, sample size, study design (randomized controlled trial, nonrandomized controlled trial, cohort study, or cross-sectional study; decision guide in Figure S2, adapted from Grimes and Schulz[52]), empathy measure used, assessor of empathy (e.g., patient, self, other), empathy treated as independent variable (Yes/No), empathy treated as dependent variable (Yes/No), other focal variables assessed according to authors, results, intervention study (Yes/No), intervention type, level of analysis, and significance of results (positive and significant, negative and significant, not significant).

Once data for every study was extracted, we reviewed the data to identify patterns in accordance with our objectives, classify studied predictors and outcomes into larger categories, and produce summary statistics and tables. The classifying of studied predictors and outcomes was completed by the first and third authors who independently developed categories, compared their category lists, settled on a final list and then collaboratively classified predictors and outcomes using the final list.

3 | FINDINGS

3.1 | Volume of quantitative articles about empathy in health care

At the conclusion of our screening process, 455 of the 2270 articles were retained for information extraction via full-text review, having satisfied the inclusion criteria. Most excluded articles contained no empirical data or did not measure empathy. Figure 1 presents the PRISMA flow diagram for the articles reviewed, including counts for each exclusion reason. Eleven included articles had more than one analysis involving empathy (i.e., they studied empathy's predictors and consequences), yielding 470 analyses across the 455 articles. Several analyses examined more than one variable (e.g., years of training and gender), and 28.1% ($N = 128$) assessed the effect of an intervention. The earliest included article was published in 1971, and the majority (80%) were published between 2011 and 2021, ending the first 50 years of empathy research. A bibliography of articles as an EndNote library is available from us upon request.

The studies have been conducted across the globe, in six of the seven continents. Most articles report on studies performed in the United States (40%), with European and Asian countries being the next most common for studies of empathy (30% and 18%, respectively). Figure S3 shows the distribution of studies by continent and country.

3.2 | Methods used to study empathy

Table 1 summarizes the methodological approaches used in quantitative studies of empathy in health care. Section A of the table shows that most analyses have been observational ($N = 393$; 83.6%), using primarily a cross-sectional research design ($N = 296$; 63%) rather than cohort design ($N = 97$; 20.6%). Only 16.4% ($N = 77$) of studies used an experimental design (nonrandomized or randomized control trial) that would allow the evaluation of empathy's causal relationships. About 48% of these experimental studies included over 100 individuals to add to the robustness of these studies via sample size. Likewise, most studies across all design types had over 100 participants ($N = 310$; 68.3%), with most cross-sectional and randomized control studies having 100 to 299 participants. Cohort and nonrandomized control studies had fewer participants (Figure S4).

Although analyses have universally been performed at the individual level, the settings across studies have been diverse, spanning patient care settings (hospitals, clinics and other care facilities), clinical training programs (i.e., medical and nursing schools), universities for studies of anticipated health care professionals (e.g., premedical students) and online for scenario-based study (Table 1, section B). Amid this diversity, empathy in patient care settings ($N = 218$; 46.4%), primarily in hospitals and clinics ($N = 163$; 34.5%), has dominated the investigation, although a sizable portion of analyses have focused on clinical training programs ($N = 153$; 32.6%). Notably, as Figure 2 shows, studies have focused on physicians or physicians-in-training

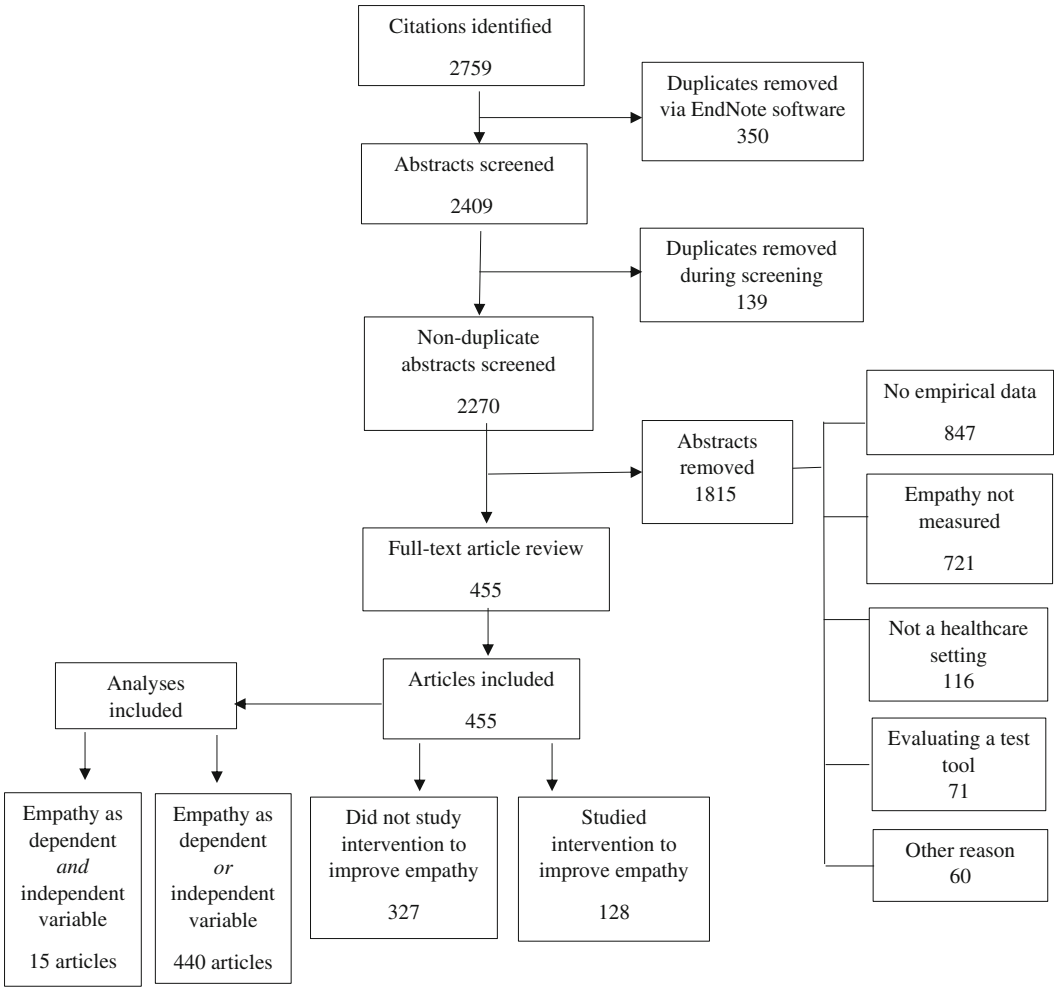


FIGURE 1 PRISMA diagram for empathy in health care search. The number of duplicates removed largely reflects that intervention studies were often identified in the "general" search for empathy relationships, as well as the "specific" search for intervention studies. "Empathy as dependent variable and independent variable" refers to studies that included both types of analyses such that variables were assessed as predictors of empathy, which, in turn, was assessed as a predictor of an outcome(s).

(residents and medical students; $N = 220$; 46.8%), then to a lesser extent on nurses and nursing students ($N = 92$; 19.6%) followed by other students and allied health professionals ($N = 70$; 14.9%). This figure shows caregivers that have been most studied; it excludes 80 analyses (17%) of others.

Across settings, most studies used questionnaires to measure empathy (Table 1, section C). The Jefferson Scale of Empathy (JSE), which has three versions[34,53]—one for physicians and other health professionals, one for medical students, and one for students in health professions other than medical—was the most commonly used measure of empathy (35.7%), followed by the Interpersonal Reactivity Index (IRI, 12.6%) and the Consultation and Relational Empathy Scale (CARE, 10%). Each of these three measures has psychometric validation JSE[54] summarized in Williams and Beovich,[55] IRI in Davis,[56] and CARE in Mercer et al.[57] Other survey measures were used typically one to three times.

As common as surveys have been for evaluating empathy, it is not the only methodology. Several studies used games in which a health care professional/user logged into a portal to engage in a series of virtual situations in which the user played the role of caregiver and was instructed to choose the most empathic or caring response to situations. The games often requested input from users throughout the simulation, for example.[58–61] The most technological study utilized Functional Magnetic Resonance Imaging (fMRI) to analyze brain activity patterns of pediatric intensive care nurses and allied health professionals during pain intensity rating tasks and compared neural responses of observed pain in regions of the brain associated with affective sharing.[62]

External assessment of empathy by recipient or observer was not the dominant approach (Table 1, Section D). In 331 of the 470 analyses reviewed (70.4%), individuals self-reported their level of empathy.

3.3 | Hypothesized outcomes of empathy

Across the analyses, 151 (32.1%) focused on testing the hypothesis that empathy is related to an outcome of interest in health care.

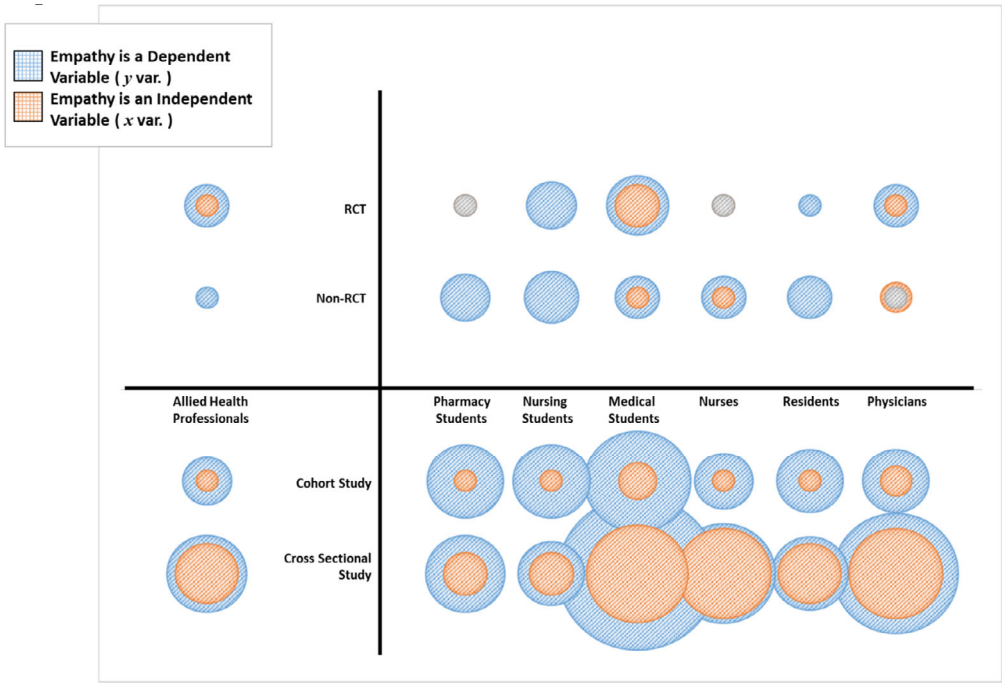
TABLE 1 Analyses of empathy studies by research design, setting, measures used and sources of reports

	Total		Analyses with empathy as			
			Dependent variable		Independent variable	
A. Research design used	**Count**	**%**	**Count**	**%**	**Count**	**%**
Cross-sectional	296	63.0	182	57.0	114	75.5
Cohort study	97	20.6	81	25.4	16	10.6
Non-randomized control trial	31	6.6	26	8.2	5	3.3
Randomized control trial	46	9.8	30	9.4	16	10.6
Total	470		319		151	
B. Setting						
Patient care settings						
Clinic	54	11.5	28	8.8	26	17.2
Hospital	109	23.2	64	20	45	29.8
Post-acute care	10	2.2	4	1.25	6	4.0
Multi-site	18	3.8	13	4.1	5	3.3
Other care settings	27	5.7	13	4.1	14	9.3
Clinical training program						
Medical school	114	24.2	86	27	28	18.5
Nursing school	23	4.9	19	6.0	4	2.65
Other school	16	3.4	12	3.75	4	2.65
Universities (for college students)	71	15.1	60	18.8	11	7.3
Virtual	28	6.0	20	6.2	8	5.3
Total	470		319		151	
C. Quantitative empathy measures						
Jefferson Scale of Empathy (JSE)	168	35.7	118	37	50	33.1
Interpersonal Reactivity Index (IRI)	59	12.6	41	12.9	18	11.9
Consultation And Relational Empathy (CARE)	45	9.6	24	7.5	21	13.9
Caring Assessment Tool (CAT)	12	2.6	11	3.4	1	0.7
Barrett-Lennard Relationship Inventory (BLRI)	15	3.2	7	2.2	8	5.3
Emotional Empathy Scale (EES)	14	3.0	10	3.1	4	2.6
Empathic Communication Coding System (ECCS)	10	2.1	7	2.2	3	2.0
Empathetic Care Scale (ECS)	6	1.3	4	1.3	2	1.3
Kiersma-Chen Empathy Scale (KCES)	4	0.9	4	1.3	0	0.0
Basic Empathy Scale (BES)	4	0.9	2	0.6	2	1.3
Comprehensive State Empathy Scale (CSES)	1	0.2	1	0.3	0	0.0
Empathy Construct Rating Scale (ECRS)	2	0.4	2	0.6	0	0.0
Emphatic Sensitiveness Scale (ESS)	2	0.4	0	0.0	2	1.3
Self-Compassion Scale (SCS)	1	0.2	1	0.3	0	0.0
Attitude Toward Helping Others (ATHO)	1	0.2	1	0.3	0	0.0
Empathy Scale in Patient Care (ES-PC)	1	0.2	1	0.3	0	0.0
Empathy, Spirituality, and Wellness Scale (ESWS)	1	0.2	0	0.0	1	0.7
Scale of Ethnocultural Empathy (SEE)	1	0.2	1	0.3	0	0.0
Heartland Forgiveness Scale (HFS)	1	0.2	0	0.0	1	0.7
Hogan Empathy Scale (HES)	1	0.2	0	0.0	1	0.7
LaMonica Empathy Profile (LAP)	1	0.2	0	0.0	1	0.7
Functional Magnetic Resonance Imaging (fMRI)	1	0.2	1	0.3	0	0.0
Other measures	119	25.3	83	26.0	36	23.8
Total	470		319		151	

(Continues)

TABLE 1 (Continued)

D. Source of report						
Self-perception	331	70.4	238	74.6	93	61.6
Patient perception of clinician	104	22.1	60	18.8	44	29.1
Peer perception	16	3.4	10	3.1	6	4.0
Other	19	4.1	11	3.5	8	5.3
Total	470		319		151	



	Type of Study Design			
	Cross Sectional	Cohort Study	Non-RCT	RCT
Empathy as Dependent Variable				
Physicians	32	9	1	4
Residents	12	9	4	1
Nurses	22	7	4	1
Medical Students	52	23	4	8
Nursing Students	9	12	6	5
Other Students	13	12	5	1
Allied Health Professionals	13	5	1	4
Empathy as Independent Variable				
Physicians	18	2	2	1
Residents	8	1	0	0
Nurses	18	1	1	1
Medical Students	21	3	1	4
Nursing Students	4	1	0	0
Other Students	4	1	0	1
Allied Health Professionals	8	1	0	1

RCT = randomized controlled trial. Figure excludes the 88 analyses involving other types of focal-providers (i.e. non-clinical students; N=12) as well as patients (N=76) to highlight those caregivers most studied. The categories of individuals shown capture 81% of studies.

FIGURE 2 Distribution of empathy outcomes and predictor studies by study design and population [Color figure can be viewed at wileyonlinelibrary.com]

They treated empathy as an independent variable predictive of an outcome that was treated as a dependent variable in statistical analysis. As Figure 2 shows, these analyses were primarily cross-sectional and involved medical students, physicians, and nurses. The outcomes that they examined—in order of prevalence—classify into seven categories: clinical outcome (e.g., physical and mental health outcomes),

TABLE 2 Empathy's hypothesized relationships and the significance of findings

Section A. Hypothesized outcomes of empathy					
Outcome studied (empathy as predictor)	**Positive and significant *N* (row %)**	**Not significant *N* (row %)**	**Negative and significant *N* (row %)**	**Total *N* (column %)**	**Positive and significant in RCT study *N/N* for RCT**
Clinical outcomes	39 (81%)	8 (17%)	1 (2%)	48 (25%)	7/8
Provider performance	46 (84%)	4 (7%)	5 (9%)	55 (29%)	3/3
Patient experience and states	28 (82%)	5 (15%)	1 (3%)	34 (18%)	5/5
Provider well-being	12 (67%)	4 (22%)	2 (11%)	18 (10%)	0/0
Subsequent empathy	13 (72%)	4 (22%)	1 (6%)	18 (10%)	1/2
Patient behavior (e.g., adherence)	6 (100%)	0 (0%)	0 (0%)	6 (3%)	2/2
Non-clinical behavior or attitude	9 (90%)	1 (10%)	0 (0%)	10 (5%)	1/1
Total	153 (81%)	26 (14%)	10 (5%)	189 (100%)	20/22
Section B. Hypothesized predictors of empathy					
Predictor studied (empathy as outcome)	**Positive and significant *N* (row %)**	**Not significant *N* (row %)**	**Negative and significant *N* (row %)**	**Total *N* (column %)**	**Positive and significant in RCT study *N/N* for RCT**
Provider demographics	112 (41%)	100 (37%)	61 (22%)	273 (55%)	2/6
Years of training/education/experience	6 (8%)	27 (35%)	45 (58%)	78 (16%)	0/1
Gender: female	49 (65%)	27 (36%)	0 (0%)	76 (15%)	2/2
Specialty/field of study: Relational orientation (e.g., primary care, nursing)	35 (59%)	21 (36%)	3 (5%)	59 (12%)	0/1
Age	3 (11%)	14 (50%)	11 (39%)	28 (6%)	0/1
Structure of training program	7 (54%)	4 (31%)	2 (15%)	13 (3%)	0/0
Country/cross-cultural experience	6 (86%)	1 (14%)	0 (0%)	7 (1%)	0/0
Family status: partnered or parent	3 (50%)	3 (50%)	0 (0%)	6 (1%)	0/0
Ethnicity: minority	2 (40%)	3 (60%)	0 (0%)	5 (1%)	0/1
Political ideology: liberal	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Provider characteristics	80 (72%)	23 (21%)	9 (8%)	112 (23%)	2/4
Personality (e.g., extravert, agreeable)	18 (78%)	3 (13%)	2 (9%)	23 (5%)	2/3
Well-being (e.g., life satisfaction, job satisfaction, low burnout, nondepressed)	17 (89%)	2 (11%)	0 (0%)	19 (4%)	0/0
Knowledge, positive attitudes, skill	11 (69%)	3 (19%)	2 (13%)	16 (3%)	0/0
Spiritual health, religion, and mindfulness, including enrollment in classes	10 (77%)	3 (23%)	0 (0%)	13 (3%)	0/0
Psycho-social factors (e.g., emotional and cultural intelligence, self-esteem)	9 (82%)	1 (9%)	1 (9%)	11 (2%)	0/0
Socioeconomic status (e.g., income, low debt, full not contract employment)	1 (14%)	2 (29%)	4 (57%)	7 (1%)	0/0
Positive family relationships	3 (60%)	2 (40%)	0 (0%)	5 (1%)	0/0
Motivation for career/prior advocacy work	2 (50%)	2 (50%)	0 (0%)	4 (1%)	0/0
Socio-emotional simulation	3 (100%)	0 (0%)	0 (0%)	3 (1%)	0/0
Interaction with elderly	1 (33%)	2 (67%)	0 (0%)	3 (1%)	0/1
Place of residence: urban	2 (67%)	1 (33%)	0 (0%)	3 (1%)	0/0
Work performance	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Time since annual leave	0 (0%)	1 (100%)	0 (0%)	1 (<1%)	0/0
Previous mental health treatment	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Academic pressure	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Satisfaction dependent on profit/prestige	0 (0%)	1 (100%)	0 (0%)	1 (<1%)	0/0
Provider behavior during interaction	19 (76%)	4 (16%)	2 (8%)	25 (5%)	2/4
Communication (e.g., asking questions)	10 (77%)	3 (23%)	0 (0%)	13 (3%)	2/3
Attire (e.g., wearing mask, white coat)	1 (25%)	1 (25%)	2 (50%)	4 (1%)	0/1
Adequate consultation (care needs met)	3 (100%)	0 (%)	0 (0%)	3 (1%)	0/0
Accommodating, nondiscriminating acts	2 (100%)	0 (0%)	0 (0%)	2 (<1%)	0/0
Body position (e.g., sitting not standing)	2 (100%)	0 (0%)	0 (0%)	2 (<1%)	0/0
Length of empathic opportunity-response sequence	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0

(Continues)

TABLE 2 (Continued)

Section A. Hypothesized outcomes of empathy					
Outcome studied (empathy as predictor)	**Positive and significant *N* (row %)**	**Not significant *N* (row %)**	**Negative and significant *N* (row %)**	**Total *N* (column %)**	**Positive and significant in RCT study *N/N* for RCT**
Target characteristics	29 (53%)	17 (31%)	8 (16%)	54 (11%)	0/3
Patient abilities/condition/history (includes perceived provider similarity)	8 (53%)	5 (33%)	2 (13%)	15 (3%)	0/1
Positive psycho-emotional state	4 (57%)	2 (29%)	1 (14%)	7 (1%)	0/0
Socioeconomic status/deprivation area residency/ insurance coverage	2 (33%)	3 (33%)	2 (33%)	7 (1%)	0/1
Patient ethnicity	3 (60%)	2 (40%)	0 (0%)	5 (1%)	0/0
Patient gender	1 (25%)	3 (75%)	0 (0%)	4 (1%)	0/0
Patient age	0 (0%)	1 (33%)	2 (67%)	3 (1%)	0/1
Patient-provider relationship	3 (100%)	0 (0%)	0 (0%)	3 (1%)	0/0
Link: friend referred, clinician in family	2 (67%)	1 (33%)	0 (0%)	3 (1%)	0/0
Beliefs: religion or positive for clinicians	2 (100%)	0 (%)	0 (0%)	2 (<1%)	0/0
Pain visibility	2 (100%)	0 (%)	0 (0%)	2 (<1%)	0/0
Family involved in consultation	0 (0%)	0 (0%)	1 (100%)	1 (<1%)	0/0
Family status: partnered	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Use of health information communities	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Organizational context	15 (48%)	12 (39%)	4 (13%)	31 (6%)	0/1
Setting (e.g., outpatient vs. not, hospice or not, private or not)	4 (40%)	6 (60%)	0 (0%)	10 (2%)	0/0
Time: consultation length	5 (83%)	1 (17%)	0 (0%)	6 (1%)	0/0
Time: wait times	0 (0%)	1 (33%)	2 (67%)	3 (1%)	0/0
Work conditions (e.g., staffing ratio)	1 (33%)	1 (33%)	1 (33%)	3 (1%)	0/0
Climate focused on service or learning	1 (50%)	1 (50%)	0 (0%)	2 (<1%)	0/0
Information and evidence available	1 (50%)	1 (50%)	0 (0%)	2 (<1%)	0/0
Diversity of patients seen	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Previsit questionnaire	0 (0%)	1 (100%)	0 (0%)	1 (<1%)	0/1
Technology use	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Passage of time generally	0 (0%)	0 (0%)	1 (100%)	1 (<1%)	0/0
Privacy	1 (100%)	0 (0%)	0 (0%)	1 (<1%)	0/0
Total	253 (52%)	154 (31%)	83 (17%)	495 (100%)	6/18
Section C. Hypothesized interventions to improve empathy					
Intervention	**Positive and significant *N* (row %)**	**Not significant *N* (row %)**	**Negative and significant *N* (row %)**	**Total *N* (column %)**	**Positive and significant in RCT study *N/N* for RCT**
Training	27 (77%)	8 (23%)	0 (0%)	35 (27%)	6/9
Class/course	27 (77%)	8 (23%)	0 (0%)	35 (27%)	2/2
Workshop	29 (94%)	2 (6%)	0 (0%)	31 (25%)	2/3
Simulation	7 (78%)	2 (22%)	0 (0%)	9 (7%)	3/5
Video or other visual matter	7 (78%)	1 (10%)	1 (10%)	9 (7%)	1/2
Treatment	2 (100%)	0 (0%)	0 (0%)	2 (2%)	1/1
Other (e.g., teaching style, information package)	4 (57%)	2 (29%)	1 (14%)	7 (5%)	3/6
Total	103 (80%)	23 (18%)	2 (2%)	128 (100%)	18/28

Note: Total number of studies shown here exceeds number of articles ($N = 455$) because most articles reported results for multiple variables and multiple dimensions or measures of empathy. This table documents results indicated as primary findings by authors.
Abbreviation: RCT, randomized controlled trial. This design allows for greater causal inference.

provider performance (e.g., clinical competence and professionalism ratings), patient experiences and states (e.g., satisfaction, self-esteem), provider well-being (e.g., burnout), subsequent empathy (i.e., time 2 empathy associated with time 1 empathy), patient behavior (e.g., adherence), and nonclinical behavior or attitude. Multiple studies assessed more than one outcome yielding 189 tests. Table 2, Section A shows that, across all outcomes, analyses overwhelmingly indicate that focal providers' empathy had a positive and significant effect on outcomes ($N = 153$; 81%), and notably in the few randomized controlled studies, which offer a higher level of evidence

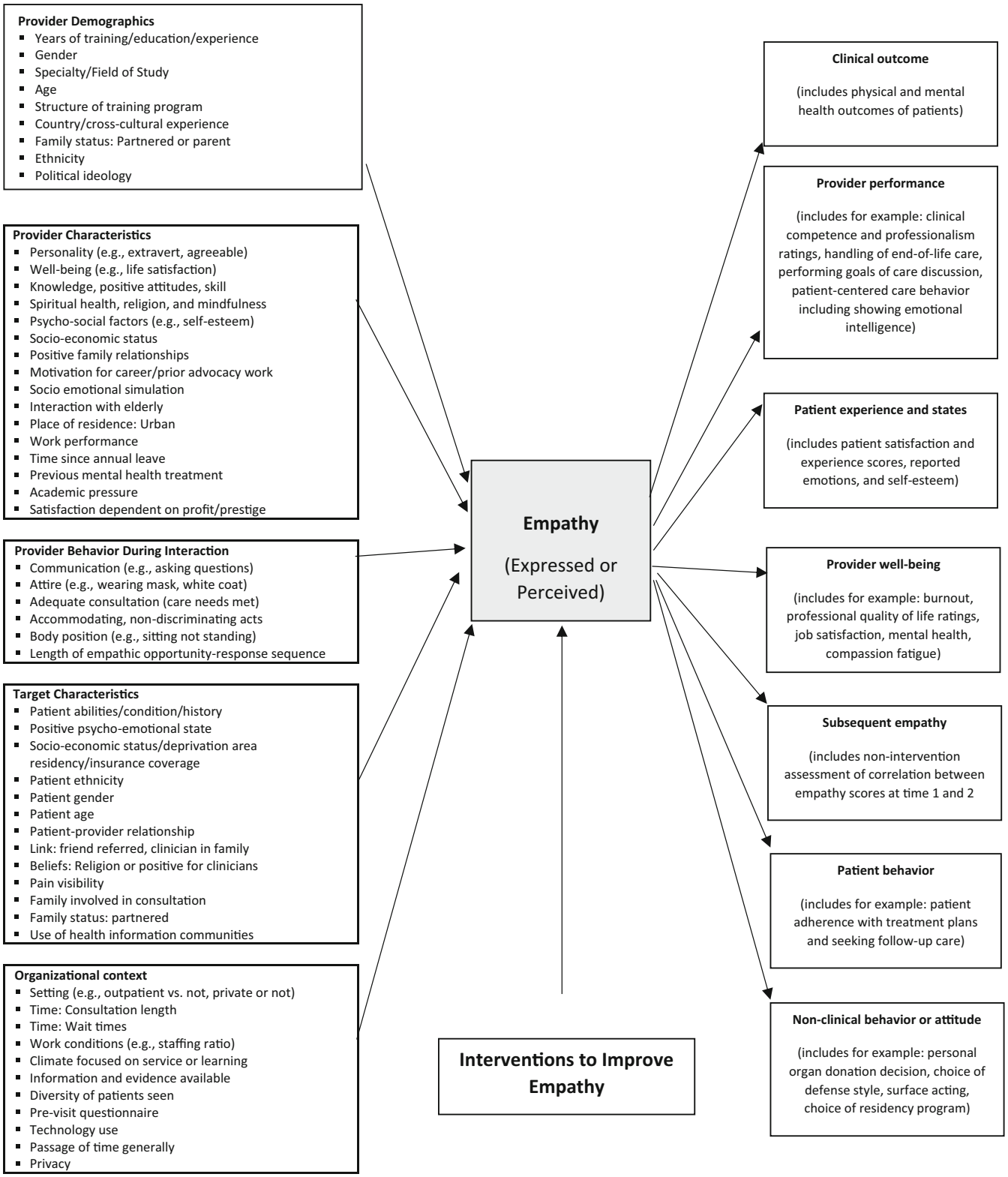


FIGURE 3 Review-derived conceptual model of empathy in health care

($N = 20$, 91% of these studies). Insignificant as well as negative, significant relationships were most prevalent in the studies of provider well-being but most well-being studies indicated positive relationship.

3.4 | Hypothesized predictors of empathy

Analyses of predictors of empathy ($N = 319$; 67.9% of studies) were more frequent than analyses of outcomes of empathy. These analyses

treated empathy as a dependent variable and another variable as an independent variable. In contrast to analyses of empathy outcomes, a larger proportion of analyses of empathy predictors used an experimental design, although the majority were still cross-sectional (Figure 2). Like outcomes analyses, physicians, medical students, and nurses were the primary study subjects.

Analyses of predictors focused on variables that we observed classified into six categories: provider demographics (e.g., years of training, gender and specialty/field of study of the health care professional whose empathy was studied), provider characteristics (e.g., personality traits, psychosocial factors, and knowledge and attitudes), provider behavior during interactions (e.g., communication, body movement, and adequate consultation), target characteristics (e.g., patient condition, psycho-emotional state, and socioeconomic status), organizational context (e.g., clinical setting, consultation length, and waiting time) and interventions (discussed separately in the next section). Table 2, Section B shows the variables in each category and that variables in each category have been found to have a positive and significant effect on empathy levels. This positive association is most robust for provider characteristics and behavior during interactions, with most analyses related to these variables (at least 72%) finding a positive relationship. Insignificant as well as negative, significant relationships were found in 50%–60% of analyses of provider demographics and organizational context.

The findings about hypothesized predictors alongside those about hypothesized outcomes yield a conceptual model of empathy in health care. In this model (Figure 3), multiple factors are associated with the level of empathy in health care delivery, including factors related to providers of empathy, targets of potential empathy, and organizational context. In turn, the level of empathy by providers is associated with seven categories of outcomes for patients and workers.

3.5 | Interventions to improve empathy

Of the 455 studies, 128 (28.1%) evaluated an intervention designed to alter empathy in participants. The interventions took one of six forms: (1) training, which consisted of teaching participants a skill (e.g., communication[63–65]); (2) a course (i.e., a series of lectures or lessons about empathy); (3) workshop (i.e., a meeting in which participants engaged in discussions about empathy); (4) simulation; (5) video or other visual material (i.e., exposure to visual or audiovisual material); and (6) treatment (i.e., clinical intervention such as Transcranial Direct Current Stimulation).[66] A few other studies changed work shifts, teaching style or to Balint groups. Apart from this small, mixed set, all other forms of intervention had over 78% of studies show a positive and significant effect (Table 2, Section C). Just two studies (2%) showed that the focal intervention (reading a digital information package[58] and creating artwork[67]) had a negative effect, yielding significantly lower empathy levels after the intervention, although for art-making as an intervention, the decline was similar to the group that did problem-solving as an intervention.

4 | DISCUSSION

This first systematic review of the first 50 years of quantitative research on empathy's relationships in health care and the summative, integrative model that we extracted provide insights for promoting understanding of empathy and continuing to advance research and practice on this subject. First among three major insights is substantial evidence that empathy plays a significant role in health care. It enhances care experiences and outcomes for patients and providers. This insight is based more on the volume of supportive cross-sectional findings than an abundance of controlled studies, but the preponderance of the evidence substantiates this conclusion. Second, this review indicates that a multitude of factors influences empathy, including traits and states of providers and patients, and organizational context. These factors (predictors) can be categorized into categories as we demonstrated and to aid conceptual understanding, but categorization does not belie the reality that a host of specific factors within each category are consequential, contributing to the complexity of ensuring empathy in health care beyond the multidimensional nature of empathy itself. Third, our review indicates that educational interventions targeted at individuals—the targets thus far—can increase empathy. This insight supports practice improvement efforts generally and particularly in the time of COVID-19. Since the start of the pandemic, commentaries[36,68] have highlighted the empathy distribution, that is, variability in empathy, acknowledged the many virtuous stories of empathy on display, and called for more empathy to improve care experiences for many more going forward. The follow-up question has been whether effective interventions exist and what form they take. We find that educational interventions can increase empathy; they can also diminish empathy, and thus, intervention selection and implementation must be careful.

These core insights come from 455 studies performed across the world. The global study, volume of studies, diversity of settings examined, and use of just three psychometrically validated measures of empathy in 58% of studies are strengths of the field. These features increase confidence in the generalizability of findings and confidence that findings build on one another through the same measurement approach. Significant weaknesses are that most studies have been cross-sectional and relied on self-reported empathy, which limits causal inference and raises questions about reliability. Also, having a large minority of studies (42%) use various other survey measures of empathy, used once or twice may be useful for specific investigation but may not help the field holistically. For the field's evidence base to continue to strengthen, future research should utilize controlled study designs and include other-reported empathy when possible. Using these more rigorous approaches and one of the top three empathy measures will increase causal insight, allow better assessment of the strength of relationships captured in the conceptual model that we derived, and potentially help reconcile mixed results of past studies.

The multiplicity of factors in the derived model begs questions that the field has yet to address, such as what is the relative importance of factors, a finding that would help direct intervention efforts? Are there significant interactions among factors, for example, between tenure

and mindfulness? Might mindfulness counteract the negative effect on the empathy of tenure in the profession? Might communication behavior counteract the negative effect of limited consultation time with the provider? Are some provider behaviors more influential at different points in care? That some factors were studied as predictors of empathy in some studies and as outcomes in others (e.g., burnout) suggest that there is also a need for more longitudinal research that evaluates feedback loops. System dynamics models[69] which account for reinforcing and balancing loops are likely necessary for a more complete picture of empathy dynamics. A complete picture also requires examining why relationships exist between empathy and outcomes and predictors. As noted in our introduction, theory suggests empathy cultivates efforts to better meet patient needs via interpersonal and operational choices, for example speaking with care and connecting patients with resources.[27,30,35] Our review indicates that research has yet to confirm these explanations, which could guide intervention.

Currently, there is a national effort involving the National Academy of Medicine, which highlights cultivating a culture of connection and support as essential for decreasing clinician burnout and improving well-being, and advocates for interventions that improve clinician well-being and patient experience.[70] Our review suggests that empathy may affect both positively. Empathy may create a connection with patients and coworkers that serves as a resource that allows health care professionals to better serve patients, improving patient experience and reducing stress, thereby lowering burnout. Given the mix and bidirectionality of results, and the need to improve all three, future research should continue to explore their intersection.

Notably, none of the studies to date examined empathy from an organizational perspective, at the organization level, or even as an organizational phenomenon. This may not be surprising, since empathy is deemed a human trait[68,71] and not an organizational one, and because it is sensible to view organizational empathy as an aggregation of individuals' empathy in the organization. In other fields, the assumption must be validated by aggregation statistics.[72] Neglecting explicit consideration of organization-level empathy has had at least two effects on the field, evident in our review. First, it has stifled study of empathy processes and organizational outcomes. Likely interpersonal processes, such as empathy contagion and reciprocity, and outcomes that might bolster the business case for organizational investment in empathy such as financial performance, worker turnover, and malpractice suits, have not been studied. Second, neglect means that organizational-level interventions have not been examined, although we observed significant effects of organizational context on empathy and organizational intervention has been effective for improving other experiential factors such as safety and wellness.

To the extent that providing empathy similarly benefits from dedicated time, people, processes and leadership, greater attention should be directed to organizational empathy and intervention. Recent work suggests a goal should be "empathetic systems or institutions that are structured and organized in such a way as to create conditions that facilitate empathetic interactions in a non-arbitrary way through the whole service."[22(p3)] Similar to organizational approaches around patient safety and innovation, which relied on staff roles and leadership roles instead of training clinicians, organizational intervention using a role-based approach, potentially centered on nonclinicians, may be worthwhile for elevating empathy throughout organizations.

The primary limitation of this review is the potential of missed articles. However, we searched the three largest databases in the three scholarly fields that most examine empathy (health care, psychology, and business) and cast a broad net in our search terms to identify as many articles as possible. We developed and refined our inclusion criteria in conjunction with our primary reviewers, all reviewers utilized the same coding-decision guides and extraction spreadsheet template, and individual reviewer's uncertainties were resolved through additional teammate review to achieve high reliability in the inclusion and extraction of information. Nevertheless, information may have been missed. We sought to provide a comprehensive view of quantitative research on empathy and its relationship to other variables in health care. The breadth of review is a strength of this work. Many systematic reviews pursue depth instead by focusing on one aspect of a subject and/or studies that meet a rigor threshold (e.g., controlled studies only). We endeavored to provide breadth and depth by indicating findings across all studies and specifically for controlled trials. Greater depth on subjects highlighted in our review is possible, and qualitative and theoretical research not covered is important for an even more holistic model of empathy in health care. We hope that future research and reviews achieve that goal.

This review contributes to health services research and management by providing the first integrative summary of what is known about empathy in health care currently. Although empathy has been discussed increasingly as a key contributor to patient experience and patient-centered care, the state of the science on empathy had not been synthesized, limiting clarity about the totality of effects, gaps, and opportunities. We synthesize existing research to offer a wide-ranging yet detailed report on knowledge about empathy, and guidance on research needed to advance conceptual understanding and development of interventions to increase empathy in health care.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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