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Why might medical student empathy change throughout medical school? Protocol for a systematic review and thematic synthesis of qualitative studies

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ABSTRACT

Introduction Several studies suggest that medical student empathy declines throughout medical school. However, no studies have systematically investigated why. The objective of our proposed review is to conduct a systematic review and thematic synthesis of qualitative studies investigating the reasons empathy may change throughout medical school.

Methods and analysis This systematic review protocol follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. We have searched MEDLINE, Scopus, CINAHL, ERIC and APA PsycINFO for relevant studies. We will also search reference lists of included studies and contact experts to identify additional studies. We will include any qualitative study investigating the reasons why empathy changes throughout medical school. We will use the Joanna Briggs Institute tool to evaluate the risk of bias in the included studies. We will use thematic analysis to synthesise our results. For all included studies, we will summarise the main characteristics including the number of participants, medical school year, country and gender. In our discussion, we will summarise the limitations of the evidence (including the risk of bias and inconsistency), and provide a general interpretation of the results and important implications.

Ethics and dissemination This study will not require ethical approval since no original data will be collected. The results of this review will be published through peer-reviewed publications and conference presentations. Additionally, this review will inform changes to the enhanced empathy curriculum at the Leicester Medical School.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This review addresses a gap in the current evidence-base by systematically answering the question of why empathy might decline throughout medical school.
⇒ This systematic review protocol follows the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols guidelines.
⇒ No language restriction will be applied to the selection of the studies.
⇒ There may be a limited number of studies available for the synthesis, which could affect the certainty of the evidence.

INTRODUCTION

Rationale

Empathy in healthcare appears tobeneficit patients (by reducing their pain and improving satisfaction with care[1]) and practitioners (by reducing burnout[2 3]). Despite its potential benefits, the extent to which patients report that their practitioners are empathic varies widely.[4] In addition, several studies have suggested that medical student empathy appears to change throughout medical school. A systematic review published in 2011 identified 11 studies of medical student empathy change.[5] Ten of the studies found that medical student empathy decreased during medical school, and the other study found that empathy remained stable. A more recent systematic review published in 2020 with 30 included studies found equivocal results, with more studies showing a decrease in empathy throughout medical school (n=14) than those showing an increase (n=6) with the remaining studies suggesting no significant change.[6] At least one study has investigated whether empathy declines throughout medical school since the recent systematic revie: a cross-sectional study involving 41 osteopathy students found that empathy declined by a very small amount throughout their training.[7] One systematic review also suggests that the change in empathy throughout medical school may have a cultural component, with US medical schools showing a decline and studies from the Far East showing an increase in empathy throughout medical school.[8]

Qualitative studies investigating the reasons *why* empathy declines throughout

medical school appear to be rare.[9] Those that have been conducted report that the reasons for empathy decline include prioritising specialised biomedical knowledge,[10] and lack of time.[9 11] However, this qualitative literature has not been synthesised. A better understanding of why empathy seems to decline among medical students throughout medical school can inform interventions designed to prevent or reverse the decline.

Objective

This study aims to systematically review the qualitative evidence that explains why medical student empathy may change throughout medical school.

METHODS AND ANALYSIS

This protocol has been reported according to the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols 2015 statement.[12]

Eligibility criteria

We will select studies according to the criteria specified below.

Study designs

We will include qualitative studies. This will include qualitative studies embedded within or reported in the same publications as non-qualitative studies (such as randomised trials or surveys). However, we will not consider any non-qualitative data.

Participants

We will include studies involving medical students (including both undergraduate and graduate entry medical students) from any country.

Outcomes

We include studies that explicitly report why or how empathy declines throughout medical school. This will include outcomes related to factors that mitigate against or promote empathy change throughout medical school.

Setting

The setting will be any in which medical students are interviewed.

Language

We will include articles reported in any language.

Information sources

We will search PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Education Resources Information Center (ERIC) and PsycINFO for relevant studies. We will search these databases from inception to 18 July 2022. We will also search reference lists of included studies and contact experts to identify additional studies, including unpublished studies and grey literature.

Search strategy

We will develop a search strategy using Medical Subject Headings and text words related to empathy in medical school. Only qualitative studies will be sought. This will include studies that included discrete qualitative substudies. There will be no restriction on the date or language imposed. We will search MEDLINE, Embase, PsycINFO and CENTRAL. A professional information specialist will create the search strategy, see online supplemental appendix 1 for draft MEDLINE search strategy. No date limits will be placed on the search strategy. We will use searchrefiner to optimise our search strategy.[13]

Study records

Data management

Search results will be uploaded from Endnote (version 20) to Screenatron.[14]

Selection process

Titles and abstracts will be screened independently by two reviewers, with discrepancies resolved in discussion, if necessary, with a third reviewer. Two review authors will then independently screen full texts to determine eligibility, with any discrepancies resolved by discussion with a third author if necessary. Reasons for inclusion or exclusion will be recorded.

Data collection process

Using a prepiloted, standardised form, two independent reviewers will extract study data. Discrepancies will be resolved by discussion, with an arbitrator (JH) adjudicating unresolved disagreements.

Data items

We will extract data about the study (aim, design, qualitative approach and rationale, setting), participant characteristics (age, gender, medical school year), interviewee (profession, characteristics), details of the interviews or focus groups and results (including descriptions and direct quotes supporting themes and subthemes).

Outcomes and prioritisation

Our primary outcome will be any aspect of medical students' reported experience or reflection of empathy in medical school, with a focus on how or why empathy might change throughout medical school. We will collect data from qualitative interviews (including focus groups).

Risk of bias in individual studies

We will use the Joanna Briggs Institute tool for assessing the risk of bias in individual qualitative studies.[15] This tool is considered suitable for assessing the quality of qualitative research.[16] Where possible, we will do this at the outcome level. However, because qualitative studies rarely report sufficient data (such as number of participants or interviews that supported a particular outcome), we anticipate assessing the risk of bias at the study level as well. One reviewer will assess the risk of bias and the risk of bias

will be checked by a second reviewer, with discrepancies being resolved in discussion with a third reviewer.

Data synthesis

Our scoping search on this topic suggested that the data were unlikely to be highly theorised or conceptual. Therefore, we anticipate synthesising the data using thematic synthesi. Thematic synthesis is recommended by the Cochrane Qualitative and Implementation Group for the type of data we anticipate collecting.[17]

Thematic synthesis involves three phases,[18] which are applied to all included studies.

1. **Line-by-line coding**. Two senior reviewers will begin by independently coding a proportion of the findings to determine meaning and context. The codes will be discussed, reviewed, further developed and agreed by the two senior reviewers. One reviewer will then code all data, and the coding will be checked by a second reviewer. Discrepancies in coding will be resolved through discussion with a third reviewer if necessary.
2. **Generation of descriptive themes**. For this stage, codes will be grouped into descriptive themes. These themes will capture and describe similarities in the data across different individual studies. The themes will be organised into a table, with one theme per column. Coded data from each study will illustrate the themes in rows of the table. The table will facilitate illustrative data that captures the similarities and differences within the data where possible.[19]
3. **Generation of interpretive/analytical themes**. These interpretive/analytical themes identifying new insights from the synthesised data were created from the descriptive themes. These themes go beyond findings from each study by synthesising findings across studies and involve interpretation.

We will use the NVivo software to assist with the thematic synthesis.

Subgroup analysis and investigation of heterogeneity

If there is sufficient data, subgroup analyses will be used to explore possible sources of heterogeneity, based on the following.

- Medical school programme (graduate entry or undergraduate entry).
- Medical student characteristic (age, sex).
- Continent.

These subgroups are based on the hypotheses that the change in empathy throughout medical school may differ by geographical region,[8] that healthcare practitioner empathy varies significantly depending on characteristics (especially sex/gender)[4] and also by age (which is correlated with whether programme is graduate or undergraduate).[20 21]

Sensitivity analysis

If there is sufficient data, sensitivity analysis will be performed to explore the source of heterogeneity by quality components, by omitting studies that are judged to be at high risk of bia.

Meta-bias(es)

To help determine whether there were meta-biases, we will investigate whether the outcomes in the individual studies were prespecified in a protocol.

Confidence in cumulative evidence

We will investigate the confidence in cumulative evidence with the Confidence in the Evidence from Reviews of Qualitative research approach.[22] This involves evaluating how likely that the findings represent a real phenomenon, and requires evaluating: (1) methodological limitations of primary studies, (2) the relevance of the primary contributing studies with regard to the objectives of the systematic review, (3) the coherence of the finding and (4) the adequacy of data supporting the finding.

To reduce the potentially biasing influence of the inherently subjective nature of these evaluations, two reviewers will collaborate to perform them. We will present a summary table for each finding that includes primary contributing studies, evaluations of the above four domains, an overall confidence rating (high, moderate, low or very low) and a brief explanation of the rating judgement.

Patient and public involvement statement

Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research.

Ethics and dissemination

This study will not require ethical approval since no original data will be collected. The results of this review will be published through peer-reviewed publication and conference presentations. Additionally, this review will inform changes to the enhanced empathy curriculum at the Leicester Medical School.

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Contributors JH is the guarantor. JH drafted the manuscript, and AA, MD, SNF, KN, NA, RW and RH contributed to: revising the manuscript. All authors contributed to developing the selection criteria, the risk of bias assessment strategy and data extraction criteria. KN and JH developed the search strategy. JH, AA, MD, SNF, KN, NA, RW and RH read, provided feedback and approved the final manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

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APPENDIX 1. Sample search strategy (OVID Medline)

1 Empathy/ or empath*.mp. 34040
2 Compassion.mp. 8379
3 Students, Medical/ 41045
4 (medic* adj3 student*).mp. 69694
5 1 or 2 38849
6 3 or 4 69694
7 5 and 61829
8 ((("semi-structured" or semistructured or unstructured or informal or "in-depth" or indepth or "face-to-face" or structured or guide) adj2 (interview* or discussion* or questionnaire*)) or (focus group* or qualitative or ethnograph* or fieldwork or "field work" or "key informant")).tw,kw. or interviews as topic/ or focus groups/ or narration/ or qualitative research/ 475014
9 ((mixed or multi*) adj2 method*).ti,ab. 95691
10 multimethod*.ti,ab. 2265
11 8 or 9 or 10 544371
12 7 and 11 426
13 limit 7 to "qualitative (maximizes sensitivity)" 1254
14 12 or 13 1347