

## Student interest and perception of ethical reasoning learning: Insights from medical education

### Intérêt et perception des étudiants pour l'apprentissage du raisonnement éthique : Perspectives en éducation médicale

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#### ABSTRACT

**Introduction:** Medical ethics teaching is one of the pillars of medical education. Ethical reasoning learning (ERL) is one of the means of teaching medical ethics.

**Objective:** The aim of our study was to evaluate the pedagogical interest and the students' perceptions of ERL in directed teaching in internal medicine among fifth-year students.

**Methods:** This was a cross-sectional study conducted in the Internal Medicine Department of Habib Thameur Hospital during one academic year. The pedagogical interest and the student's perception were evaluated by comparing a pre-test and a post-test filled in by the students, respectively, before and after an ERL session.

**Results:** Our study included 44 students. Before the ERL session, almost two-thirds of the students (63.6%) found the ERL to be "extremely interesting" in medical training and practice. This extremely high level of educational interest in the ERL was statistically associated with previous participation in ERL sessions among our students. Prior to the ERL session, just over four-fifths of the students (84.1%) had a "favourable" perception of the ERL.

After the ERL session, our study noted an improvement in students' pedagogical interest in ERL. Our study also showed an improvement in students' perceptions of the ERL. The improvement in students' pedagogical interest and perception of ERL exceeded 80% after the session.

**Conclusion:** Our study concluded that there was a significant pedagogical interest and a favourable perception of the students' point of view regarding the ERL in internal medicine-directed teaching among fifth-year medical students.

**Key words:** Education, Learning, Ethical analysis, Evaluation, Ethical reasoning learning, Internal medicine

#### RÉSUMÉ

**Introduction:** L'enseignement de l'éthique médicale est un des piliers de la formation médicale. L'apprentissage du raisonnement éthique (ARE) constitue un des moyens de l'enseignement de l'éthique médicale.

**Aim:** Évaluer l'intérêt pédagogique et la perception de l'étudiant dans l'ARE dans l'enseignement dirigé en médecine interne chez les étudiants de cinquième année des études médicales.

**Méthodes:** Étude transversale réalisée dans un service de médecine interne durant une année universitaire. L'intérêt pédagogique et la perception de l'étudiant sont évalués par la comparaison entre un pré-test et un post-test, remplis par les étudiants, respectivement avant et après une séance d'ARE.

**Résultats:** Notre étude a inclus 44 étudiants. Avant la séance d'ARE, près de deux-tiers des étudiants (63,6%) trouvaient de l'ARE présente un niveau «extrêmement intéressant» dans la formation médicale et l'exercice de la médecine. Ce niveau extrêmement élevé dans l'intérêt pédagogique de l'ARE était statistiquement associé avec une participation antérieure à des séances d'ARE chez nos étudiants. Avant la séance d'ARE, un peu plus du quatre-cinquième des étudiants (84,1%) ont une perception «Favorable» de l'ARE. Après la séance d'ARE, notre étude a noté une amélioration de l'intérêt pédagogique que portaient les étudiants à l'ARE. Notre étude a aussi montré une amélioration de la perception des étudiants vis-à-vis de l'ARE. L'amélioration de l'intérêt pédagogique et de la perception de l'étudiant concernant l'ARE a dépassé 80% après la séance.

**Conclusion:** Notre étude montre un fort intérêt pédagogique et une perception positive de l'ARE par les étudiants en médecine interne dans l'enseignement dirigé.

**Mots clés:** Pédagogie médicale, Apprentissage, Analyse éthique, Evaluation, Apprentissage du raisonnement éthique, Médecine interne

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**What is known:** Ethical reasoning learning (ERL) in medical education has evolved from deontological principles to a collaborative approach, integrating diverse teaching methods and interactive clinical placements. Evaluating ERL from students' perspectives is crucial for enhancing engagement and understanding its educational value.

**What this article adds:** This article reveals that fifth-year medical students exhibit high initial interest and favourable perceptions of ERL. Following ERL sessions, students' interest and perceptions significantly improved, indicating ERL's effectiveness in enhancing engagement and understanding in medical education.

## INTRODUCTION

The ability to identify and address ethical issues related to health problems is a key dimension of professional competence that must be developed during medical training [1,2]. The traditional view of ethics as merely the application of deontological rules and moral principles has evolved into a collaborative and dialogic model [3-5]. Medical education is goal-oriented and interactive, where students actively engage in their learning, prepare for courses, and participate in evaluations. Various teaching methods, including lectures, practicals, online learning, and simulations, are employed. Clinical placements are crucial for developing practical skills, with directed study sessions, such as case discussions on ethical situations, being particularly interactive [6-8]. Ethical reasoning learning (ERL) is essential for healthcare professionals, fostering critical thinking on ethical dilemmas [9]. Evaluating ERL teaching from the student's perspective is vital to enhancing engagement. This study aimed to assess the educational value and student perception of ERL in internal medicine teaching for fifth-year medical students.

## METHODS

### Study design

We conducted a cross-sectional study evaluating the educational value and student perception of ERL in directed teaching sessions for fifth-year medical students. This ERL session was delivered to five groups at Habib Thameur Hospital during the 2022-2023 academic year.

### Population study

During our study, five groups of fifth-year medical students were assigned by the Faculty of Medicine of Tunis Internship Department to complete a placement in the Internal Medicine Department at Habib Thameur Hospital during the 2022-2023 academic year. Each ERL session was attended by 8 to 9 students per group, with a total of 44 students. All students agreed to anonymously evaluate the session and share their experiences and perceptions of ERL in directed internal medicine teaching.

### Study steps

Systemic lupus erythematosus, a common condition in the fifth-year medical students' curriculum, was selected as the theme, aligning with internship requirements. Before the session, we meticulously planned all preparatory steps:

- Developed a clinical vignette (Appendix 1, on line) featuring a scenario with multiple realistic and well-known ethical dilemmas. Copies were made for each student.
- Prepared a questionnaire to evaluate students' experiences with ERL sessions and their responses to the clinical vignette's scenario.
- Designed an assessment of general knowledge on medical ethics principles through a multiple-choice question. This question evaluated the four foundational principles of bioethics: autonomy, justice, beneficence, and non-maleficence, with one point awarded for each correct answer, totalling four points.
- Created a pre-test and post-test, each with two questions. These assessed students' perceptions of the educational value and relevance of ERL in medical training and practice. The pre-test included a Likert scale question on students' views of ERL's educational importance and its relevance to medical practice before the session, and a second question with two exclusive choices on whether ERL was perceived as an obstacle or an opportunity. The post-test contained the same questions for after the session.
- Informed students about the pre-test, experience and knowledge questionnaires, the post-test, and assured anonymity of responses.
- Explained to students the session's structure, including the evaluation method.
- Scheduled the ERL session with students at the start of their placements.

The session took place in the staff room, following these steps:

- Welcomed students and introduced the session.
- Distributed the pre-test and questionnaires, completed anonymously by students in 10 minutes.
- Provided the clinical vignette.
- Conducted the ERL session:
  - o First step: Announced the session's objective and read the clinical case individually, o then collectively (10 minutes).
  - o Second step: Contextualization: Identified issues raised by the case.
  - o Third step: Decontextualization: Identified the ethical principles involved: information, o autonomy, empathy, respect, confidentiality, and justice.
  - o Fourth step: Recontextualization and alternative actions: Discussed the links between o visible (patient, doctor, nurse, other patients) and invisible actors (hospital institution, o government, social media, society).
  - o Fifth step: Debriefed and evaluated the ERL session.
- Distributed the post-test, completed anonymously in 2

minutes.

- Collected all materials, maintaining anonymity.
- Corrected the knowledge evaluation questionnaire.

The session lasted between 60 and 90 minutes.

### Evaluation of the educational value and student perception regarding ethical reasoning learning

We evaluated the educational value of an ERL session by the level of interest students attributed to it in their medical training. A qualitative improvement was identified if there was an increase in interest, excluding cases where the pre-test rated the session as "extremely interesting" and the post-test maintained this rating. Quantitative improvement was noted if there was a measurable increase in interest. Interest levels were scored as follows: "Not at all interesting" (0), "Slightly interesting" (1), "Moderately interesting" (2), "Very interesting" (3), and "Extremely interesting" (4).

Student perception of the ERL session was assessed by the representation they assigned to it in their training. Perception was considered improved if there was a shift from an "Unfavourable" view (pre-test: "an obstacle, a difficulty") to a "Favourable" one (post-test: "an opportunity, a chance"), excluding cases where the pre-test already rated it as "Favourable" and the post-test maintained this rating.

### Statistical analysis

Statistical analyses were performed using SPSS 26.0 trial version. Quantitative variables were summarised by mean  $\pm$  standard deviation, median (Interquartile: 25th and 75th percentiles), and range [minimum – maximum]. Qualitative variables were presented as counts and percentages. Differences between independent groups for qualitative variables were assessed using Pearson's chi-square test or Fisher's exact test. Prior to comparing quantitative variables, the assumptions for parametric tests were verified. Normal distribution was assessed with the Kolmogorov-Smirnov (or Shapiro-Wilk) test, and variance homogeneity was evaluated with Levene's test. Differences between independent groups for quantitative variables were analysed with the Student's t-test for independent samples if parametric assumptions were met, and with the Mann-Whitney U test if they were not. For paired sample comparisons, the parametric t-test was used, and for related samples, the non-parametric Wilcoxon test was employed. A significance level of  $p < 0.05$  was accepted.

### Ethical Considerations

The use of test sheets and questionnaires, as well as their analysis for scientific purposes, was explained to the students, all of whom provided oral consent. Student anonymity was fully respected.

## RESULTS

All students (N=44) received traditional medical ethics education, including lectures and self-learning mini-modules. Half of the participating externs (n=22) had previously attended an ERL session before the one in our study. In response to the question assessing knowledge of the foundational principles of medical ethics, the median number of correct answers among students was 1 out of 4 (Interquartile Range: 0.5–3) [range: 0–4]. Slightly more than one-third of students identified only one of the four core principles, and one-quarter of the students identified none. The most recognized foundational principle of medical ethics among students was "non-maleficence" (56.8%), followed by "beneficence" (43.2%), "autonomy" (34.1%), and "justice" (29.5%).

Before the ERL session, when asked, "What do you think of the educational value of ethical reasoning learning in medical training and practice?" 28 students (63.6%) answered "Extremely interesting," 13 (29.5%) answered "Very interesting," and 3 (6.8%) answered "Moderately interesting." The prevalence of students who had previously attended an ERL session was higher among those who found it "Extremely interesting" compared to those who found it "Very interesting" and "Moderately interesting" (71.4% vs 15.4% vs 0%,  $p=0.001$ ). Before the ERL session, when asked, "What does ethical reasoning learning represent to you in medical training and practice?" 37 students (84.1%) viewed ERL as "an opportunity, a chance," while 7 (15.9%) saw it as "an obstacle, a difficulty." The prevalence of students who had previously attended an ERL session was higher among those who considered it "an opportunity, a chance" compared to those who saw it as "an obstacle, a difficulty" (22% vs 0%,  $p=0.009$ ). Thirty students (68.2%) reported having encountered similar or identical experiences and scenarios to those presented in the clinical vignette of our ERL session. The session lasted between 60 and 90 minutes.

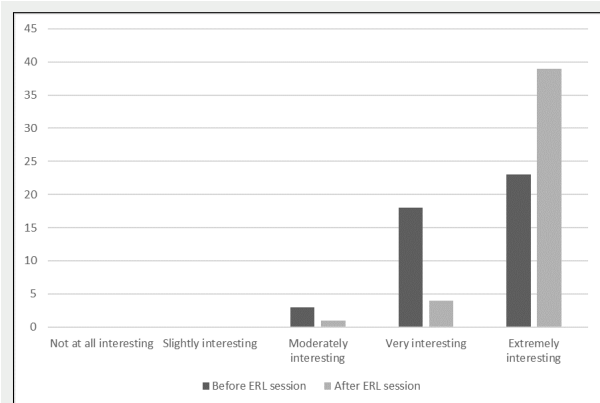
After the ERL session, when asked, "What do you think of the educational value of ethical reasoning learning in medical training and practice?" 39 students (88.6%) answered "Extremely interesting," 4 (9.1%) answered "Very interesting," and 1 (2.3%) answered "Moderately interesting." After the ERL session, when asked, "What does ethical reasoning learning represent to you in medical training and practice?" 42 students (95.5%) viewed ERL as "an opportunity, a chance," while 2 (4.5%) saw it as "an obstacle, a difficulty."

Figure 1 shows the distribution of students' opinions regarding the educational value of ERL in medical training and practice before and after the session.

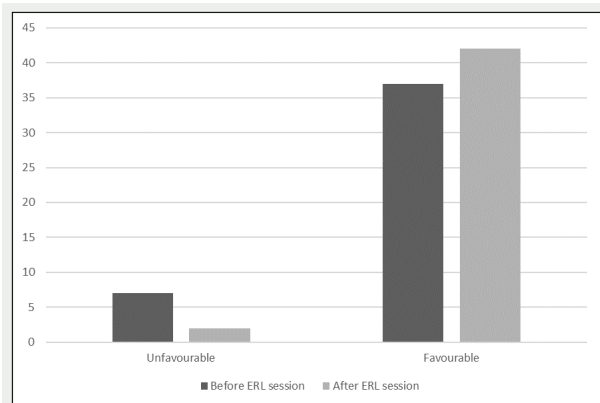
Figure 2 shows the distribution of students' perceptions of ERL in medical training and practice before and after the session.

Apart from the students who rated the ERL session as "extremely interesting" both before and after the session (n=28), thirteen students (81.3%) showed an improvement in their perceived educational value of ERL after the session, while three students (6.8%) either maintained or reduced their level of interest. Thus, our

study observed an 81.3% rate of qualitative improvement in the educational value attributed to ERL by the students. Among the thirteen students who showed improved interest, eleven (84.6%) had not attended an ERL session before our study.



**Figure 1.** Distribution of students' opinions regarding the pedagogical interest of ethical reasoning learning in medical education and practice before and after the session



**Figure 2.** Distribution of students' perceptions of ethical reasoning learning in medical education and practice before and after the session

Assigning a score for the educational value of ERL, the mean rating increased from  $3.56 \pm 0.62$  out of 4 before the session to  $3.86 \pm 0.40$  out of 4 after the session. This increase was statistically significant ( $p=0.001$ ). Therefore, our study noted a quantitative improvement in the educational value attributed to ERL in medical training and practice.

Apart from the students who had a "Favourable" perception of ERL before and after the session ( $n=37$ ), six students (85.7%) changed their perception from "Unfavourable" to "Favourable" after the session, and only one student (14.3%) maintained the same perception. Almost all students had a "Favourable" perception of ERL after the session.

## DISCUSSION

This study assessed the educational value and student perception of ERL in guided internal medicine training. It revealed that ERL effectively guides students in ethical reasoning and identifying dilemmas through simulated real-life situations. ERL was also easily implementable and

fostered active learning, involving individual and group work, with interactions among students and between students and instructors. We recommend adopting this learning model in all internal medicine hospital rotations. The case discussed was selected from real-life examples reported by learners and reflected common situations in medical practice, particularly internal medicine. The teaching methods for ethics in medical training, especially for internal medicine externs, are rarely documented in the literature.

Our study demonstrated that an ERL session significantly enhanced both the educational value and student perception of ERL. However, the study has limitations, including a small number of students and sessions, which may affect generalisability, and varying levels of student involvement in session preparation.

The issue of ethics training in medical education is not new. It is at least as old as the Hippocratic Oath. Compared to case-based methods, ERL sessions for internal medicine trainees offer notable advantages [10]. Presenting real-life cases situates trainees within their own experiences, thereby fostering a contextualised approach to ethical learning. Small group discussions encourage dialogue and deliberation regarding actions and their consequences.

Furthermore, the structured approach to ethical reasoning aids in embedding ethical skills into everyday medical practice. Research indicates that medical ethics training can enhance healthcare quality, particularly in improving patient and family communication and navigating complex ethical decisions [11,12]. ERL helps physicians better understand patient values and preferences, thereby improving the physician-patient relationship and increasing patient satisfaction [13].

While training in ethical reasoning is crucial for healthcare professionals, there are potential drawbacks to consider. These include challenges in applying ethical principles to clinical practice, conflicts among students, and time constraints. Evaluating ethical reasoning can be difficult due to its intangible nature and the subjective assessment methods often employed.

Additionally, over-reliance on specific teaching methods, such as case studies, may hinder the holistic development of ethical reasoning skills [14,15].

Ethical reasoning in medicine stands out due to its interdisciplinary nature, integrating philosophy, ethics, sociology, and psychology. This approach equips medical students with a deep understanding of ethical principles and complex dilemmas in clinical practice. Continuous evaluation through case studies and simulations helps assess and enhance students' ethical reasoning skills [16-19].

Beyond its numerous advantages, ERL offers significant pedagogical value in medical ethics education. ERL enhances the acquisition and understanding of ethical values through discussion and debate, integrating both medical and non-medical disciplines, known as the humanities. This method proves more pedagogically effective than traditional approaches like lectures or self-study [18-21].

Students' perception and insight into ERL in medical

education are generally positive but vary among individuals based on the background (cultural, religious, socioeconomic experiences, and maturity), the educational level (differences among externs, interns, and residents in medical training), the medical speciality (variations among fundamental, medical, mixed, and surgical specialities, influenced by patient contact), and the exposure to non-medical disciplines (interest in humanities such as sociology, philosophy, anthropology, and legal studies) [22-25].

## CONCLUSION

Our study evaluated the pedagogical interest and student perception of ERL in directed internal medicine education for fifth-year medical students. It found significant pedagogical interest and favourable perceptions of ERL among these students, with improvements noted following an ERL session. This underscores the importance of ERL sessions in medical training. Medical ethics teaching is well-established and increasingly integral in medical faculties worldwide, including Tunisia. ERL is highly valued for its interactive and non-dogmatic nature. Continuous ethical reasoning education, using real or hypothetical cases, group discussions, mentorship, and self-assessment, is crucial for medical students and professionals.

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