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Impact of emotional competence on physicians' clinical reasoning: a scoping review protocol

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ABSTRACT

Introduction Clinical reasoning (CR) is a key competence for physicians and a major source of damaging medical errors. Many strategies have been explored to improve CR quality, most of them based on knowledge enhancement, cognitive debiasing and the use of analytical reasoning. If increasing knowledge and fostering analytical reasoning have shown some positive results, the impact of debiasing is however mixed. Debiasing and promoting analytical reasoning have also been criticised for their lack of pragmatism. Alternative means of increasing CR quality are therefore still needed. Because emotions are known to influence the quality of reasoning in general, we hypothesised that emotional competence (EC) could improve physicians' CR. EC refers to the ability to identify, understand, express, regulate and use emotions. The influence of EC on CR remains unclear. This article presents a scoping review protocol, the aim of which will be to describe the current state of knowledge concerning the influence of EC on physicians' CR, the type of available literature and finally the different methods used to examine the link between EC and CR.

Method and analysis The population of interest is physicians and medical students. EC will be explored according to the model of Mikolajczak *et al*, describing five major components of EC (identify, understand, express, regulate and use emotions). The concept of CR will include terms related to its processes and outcomes. Context will include real or simulated clinical situations. The search for primary sources and reviews will be conducted in MEDLINE (via Ovid), Scopus and PsycINFO. The grey literature will be searched in the references of included articles and in OpenGrey. Study selection and data extraction will be conducted using the Covidence software. Search and inclusion results will be reported using the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review model (PRISMA-ScR).

Ethics and dissemination There are no ethical or safety concerns regarding this review.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ To our knowledge, this is the first review on the impact of emotional competence (EC) on clinical reasoning (CR).
⇒ The research team is multidisciplinary and includes clinicians, and experts on methodology, EC and CR.
⇒ Publications in languages other than English and French will be excluded.
⇒ Clear circumscription of the CR concept will be challenging because of its multiple definitions.

INTRODUCTION

Clinical reasoning (CR) is a core skill for physicians.[1] The processes underlying CR have been previously described and are similar to those of reasoning in general.[1] Our current understanding of CR is based on dual-process theory.[1 2] This theory distinguishes a rapid, intuitive reasoning process (type 1 process), involving pattern recognition, heuristics and gut feeling, and a slower, analytical process (type 2 process), based on hypothetico-deductive reasoning.[1 3] Like reasoning in general, CR is influenced by context, environment, emotions and interactions with others.[1]

CR is prone to numerous affective and/or cognitive biases that can affect patient management.[1 4–8] Although medical errors are not always linked to reasoning issues, those represent one of the most damaging sources of medical errors, due to their impact on diagnostic and/or therapeutic and/or prognostic accuracy.[9–11] Many strategies based on bias reduction (debiasing) have been proposed to improve reasoning quality, with inconsistent results. The only strategies that have demonstrated congruous positive results consist of improving physicians' knowledge base or promoting the use of an analytical reasoning process.[1 4 7 12–16]

Debiasing and the promotion of analytical reasoning have nevertheless been criticised, on the basis that intuitive reasoning processes are pragmatic, ergonomic and may capture information beyond the scope of analytical reasoning.[15 17] Experts mainly use intuitive processes and gut feelings have been shown

to have diagnostic value.[2 18–21] There is thus a need to develop alternative strategies to improve the quality of CR.

Among factors affecting human reasoning, emotions play an important role.[3 22 23] Because emotions inform individuals on their personal needs, values and goals, they support decision-making and influence individuals' action tendency. Previous data have shown that individuals with cerebral damage in subcortical areas—involved in processing emotions—were unable to decide between rationally equivalent options.[24]

Emotions have an impact on reasoning at several levels. They play a significant role in cognitive load, memory and attention modulation, reasoning quality and decision-making.[3 4 12 13 23 25–31] For example, incidental emotions (emotions not related to the reasoning content) can negatively affect reasoning by diverting attention and overloading working memory; whereas integral emotions (congruent with the reasoning content) can enhance reasoning processes.[26 30 32] Emotions also influence memory during encoding, consolidation and recall. Furthermore, they focus attention on items that are relevant to an individual's goals and personal integrity.[22 23] Finally, positive emotions promote heuristic processing of information, while negative emotions promote analytical reasoning.[23 25 26 28]

The ability of an individual to deal with emotions is called emotional competence (EC). Many frameworks have been developed to conceptualise it.[23 28 33 34] In 2009, Mikolajczak proposed an updated framework integrating several existing models.[35] It describes five emotional competences: identifying, understanding, expressing, regulating and using emotions. These competences can focus on one's own emotions (intrapersonal dimension) or on others' emotions (interpersonal dimension). Different levels of skills are described for each competence: the first level refers to an individual's knowledge about emotions, the second refers to their ability to use this knowledge in a given situation and the third refers to the natural tendency (trait) of an individual to act in a particular way.[28] EC is closely linked to emotional intelligence (EI). Both terms are often used interchangeably, but EC refers more specifically to the second and third levels of the model, where individuals actually apply knowledge.[23 35 36]

Regarding specifically the role of emotions in CR, it has been previously explored and reported in systematic reviews.[29 31] Positive emotions are associated with creative and thorough management of patients and better information integration.[31] Stress is associated with uncertainty in decision-making.[29 31] However, the authors of these reviews underline the need for more research on the influence of emotions on physicians' CR.[29 31 37]

Because CR is similar to reasoning in general, and because emotions play an important role in reasoning quality, we hypothesised that improving physicians' ability to manage their emotions, that is, their EC, could potentially improve the quality of their CR.[1] A better understanding of the link between EC and CR could also inform physicians' initial and continuing education.

While we know that emotions influence CR, the role of EC in physicians' CR remains unclear. This review aims to map the existing literature on the relationship between EC and its different components, and physicians' CR, and to identify the remaining gaps in the literature.

METHODS AND ANALYSIS

The present protocol follows the System for the Unified Management of the Assessment and Review of Information (SUMARI) template for scoping reviews proposed by the Joanna Briggs Institute (JBI).[38 39]

We first searched for an existing scoping or systematic review on this topic in the following databases (last search 19 July 2022): Cochrane library, Prospero, OSF, MEDLINE (via PubMed) and JBI Evidence synthesis. None was found. One ongoing scoping review is exploring the role of EC on reasoning in general; the findings of this review might subsequently complement ours, but the review does not target the same population. Because CR involves specific knowledge and the decisions it supports carry high risks, some findings from this review may not be transferable to physicians' CR.

Review question

The primary objective of the review is to describe the current state of knowledge concerning the influence of EC on CR in physicians and medical students. Secondary objectives include an assessment of the type of existing literature on the topic and a description of the evolution of the number of publications over time. To support future research on the topic, we will also report on how the link between EC and CR is operationalised in existing publications.

Eligibility criteria

Participants

All physicians, regardless of their specialty or working environment, will be included in this review. A preliminary literature search conducted prior to the scoping review protocol yielded some interesting research on EC and CR involving medical students or residents.[40 41] Moreover, as mentioned above, physicians may need to be better trained in EC.[42] For these reasons, we decided to also include medical students and residents in our search strategy. However, because CR is developed in close contact with patients and/or virtual clinical situations, we will only include articles involving learners actually engaged in a medical encounter (real or simulated).

Concept

Our search will focus on two main concepts, that is, EC and CR.

Emotional competence

As previously mentioned, EC is a concept derived from EI. EI covers several skills and has different definitions,

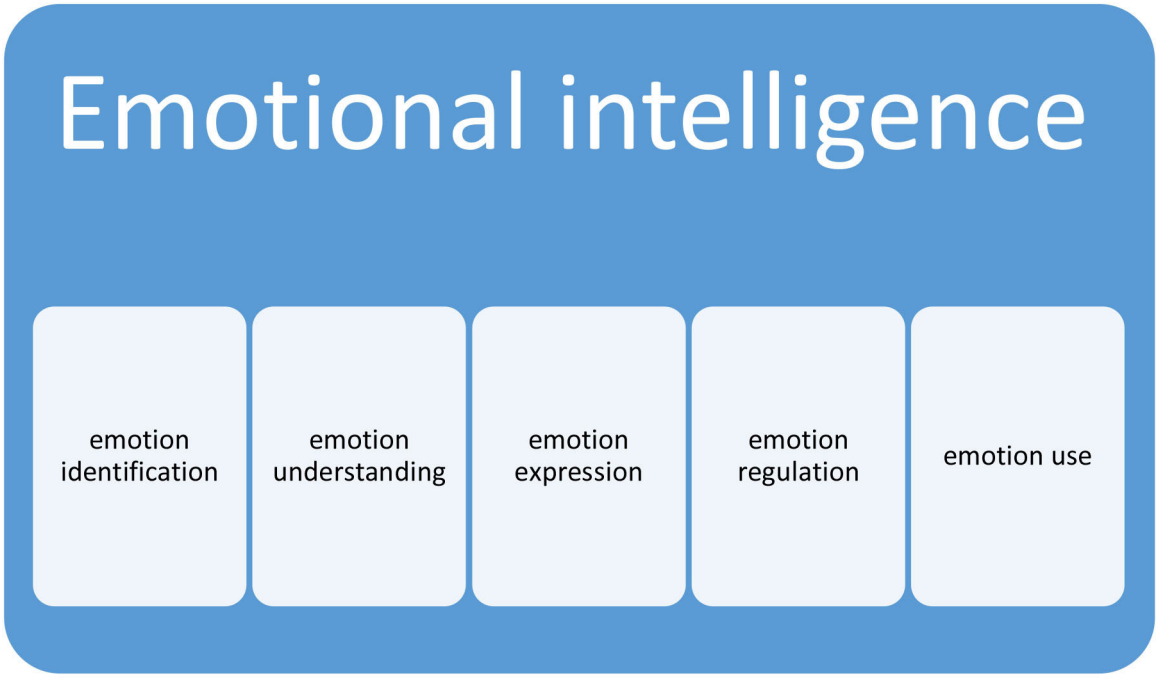

Figure 1 Emotional intelligence as described by Mikolajczak[35].

depending on whether it is considered to be related to personality ('trait EI'), cognition ('ability EI') or both. Various models of EI have therefore been developed.[28 33 34] However, despite discrepancies between these models, they are structured around five consensual core skills.[28 33 34] The first major descriptive model of EI was proposed by Salovey and Mayer[28 34] in 1990, and distinguishes three major skills: expression, regulation and use of emotions. In 1997, they refined this model and added the ability to understand emotions. Recently, Mikolajczak *et al* added emotion identification as a fifth skill, distinct from emotion expression, and proposed a synthetic framework based on these five EI components (see figure 1).[28 34] For Mikolajczak *et al*, each component entails three competence levels (see figure 2). The levels 'ability' and 'trait' define EC. Because of its broad and condensed nature, we chose this model to operationalise our search strategy.

Clinical reasoning

CR is defined as the cognitive process through which a health professional consciously or unconsciously interacts with a patient and their environment in order to develop a diagnosis or a therapeutic strategy.[1] However,

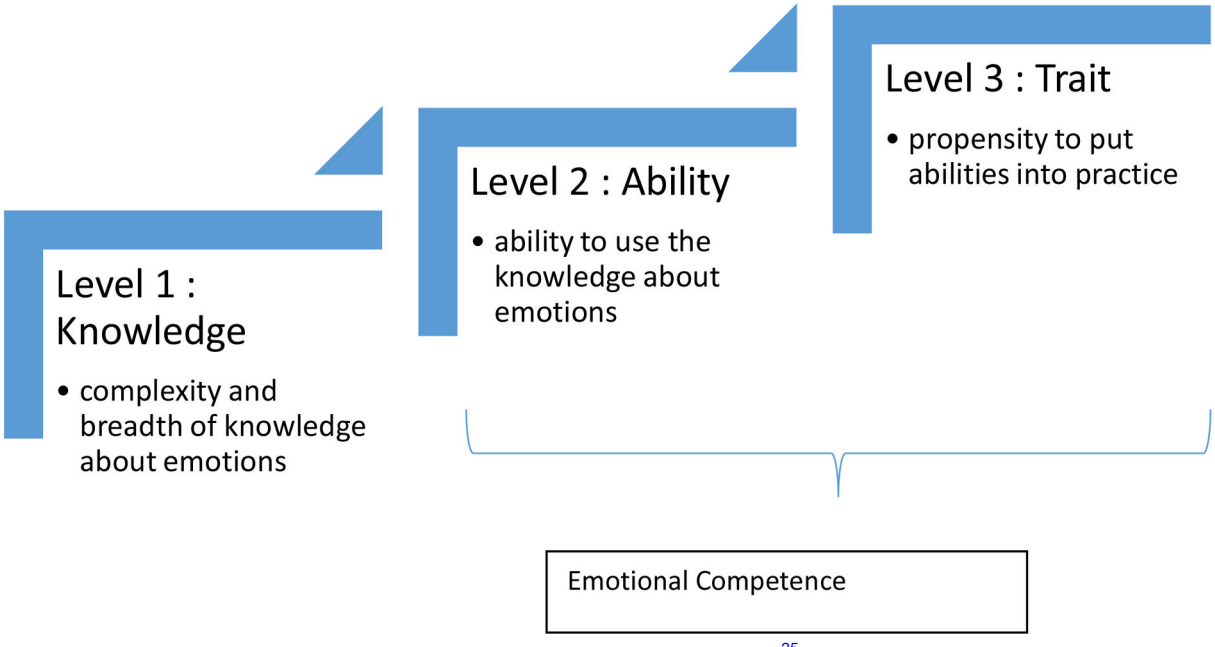

Figure 2 Three-level model of emotional intelligence, described by Mikolajczak[35] .

Table 1 Categories of terms used to describe CR (based on Young *et al*)[44]

Categories	Definition
Reasoning skills	Abilities needed to reason
Reasoning performance	Goals to be achieved through reasoning
Reasoning process	Process of reasoning itself
Outcome of reasoning	Results of the reasoning, including its quality and committed errors
Context of reasoning	Environment in which reasoning occurs, including external influences on reasoning
Goal of reasoning	Final objective of reasoning (diagnosis, treatment, management plan)

CR, clinical reasoning.

the boundaries of this definition vary in the literature and the terminology used to describe CR is diverse.[43 44] A previous scoping review mapped the terms used in the literature on CR. The authors identified six general categories of terms reflecting different research areas on CR (see table 1). In order to be exhaustive in exploring the impact of EC on CR in our scoping review, keywords from all six categories will be used, ranging from the processes of CR to its outcomes and potential deviations (bias, errors, etc).

Context

All contexts will be considered if they involve a real or virtual patient encounter, with no limits in terms of geographical location or time.

Type of resources

Our scoping review will be focused on research articles in French and English. All primary and secondary research papers will be included.

Exclusion criteria

Participants

Studies that include simultaneously physicians as well as other healthcare professionals will be excluded if the results are merged across professions.

Concept

Articles examining the influence of emotions on well-being or learning will be excluded.

Context

Articles where CR is explored without real or simulated human contact (eg, using written clinical vignettes) will be excluded.

Type of resources

Narrative reviews, expert opinions, commentaries or editorial articles will be excluded.

Search strategy

Our search strategy was developed with a trained librarian (MBardiau). Three bibliographical databases (MEDLINE (via Ovid), PsycINFO (via Ovid) and Scopus (via Elsevier)) will be searched for relevant articles. The reference list of included articles will also be examined for additional references. The search strategy consists of three key concepts: (1) EC and (2) physicians or residents and fellows or medical students and (3) CR. Terms based on our delineation of EC and CR have been selected. Search terms referring to EC are derived from the five-ability framework developed by Mikolajczak *et al*. Keywords regarding CR are derived from the six categories of the definition of CR (from processes to outcomes and deviations).[45] The full search strategy developed for MEDLINE can be found in the online supplemental file 1.

Source of evidence selection

The resulting articles will be uploaded in the Covidence software and duplicates will be removed. Inclusion will be based on the predefined criteria for participants, concepts, context and publication type (see above). Titles and abstracts will be independently screened for eligibility by two reviewers (LJ and ANdS). The full texts of selected abstracts will be screened. Reasons for excluding articles will be recorded. The results of the search and screening process will be reported according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram.[46]

To optimise agreement between reviewers, a calibration phase will be carried out during which the first 25 articles located by the search strategy will be screened independently by the reviewers. The results of this selection process will be compared and discussed, and the inclusion criteria will be refined accordingly. A Cohen's κ-coefficient will be calculated; inclusion criteria will be revised and test phases carried out until κ-value reaches at least 75%.[38] Residual conflicts in article selection will be resolved by a third reviewer (VD).

Data extraction, analysis and presentation

A data extraction tool will be developed to collect the following information in the Covidence software: authors, publication date, country where the study took place, study setting, objective, population, sample size, methodology, intervention, outcomes measured (diagnosis, prognosis, errors, case management, bias, etc), how the link between EC and CR is operationalised, type of EC ability measured. If necessary, missing data will be requested from the authors. For articles considering CR and/or EC as a whole, the definition used for those concepts will be recorded; for articles focusing on specific aspects of CR and/or EC, the particular aspects considered will be recorded.

A similar process as the one used to refine the inclusion criteria will be used to improve the extraction tool. The same two authors will extract data from a small sample

of full texts, discuss any discrepancies and refine the extraction tool accordingly.[47] The extraction tool may be further refined as extraction proceeds. Potential conflicts will be resolved by the third reviewer.

Critical appraisal of individual studies will not be performed, since our objective is to identify the type of available literature and map the knowledge gaps to inform future research. The design of the selected studies will nonetheless be recorded to describe the range of study types.

A detailed description of the results will be provided in a graphical or tabular form.

Patient and public involvement

None.

ETHICS AND DISSEMINATION

This review does not require ethical approval.

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Contributors LJ drew up the project, wrote the initial protocol, co-developed the search strategy with ANdS and MBardiau and wrote the article. MBardiau established the search strategy based on concepts provided by LJ and ANdS. She also revised the article and made major changes. ANdS revised the initial protocol and made major changes. She co-developed the search strategy with LJ and MBardiau and revised the entire article. MBayot, VD and A-LL supervised the project, provided important guidance on background and methodology and revised the article.

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