



The Long-Term Effectiveness of Empathic Interventions in Medical Education: A Systematic Review

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Abstract: The Association of American Medical Colleges recognizes that empathy is an important part of providing excellent patient care and lists empathy as a Core Entrustable Professional Attribute for physicians. This study is a review of the literature focusing on studies with an educational intervention to promote empathy and at least one year follow-up data. After reviewing the 4910 abstracts retrieved from PubMed, PsycInfo, Cochrane, Web of Science, CINAHL, and Embase; the coauthors selected 61 articles for full-text review and completed a medical education research study quality instrument (MERSQI) to ensure all selected studies scored at least 7 or above. Five studies from the US and seven international studies met our inclusion criteria and formed the basis for the study. Few longitudinal studies with a post-intervention follow-up exist to confirm or disprove the effectiveness and durability of empathy training. Of the published studies that do conduct long-term follow-up, study design and measures used to test empathy are inconsistent. Despite the high degree of heterogeneity, the overwhelming majority demonstrated declining empathy over time. Little evidence was identified to support the ability to augment the empathy of physician trainees in sustained fashion. A model is presented which explains the observed changes. Alternative solutions are proposed, including the selection of more prosocial candidates.

Keywords: empathy, empathetic training, empathetic motivation, medical education

Plain Language Summary

The movement of people is leading to greater diversity across the globe. This includes areas with little or no prior experience with people who are different. Students enter medical school with different empathic abilities and willingness to help people who are different from them. Medical educators try to teach empathy so that students can provide care to all patients. This review searched six major databases to examine the long-term effects of efforts to improve empathic ability and expression in medical students. Twelve long term studies were found. Unfortunately, the results of teaching empathy long-term were unsuccessful. Most of the studies were not done well. More long-term studies are needed. Picking people with a record of helping others may be more effective than trying to “teach” empathy.

Introduction Role of Empathy

Empathy is a central component of quality clinical care and medical professionalism. It is at the “center” of the AAMC Core Entrustable Professional Activities.^{1,2} Each of the three facets of empathy, namely affective, cognitive, and motivational, is important and

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has to be adaptively engaged to positively influence patients' health.³ Once viewed as an innate character trait, it is now understood as a complex, dynamic, homophilic relational process based on the demands placed on individuals in the context of their environment.⁴ The study of empathy is challenging because of disagreements about its definition, weaknesses in study methodologies, and differences in the construct measured in past studies.^{5,6} The lack of consensus about the definition of empathy in medical education is bolstered by complex variables, including the relationship of an individual's attitudes, beliefs, and social and institutional norms. Significant individual variation in moral reasoning, cooperation, fairness, reasoning styles, self-concepts, and related motivations adds to definitional difficulties.⁷

These challenges notwithstanding, the topic represents an area of urgent concern within medical education. Low empathy scores have been associated with poor medical student clinical performance in the UK,⁸ the US,⁹ and Australia.¹⁰ It was therefore significant that Konrath identified a 40% decline in empathy among US college students from 1960–2000.^{11,12} Studies of future physicians have also identified declines in altruism below the mean of the general public, as well as increases in narcissism and cynicism.^{13–15} Reductions in empathy, primarily associated with the clinical phase of medical school but occurring throughout medical training have also been widely reported;^{5,16} at least 18 articles have been published on the topic since 1955.¹⁷

Following recommendations by the Association of American Medical Colleges 20 years ago,¹⁸ medical education has responded by “teaching empathy.” Although “teaching empathy” is widely practiced, its efficacy is unclear.¹⁹ The effectiveness of short-term empathic training seems to vary according to student characteristics. Short-term empathic training is generally more effective in egalitarian students^{20,21} and those of Asian ancestry.^{22–24} Specifically focused curricula²⁵ have the greatest improvement in empathic capacity. In particular, this training improves perspective-taking and understanding of others' emotions, which are arguably most important to physician empathy,²⁶ and most susceptible to change through teaching.^{22,27,28} Regardless of the measure used, the mean effect size for empathic interventions is small to medium.^{22,29–32} Attitude changes are infrequent and relatively small as well.²⁰ Both the factors associated with efficacy and the small effect sizes overall suggest the importance of childhood socialization.

Socialization Influences

Empathy development during adolescence is considered crucial. Increases in perspective-taking (cognitive empathy) occur in adolescence, although the pattern of changes in empathic concern (affective empathy) is less clear. Longitudinal studies show mid-adolescence as a time of empathic malleability.³³ Both cognitive and emotional components of empathy contribute to the development of moral judgment for as perspective-taking and empathic skills increase; moral judgment increases too.³⁴ Empathy levels and the change in adolescent empathy predicts differences in adulthood social competencies.³⁵ After the conclusion of adolescence, empathic capacity (cognitive and affective empathy) remains relatively stable.^{36,37}

Socialization during childhood imparts values and social tendencies^{38,39} that persist and guide behavior throughout life—even after one's education, decades of experience and life circumstances have changed.^{40,41} Biographical experiences and personality traits also influence the development and expression of empathy for a lifetime.^{42,43} In particular, results show that prejudice expressed by parents or peers exerts a significant negative impact on a child's empathy over time, whereas intergroup friendships may protect against these declines.⁴⁴ Meaningful diverse friendships during the important adolescent period of empathic malleability may be associated with greater empathy and inclusion.^{33,45} As a result, medical students have a variety of attitudes and dispositions about the value of empathy, the importance of its instruction,^{25,46} and its relationship to desired outcomes. If adequate levels of empathy do not develop during the critical period of adolescent empathy development,³⁵ educators must overcome now-embedded genetic, biographical, and attitudinal inhibitors through group instruction five to ten years later.⁴⁷ While some will prove receptive to changing attitudes through teaching,⁴⁸ many physicians—like many Americans may continue to discriminate against those they perceive as different due to the influence of biographical experiences, cultural learnings, or personality traits.^{49,50} A key challenge for educators is distinguishing these responsive and non-responsive populations.

Empathy Measurements

Such distinctions are especially difficult due to the tendency of conflicting results to arise when testing empathic measures in the same population. This may range from a differing effect size to an outright negative result.³⁰

These potential discrepancies reflect differing empathic constructs.^{22,32,51,52} Whether these constructs are mutually exclusive, the degree they overlap, or their clinical relevance is all unknown. This is all before considering the issue of patient-to-patient variability in clinical performance which implies accurate assessment requires multiple observations across different clinical settings by different observers.⁵³ Considering the case of patients from marginalized populations the issues are more complex still. Some have gone so far as to even argue that the measurement of individual empathy is unknowable.⁵⁴

The uncertainties around educational interventions to promote empathy only expand with a longer frame of reference. According to recent reviews, many interventions have only shown temporary effectiveness.^{17,19} Many of the reported positive short-term studies do not exclude the possible influence of a Hawthorne effect. When longitudinal designs were employed, effect sizes declined over time.²⁹ However, the concerns that inspired these curricular innovations were all tied to a negative impact on the quality and character of clinical medicine. While short term efficacy is necessary, it is insufficient to address the problem unless its positive effects are sustained. We educate students to enhance and retain empathic knowledge and skills, not for 6 weeks or even 6 months, but a practice lifetime, 40 years. Given the majority of the empathic instruction occurs early, teachings that lack the durability of a year are likely to have dissipated before the principle clinical exposure. The issue is magnified by the opportunity costs of ineffective instruction. Medical school curriculum committees struggle to meet the demands of various groups to add or increase the time allocated to their pet interest. We, therefore, sought to understand whether the effectiveness of reported studies is maintained over time, whether student characteristics influence long-term efficacy, and if specific types of intervention are more effective than others.

Methodology

The team discussed important keywords and preferred database vocabulary to develop a search strategy (See Appendix A). Databases searched included PubMed, Cochrane, Embase, CINAHL, PsycInfo, and Web of Science. The search strategy was adjusted to include the database's preferred vocabulary. Finally, the search was limited to includes studies published from 1980–2019. Relevant articles falling outside of this publication range (e.g. Poole 1980)²⁹ were added by co-authors.

The time range of publications varied to include articles retrieved from the literature and articles located by other means and included in this study. As we have noted, our central questions were to determine the long-term (defined as greater than 1 year) empathic effectiveness of reported studies by the different types of empathic interventions, and student and school characteristics. After reviewing full-text articles, the Yale MESH Analyzer tool,⁵⁵ which is a website that uses PubMed Identification numbers to retrieve MESH terms for published articles, was used to verify that the selected articles matched the inclusion and exclusion criteria of the study.

Inclusion Criteria

Our inclusion criteria specified peer-reviewed studies of medical trainees published in the English language. Empathy had to be quantitatively measured before and following an empathic intervention with a pre-specified follow-up period and an appropriate statistical analysis. When empathic improvement was not the primary focus of the study, but valid measures of empathy were employed on an appropriate population, the study results were included. Philosophical, theoretical, qualitative, single case studies and correlational articles were excluded.

Study Methodological Quality

The methodological quality (internal consistency, interrater and intra-rater reliability, and criterion validity) was determined using the 10-item medical education research study quality instrument (MERSQI). Studies were independently rated using criteria articulated as adapted from Reed and colleagues.⁵⁶ Study design, sampling, type of data, the validity of the evaluation instrument, data analysis, and outcomes were assessed for each study. Achievable scores ranged from 3–18. Two reviewers independently assessed the study quality of studies meeting study inclusion criteria. Disagreements were resolved by discussion between the reviewers. All meeting the MERSQI quality standard (>7) were included.

Results

A total of 4910 articles were identified. After 228 duplicates were removed 4682 articles remained (Figure 1). A comprehensive review of all 4682 non-duplicative abstracts and titles was undertaken independently by two co-authors (RFB and MH). When differences arose between reviewers those articles were included in the full-

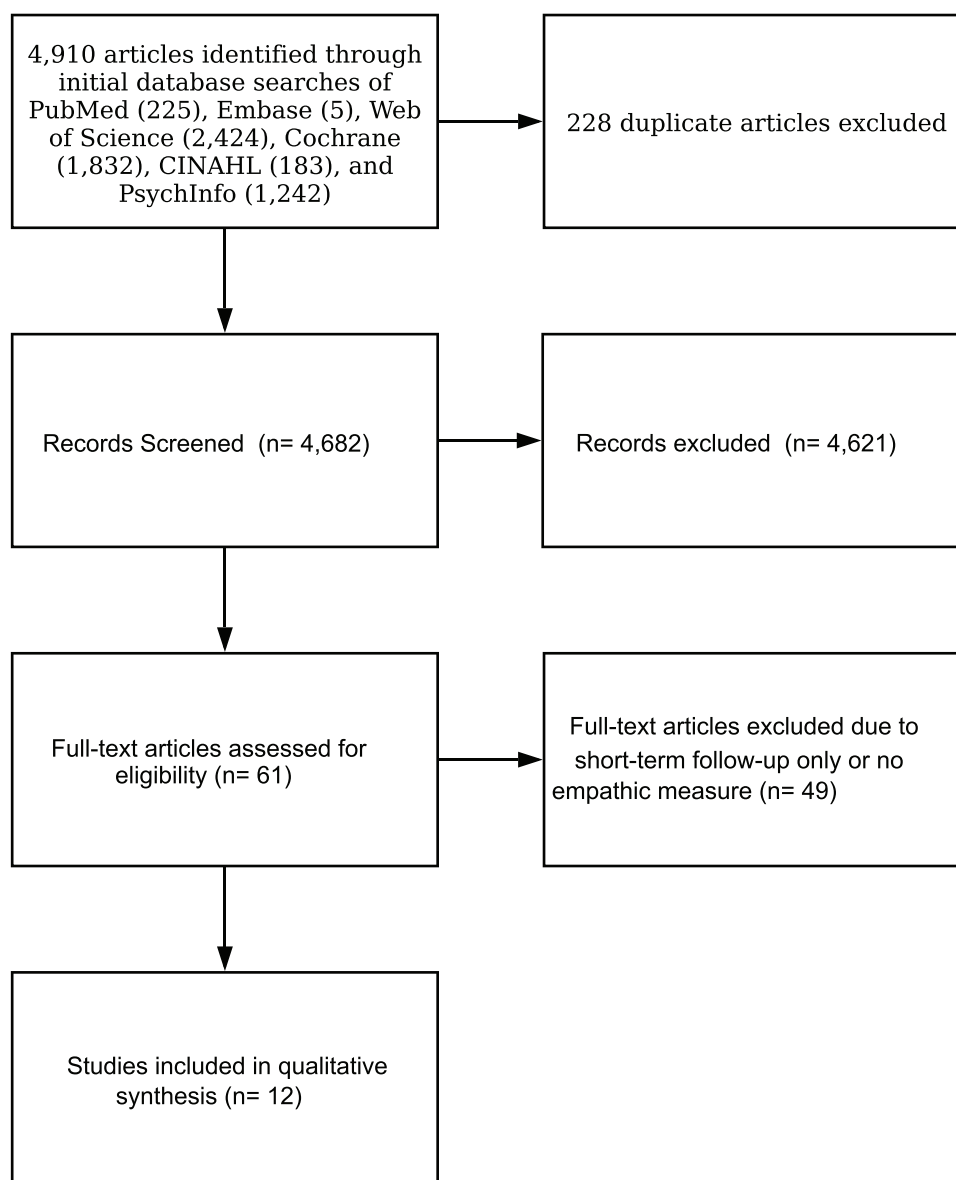


Figure 1 Flow chart for the inclusion of studies for systematic review.

Note: Adapted from Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7): e1000097.

text review. All full-text articles were then screened against the eligibility criteria. The two co-authors selected 61 articles for full-text review. To be inclusive, an additional ten potential articles were identified by a review of the reference section of recent publications. The range of MERSQI scores for accepted articles was 7.5 to 10. The median score was 8. Applying the criteria proposed by Fontaine and colleagues to the MERSQI scores,⁵⁷ all studies were of low quality. According to Kirkpatrick's model of evaluation,⁵⁸ all studies save one were targeted to level 2, learning, while a single study assessed at the level of behavioral change.

The overall number of long-term studies was low, especially when compared to the number and diversity of short-term investigations^{16,26,51,52,59–66} No two interventions were identical. A majority of the studies were observational cohorts. These tests the gestalt effects of exposure to medical education, where a variety of formal curricula around empathy have been implemented in recent decades, and significant socialization around emotional responses has been noted since the 1960s.⁶⁷ Descriptions of the participants were incomplete or absent. The context was rarely described beyond the study site, without specific characterization of each school's curriculum or empathy-related didactics. No

study described their institution's broader climate or the nature of its hidden curriculum. Collectively, these issues are important because they provide a framework for understanding the effectiveness of educational interventions.

Five articles were from the US and seven from abroad. US studies show declines over time. New Zealand, Japanese, and English studies using the Jefferson Scale of Physician Empathy (JSPE) scores in their respective language versions declined over the years as well (Figure 2). A single UK study using the Interpersonal Reactivity Index (IRI) found mixed results. Different measures of cognitive empathy either increased or decreased over time within the same study population depending on the study instrument utilized.⁵¹ Differences in culture, educational system, population, and other differences preclude direct comparisons with studies from other countries, yet the absence of any consistent, lasting improvement in essentially every study is a disappointment.

Discussion

We conducted a review of the English language literature for long term outcomes of empathy training in medical education (Table 1). This focus was selected because the challenge for any intervention to change empathy is not only overcome the unconscious and conscious nature of empathy but also inculcate a level of change that is automatic at a state level and insulated over time in an enduring way.⁶⁸ We identified twelve articles meeting criteria for inclusion, which collectively offered little evidence for the proposition that

educational interventions improve the empathy of medical trainees. While overall evidence is sparse, important themes emerged including the measurement of empathy, the impact of clinical exposure, and the importance of baseline disposition.

The complexity of measuring empathy emerged as a major concern in our review. Not only did instruments vary across studies, but the underlying construct of empathy employed varied as well. Which, if any construct is best at measuring clinically meaningful attributes of empathy, remains to be elucidated. Both the Interpersonal and Social Empathy Index and the Questionnaire of Cognitive and Affective Empathy have been validated for use in the general population.^{69,70} There has been limited application of these instruments to healthcare-specific contexts. The IRI is amongst the most widely used measures of empathy in the general population and has been validated for use within healthcare contexts.⁷¹ However, the version employed by Quince et al⁶² is modified to present only two subscales, reflecting only half the factors originally described.³⁷ While popular, recent scholarship has challenged the validity of some two-factor structures.⁷² To our knowledge, there has been no specific validation of the modified version employed here, meriting caution in our interpretation of the results. The majority of studies employed the JSPE. This self-report survey was developed explicitly for and has been validated in healthcare providers.⁷³

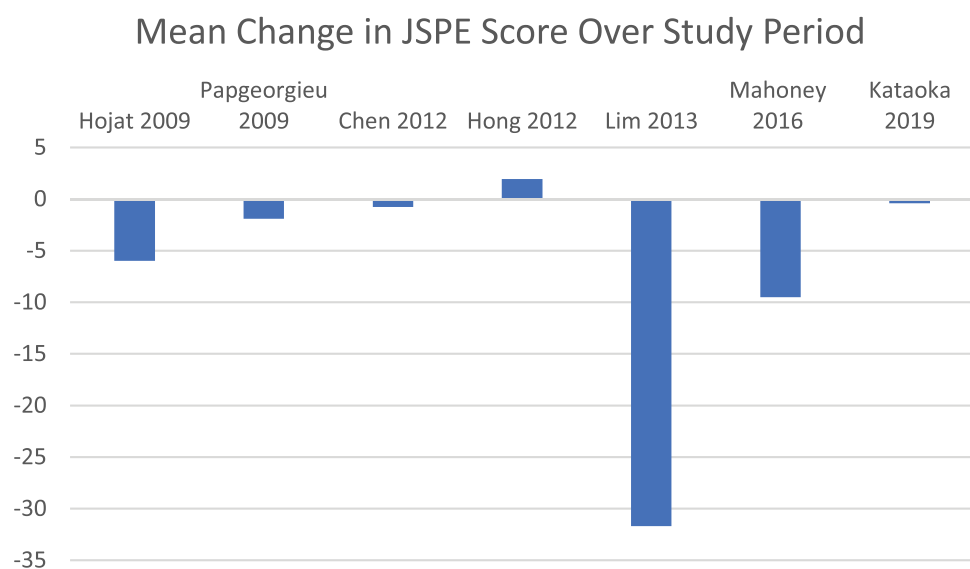


Figure 2 Mean change in JSPE score from first to last measurement in every study. Y-axis is change in score. Studies not utilizing the JSPE and those reporting likelihood ratios excluded. Primary data for calculating standard deviations was not available for all studies and was consequently omitted.

Table I Selected Features of Studies Analyzed

| Study | N | Site | Duration | Intervention | Instrument | Change in Empathy | Outcome |
|--------------------------------|------|---------------------------|----------|--|--------------------------------|-----------------------------|--|
| Kataoka 2019 ⁶⁵ | 69 | Single center Japan | 6 years | Standard curriculum | JSE | -0.4 | No change |
| Lim 2013 ⁶⁰ | 72 | Single center New Zealand | 1 year | Standard curriculum | JSE | -0.36 | Decline |
| Quince 2011 ⁶² | | Single center UK | 4 year | Standard curriculum | Interpersonal Reactivity Index | | No clinically significant change |
| Hojat 2009 ²⁶ | 456 | Single center US | 4 year | Standard curriculum | JSE | -6.0 | Decline |
| Papageorgiu 2019 ⁵⁹ | 66 | Single center | 5 year | Standard curriculum/ Annual communications skill session | JSE | -1.9 | Decline |
| Smith 2017 ⁵¹ | 129 | Multi-center Chicago IL | 3 year | Standard curriculum | JSE-Student version + QCAE | -0.09/(mo?) (JSPE) / | Decline |
| Wellbery 2019 ⁶⁴ | 76 | Single center US | 3 year | Standard curriculum | Social Empathy Index | +0.19 | Improve |
| Mahoney 2016 ⁶³ | 281 | Single Center Australia | 1 year | Standard curriculum | JSE | -9.5 | Decline |
| Poole 1980 ²⁹ | 45 | Single Center Australia | 3 year | Tune-In Empathy Training Workshop | Accurate Empathy Scale | +0.91 in experimental group | Improve |
| Hong 2012 ⁶¹ | 233 | Single Center Korea | 1 year | Standard curriculum, MC vs MS system | JSE | +1.95 | Improve |
| Chen 2012 ¹⁶ | 1162 | Multi-center US | 4 year | Standard curriculum | JSE | -0.76 | Decline |
| Hojat 2005 ⁶⁶ | | | | | JSE | | This doesn't seem to measure change in empathy over time |

Notes: ^aJefferson Scale of Physician Empathy. ^bBehavior Change Counseling Index. ^cInterpersonal Reactivity Index – Affective Empathy. ^dInterpersonal Reactivity Index – Perspective Taking. ^eQuestionnaire of Cognitive and Affective Empathy. ^fReading the Mind in the Eyes Test. ^gSocial Empathy Index. ^hAccurate Empathy Scale.

Even here there are caveats. While it measures both affective and cognitive aspects of empathy, the conceptualization of the JSPE was oriented primarily to the latter.⁷⁴ Such models do not account well for the gap that can emerge between knowledge and behavior in clinical medicine. This phenomenon has been amply demonstrated even in cases much simpler and more

robustly supported than empathy.⁷⁵ At present, a small number of studies suggests a correlation between high JSPE scores and long-term behavior⁶⁶ or outcomes.⁷⁶ Summarily while no single instrument demonstrated all ideal qualities for measuring empathy, the studies using the best widely-available tools for measurement demonstrated a trend towards decline.

Teaching May Not Be the Answer

Only one study stratified participants according to their baseline level of empathy. In it, the participants with the highest initial scores recorded the least longitudinal declines.¹⁶ Nine studies stratified by gender and all found female participants had higher baseline empathy scores. Among these, one noted a greater rate of increase in empathy in females than males⁶⁴ one reported a smaller decline in females than males,²⁶ one reported a trend towards a slower rate of decline in females⁵⁹ and another had a similarly suggestive phenomenon amongst third year students wherein, while initial differences were not statistically significant, in serial testing such a gender gap opened despite declines in both groups.⁶³ The remainder that commented reported no difference in the rate of change by gender.^{6,16,51,60,61} Cumulatively, these results suggest the importance of a student's baseline empathic disposition on entering medical school. Regardless of the achieved changes in empathy with instruction, this suggests one alternative for addressing deficits currently observed in medical education. In current admissions practice, medical students reflect the complete spectrum of empathic dispositions.⁷⁷⁻⁷⁹ Applying more discretion around the selection of students with demonstrable records of prosocial activities with diverse groups may be helpful. At present, it is better supported than attempts to "teach" learners out of their base empathic predispositions. It also balances respect for the autonomy of those who chose little interest in empathy on the one hand, and more assuredly limiting the resultant compromises in quality of care that might derive from the current practice of directing them towards technology-oriented specialties⁸⁰ on the other.

Clinical Interactions are Not Enough

The most common exposure in the reviewed literature was to the existing curriculum. The majority of these studies demonstrated declines in empathy. This is uniformly true in those studies conducted in locales like Chicago and Philadelphia, where ethnic and economic diversity is above the mean for American cities.⁸¹ This finding is also congruent with previous reports that the greatest declines in empathy occur during the clinical years of training.²⁶ While brief interactions between learners and marginalized populations occur all the time in medicine, research suggests such contacts do little for students' greater understanding of marginalized people.⁸² The idea that merely being present while "good" medicine takes place is not an effective learning strategy because student learning from role models is complex and haphazard.⁸³ Empathic, inclusive attitudes are associated with having experienced diverse

interactions of varying levels of intimacy bolstered by everyday instances of proximity and familiarity,⁸⁴ not just structured clinical activity.⁸⁵

Change is Possible

However, empathy can be augmented in receptive subjects.^{86,87} In contrast to the interventions reported here, those that successfully change traits are often more intense and individualized. They last an average of five days/week for 24 weeks,⁸⁸ which is much longer and more intense than that typically reported for medical school group empathic interventions. The implicit attitudes that foster the development of an empathic physician can be developed over a long period of repeated exposure that overcomes the natural resistance to change.⁸⁹ Repeated short-term, situational processes are necessary cumulatively for lasting changes in explicit and implicit personality characteristics and behavioral patterns as well as long-term personality change.⁹⁰ The changes most associated with improved self-rated preparedness to care for diverse patient populations include increased dispositional empathy, reduced social dominance orientation, and reduced need for cognitive closure.^{20,91} However, this development requires conditions that are difficult to replicate within a medical school curriculum. There is some parallel in the way everyday interactions can build emotional connections between classmates and faculty, ultimately facilitating inclusiveness and the success of marginalized students.^{92,93}

A Hypothesis on Clinical Exposure and Declining Empathy

An intriguing possibility is that the observed declines in clinical empathy are not a loss of overall empathic capacity at all, but rather a lack of use within the physician-patient interaction.²⁵ If true, it suggests the issue is empathic motivation. The many efforts targeting affective and cognitive elements may be misdirected. The ability to perceive and be sensitive to the emotional states of others must be coupled with the motivation to care for their wellbeing. All three facets of empathy (affective, cognitive, and motivational) are important and must be engaged and adapted to positively influence patients' health.³ Empathy declines until a "minimum level of empathy" that meets personal and professional needs is established.⁹⁴ Several lines of evidence support this possibility. Recent neuroscientific studies show that "mirror neurons" enable us to empathize with others,⁹⁵ setting the stage for empathic expression. But the signal rate of these neurons is substantially reduced when a person with

limited empathic capacity experiences anxiety, tension, or distress. The conflict between the social expectation of empathy for patients with a given social identity and the provider's beliefs about them creates exactly such conditions. Students detach and distance themselves from patients during the course of medical instruction⁹⁶ until some personal compromise is reached that minimally satisfies personal and professional expectations and personal comfort level. Whether the frequency or duration of empathy-inducing exposure associated factors or some combination causes the cognitive adjustment is unknown. The observation that students with lower baseline empathy at the start of medical school have a faster rate of decline and decreased further than those with higher baseline empathy¹⁶ is in line with this theory. Students with lower empathy scores self-select technology-oriented specialties, perhaps because they recognize their inherent limitations with empathic encounters.¹⁶ Moreover, the theory also offers a plausible rationale for the linkages between empathy, depression, and burnout as manifestations of incongruence between personal and professional expectations, clinical practice, and personal comfort level.

Future Research Improvements

Methodological weaknesses have been heralded by many authors as an important shortcoming of this body of investigation. This review found little has changed. Improvements are possible. A greater number of long-range studies reporting results beyond one year should be undertaken. Greater specificity should be encouraged about the nature of interventions and the program of instruction as it relates to empathy. Careful, broad appraisal of the context of instruction is necessary. Reported success or failure may be influenced by extrinsic factors like the overall diversity climate or hidden curriculum of the institution. Short of this, more meaningful characterization of the school like size, class composition, location, and mission would provide important context. Especially when undertaking long term studies, current theories for decline in empathy make these kinds of descriptors essential. Authors should also consider employing multiple relational empathic tools and identify which area of empathic is under investigation: behavior, attitude, or orientation.

Both the entire body of results suggesting the stability of empathic trajectories and the findings stratified by empathy suggest an important new direction for research. While study size is an understandable limitation, the general trend has instead been towards judging aggregate movement of the class without consideration of movement by subpopulations (e.g., high vs. low empathy groups or

greater vs. lower racial implicit bias).⁹⁷ Those in the lowest strata of measured empathy deserve special attention. What happens to the average student following an empathic intervention may have less salience if lower-tier students fail to improve or get worse.^{20,98} These issues may have particular relevance since those who have lower scores get even worse with clinical exposure.¹⁶ It is unclear what to do with students exhibiting these characteristics because empathic motivation may be lacking for just specific populations, a condition that is seldom examined. An explicit assessment of student expectations and desires also seems warranted. Understandably, the effectiveness of the empathic training may have little—or even an adverse—effect on students with little interest, low empathic capacity, or in schools where the context for learning is poor.^{20,99} By considering stratified rather than aggregate outcomes alone, effective interventions might be identified in the receptive group, while important backlash effects could be identified among those that are not interested or have low baseline empathy.

Finally, the practical dimension of the proposed interventions deserves greater scrutiny. As a statistically significant result does not guarantee clinically important improvement, let alone gains sufficient for empathic adequacy or competency to practice medicine, studies focused on later stages of change would be helpful.⁹ Implementation costs to students must roughly reflect the value and expectation that they place on achieving greater empathy and the benefits they believe it will bring. Performing new behaviors or having new experiences must be made feasible and socially desirable within the students' social environment.^{59,100} Resistance to empathy messaging and or even a backlash can occur with poorly targeted or executed interventions.

Limitations

We accepted the results published in all papers that measured empathic interventions with follow-up at face value. Cognitive empathy was most often explored. Many interventions were short-term, single-institution studies that were pilot or preliminary studies. Descriptions about the participants or context were most often missing or incomplete. Most often the concept being investigated was not well described. The lack of demonstrated effectiveness of our current efforts does not mean that “teaching empathy” could not or does not ever work. The results could be due to the low power of studies, unique sample characteristics, the medical school context, procedural details other than the intervention itself, or there could be yet unidentified

constraints for when interventions will be useful. Additional empathic research is warranted.

Conclusions

Disturbingly, despite 20 years of “teaching empathy,” that challenge of teaching empathy has not been met. Demonstrable evidence for empathic improvement following empathic interventions consists primarily of positive, short-term results using a variety of methodologies. Programs have been presumed valid and to result in better patient care with merely preliminary results. But based on the available evidence, there is very little support for any lasting effect of any empathic intervention regardless of what instrument is used to measure it or how it was taught. The relational themes that guide medical students with greater humanism appear enduring^{60,101} but seldom acquired by those exhibiting less humanism.⁶¹

Increasing public dissatisfaction with physicians, 40 years of declining empathy among US college students, measurable declines in empathy as a result of medical education and training, and the inability to demonstrably prove that empathy can be taught or maintained long-term cannot be ignored. The development of an effective relational empathy pedagogy needs to become a focus of medical education.⁵ The learning environment at more than sixty percent of American medical schools is hostile to learners with a pro-social orientation.⁸⁸ Corrective action should be pursued in a multi-modal fashion. The role of the hidden curriculum¹⁰² in undoing the strides made by earlier empathy instruction is under-studied relative to the exploration of factors promoting empathy. This research could be paired with more decisive action to resolve these noxious influences. Tackling these and other inhibitors of empathy¹⁰³ would do much to improve the educational climate.

To tilt the composition of medical schools towards empathy, selection processes should be redesigned to favor both faculty and student candidates with correlates of high empathy, like a sustained history of prosocial activities,^{103–105} and a favorable profile of noncognitive abilities.^{106–108} Designing the selection process to favor individuals with higher empathy initially may result in greater empathy upon graduation¹⁰⁹ and potentially beyond.⁷⁹ The choice in medical school selection is not a Faustian choice of either/or as applicants display a spectrum of both cognitive and noncognitive characteristics including empathy. A holistic review of the thousands of academically capable students possessing the desired personal attributes should be favored over those lacking the requisite empathic qualities. The case for action is straightforward. If

patients are truly valued as equals, faults in empathic behavior need not occur.¹¹⁰ This is a mandate for institutional change, not merely curriculum reform. While we attempt well-evidenced interventions to promote empathy, we cannot and should not ignore alternative paths to this goal.

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