

Predictors of Physician Compassion, Empathy, and Related Constructs: a Systematic Review



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BACKGROUND: Compassion in healthcare provides measurable benefits to patients, physicians, and healthcare systems. However, data regarding the factors that predict care (and a lack of care) are scattered. This study systematically reviews biomedical literature within the Transactional Model of Physician Compassion and synthesizes evidence regarding the predictors of physician empathy, compassion, and related constructs (ECRC).

METHODS: A systematic literature search was conducted in CENTRAL, MEDLINE, PsycINFO, EMBASE, CINAHL, AMED, OvidJournals, ProQuest, Web of Science, and Scopus using search terms relating to ECRC and its predictors. Eligible studies included physicians as participants. Methodological quality was assessed based on the Cochrane Handbook, using ROBINS-I risk of bias tool for quantitative and CASP for qualitative studies. Confidence in findings was evaluated according to GRADE-CERQual approach.

RESULTS: One hundred fifty-two included studies (74,866 physicians) highlighted the diversity of influences on compassion in healthcare (54 unique predictors). Physician-related predictors (88%) were gender, experience, values, emotions and coping strategies, quality of life, and burnout. Environmental predictors (38%) were organizational structure, resources, culture, and clinical environment and processes. Patient-related predictors (24%) were communication ease, and physicians' perceptions of patients' motives; compassion was also less forthcoming with lower SES and minority patients. Evidence related to clinical predictors (15%) was scarce; high acuity presentations predicted greater ECRC.

DISCUSSION: The growth of evidence in the recent years reflects ECRC's ongoing importance. However, evidence remains scattered, concentrates on physicians' factors that may not be amenable to interventions, lacks designs permitting causal commentary, and is limited by self-reported outcomes. Inconsistent findings in the direction of the predictors' effects indicate the need to study the relationships among predictors to better understand the mechanisms of ECRCs. The current review can guide future research and interventions.

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BACKGROUND

Compassion—defined as noticing the suffering of another and being motivated to alleviate it¹—is an important healthcare characteristic² that predicts better patient outcomes^{3–11}, and is associated with better physician quality of life^{12,13}. A lack of compassion has been linked to decreased patient well-being^{9,14,15} and a loss of professional motivation^{16–20}. While a systemic lack of compassion in healthcare has been noted^{21,22}, studies specific to medical compassion are scarce^{23–26} with most research focused on related constructs such as empathy and caring.

A scoping review by Sinclair and colleagues^{27,28} identified a number of personal, relational, and organizational factors as relevant to compassionate care. The purpose of our review is to identify the predictors of both compassion and related constructs such as empathy, caring behavior, and person- and patient-centered care (referred to conjointly as “empathy, compassion, and related constructs” (ECRC)) to better characterize the research foci in the area of prosocial feelings and behavior in patient care, to assess the extent to which findings are consistent, to assess studies' quality, and to evaluate the extent to which the factors predicting compassion are different or similar to factors predicting related constructs.

METHODS

The review was conducted in accordance with PRISMA guidelines²⁹, and was pre-registered on PROSPERO (ID: 177815). The search strategy was devised in consultation with a medical librarian and conducted on the 24th of April 2020 using Cochrane Library (including CENTRAL), MEDLINE, EMBASE, PsycINFO, CINAHL, AMED, OvidJournals, ProQuest, Web of Science, and Scopus. We used a combination of subheadings (MeSH terms/EMTREEs) and keywords using (1) context-defining terms (e.g., physician, healthcare), (2) ECRCs (e.g., empathy, compassion, motivation to help—see eSupplement 1 for the ECRC constructs selection rationale),

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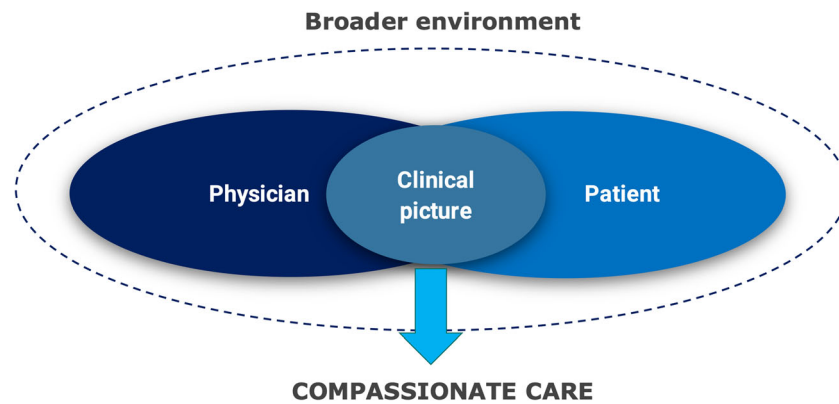


Figure 1 The Transactional Model of Physician Compassion (TMPC): Transactional Model suggests that whether a physician will behave compassionately in any given instance reflects the dynamic influences of physician, patient, clinical, and environmental factors.

and (3) keywords that denote factors (e.g., “factor_”, “facilitat_”, “barrier_”). The search strategy was developed, piloted, and refined in EMBASE (See eSupplement 2) and then applied to other databases in accordance with the functionality. Reference checks and forward citation searches for the selected studies were implemented. Peer-reviewed journal articles and gray literature such as dissertations and industry or government reports that focused on factors predicting ECRC were included.

Inclusion criteria included studies that focused on physicians or residents/registrars/graduate trainees (according to legislation) (MD/DO) of any specialty except dentistry and pharmacy where the primary method of data collection was either physicians' self-report or observation by an independent observer. Other medical professionals, such as nurses and allied health professionals (e.g. psychologists), were excluded.

We excluded publications that were not in English, not peer-reviewed, or where the level of peer review was uncertain (commentaries, editorials, and perspectives, etc.). Studies based on patient report were excluded due to non-independence from possible patient confounding factors. Interventions were excluded due to the multifactorial nature limiting the possibility to identify specific factors predicting ECRC. No restrictions were imposed on studies' date, research design, or methodological limitations. Excluded studies can be found in the eSupplement 14.

Data Collection and Analysis

All identified records were de-duplicated in EndNote and the screening was conducted in two steps—(1) two coders (A. P. and C. W.) independently screened the titles and abstracts on Rayyan³⁰ before (2) two coders (A. P. and C. W.) independently assessed full texts of selected records against the inclusion criteria. Any disagreements were resolved through discussion and/or consultation with a third reviewer (N. C.). The data were extracted by two coders independently (A. P. and A. B.) via pre-defined data extraction forms (See eSupplement 3). The evidence was synthesized via framework thematic synthesis approach³¹ according to Transactional Model of

Physician Compassion (TMPC) physician, patient and family, environmental, and clinical domains (Fig. 1)^{23, 32}. Data from studies based on the same sample and methods were collated to avoid double-counting.

The effects of the factors on ECRC were summarized in terms of direction as well as narratively. Positive or negative predictors were grouped if these had at least moderate significant positive or negative effect ($p < 0.05$) when prespecified confounders (gender, experience) were considered. For qualitative studies, only the data from direct quotes were used, to ensure we used “first-order constructs”³³.

Quality Assessment

Risk of bias was assessed independently by two coders (A. P. and A. B.). In the case of a disagreement, consensus was reached by discussion with the third reviewer (N. C.)³⁴. *Quantitative studies* were assessed by an adaptation of ROBINS-I tool³⁵, *qualitative studies* by CASP³⁶. The GRADE-CERQual approach was applied to assess confidence in the review findings^{31,37}. The authors with clinical experience have reviewed the validity and clinical relevance of the findings. The findings are presented in the Summary of Findings table (Table 1). A detailed explanation of quality assessment is available in the eSupplement 4.

RESULTS

Results of Search

We retrieved and screened 14,248 titles and abstracts. Full texts of 711 records were assessed and 152 empirical studies met inclusion criteria. We identified 66 relevant non-empirical theoretical works discussing theories and perspectives on compassion (eSupplement 5), and 31 literature reviews (eSupplement 6) (Fig. 2). The development of this literature over time can be seen in Fig. 3, indicating a steady increase in empirical studies that has not been reflected in non-empirical theoretical works nor reviews.

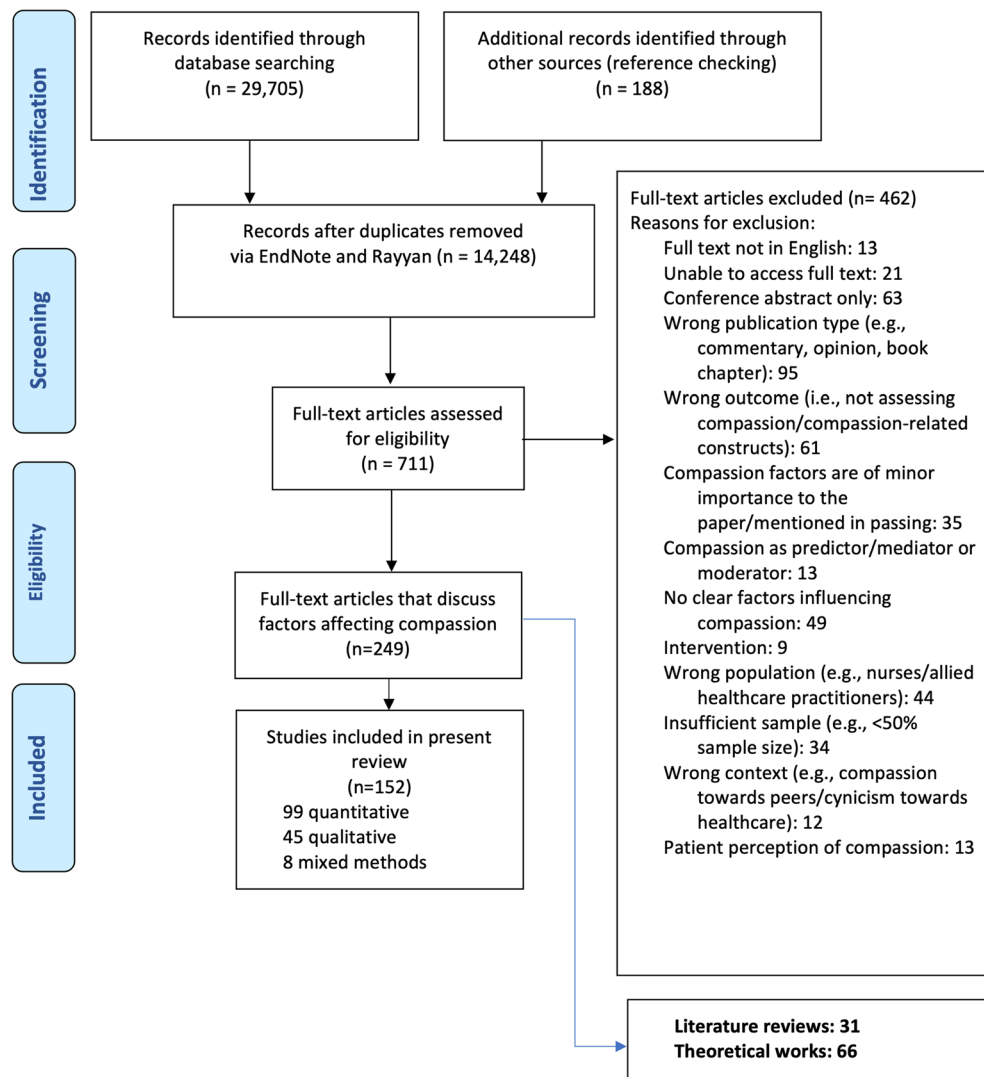


Figure 2 PRISMA 2009 flow diagram

Study and Participant Characteristics

Table 2 summarizes the characteristics of the included empirical studies. Approximately two-third were quantitative, mostly analytical cross-sectional correlation/association studies relying on self-report. One-third were qualitative, mostly reliant on thematic analysis and, to a lesser extent, reflective writing and focus group designs. Four-fifth of the included studies researched empathy, mostly quantitatively. Only slightly more than one-tenth of included studies assessed compassion or compassionate care, mostly qualitatively. A methodological portrait of the included studies is presented in eSupplement 7. Scales used to quantitatively assess ECRC are presented in eSupplement 8.

More than half of the studies were multi-center studies originating from 30+ countries worldwide, although research originating in the USA was the most common (eSupplement 9). In total, included studies encompassed 74,866 physicians. Median sample size in quantitative studies was 83 physicians; in qualitative studies, 17

physicians. Of 85% of studies reporting gender, 48.9% were females. No studies reported data from non-binary participants. Of 17% of studies reporting on ethnicity, 70.2% of physicians were White. Nearly half of empirical studies were solely focused on physicians and one-fourth on residents. Three-fifth of the studies focused on physicians of mixed specialties, followed by specific studies of family medicine, oncology, pediatrics, psychiatry and mental health, and internal medicine. A detailed portrait of participants and settings is available in eSupplement 10.

Risk of Bias of Included Studies

The methodologic quality of studies is detailed in the Supplement (eSupplements 11, 12). Approximately 60% of all included studies had serious risk of bias or above. The most common source of bias among quantitative studies was confounding bias, followed by selective reporting, selection of participants, and measurement of outcomes bias. The most

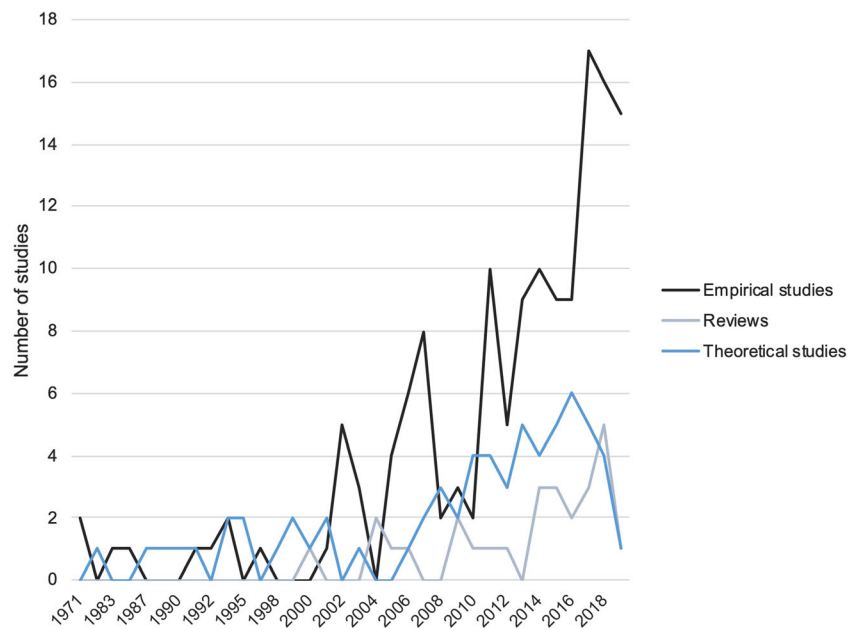


Figure 3 Studies describing the predictors of ECRC over time (1970–2019). The last year of analysis is 2019 because it is the last full year during which the studies were collected (data collection date 24.04.2020).

common sources of bias in qualitative studies were lack of consideration of the relationship between researcher and the participants and insufficient rigor in analysis.

Summary of Evidence According to TMPC Domains

Physician Factors. Physician factors were included in 88% of studies, most of which were quantitative.

The top five physician factors with either positive or negative associations to ECRC are presented in Figure 4 A. Of these, professional factors were the most researched: clinical experience tended to predict greater ECRC^{38–48}, although numerous studies also reported no effect^{49–61}; it was unclear whether ECRC increases or decreases across residency^{45,48,62–77}. Studies that featured professional status/seniority mostly showed no effect^{39,50,53,61,78–82}, with a smaller number of studies noting positive association^{71,83–86}. Small number of studies indicated that greater professional training^{80,87,88} and competency^{38,41,85} positively associated with ECRC. Reporting engagement in extra-professional activities (e.g., teaching, not working at only one place) predicted higher ECRC^{50,51,56,86,89,90}. Past medical errors did not show an association⁹¹. Patient-centered/relational specialties tended to suggest more empathetic physicians than technology-oriented^{42,64,92,93} or surgical specialties^{60,71,94–98}. However, the overall evidence regarding the importance of specialty was mixed and inconclusive^{45,46,50,54,61,71,72,78,79,81,83,94–96,99–112}.

Second to professional characteristics, a high proportion of mostly quantitative studies examined socio-demographic factors. Female gender was associated with higher ECRC in numerous studies^{41,43,45,47,49,52,55,58,61,64,81–}

^{83,92,94,95,99,101,103,108,113–117} but a comparable number showed no gender effect^{39,48,50,51,54,60,72,74,76–80,84,86,96,105,106,116,118–121}; three studies reported males as more compassionate^{53,111,112}. Evidence regarding age was similarly conflicted^{39–41,43,47,49–51,54,55,58,60,72,77,80,82,84,86,95,99,106,108,120–124}. The evidence in relation to a link between physician ethnicity and ECRC was of limited coherence or of no effect^{50,58,72,99,108,112,121}. The presence of cross-cultural differences predicted lower ECRC^{55,94} and the association of ECRC with cultural beliefs and cultural knowledge was observed^{50,125–127}. Personal illness experience^{45,78,128–132}, experience with illness among relatives or one's own children^{45,113,132–134}, or caregiving experiences^{45,113,131,135} predicted greater ECRC. Finally, a small number of predominantly qualitative studies showed spirituality^{89,136}, meaning¹³⁶, and religiosity¹³⁷ to predict greater ECRC, although there was no effect of religion³⁹. The evidence regarding factors such as living situation^{39,42,72,82}, upbringing^{98,113,131}, siblings^{64,76}, having children^{39,41,49,64,77,111–113,138,139}, the number of children^{72,82,84,140}, and marital status^{43,47,49,50,63,64,72,76,77,83,84,86} was conflicted and, hence, inconclusive.

In terms of dispositional factors, pro-social traits/dispositional compassion (e.g., empathy, compassion, altruism, humanism)^{47,52,70,73,89,93,116,141,142} and the ability to recognize and deal with emotions^{38,70,76,82,106,116,131,143,144} predicted greater ECRC, whereas higher emotionality (both positive and negative)⁹³ and idealism predicted lower ECRC¹⁴⁵. The individual constructs underlying this evidence, however, were scattered and highly heterogeneous with more than 30 personality traits examined. Greater coherence was evident in

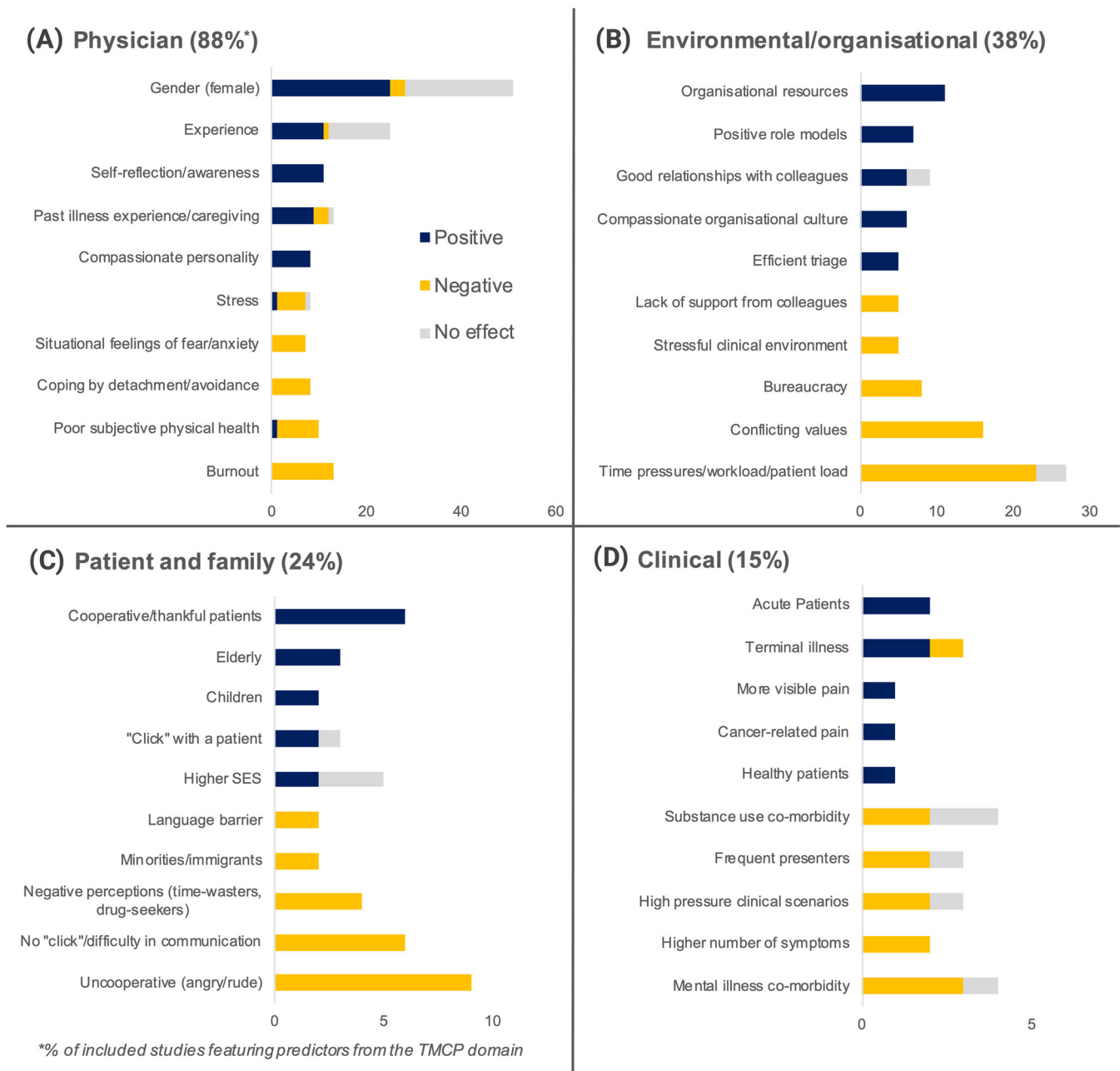


Figure 4 Five most common positive and negative predictors of ECRC for four domains within the Transactional Model. The scale represents the number of quantitative and qualitative studies featuring a particular factor. The number totals to the sum of articles that showed positive or negative factor associations with ECRC (qualitative direct quote, or quantitative significant effect of $P < 0.05$) or showed no effect (qualitative direct quote or $P > 0.05$). Top five positive predictors are based on the highest number of studies where the factor showed a positive association. Top negative predictors are based on the highest number of studies where the factor showed a negative association. (A) Physician-related factors ($N=133/152$), (B) environmental/organizational factors ($N=57/152$), (C) patient and family-related factors ($N=37/152$), and (D) clinical factors ($N=23/152$). The detailed portrait of studies with references is available in Table 2.

studies of attitudes and values; positive judgment or non-judgment^{98,138} and respect^{87,89} predicted greater ECRC, while prejudice and negative judgment predicted lower ECRC^{80,98,146}. Having empathy and compassion as a value predicted greater ECRC^{98,131,147}.

Positive beliefs about the importance of ECRC in medical care^{38,50,87,89,90,131,147} and the motivation to maintain good standards of care^{89,90,148,149} and to obtain higher job satisfaction by practicing compassion^{89,131,136,148} predicted greater

ECRC. On the contrary, beliefs that ECRC negatively affects objectivity^{98,107,147,150} predicted lower ECRC. In terms of emotional processes, ECRC was also negatively linked to fear of overidentification^{38,138,149}, feelings of uncertainty and anxiety^{151,152}, and feelings of isolation^{136,145}. Positive coping, specifically reflective practices^{87,89,90,98,100,132,152,153}, self-awareness^{87,98,131,143,154}, and mindfulness^{75,148} predicted greater ECRC, whereas self-doubt and self-criticism^{147,155} predicted lower ECRC, as did avoidance, detachment, and

hiding emotions^{38,100,107,132,138,149,154,156,157}. Studies related to self-compassion showed no effect^{75,158}.

Finally, satisfaction with social and intellectual aspects of work and work-life balance^{50–52,87,89,90,93,155} predicted greater ECRC, and so did good personal relationships and social support^{76,90,149}, engagement in leisure activities^{89,111,131,136,153}, and self-care^{136,155}. Conversely, personal problems predicted lower ECRC^{87,131,146,148}. Good subjective health predicted greater ECRC^{87,107,131}, while signs of fatigue^{38,87,93,145,146,149,153,159}, burnout^{65,84,93,124,147,148,158,160–166}, and stress^{98,131,148,158,160,167} tended to be associated with ECRC negatively. The evidence regarding the effects of compassion fatigue on ECRC^{52,65,154} or evidence related to mental health (i.e., mental well-being and anxiety) in relation to ECRC^{50,77} or was too scarce and/or unclear.

Environmental Factors. The second largest domain was related to environmental factors; present in 38% of included studies. Top five environmental factors with positive and negative associations to ECRC are presented in Figure 4 B. Aspects of the work environment subjectively associated with lower ECRC included time constraints^{38,57,65,98,127,131,145,146,148,153–155,157,159,167–170}, bureaucracy^{38,127,145,146,148,149,153,169–171}, and stressful clinical environments (e.g., busyness, interruptions)^{87,93,138,146,148,149,167}. Lack of continuity had mixed effects^{123,167,168,172}. Organizational practices such as good triage or understanding of interruptions timing had a positive effect on ECRC^{87,138,149,152}. The evidence regarding the amount of work (e.g., workload, patient load, long working hours)^{38,59,61,82,84,93,98,102,127,145–147,149,153,157,163,167} and remuneration^{50,51,85,145,149} was mixed.

Qualitative studies suggested that continuous education and counselling^{56,89,149,153,160,170}, good leadership^{136,155,170}, human resources (e.g., in-house pain and palliative care teams, social workers)^{89,168}, and physical resources (e.g., office systems, access to healthy food, and fitness facilities)⁸⁹ were facilitators of ECRC.

Supportive organizational cultures^{136,153–155,170} with positive role models^{90,98,136,153,155,160,170} and supportive colleagues^{51,89,90,149,153,154} were experienced as encouraging ECRC, while experiencing a lack of support^{57,136,145,148} or working with superiors who are unprofessional^{145,170} was seen as interfering. Efficiency-driven^{136,145,168,169,171}, disease-centered^{38,145,149,153,156}, evidence- or guideline-based healthcare^{38,87,149,151,171} with an emphasis on business^{38,127,148} was reported to interfere with ECRC. Of particular relevance to junior doctors, hidden curriculum in clinical settings (e.g., language, avoiding talking to patients to minimize tasks or obligations)^{65,98,148}, and emphasizing intelligence and excellence values among the providers^{38,127} were seen as non-conducive to ECRC. Hierarchical environments reduced ECRC^{145,153}, although the evidence base in this regard is small. Little impact on ECRC was noted from broader healthcare settings (e.g., hospital versus ambulatory settings^{41,46,79,99}, urban versus rural^{47,51,107,124}, public or

private hospitals^{47,50,55,107}, working in correctional settings¹⁰⁹).

Patient and Family Factors. Twenty-four percent of studies featured patient and family factors. Top five patient and family factors with positive and negative associations to ECRC are presented in Figure 4 C. Cooperative or thankful patients^{93,121,138,159,167} were seen as more likely to receive compassionate care, while uncooperative patients with behaviors seen as problematic (e.g., anger, aggression, entitlement)^{38,87,102,138,147,149,159} and patients who crossed moral boundaries (i.e., drug dealers, sexual abusers)^{87,149}, or patients who lack understanding or struggle to communicate^{38,121,149,173} were seen as less likely. In contrast, a personal “click” and easy and open communication appeared to facilitate ECRC^{38,87,121,131,146,149,159,167,174}. Limited studies regarding patients’ preferences⁶¹, self-efficacy⁶¹, level of sadness¹⁷⁵, and level of distress¹⁷⁶ showed no effect on ECRC. Physicians’ negative perceptions of patient’s motives (e.g., “time wasters,” “drug seekers,” “attention seekers”)^{138,177}, and personality (e.g., egoistic, manipulative)^{38,102,108,138}, however, were likely to undermine ECRC.

Demographically, evidence suggested both the possibility that ECRC might be greater toward patients with greater income/education^{101,138,178} or, conversely, to more vulnerable populations (impoverished, elderly, children)^{38,61,138,179}. ECRC toward minorities (i.e., immigrants, people with a language barrier, “enemy” patients during military conflicts) tended to be lower^{38,40,112,159,174,180}. Blacks/African Americans were less likely recipients of ECRC as compared to Whites^{112,121,181}. Gender^{61,101,176,178,179,181}, age^{101,121,176,178,181} (except for elderly^{38,61} and children^{38,138}), and marital status¹⁷⁹ of the patients showed no associations with ECRC. Evidence regarding (perceived) doctor-patient similarity was conflicted, with some studies showing that greater patient (or patients’ illness) similarity to the physician or their relatives^{38,117,126,178} might predict greater ECRC and others suggesting that similarity to self or relatives might have a negative effect on ECRC due to countertransference^{93,154}; there was little evidence for effects associated with patient-doctor age or ethnicity concordance¹²¹. Results in relation to gender concordance effect were mixed^{101,117,121,178}. There were two studies on how factors associated with patients’ families might impact patient care showing that appreciative families are likely to receive better ECRC than intrusive/interrogative¹³⁸ and that the closeness of family to the patient had no effect⁹⁵. There were also few studies examining situational factors. Dealing with time-consuming emotional issues during the diagnosis conversation^{176,181–183} has shown to affect ECRC negatively. Other factors such as presence of empathic opportunities^{184,185}, the presence of a third person⁶¹, and time spent speaking to patients’ family⁹⁵ were of mostly of lower quality and inconsistent.

Clinical Factors. Only 15% of included studies researched clinical factors. Top five clinical factors with positive and negative associations to ECRC are presented in Figure 4 D. Two studies suggested that patients with acute presentations^{138,168} were more likely to receive ECRC than non-acute patients (or patients whose condition is improving), although more severe conditions⁶¹ and high-pressure life-threatening medical scenarios³⁸ also made ECRC less likely.

Higher number of symptoms/concerns per presentation^{61,102} and psychosomatic symptoms^{102,186} were negative predictors of ECRC. There were also three studies that showed that patients who have intellectual disabilities³⁸, patients with a personality disorder¹⁴⁹, and greater symptoms of depression¹⁷³ were less likely to receive ECRC, although mental health self-reported status^{61,101,178} had no effect on ECRC. Evidence related to the frequency of presentation was limited to three studies, two of which showed that the frequency of presentation predicts lower ECRC^{102,138}, and one study showing no effect⁶¹. With regard to pain, having or not having pain in general showed no effect on ECRC^{101,178}, while in the presence of pain, pain visibility⁴⁴ and pain related to cancer¹⁸⁷ predicted greater ECRC. Other evidence regarding illness type was based on single studies and was of limited coherence and represented by single studies^{38,46,101,128,138,152,154,168,178,182,188,189}. The evidence related to substance use co-morbidity association with ECRC was inconclusive^{101,102,176,178}.

DISCUSSION

This synthesis identified more than 500 unique predictors of ECRC across 18 subdomains indicating the spread and limited coherence of the research. Consistent with the assertions of recent commentaries¹⁹⁰, most studies examined physician-related predictors while studies testing whether environmental, patient-related, and clinical domains predicted ECRC were less common. In other words, research on the factors predicting ECRC remains practitioner-centric, despite the fact that non-empirical theoretical works¹⁹¹⁻¹⁹⁴ and reviews^{28,195,196} suggest that the origins of care are *multi-factorial* and extend beyond the physician. Most work is concentrated on factors that are largely immutable (e.g., gender, personality, specialty), and therefore less amenable to intervention.

Secondly, our review highlights ongoing inconsistency in the direction of the association between predictors and ECRC. While some factors showed good directional consistency (e.g., positive association of ECRC with self-reflection, negative association of ECRC with red tape), directionality for other factors varied (e.g., patient-doctor similarity, experience, gender). Although it is unknown, this pattern suggests that variations in measurement may matter and/or that unknown moderators are at play. Finally, other than in studies of physician factors, research is predominantly qualitative. While such designs provide rich data in new research arenas, data can be

highly context-dependent and difficult to generalize¹⁹⁷; quantitative research in these domains is clearly needed. Equally, however, qualitative studies may be of use in areas where the constructs are broad (e.g., self-care) or where the links to ECRC are inconsistent.

Confidence in the Findings

Only 10% of findings were considered of high confidence and 20% of moderate confidence (See eSupplement 13 for GRADE-CERQual assessment). The remainder were of low or very low confidence, making it difficult to confidently draw conclusions regarding the predictors of ECRC. Data adequacy (scattered evidence and too few studies to draw conclusions) was a primary issue, and a lack of coherence (using different measurements to measure similar phenomena), and methodological limitations (eSupplements 11, 12) were similarly common. Notably, although we paid close attention to the relevance of the studies to compassion (and of compassion) in particular, the strength and direction of evidence was comparable across constructs and in diverse populations, suggesting a similar use and understanding for a broad range of ECRCs (eSupplements 8, 9, 10).

This review should be considered within the context of some limitations. First, the review was only focused on qualified physicians, and reviews among other healthcare professionals (e.g., nursing, allied healthcare, dental care, pharmacy) and student populations are needed. Second, some common empathy measures (e.g., JSPE, IRI) may be subject to face validity issues as indices of compassion. Third, we limited our studies to English only. We excluded only 13 non-English studies, which is a relatively small number, compared to those we included. Lastly, because identifying specific interventional components can be difficult, we excluded studies involving interventions (eSupplement 14). Intervention studies targeting physicians represented approximately 3% of the initial search. Interventional trial data would allow identification of promising strategies to improve compassion. The results of this systematic review will be helpful in developing interventions targeting factors that are reliably (and mutably) associated with care.

Conclusions and Implications for Research and Practice

To our knowledge, this report is the first systematic review to identify, classify, and assess consistency, directionality, and study quality for works evaluating the predictors of ECRC in healthcare. Most studies remain concentrated on physician factors with few of patient, clinical, or environmental influences on care. Given that many physician factors may not be suited to intervention, this is a serious limitation. More broadly and despite growth in research, the available evidence remains scattered. Associations between predictors and outcomes are inconsistent, experimental designs remain lacking, and self-reported outcomes predominate. Additionally, where

predictors other than physician factors are examined, qualitative designs are near-exclusively used. Although qualitative methods are useful and recommended during early stages of research, the study of ECRCs is ripe for quantitative methods to provide more explanatory power and aid systemic changes and policy work.

These concerns noted, some regularities in the predictors of care offer initial guidance for interventions and the enhancement of ECRC in healthcare. At a systems level, if compassionate care is a priority, healthcare managers need to analyze expenditures to ensure efficient resource use, streamlining procedures, protocols, and reporting and prioritizing investment in physicians' continuous education, counselling, and information technology. Second, organizational leaders need to reflect on the concrete instantiations of compassion in organizational policies and the consequent organizational cultures. Is the working environment hierarchical or collaborative? Is the emphasis on efficiency or compassionate care? Does the organization (implicitly) prioritize certain patients over others? If we are to increase compassion in healthcare, these are the hard questions we must tackle. While ongoing attention to the physician factors that influence care is needed, we must also remember that compassion is a systemic issue in healthcare and that it requires systematic research and thinking to solve it.

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