

Giving Moral Competence High Priority in Medical Education. New MCT-based Research Findings from the Polish Context



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Abstract: Nowadays, healthcare and medical education is qualified by test scores and competitiveness. This article considers its quality in terms of improving the moral competence of future healthcare providers. Objectives. Examining the relevance of moral competence in medico-clinical decision-making despite the paradigm shift and discussing the up-to-date findings on healthcare students (Polish sample). Design and method. N=115 participants were surveyed with a standard Moral Competence Test to examine how their moral competence development was affected by the learning environment and further important factors. Results. The sample allowed the identification of a regress in moral competence during students' pre-clinical curriculum, and progress during their clinical curriculum. A gender-related bias, a segmentation effect, and a pronunciation effect were noticed. Explanations. Scholarly literature usually reports a linear decrease of medical students' C-scores resulting from, e.g., competitive trends in education. We identified such trends in terms of gender-specific competitive tactics. Religious and ethical affiliations were discussed to explain the unexpected gender bias and the related segmentation and pronunciation effects. The findings can be regarded as predictive for similar developments in educational institutions regardless of cultural contexts as the sample examined in this article represents medical education in a country facing a transition from a non-competitive to competitive tertiary education model, and between presecular and monocultural to secular and pluralist social ethics.

Keywords: moral competence in healthcare professions; clinical decision-making; gender bias and moral competence; segmentation effect; pronunciation effect; Moral Competence Test; Polish medical education; competitive tertiary education.

1. Objectives

This article will firstly revisit the definition of moral competence and assess its relevance for healthcare professionals, bearing in mind the paradigm shifts observed in decision-making in medical and clinical contexts over the last decades¹. Secondly, it will report on a recent MCT study conducted with Polish healthcare students to score their moral competence: this study uncovered the meandering developmental trajectory of their moral competence, a gender bias, and gender related segmentation and pronunciation effects. These findings will be explained with reference to factors defining the participants' learning environment, the transition of tertiary education to a competitive model, gender-specific religious and ethical affiliations, and the modified impression management hypothesis. The authors argue that a sufficient level of moral competence is critical for enabling prospective health providers to engage in demanding practical and normative contexts in healthcare facilities, where medical and clinical decisions are often interwoven with serious sociomoral aspects and responsibilities. A substantial number of medical solutions are still made on the basis of individual professional expertise and specialised skills on the one hand, *and*, on the other hand, through reference to individual moral judgments and decisions – even when collegial decision-making and centralized procedures try to relieve and support doctors and nurses as individual decision makers.

2. Moral Competence Definition

Making moral judgments and decisions has been intensively explored in philosophy, e.g., Aristotle's virtue, attempting to find the golden mean, universalizing an individual maxim "by virtue of the volition" (Kant 1785), *prima facie* choice (Audi 1999), judging "in accord with self-chosen principles" (Habermas), etc. Moral psychology addressed the ability to choose between 'right' and 'wrong' in a quick, intuitive or emotional modus (Haidt 2001, 2007) vs. a slow, deliberate, and explicit one. Finally, several noticeable approaches to the origins of moral competence were established, e.g., cultural-socialisational (Haidt 2001; Haidt & Kesebir 2010), developmental (Kohlberg 1964, 1984) and socio-evolutionary (Tomasello & Vaish 2013). Kohlberg, Blasi (1980), Lind (1978) and Rest (Rest 1986; Rest *et al.* 1999) began examining how the ability to make moral judgments manifests itself in subjects' judgmental behaviour. Four types of measuring instruments are available today (Ellemers *et al.* 2019, 337).

Lind's definition of moral competence focuses on a personal capacity to follow self-prioritized moral standards when making moral judgments or decisions, but definitely

¹ The findings and hypotheses presented in this article were discussed at several congresses as peer-reviewed materials, especially at 14th International Symposium "Moral Competence: Its Nature, Relevance, and Education," Vilnius University, 23-24 July 2020, and the Annual Meeting of AERA "The Power and Possibilities for the Public Good When Researchers and Organizational Stakeholders Collaborate," San Francisco, 8-12 April 2021. We would like to thank Stephen Dersley (AMU Poznań) for his contribution to the linguistic shape of our research study.

breaks with linear or cumulative ('state-by-stage') development. Moral competence is a cognitive disposition pre-shaped by evolution; however, as moral competence varies from person to person, socio-educational factors are responsible for its improvement. Well-developed moral competence enables an individual to deal with sociomoral issues through making principled and deliberate judgments, without 1) an instant feeling of approval/disapproval, 2) a superficial 'yes' vs. 'no' opinion, 3) using violence, manipulation, or 4) conformity or submission to authoritarian others and powers.

According to Lind, moral competence has a dual-aspect structure. Making a moral judgment represents the first, cognitive aspect. In turn, moral orientations represent the second, affective aspect, which spurs a moral judgment maker to act accordingly and consistently. Both aspects of moral competence are distinct but highly correlated. Subjects differ little regarding their basic moral orientations, but greatly with regard to their moral competence. Studies have demonstrated that "the higher people's moral competence is, the more (...) they accept shared moral principles and reject low-type moral orientations" (Lind 2016, 62; see also Nowak 2016). High moral competence is a predictor of observing social rules and dealing with sociomoral controversies and conflicts. A morally competent individual remains open to the "unforced force" of better normative argument (Habermas in *Remarks to Discourse Ethics*), is willing to pursue agreement or to respect disagreement (for reasonable agreement to disagreement upon, e.g., the end-of-life decisions see [Wilkinson, Truog, & Savulescu 2016; Wilkinson & Savulescu 2018]). At this point, the following question arises: Do healthcare professionals use moral competence?

3. Moral Competence and a Paradigm Shift in Clinical Decision-Making

It is clear that standards of clinical decision-making evolve, and that "strong professions" (Helkama 2013) such as those involved in health care, do not always rely on an individual problem-solver's professional and normative expertise and competence (Helkama 2013, 99; Helkama, Uutela *et al.* 2003; Helkama & Ikonen-Varila 1996). The growing complexity of medical expertise and therapeutic evaluation has increased health providers' responsibilities. They might overwhelm individual capacities when it comes to dealing with current actionable decisions, some of them of cutting-edge type. To guide, justify and facilitate decision-making in complex clinical environments, procedural and relational ethic frameworks are increasingly established (e.g., Pollard 2015; deMartino 2017; Jenkins 2018). Bioethical boards, collegiality (Newton-Howes *et al.* 2019), asking "a senior colleague for advice" (Helkama 2013, 99), etc. or justification of a solution (Quenot *et al.* 2017). According to intersubjectivity, dialogue and discourse theories, in relational ethics there is no "I", only a "We": "We are the environment, 'we are the system,'" Pollard (2015, 367) argues (see also Bergum 2005). For example, instead of caring or being responsible *for* a patient and deciding what is beneficial, right, etc., *for* her, decisions are made *with* patients (Pollard 2015, 362) and engage moral-discursive competences.

But a large number of clinical decisions, also sensitive and tough, are made by an individual health provider (deMartino *et al.* 2017; Deveterre 2010, 76; Jonsen 1995; Baumgarten 1980, 183), some of them being “coupled with the willingness to look at every new patient with fresh eyes and to view every illness as a unique case” (Löwy 1978, 130), some others come up with solutions in an emergency. Collective, procedural and technologically supported models and tools of clinical decision-making change, but doctors or nurses with their individual responsibilities remain constant and integral component of them. Both shared *and* individual decision-making requires moral competence. This competence shows the potential for overcoming exaggerated regulations, abstract principlism, hierarchies and power clusters characterizing health care facilities and health care as a public institution. Exaggerated regulations were criticized for “intrusion into the discretion of physicians about manner and extent of care, rationing of medical resources, and bureaucratic delays in meeting urgent needs” (Lee & Emmott 1978, 613; comp. also Haller & Stoelwinder 2017; Kashev 2016; Hills 2013; Allen & Harkind 2005; Freckelton & Petersen 2006; Hodges 2006; Hernandez & Medina 2005; Lind 2000a; Self & Baldwin 1994; Baumgarten 1980) and for suppressing subjects’ ability to handle running challenges, risks, and uncertainty constructively (Pieniżek 2008, 129).

This may challenge decision makers’ moral competence in clinical contexts. In 1895, the Polish physician Zygmunt Kramsztyk reported on such challenges:

The more responsibility for other people that results from the profession one is engaged in, the more one is disturbed and one’s mind occupied with the duties of that trade. The profession of physician is one of the most difficult from this point of view. (...) A feeling of discomfort which might spoil the night’s rest, grounded in difficult, risky surgery; an irregular case of disease, constant suspense, mostly incomplete and seldom perfect results of treatment; unexpected complications, reproaches from patients, depressing albeit often unjustified remorse, unclear feelings of guilt: all of these are implanted in the everyday life of a physician and reflect his usual thoughts and feelings (Kramsztyk 1895/Löwy 1978, 146).

Health care related decision-making paradigms may shift, but the majority of clinical decisions in situ are made by human subjects by virtue of their individual skills and expertise. In last two decades the balance point in clinical and biomedical ethics shifted from abstract principles and procedures to making a concrete and situational decisions and arriving at solutions to problems in situ, by drawing on subjects’ virtues abilities (Arthur *et al.* 2015; Kotzee, Ignatowicz & Thomas 2016; Kotzee & Ignatowicz 2016; Kaldijan 2014; Nucci & Narvaez 2008; Jansen 2000; Massingham 2019; Audi 1997). Subsequently, a revival of virtue ethics was proclaimed in academic biomedical ethics. These changes created a favourable background for justifying – and fostering – clinical and medical decision-making (especially in its socio-normative aspects) through moral competence: both in terms of educating subjects and conducting scientific research in developmental psychology. In this way, healthcare providers’ (and future healthcare providers’) moral competence deserves attention alongside virtue, and can be regarded

as a cognitive-affective concept that is supported by moral fortitude and virtue, as defined, e.g., in ancient Greek ethics. However, moral competence is not a plural phenomenon in the way that moral virtues are. There is only one moral competence, which is applicable in various sociomoral contexts, including healthcare professions. For instance, it is required to

- Help patients and care for them – as health providers represent helping professions – so “... a high level of moral judgment can be associated with seeing others’ points of view and finding solutions instead of implementing the rules only” (Çiftçi & Yüksel 2010, 717),
- Deal with moral distress (e.g., institutional and political pressures, sociomoral climate) and negative social perception (Epstein & Whitehead 2019; Lamiani *et al.* 2017; O’Donnel *et al.* 2008),
- Manage decision-making shared with patients, their relatives, and further actors (Napiwodzka 2021; Entwistle *et al.* 2010),
- Deal with all types of sociomoral responsibilities and challenges produced in health professions, and
- Be “a good member of the medical profession” (Helkama 2013, 99) and team (Bate *et al.* 2012),

Below we present a pilot study with prospective health providers in Poland, followed by a discussion of the educational policies and factors responsible for their moral competence improvement.

4. Research Procedure

4.1 The Moral Competence Test (MCT)

The Moral Competence Test is an experimentally designed behavioral test to measure moral competence objectively and validly (Lind 1978/2020). In the first instance, the MCT sheds light on a participant’s judgmental behavior. Because previous research had shown that rating arguments with regard to their moral quality – instead of with regard to whether the arguments match their opinions – is very difficult for most people, the MCT asks participants to rate (on a Likert scale from -4 to +4) arguments supporting and opposing the decision of a protagonist in two dilemma situations. Each situation triggers the feeling of a dilemma as a participant confronts two conflicting moral routes. Participants firstly rate a protagonist’s decision. Subsequently, they rate six arguments which support this decision, and six which oppose it. Each argument represents one of the six types of moral orientation as defined by Kohlberg (1984). 24 arguments are independent variables in the MCT. For the standard MCT, the calculation of the C-scores only includes independent variables.

When participants show no moral competence, they indiscriminately accept all the arguments that support their own stance on the decision, and reject all opposing arguments. In contrast, when they have a high moral competence, they only accept arguments of high moral quality and reject those of low quality. They pay little attention to the question of whether the arguments match their opinions and reorient their attention toward principles and open their minds for agreement (or reasonable disagreement) with otherwise thinking persons.

In order to facilitate further analysis, each individual set of ratings (which literally visualizes a participant's moral behavior pattern) (Lind & Nowak 2015) is converted into a numerical C-score (C for competence), which ranges from 0 to 100. This conversion is made with the help of a multifactorial analysis of variance components. 0.0 designates no moral competence. Participants' C-scores vary widely but are mostly located in the lower part of the scale. C-scores above 40.0 are rare. Because consistent judgment is a function of a subject's moral competence and not a test property (and their judgmental behavior pattern can be regarded as their moral fingerprint), conventional criteria such as reliability and measurement error do not apply².

The MCT has been validated and certified for 40 languages. For its validation, four rigorous criteria are used: 1) In all the studies, people prefer the six types of moral orientations in the order which Kohlberg (1958, 1984) has predicted (see Fig. 2 in this paper). 2) These types also correlate with each other: neighbouring types are higher correlated than more distant types of moral orientations (which manifests itself as a quasi-simplex structure). 3) As mentioned above, the six type of moral orientation correlated very highly with moral competence, and 4) The MCT's C-scores cannot be faked upward, like the scores of moral preference or moral attitude tests (Lind 2002).

Theoretical and empirical validity have been repeatedly confirmed in numerous independent studies across countries and cultures. The MCT can be used repeatedly with the same participants if they are informed about the purpose. It is always used anonymously, so there is no reason to provide socially desirable answers. It can be used

² The MCT was designed as an experiment with a multivariate orthogonal design, as E. Brunswik (1955) had suggested. This means that the MCT is not a "test" in the sense of testing psychology, but it is an *n=1 experiment* with three-factorial orthogonal design, operationalized as a questionnaire (Lind 1982). It has been designed to make the structure of moral judgments of individuals *manifest and visible*, and also to make it possible to quantify the degree to which the participants' moral orientations determine their responses. Because of this experimental design, the participants' pattern of responses let us directly *see* the properties of their moral competence without the aid of additional assumptions, as is the case with classical psychological tests. As a result, the criteria of classical tests do not apply. The participants' moral competence can develop and thus their scores can change. The MCT is never changed in any way. Thus, the MCT's equivalent to "reliability" is 1.0. The MCT's validity is checked using four well established psychological findings about the nature of moral judgment behavior: 1) The preference hierarchy of moral orientations, 2) The circumplex structure of their inter-correlations, 3) The correlational parallelism between moral competence on the one hand and the profile of moral orientations on the other, and 4) The non-fakeability of moral competence in experimental settings. These psychological (instead of purely formal) criteria provide more rigorous criteria for the validity of experimental designs than conventional statistical criteria used in test psychology. Rigorous means that the *a priori* probability of confirming these criteria by chance is extremely small, and, therefore, their confirmation is extremely informative (K. Popper).

with participants above the age of 10, especially with groups of learners, to evaluate the quality of trainings offered in educational settings.

4.2 Research procedure

The present pilot study is based on data collected in 2020 in Poland with the standard Moral Competence Test (MCT) which had been previously validated and certified for the Polish language. Approval was obtained from the Dean's Office at one of the medical universities. The MCT questionnaire was installed on the Survio.pl portal. Participants received the URL address via a bulk email managed by the department's officials. Participation remained voluntary, anonymized and randomized. Only adult participants were addressed. No personal or sensitive data were collected.

4.3 Participant sample description vs. feminization of health professions in Poland

A total final sample (size) of $n=115$ healthcare students were randomly surveyed, representing all years of study (1st to 6th year), their ages ranging from 19 to 45. Only Polish speaking students of full-time studies were addressed. 13,2% of respondents completed the MCT while 86,98% of the visitors did not. Male and female adults were addressed; however, with female participants $n=88$ and male participants $n=27$, a gender disparity-participation effect was noted.

The gender disparity effect can be explained by demographic tendencies recently observed in the medical workforce in Poland. According to Baliński and Krajewski (2018, 12), in 2016, for the total population of medical students (incl. healthcare students), 64% of female graduates and 36% of male graduates obtained their Licentia Medendi. The gender disparity effect observed with our sample corresponds with this tendency. The gender ratio of the total medical workforce population in Poland in 2016 was 0.58 (Baliński & Krajewski 2018, 41). Shannon *et al.* (2019) argue that feminisation trends in clinical and associated health occupations representing the traditionally male-dominated professions, in countries with under-resourced healthcare sectors including lower incomes, was triggered by emancipatory processes. This phenomenon was observed in Poland starting in the 2010s, when 80% of students of the medical university in which our pilot study was conducted were females. This tendency aroused a nation-wide discussion on introducing gender parities as one of the admission criteria for medical and healthcare students (Twardowska 2011). To this day no parities have been introduced.

In our study, the gender ratio of 76,5% may have affected data collection and data representativeness, due to the interest male and female subjects choosing to participate in the survey. For this reason, web surveys in general might be "susceptible to self-selection and reporting bias" (Shannon *et al.* 2019). Below we shall discuss the implications of the gender disparity for the research findings. Furthermore, voluntary participation of human participants in surveys may imply a positive selection effect.

Considering more detailed demographic characteristics of the medical university

involved in our study, it is worth noticing that in 2018, 255 students matriculated to their 1st year of study. In 2020, 317 studied all specializations offered at their 4th year of study (with an admission limit of 340 places for master studies) (Majewska 2020). At the same university, 164 students of the 6th year of study graduated.

5. Research Findings

In the following figures, the results of our study based on data collected from healthcare students ($N=115$) are displayed. Among all the years of study, years 2 and 3 seem most unfavourable for the development of students' moral competence:

Year of study	Mean C-score	N
1	32,89503	51
2	20,18794	2
3	18,14981	7
4	27,76710	29
5	33,05105	18
6	32,55845	8
All	30,48438	115

Figure 1: C-scores of the Polish healthcare students by year.

The C-scores of students of years 1, 4 and 5 were selected out in order to focus the study on the years represented by at least 18 participants:

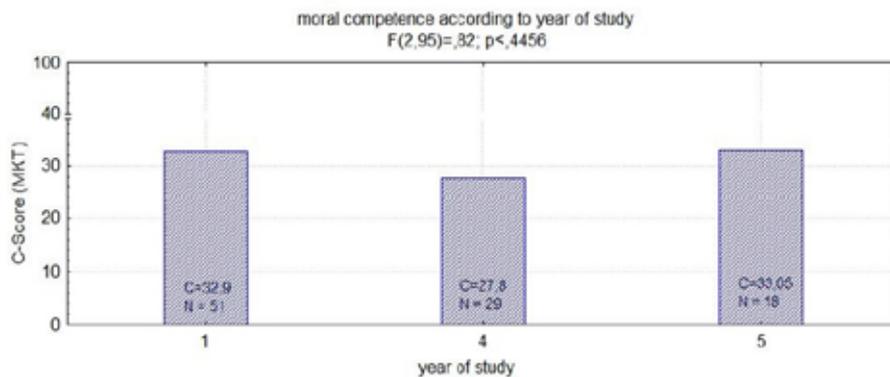


Figure 2: The C-scores of students of years 1, 4 and 5 represented by at least 18 participants were selected out.

Between the C-scores calculated for each individual dilemma separately, a difference was found: participants showed a slightly higher moral competence when rating arguments and counterarguments referring to the Workers' dilemma, while their C-score related to the Doctor's dilemma was lower (-3,7 points). A difference ≥ 8 points determines the segmentation effect. Unexpectedly, in the Polish sample, the segmentation effect was only slight:

	N	Main C-score	Minimum C-score	Maximum C-score	Standard deviation
Workers' dilemma C-score	115	49,53	1,81	92,35	22,32
Doctor's dilemma C-score	115	47,66	0,00	92,55	25,22

Figure 3: C-scores of healthcare students calculated for each individual dilemma separately.

Further, another unexpected effect, namely a gender bias evident in female and male participants' C-scores (= 13,5 points) was found:

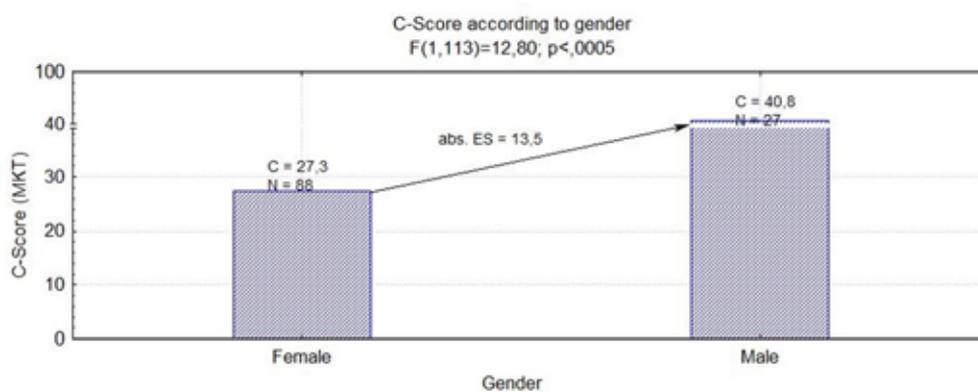


Figure 4: C-scores of healthcare students according to gender (a gender bias effect).

Finally, intergroup, gender-related biases manifested in C (for moral competence), scored separately for the Workers' and Doctor's dilemma, were identified in the sample. As shown in Fig. 5, the blue line demonstrates (1) a segmentation effect in female participants whose C-score for the Workers' dilemma is higher than for the Doctor's one, and (2) a pronunciation effect in male participants whose C-score for the Doctor's dilemma is higher than for the Workers' one:

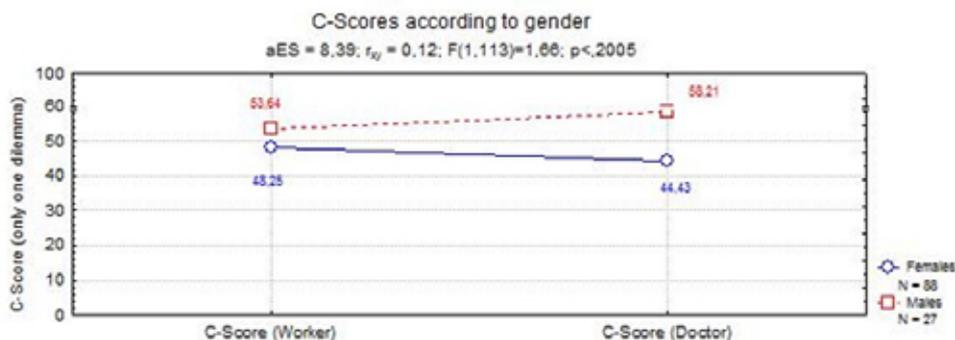


Figure 5: C-scores for Workers' and Doctor's dilemma by gender (segmentation and pronunciation effects), and the absolute effect size (AES) by gender for each individual dilemma: The Workers' dilemma C = 5,39 points; the Doctor's dilemma C = 13,78 points.

6. Explaining the Findings

6.1 The C-scores now and then

Due to the constant improvements made in Polish higher education, including in the medical and healthcare sciences, the researchers expected a change in the C-scores of healthcare students when compared with the former scoring (with MCT, at the same medical university, in the same faculty of healthcare) conducted in 2007/8 as a part of MCT validation study for the Polish language (Nowak et al. 2007/8, total N=370). In the related study, healthcare students were represented by N=112 and a slight decrease of their C (also regarded as a stagnation effect) between the 1st and 9th study semester was observed:

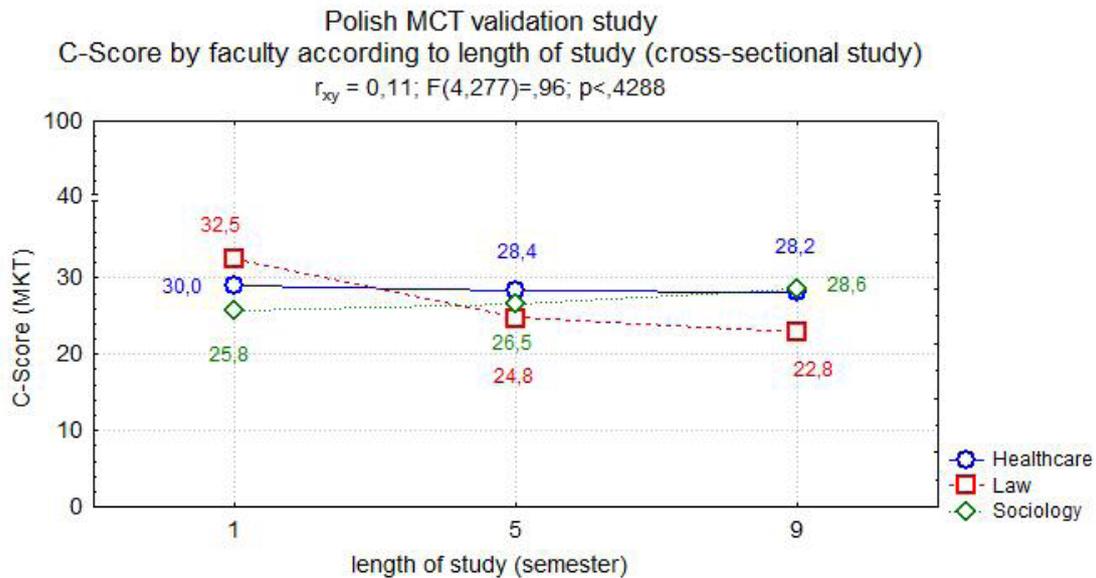


Figure 6: Students' moral competence by faculty and by semester, scored in 2007/8 in Poland.

Comparing the initial scores (1st year of study) in 2007/8 (Fig. 6) and 2020 (Fig. 1 and 2), an increase of $C = 2,9$ (2020: $C = 32,9$; 2007/8: $C = 30,0$) can be noticed. This increase does credit the high education quality as fostering moral competence of students stronger than in 2007/8. However, the moral competence developmental trajectory in 2007/8 was more linear than that identified in 2020, as no dramatic decrease between the 1st and 5th semesters of study was observed.

Furthermore, the final scores measured for the 9th semester of study in 2020 ($C = 33,05$) and 2007/8 ($C = 28,2$) show an increase of 4,85 points. C-scores can be considered in a more international context:

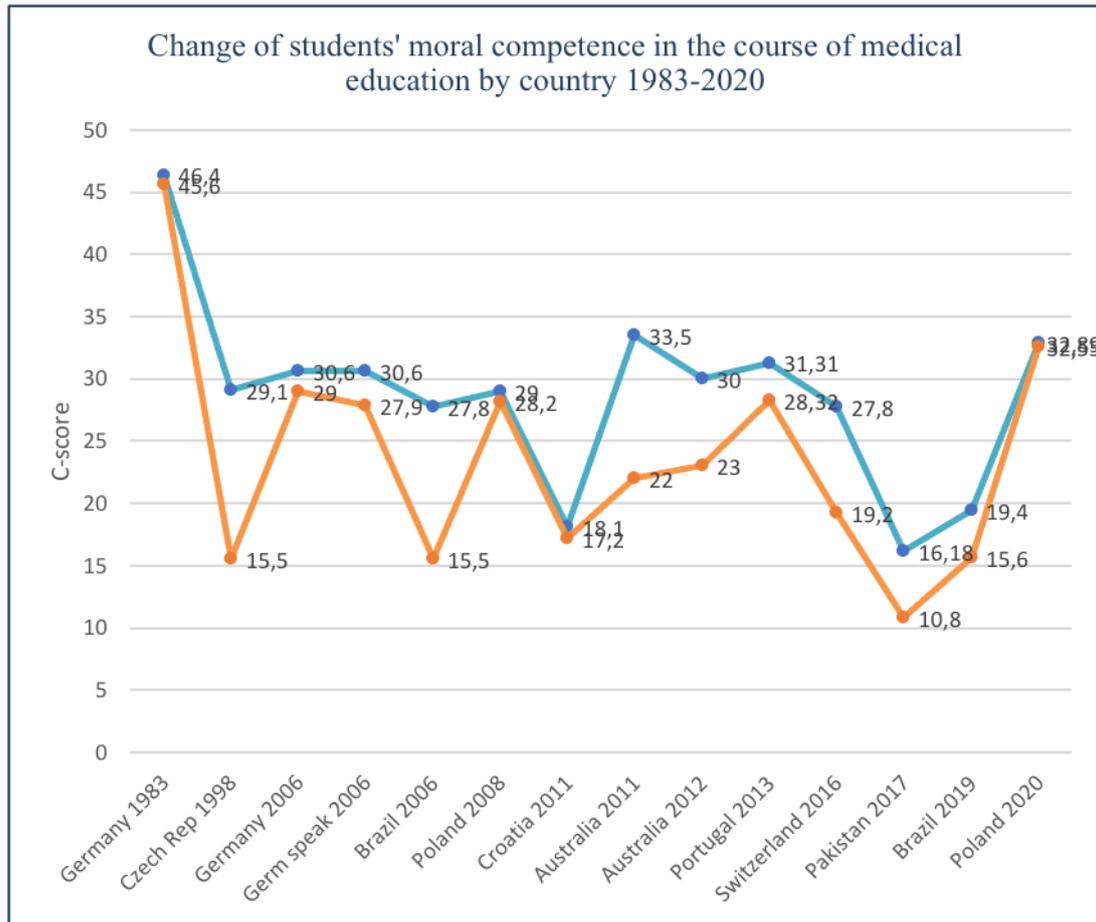


Figure 7: Changes in the moral competence of medical and healthcare students by cohorts representing 9 different countries (Sources: for Germany 1983: Lind 2000; for The Czech Republic 1998: Slovacková 1998/9; for Germany 2006, German speaking Switzerland 2006 and Brazil 2006: Schillinger 2006; for Poland 2007/8: Nowak et al. 2007/8, MCT validation study published in 2013; for Croatia 2011: Kukulja Taradi 2011, a supervised MCT validation study; for Australia 2011 & 2012: Hegazi and Wilson 2013; for Portugal 2013: Feitosa et al. 2013a; for Switzerland 2016: Hummel et al. 2016; for Pakistan: Abassi et al. 2017; for Brazil 2019: Castro 2019; for Poland 2020: as reported in this article).

A set-off between each two vertically linked values (indicated on the blue and orange curves) demonstrates how medical students' moral competence has changed between the initial and the final C scored in medical schools representing international contexts between 1983 and 2020. In both the Polish studies, the set-off was slight and the C-scores were comparatively high. This set-offs depicted in Fig. 8 suggest two dominant tendencies: (1) Stagnation, and (2) A small to high decline of students' moral competence during their medical education. The tendencies show persistence across a variety of research designs, cohorts' characteristics, educational cultures and policies, training methods, socio-economic and demographic backgrounds, etc. Results showing a change of ≥ 5 C-points can be regarded as significant. Several of the total of fourteen studies show a significant decrease of moral competence as a possible result of medical education, while the majority of studies shows stagnation or decrease. Because these tendencies have been found in cohorts representing medical universities in such different educational cultures over different periods of time (as reported, e.g., by Rego

& Bataglia 2017; Slov ckov  & Slov cek 2007; Helkama *et al.* 2003; Lind 2000a, 2000c; Lind & Schillinger 2003; Rego *et al.* 2011a, 2011b), it seems that the failure of medical and healthcare education to improve moral competence is a more frequent phenomenon, though the authors of this study would not generalize its omnipresence. The MCT studies with students representing other fields of higher education show an increase or stability in moral competence (Lind 2002; Nowak 2013).

Subsequently, we attempt to explain the changes in the Polish medical students' moral competence, i.e., the alternating effect of regress vs. progress (Fig. 1 and Fig. 2) as a multifactorial analysis of the learning environment surrounding the participants of our study.

6.2 A multifactorial analysis of learning environment to explain the C-scores obtained with the pilot study

As the C-scores of healthcare students measured 2020 in Poland show an unusual developmental dynamic, we analyse the factors possibly having an effect on this dynamic. As already suggested, we shall skip changes between the underrepresented years of study, and focus on the C-scores of years 4 and 5:

year 4: C = 27,76; year 5: C = 33,05

(and year 6: C = 32,55; here only as a trend value).

Years 1, 2 and 3 follow the pre-clinical educational curriculum, whereas years 4, 5 and 6 are on the clinical curriculum. In all years (1 to 6) students are involved in practice (120 hrs per year). Their normative education includes: Ethics (10 hrs, 1st year), Clinical Procedures and Professionalism (25 hrs, year 1), Medical Law and Forensic Medicine (10 hrs in year 3; 50 hrs in year 5).

Year 3 includes Medical Simulation with Standardized and Simulated Patient training (10 hrs) which continues during year 4 (20 hrs) and year 5 (25 hrs). This training programs engage volunteering actors trained by professionals to act out symptoms and engage in dialogue with healthcare students (source: <https://csm.ump.edu.pl/aktualnosci/operacja-symulacja-1>; <https://www.ump.edu.pl/komunikat/projekt-symulowany-pacjent>). This educative innovation was implemented in 2016. We suggest that it created a favourable and safe learning opportunity to promote participants' moral competence between the 4th and 5th year of study. Participants who reported on their experiences with PBL and simulated patient training showed higher C-scores than those without such experience. A difference of 6,4 points was stated:



Figure 8: The effect of problem-based and simulated patient training on healthcare students' moral competence, measured in 2020 in Poland.

Although PGL efficiency was assessed as the “empty glass” effect (Gomes & Rego 2011, 561; Orsolya, Hemmerling, *et al.* 2017; Shanley 2007; Shamsan & Syed 2009; Feitosa *et al.* 2013b), combining PBL with such learning methods as dealing with health-related issues situated in contexts which include a simulated patient, role-taking, responsibility-taking and guided reflection seem to improve learners' moral competence. Such a combination shows higher efficiency than academic ethics courses (e.g., Meireles Martins *et al.* 2020; Rzymska *et al.* 2014; Hegazi & Wilson 2013; Campbell & Chin 2007; Langer *et al.* 2015).

Scholars stress that years 4 to 6 are generally demanding for medical and healthcare students. They experience crisis while crossing a “professional Rubicon” (Sandor *et al.* 2015; Abassi *et al.* 2017, 137) and confront contexts challenging their professional expertise, sociomoral and personal competencies. As a result, a loss of ideals, cynicism, egocentrism (Self *et al.* 1993), competitive strategies – and the moral competence decrease can be observed (Serodio *et al.* 2016; Schillinger 2006; Lerkiatbundit *et al.* 2006; Hodges 2006; Hernandez & Medina 2005). Education should offer remedies against such a crisis, to strengthen students and their moral competence during this critically important career stage (Lind 2015, 2002, 2000a, 2000b, 2000c).

6.3 Tertiary education on transition to competitive model (with implications for medical and healthcare studies)

Competitiveness is closely related to the selection of candidates, as those with the highest test scores recalculated to credits obtain their admission passports. Competitiveness in medical education is a more general phenomenon, with serious consequences for moral competence development. To achieve as high a ranking as possible, accreditations, parametrizations, etc., universities must constantly focus on the official academic indicators (and the strategies and policies boosting them), while the

C-score remains unofficial and low-prioritized. The same applies to trainings to foster students' moral competence, as the latter does not count in evaluations. "What is called 'quality' could also be understood as 'measures of institutional advantage,'" as Schillinger (2006, 115) explains with reference to the sample of Brazilian students representing Higher education, including the medical sciences, was for decades discussed in terms of increasing competitiveness. In the last two decades, the tertiary education sector in Poland faces radical modernization and internationalization, corporatisation and commercialization to be "much more strongly linked to the labour market" (Kwiek 2012, 349).

As a result, higher education aspires to implement more competitive trainings and programs. The continuity across all these radical changes is the competitiveness of medical studies for candidates. "Social competition for the most valuable student places in most prestigious institutions is clearly increasing. However, as elsewhere in HPS, the intensity of that competition (which occurs in full-time taxation-financed studies in the public sector only) is highest in the traditionally least accessible faculties of law and, outside of comprehensive universities, the faculties of medicine in specialist universities. For instance, in 2016 there were on average 16.8 candidates per vacancy in medical studies" (Kwiek 2018, 351). Advocated by scholars and state policies, this kind of social competition rather resembles social segregation than "fair education" and opportunity equality according to, e.g., Giesinger (2011, 2009).

Competitiveness is closely related to the selection of candidates, as those with the highest test scores recalculated to credits obtain their admission passports. Competitiveness in medical education is a more general phenomenon, with serious consequences for moral competence development. To achieve as high a ranking as possible, accreditations, parametrizations, etc., universities must constantly focus on the official academic indicators (and the strategies and policies boosting them), while the C-score do not count in evaluations. "What is called 'quality' could also be understood as 'measures of institutional advantage,'" as Schillinger (2006, 115) points out with reference to the Brazilian C-scores representing low- vs. high-competitive medical schools.

Scholars posit that moral competence regression observed with medical and healthcare students to be caused by the increasing competitiveness and corporatization of the style of medical education, in both the public and private education forms represented by medical universities (e.g., Rego 2004; Rego *et al.* 2011a; Rego *et al.* 2011b; Ladim *et al.* 2015; Feitosa *et al.* 2013a, 2013b; Pascarella 1991; Pascarella & Terenzini 1991). Another type of the "competitive culture" can be observed in medical education, whose effects were evaluated as "destructive for students" (Yocom 2018) and compared to social Darwinism (Kohn 1986). According to Kohn, medical schools prioritize "competition over cooperation" which intensifies, for instance, "anxiety, self-servitude and weak interpersonal skills," "whereas cooperation fosters a better learning environment" (Yocom 2018) and makes it more favorable for moral competence development and further core skills. Originally

identified in social and educational contexts in the USA (Kohn 1986), competitiveness infiltrated the policies and practices in higher education within the European Union in the 2010s. In the 2020s, as former medical students in Poland report, once students were admitted to their field of study, they exclusively focus on not failing and losing their place (Zdziebko 2020). This would be one of explanations for the decreasing moral competence in years 2 and 3 (in year 1 students present the developmental effects gained in their high schools).

Polish tertiary education followed these trends only in the last decade, under different economic, systemic and sociocultural circumstances, e.g., with a medical education system that was mainly public (the first two non-public medical universities were established in 2017 and 2018), and with a shortage of medical staff in public healthcare vocations. Structural and psychosocial factors increasing the high level of competition between medical students (as described by Yocom) are documented in a few scholarly sources. E.g., in 2012, 9% of students at the Medical University in Wroclaw (Poland) declared their professional choice as motivated by economic interests; 21% of them had chosen the medical professions due to their promising perspectives toward employment and career (Waszkiewicz *et al.* 2012; compare Matyja *et al.* 2012). Hryniewicz's (2016) trial with medical students ($N=206$) showed that economic motivations outweighed all other incentives, e.g., training for a caring profession, finding purpose or passion, etc. Still, discussing statistical facts, structural and societal tendencies are not sufficient to explain and predict how medical students' moral competence would change in the course of their education. A more detailed, multifactorial analysis of a distinct learning environment will follow in the next subsection.

6.4 Moral competence and gender-specific challenges

The gender effect on moral competence is described as ambiguous and disputable (e.g., Kohsravi Zadanbeh & Zakerian 2011). Rest (1986) and Schillinger (2006) have found that females' C-scores are higher than males', although "moral judgment competence levels are similar for men and women (MJT C-score = 24 and 23, respectively). Results from a one-factor analysis of variance and effect size are: $F(1,1142) = 2,109$, $p = 0,15$, $r = 0,04$. According to Schillinger, no significant gender differences were found regarding subject's preferences for the moral stages either (affective aspect of moral behavior)" (Schillinger 2006, 98).

In our sample, a significantly different effect was uncovered. As demonstrated in Figure 4, the moral competence index of male participants $C = 40,8$ points ($N=27$), yet $C = 27,3$ points was measured for female participants ($N=88$); the absolute difference = 13,5 C-points.

We do not see reasons for the biological gender reference (Becker & Ulstad 2007; compare Singh *et al.* 2002) to explain this phenomenon. Furthermore, we agree with Tirri and Nokelainen's (2007) conclusion that "gifted students in science may have the best

cognitive skills and logical thinking but they may lack the ethical sensitivity that is needed to solve moral dilemmas in science” (Tirri *et al.* 2012, 6) and social contexts.

Following Becker’s and Ulstad’s hypothesis, we suggest the following explanation: the gender gap between the male and female minority’s C-scores can be explained by females “engaging in impression management with their survey answers” (Becker & Ulstad 2007, 88). “There is a pervasive tendency to present oneself in the most favorable light relative to prevailing social norms,” or – in our opinion – to present oneself according to the prevailing competitive strategies. “This interest in answering in a socially desirable manner is known as impression management” (Becker & Ulstad 2007, 78). Thus impression management can be one of the competitive tactics employed by the female participants of our study.

Becker’s and Ulstad’s hypothesis can be strengthened by additional interviews related to the investigated academic context. In their childhood many females in Poland were reportedly rewarded for being polite, humble, submissive, caring, and trying to gain others’ recognition (Zdziebko 2020). Secondly, female students who were additionally interviewed for ethnographic background of the surveyed group, reported that female medical students employ tactics to make survey results more impressive, and to boost self-promotion and self-identification regardless of interviewing methods used (e.g., paper-and-pen surveys vs online surveys; open vs closed questions). When applied to the Moral Competence Test, such strategies imply a countereffect, i.e., low C index.

As Hren *et al.* demonstrated, Croatian female students scored with DIT and instruments measuring Machiavellian tactics on socially desirable responding behaviors “had higher scores on the SDR impression management subscale, whereas male students scored higher on the self-deception subscale; a finding similar to other studies on college students. Impression management is a construct of a deliberate attempt to present a socially favorable personality, whereas self-deception is an overly positive but honest bias in self-description” (Hren *et al.* 2006, 274). Furthermore, evidence for medical students’ verbal strategies to “impress senior medical staff, which was directly seen to prepare the way for prestigious jobs in the future. More subtly, some students used phrases during the interviews which implied some advantage over other students” was found by Lempp and Seale (2004, 772). As yet, research like this has not been conducted in Poland, but the authors suggest considering such phenomena to explain low C-scores of surveyed female participants.

6.4.1 A segmentation effect and gender

Wakenhut (1982), Lind (2000d), Schillinger (2006), Hegazi and Wilson (2013), Bataglia & Schillinger (2013), Feitosa *et al.* (2013a; 2013b) observed a segmentation effect between C- values scored for each dilemma separately. In fact, the Doctor’s dilemma can be more challenging for participants than the Workers’ one. However, segmentation is not

always related to low moral competence. Rather, situational, institutional, socialisational and individualistic factors (also interpenetrating) enter into the equation, e.g., “different interpretations of the situation, closeness to everyday-life, personal experience, gender role, institutional pressure, and ideological barriers to autonomous judgment” (Lind 2000d, 1). Furthermore, a person’s moral thinking might be controlled by institutional or ideological authorities, or narrowed to a specific professional ethics such as medical ethics (with regard to abortion, euthanasia, in vitro fertilisation, etc.). As a result, persons facing one of the dilemmas can be afraid of their independent reflection and judgment, or their minds turn to quasi-Freudian superego censorship.

Previous research shows that “religiously oriented subjects suppress their autonomous moral judgment on dilemma contents, on which the church takes a strong stance” (Lind 2000, 4) and submit adequate assessments concerning all pro-arguments to their ‘disapproval’. Hegazi and Wilson (2013) argue that a segmentation effect with respect to the Doctor’s dilemma caused medical students’ moral competence to drop at one of the Australian universities. However, participants with higher C-scores were able to show more resilience to the segmented judgment.

In terms of the MCT methodology, a segmentation effect can be identified when participants’ C-score is lower for the Doctor’s dilemma (at least 8 C-points less) than for the Workers’ dilemma. When the C-score for the Worker’s dilemma is lower than for the Doctor’s dilemma, a pronunciation effect can be noticed. In this study, the segmentation effect of $C = -3,7$ for the entire surveyed sample remains minimal and non-significant (lower than 8 C-points). However, as depicted in Fig. 5, moral competence separately scored by gender and then by each individual dilemma, is distinguished by (1) a segmentation effect in female participants and by (2) a pronunciation effect in male participants.

In females, a segmentation effect was $= 5,1$ C-points and higher than for the entire sample, but still non-significant. It was just demonstrating that female healthcare students were more challenged by the Doctor’s dilemma than by the Workers’ one.

However, a reverse pronunciation effect was observed in the male healthcare students participating in the study. They dealt better with the Doctor’s dilemma regardless of the fact that the latter is more demanding than the Workers’ one.

Eventually, the final absolute effect size (AES) as the final C-score gained in the course of studies) – only for the Doctor’s dilemma – was identified as significantly higher for males ($C = 13,78$) than for females. The AES for the Workers’ dilemma was $C = 5,39$.

This gender-related biases can be explained by various hypotheses. For example, M. Wnuk (2010; see also Parchomiuk & Byra 2015) examined medical female students’ spiritual and religious strategies for coping with stress and moral distress in Poland. The mean scores for praying frequency (by gender) were 3.28 (for females, $N=315$, standard deviation 1.34) and 2.75 (for males, $N=50$, standard deviation 1.44) (Wnuk 2013). This

may result from euthanasia-related controversies not being equally demanding for female and male healthcare students, so they can develop different moral strategies to cope with them. Wnuk's findings can be confirmed by Pew Research Center's global study, which shows that females are generally more likely to affiliate with religious beliefs than males (see Pew Research Center Religion & Public Life 2016); gender disparity of this type also applies to Roman Catholicism.

As Capraro and Sippel (2017) argue, certain types of dilemmas imply a strong emotional response in accordance with a gender-specific ethical affiliations, e.g., socially responsive ethics (care, empathy, compassion, altruism) vs. principled ethics that may abstract from interindividual and relational social contexts). The Roman-catholic affiliation still present in the cultural background of the Polish sample would be more in line with responsive ethics, which is still predominant in Polish healthcare universities and is increasingly opposed to ethics based on principles that go beyond particular confessions and involving, e.g., human rights and universally accepted principles. If principles are conflicting in a subject's moral mind, this may seriously challenge their moral competence, firmness, and emotionality. In such cases the MCT participants would tend to strongly disagree even with high-type normative arguments, and face confusion and helplessness as moral decision makers.

A doctor's dilemma contained in the MCT can be demanding in a twofold context: (1) religious and (2) medical. These contexts can be regarded as connected in cultures with more traditional ethical and religious affiliations. But they can be regarded as disconnected in secular and secularizing contexts, too, where "saving human life at all costs and to its very end" (Ostrowska 1991, 65) remains the only admissible way of conduct despite principle plurality (some principles making the objection against futile therapy well justifiable).

In Poland, medical students' beliefs and attitudes concerning this topic could uncover some interesting changes (Lurka 2020; Szadkowska-Szlachetka *et al.* 2019). Between 2010-2020 medical students' acceptance of euthanasia oscillated between 45% – 51.3% (according to our data). However, it is not just beliefs and attitudes, but the ability to judge in line with high-quality normative criteria chosen to justify one's judgment and do so beyond attitudes, beliefs, and otherwise 'initial impulses', which instantly 'breaking into pieces', as D. Hume put it in *A Treatise of Human Nature*. It is precisely this that contributes to moral competence and is scored with the MCT. Furthermore, it is also respect for opinion, value and principle-pluralism. Advocating for a reasonable dissensus with regard to end-of-life decisions, Wilkinson *et al.* stress how crucial it can be for physicians (and all subjects in general) "to fairly appraise the options" and "different conclusions," and "to understand the nature of disagreement" (Wilkinson *et al.* 2016, 118), especially when the two conflicting options making up a dilemma can be justified by equally high-quality moral principles. Philosophy defines the justification and acceptance of a reasonable disagreement as an achievement of deliberative and democratic competence. According

to our long-term expertise in education based on Lind's dilemma discussion plan (the Konstanz Method of Dilemma Discussion), we may confirm that participants with higher moral competence deal much better with normative dissonance and are more likely accept and justify disagreement with high-level normative orientations which result in reasonable and principled disagreement.

Conclusions

The main objective of this article was to report on, and to examine changes in, the moral competence in healthcare students ($N=115$) representing a distinct learning environment in Poland. Being in transition to a competitive tertiary education model, this environment seems to incorporate a wide range of ambiguous factors that affect students' moral competence in various ways. During their pre-clinical curriculum, a decrease of "C" (for moral competence) was noticed. The clinical curriculum had a beneficial effect on students' moral competence. However, female participants manifested lower moral competence while dealing with the end-of-life dilemma than males. This phenomenon was identified as a gender bias, as in previous studies females often showed higher C-scores than males. Further, a segmentation effect and a pronunciation effect were identified and discussed on the basis of religious and non-religious ethical affiliations and principle pluralism.

Also, a modified impression management hypothesis was introduced as a gender-specific, competitive strategy to explain the overall low C-scores of female participants.

On the basis of a thorough, up-to-date literature review, healthcare students' moral competence improvement was documented as underprioritized for competitive medical education in several countries. The authors consequently argued for educating moral competence as a skill of critical importance for decision makers who deal with clinical-moral decisions that are made regardless of paradigm shifts.

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