

CARE AND JUSTICE ARGUMENTS IN THE ETHICAL REASONING OF MEDICAL STUDENTS¹

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Abstract:

Objectives: To gather empirical data on how gender and educational level influence bioethical reasoning among medical students by analysing their use of care versus justice arguments for reconciling a bioethical dilemma.

Setting: University Departments of Medical Ethics, Social and Communication Psychology in Germany. **Participants:** First and fifth year medical students. **Design and method:** Multidisciplinary, empirical, 2-segment study of ethics in action: In intrapersonal Segment 1, the students were presented with a bioethical dilemma and then administered a 13-item questionnaire to survey their individual preferences for care versus justice arguments in resolving the conflict. The survey questioned 6 justice, 6 care-related items and 1 socially critical item. Data were analysed by gender and year of medical school. In interpersonal Segment 2, the bioethical dilemma from Segment 1 was discussed in gender-mixed and gender-homogeneous groups. Coded transcripts were evaluated to identify prevalences in care versus justice reasoning. **Results:** Data on 462 medical students were evaluable (n=338 in Segment 1, n=168 in

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Segment 2, n=44 overlap). Gender and level of education had no effect on moral reasoning in intrapersonal Segment 1, but significantly affected reasoning in interpersonal Segment 2, where women significantly tended to use more care-orientated arguments. Justice arguments predominated the group discussions.

Conclusion: Interpersonal contexts affect moral reasoning in medical students, probably by amplifying the socialisation relating to gender and educational level. Care orientation is associated with the female gender. Professional socialisation tends to reduce the diversity and richness of moral reasoning towards a more justice-weighted orientation. Medical ethics should teach both justice and care reasoning modes in order to broaden physicians' ability to reconcile bioethical dilemmas.

Keywords: *bioethical reasoning, medical education, care and justice, healthcare ethics, empirical research.*

INTRODUCTION

When working in a clinical environment, professionals are constantly facing ethical considerations, for example regarding the use of physical restraints (Gastmans & Milisen 2006) or artificial feeding (Els *et al.*, 2008), stressing the importance of moral reasoning skills. Numerous studies have proven that education can influence ethical orientation and enhance the moral reasoning skills of medical professionals, and that moral reasoning changes over the course of medical education (Borrey *et al.*, 2006; Lind, 2000; Norberg & Udén, 1995; Patenaude *et al.*, 2003; Self *et al.*, 1993; Self & Olivarez, 1996; Self *et al.*, 2003; Jaffee & Hyde, 2000; Robertson, 1996; Udén *et al.*, 1992; Kuhse *et al.*, 1997). In order to explore physicians' ethical decision-making processes and to understand how physicians develop bioethical reasoning, out of these studies, the more recent ones have crystallised into studies based on methodologies that compare the *justice* orientation propagated by the moral development theorist Lawrence Kohlberg with the *care* orientation identified by his colleague Carol Gilligan (Arnason, 2001; Kohlberg, 1981; Gilligan, 1982). Within Kohlberg's universalist moral psychology derived from the philosophical thought of Immanuel Kant and John Rawls, a justice orientation in ethical reasoning emphasises conflicting rights and obligations

(Kohlberg, 1981; Kant, 1785/1998; Kant, 1788/1997; Rawls, 1971; Rest, 1986). Individuals applying a justice orientation consider the conflict itself, independently of interpersonal and intrapersonal relationships and other conditional factors. Kohlberg's extrapolation of Piaget's model of cognitive development into stages of moral development is firmly anchored in modern educational theory (Rest, 1986; *et al.*, 2003).

In opposition to Kohlberg's theory, the psychologist Gilligan established in her empirical research that moral orientations tend to demonstrate gender-related trends (Gilligan, 1981; Gilligan & Belenky, 1980; Gilligan & Murphy, 1980). Gilligan (1982) showed that Kohlberg's empirical research was not in point of fact universally founded because it neglected the perspective of women. The addition of Gilligan's *care* orientation to Kohlberg's moral reasoning concept reflected the fact that ethical decision-makers consider more detailed particulars of the dilemma, such as situational factors or the relationship between protagonist and family, friends, or other proxies (Gilligan, 1988). When making an ethical judgment, an individual with a care orientation will weigh the complexity of moral conflicts within the situational context as well as within the social context (Biller-Adorno, 2001; Conradi, 2001).

The existence and coexistence of the two moral orientations and their relation to gender continue to be debated on a theoretical as well as an empirical level (Biller-Adorno, 2001; Conradi, 2001; Donleavy, 2008; Jaffee & Hyde, 2000; Jorgensen, 2006; Juujärvi, 2005; Robertson, 1996; Udén *et al.*, 1992; Kuhse *et al.*, 1997; Rudnick, 2001). The notion that men and women tend to apply different mixtures of care and justice argumentations to reconcile moral dilemmas is more easily assumed than proven. One meta-analysis of 113 studies on gender-related differences in moral orientation found only minorly significant gender-related differences, showing that both men and women use a combination, i.e. duality, of care and justice arguments (Jaffee & Hyde, 2000). A study comparing the bioethical reasoning of Australian physicians (predominantly male) and nurses (predominantly female) found no gender differences in moral orientation, whilst other researchers have indeed observed gender-related differences in the ethical approaches applied by these professionals (Robertson, 1996; Udén *et al.*, 1992; Kuhse *et al.*, 1997). One analysis of graduating medical students found no significant correlation between gender and moral orientation predominance (Self *et al.*, 2003). Along similar lines, Juujärvi (2005) provides evidence that care and justice reasoning are closely linked to the kind of dilemma people are facing in a

real-life situation. In the end, the gender difference postulated by Gilligan (1982) has been linked to numerous other factors such as attachment and job situation (for a review see Donleavy, 2008). In his study on the late works of Kohlberg and Gilligan, Jorgensen (2006) finds support for the hypothesis that the two models are neither mutually exclusive nor have been intended as such by the authors.

Gilligan additionally pointed to the relevance of situational factors and personal responsibilities in the individual's development of moral arguments. She highlighted the importance of social interplay and responsibility, whilst exploring these factors using an intrapersonal methodology: she confronted the participants in her studies individually with moral dilemmas and asked them to make an ethical decision and give arguments for it (Bergmann & Luckmann, 1999).

Along similar lines, the interpersonal concept used by sociologists understands ethics to be a result of communicative interaction (Bergmann & Luckmann, 1999). Interpersonal moral judgment is implemented through the actions of persons in social relationships and is thus dependent on situational factors, whereby gender and education play salient roles (Bergmann & Luckmann, 1999). Specific situational factors can influence decision-makers' cognitive, emotional, motivational, and perceptive behaviour, at least as short-term reactions.

In a parallel development, the multidisciplinary field of bioethics has recently come to embrace empirical methodologies for its research (Arnold & Forrow, 1993; Borry *et al.*, 2004). Bioethicists have recognised the need to gather qualitative and quantitative data about ethical issues and measure moral orientations (Arnold & Forrow, 1993; Borry *et al.*, 2004; Fox & de Vries, 1998). As a methodology rooted in the social sciences, the use of questionnaires, interviews and participant observations has thus gained legitimisation for empirical research into applied bioethical reasoning or *ethics in action* (Borry *et al.*, 2004; Singer *et al.*, 1990). Because this trend is relatively new, there is a general lack of reports on the moral orientation of medical students and a paucity of systematic and empirical data on strategies they have learned to later resolve the bioethical difficulties confronting them in their day-to-day professional lives (Self *et al.*, 2003; Robertson, 1996).

Against this backdrop, our multidisciplinary team of social psychologists, social scientists, and bioethicists turned its focus on the empirical exploration of how medical students learn and apply bioethical reasoning across the broad dimensionality of justice and care orientations, and gender and

education. Given the multifaceted complexity of modern ethical research as outlined above, we designed a multidisciplinary empirical study of *ethics in action* on German medical students to gather empirical data on how bioethical reasoning is influenced by gender and educational level during the course of medical studies in a university setting.

The two variables, gender and education, were explored in combination with a view to better reflecting the multiplicity and variability of modes of moral reasoning (Kleinman, 1999; Turner, 2001). For this analysis, we chose to compare first-year versus fifth-year medical students in Germany. German medical schooling entails a five-year curriculum followed by one year of clinical practice. Our objective was to determine whether medical school changes a student's bioethical reasoning by comparing medical students with a nascent knowledge of general medical science with those who are academically advanced, yet still lacking practical clinical training. This separation was also intended to limit the confounding effect of everyday clinical routine on theoretical bioethical reasoning.

RESEARCH QUESTIONS

Hypothesis (1a): Male medical students use justice arguments in their bioethical reasoning more frequently than females, whereas females apply care arguments more frequently than males.

Hypothesis (1b): Compared to fifth-year students, first-year medical students utilise care arguments more frequently in their bioethical reasoning, regardless of gender.

Hypothesis (2): Medical education affects bioethical reasoning in that justice arguments become more prevalent in fifth versus first-year medical students.

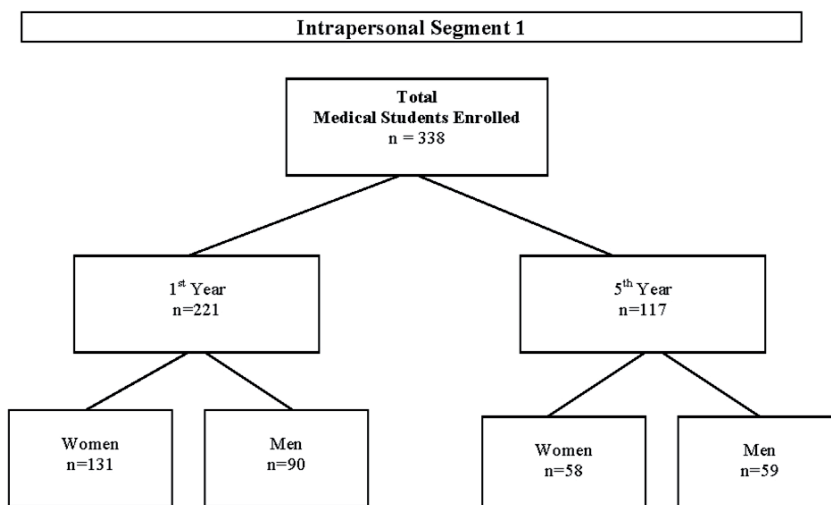
METHOD

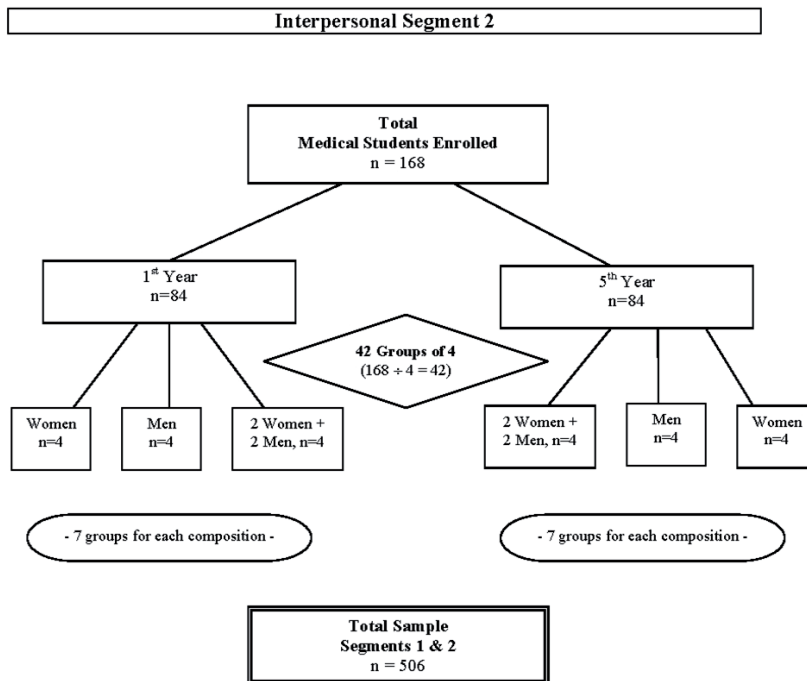
Methodologically, the design was divided into 2 segments: one intrapersonal and one interpersonal. In intrapersonal Segment 1, a 13-item questionnaire (Annex 1) was administered to survey how students used care versus justice orientations in their reasoning to reconcile a hypothetical, but realistic bioethical dilemma. In interpersonal Segment 2, the dilemma posed in Segment 1 was discussed in gender-mixed and

gender-homogeneous groups. The data gathered were analysed as a function of gender and education level.

Participants

All participants were recruited by the authors from volunteer first-year and fifth-year students at the University of Göttingen Medical School, Germany. After obtaining informed consent, the demographic data were collected and anonymised. In brief, the study was divided into two segments (Figure 1). In the first, intrapersonal Segment 1, the enrollees were given a bioethical dilemma and then administered a questionnaire to survey their preferences for using care versus justice arguments to resolve the conflict. In the second, interpersonal Segment 2, the same dilemma from Segment 1 was discussed in 42 gender-mixed and gender-homogeneous groups each with 4 students, 44 of whom had been recruited from Segment 1 and 124 in a second recruiting session. Each group-of-four discussion lasted 45 minutes, was videotaped and transcribed. Coded transcripts were evaluated to identify prevalences in care versus justice reasoning.





Bioethical dilemma

The bioethical dilemma presented to the students was designed to reflect a plausible situation that students might be confronted with during their careers (Annex 1). The hypothetical conflict of whether to force-feed a patient was based on real-life scenarios described to the authors (NBA, EC, CW) by gerontopsychiatric nurses between 2000 and 2001.

Questionnaire

A pool of arguments derived from a literature search was used to create an initial draft of dilemma-related questionnaire items that made salient distinctions between care and justice arguments (Annex 2) (Lind, 2000; Norberg & Udén, 1995; Patenaude *et al.*, 2003; Self *et al.*, 1993; Self & Olivarez, 1996; Self *et al.*, 2003; Jaffee & Hyde, 2000; Robertson, 1996; Udén *et al.*, 1992; Kuhse *et al.*, 1997). The items were verified

by aligning them against conventional levels of adult moral development (Skoie, 1998) and reflected the standard definitions of justice and care arguments (Robertson, 1996; Kuhse *et al.*, 1997). The draft questionnaire was pre-tested by administering it to a representative group of first-year medical students. The items were then adapted on the basis of the first pre-test results to produce a second pre-test, also administered to a representative, but different group of first-year medical students. The final draft questionnaire, based on the compiled pre-test results, was reviewed by a panel of 10 bioethics experts who deemed all arguments distinct. The internal validity (inter-observer variability) was $\kappa = .71$ ($n = 10$). After further refinement, giving a final pre-test to unbiased medical students, the final questionnaire contained 13 clear and unambiguous items representing the modes of argumentation, comprising six justice (1-4, 7, 12) and six care-related items (5, 8-11, 13) and one socially critical item (6).

Additionally, 169 high school students ($M_{age} = 17.75$, $SD = 2.42$; 70% female and 30% male) recruited from local high schools took a post-test that rated the persuasiveness of the questionnaire's care and justice arguments. The post-test results revealed no differences in persuasiveness ($M_{care} = 3.70$, $SD = 0.89$, $M_{justice} = 3.75$, $SD = 0.92$), $t(647) = -0.74$, $p = .46$. Cronbach's α ranged between 0.66 (care-item scale) and 0.68 (justice-item scale), confirming that the questionnaire's internal consistency was fair.

Coding scheme

According to the coding scheme shown in Table 1, the authors (MB, CS), blinded to gender and educational level, coded the questionnaires and transcripts to identify interpretive prevalences between defined care and justice arguments (Gilligan, 1982; Lyons, 1988; Skoe, 1998; Sommer, 2004). A student was assigned to one or the other profile if 70% of their argumentation met the coding scheme's criteria. Otherwise, they were assigned a dual or *neither justice nor care* profile. We chose the rounded-up *two-thirds majority* to secure an unambiguous orientation towards care and/or justice reasoning. The coding process was verified by a second rater. The coding scheme's inter-rater reliability was high ($\kappa = .68$, 661 of 2570 arguments). The inter-rater agreement was $\kappa = .76$ (779 of 2570 arguments).

Table 1. Coding Scheme for Care and Justice Argumentation

Criteria	Orientation	
	Care	Justice
Details of the case	Diverse details are invoked to show the difficulty of a distinct moral judgment.	Details are compacted to substantiate the case in order to reach a definite solution.
Non-maleficance, respectively avoid hurting	The focus is to avoid hurting a person.	The focus is to avoid acting against common rules.
Role-taking	Role-taking is based on empathy as imagining how the other person might feel and how they might act in their specific context.	Role-taking is based on the golden rule: Treat the patient as you would want to be treated yourself.
Focus	The focus is context-sensitive, depends on the situation and considers relationships.	The focus is universal. Context sensitivity figures only to determine indications for rules.
Ethics	Ethics is composed of attentiveness and responsibility.	Ethics as a concept of <i>the moral point of view</i> .
Consequences of the decision-making process	Consequences are considered relevant for this specific case in order to demonstrate the limitation of each specific solution.	Consequences are determined to gain a consensus about right and wrong and to establish general rules.

Intrapersonal Segment 1

Segment 1 recruited 338 medical students. After recruitment, the participants were gathered in a campus lecture hall and given oral and written instructions. They first read the bioethical dilemma and were then administered the written questionnaire (Annex 2) and instructed to rank the importance of the arguments on a six-point scale (1= unimportant, 6= very important) or not applicable. They were asked to refrain from discussing their responses to preserve the intrapersonal design.

The completed questionnaires were collected and analysed by care or justice preferences (Table 1). The analyses used median split because the rating data were not distributed normally. The students were assigned either a care or justice profile if they rated four out of five arguments and the one general justice (item 12) or care argument (item 13) higher than the median preference for the respective profile (care or justice). The limit value of 4 out of 5, or a rating 80% higher than the median, was deemed sufficient to assign a level of agreement. If students fulfilled the criteria for both moral modes, they were assigned a dual profile (both justice and care) or *neither justice nor care* profile if they did not fit either criteria.

Interpersonal Segment 2

Segment 2 recruited 168 students to explore the students' situational moral conflict negotiation process. Participants were recruited through announcements made in their psychology classes and were paid €25. The enrollees were divided into 42 groups of 4 to discuss the same hypothetical dilemma posed in Segment 1. Educational level and distribution of gender were randomly balanced across groups (Fig. 1). Enough time was allotted for 45-minute discussions which purposefully had no group leader. The students were instructed to describe the conflict and discuss different possible courses of action. The group discussions were videotaped and transcribed. The transcripts were divided into arguments adapted from Toulmin and Voss *et al.*, whereby an argument consisted of at least two elements: the ground and the claim (Toulmin, 1958; Voss *et al.*, 1983).

Statistical Analysis

For intrapersonal Segment 1, the individual orientations as a function of gender (Hypothesis 1a-b) and level of education (Hypothesis 2) were analysed using non-parametric 2 tests for two independent samples to compare orientation frequencies (Table 2). For interpersonal Segment 2, the hypotheses were tested by means of two-way factorial analysis of variance (ANOVA) (Tables 3-5).

RESULTS

Intrapersonal Segment 1

Figure 1 shows the dispersal of participants. Gender distribution was 131 women (59.3%) and 90 men (40.7%) in their first year and 58 women (49.6%) and 59 men (50.4%) in their fifth year. The mean age in years was 20.65 (SD= 2.46) for the first-year and 25.55 (SD=2.45) for the fifth-year medical students.

Table 2 presents the results of intrapersonal Segment 1. The 2 test produced no significant differences in preferences for either care or justice arguments when the orientation prevalences were broken down by gender (Hypothesis 1a; care orientation: $\chi^2=0.83$, $p>.05$; justice orientation $\chi^2=0.90$, $p>.05$) and educational level (Hypothesis 1b). In fact, a mean of 61% showed neither a justice nor care orientation. The only statistically significant differences between males and females were in dual profiles, which were found in 15% of female ($\chi^2=6.00$, $p=.01$) and only 6% of male medical students. Thus, Hypothesis 1a was rejected.

Hypothesis 1b was also rejected in this segment for the same reason that there were no statistically significant differences relating to educational level in the frequency of arguments used for bioethical reasoning. First-year medical students did not utilise care arguments more frequently than their fifth-year counterparts (care orientation: $\chi^2=1.28$, $p>.05$, justice orientation: $\chi^2=0.86$, $p>.05$). Again, the results for dual profiles showed statistically significant differences between first-year (14%) and fifth-year (5%) medical students ($\chi^2=4.55$, $p=0.03$). The majority at both educational levels showed no prevalence for either justice or care orientation in their bioethical reasoning.

Table 2. Prevalences of Ethical Orientation in the Participants of Intrapersonal Segment 1 According to Gender and Educational Level

Ethical Orientation	Gender		Educational Level		Totals as means
	Women	Men	1st Year	5th Year	
	189 (55.9%)	149 (44.1%)	221 (65.4%)	117 (34.6%)	
Justice only	15%	12%	14%	13%	14%
Care only	12%	17%	14%	15%	14%
Dual justice and care	15% ^a	6% ^a	14% b	5% ^b	11% ^c
Neither justice nor care	58%	65%	58%	67%	61% ^c

^a $\chi^2=6.13$, $p=.01$; ^b $\chi^2=4.55$, $p=.03$, ^cNon-interval-scale data

Interpersonal Segment 2

A total of 168 first and fifth-year medical students were evaluable (Figure 1) and were evenly distributed across the groups: 84 first-year ($M_{age}=21.26$, $SD=2.43$) and 84 fifth-year ($M_{age}=25.83$, $SD=2.81$). The results were compared using a two-way factorial ANOVA with *argumentation* as the dependent variable. The first factor was group composition by gender distribution, i.e. women only, men only, mixed groups broken down by gender (Table 3). The second factor was education level (Tables 4 and 5).

Table 3. Frequencies of Justice vs. Care Orientation in Interpersonal Segment 2 According to Group Composition and Argumentation

Group composition		7 groups of 4 (n=)	Argumentation			
			Justice (mean, SD)		Care (mean, SD)	
Women only		56	12.59 ^a	6.55	3.58	2.94
Men only		56	15.96 ^{a b}	9.28	2.42	2.65
Mixed (half and half)	Women	28	12.17 ^b	6.82	2.76	2.56
	Men	28	14.83	5.00	2.24	2.06
Total		168	14.02	7.53	2.83	2.68

^ap=.03, ^bp=.03 by simple comparison of ANOVA

Table 4. Frequency of Justice Arguments in Interpersonal Segment 2 According to Group Composition and Education Level

Group Type	Gender	First Year	Fifth Year				
		n=	Mean	SD	n=	Mean	SD
Women only	Women	28 ^a	12.71	1.17	28	12.48	7.00
Men only	Men	28	14.61	5.36	28	17.32	11.95
Mixed	Women	14 ^b	10.87	6.66	14	13.47	7.00
	Men	14 ^{ab}	16.00	3.74	14	13.67	5.91
Total:		56	13.58	5.82	84	14.46	8.93

^ap=.04, ^bp=.02 by simple comparison

Table 5. Frequency of Care Arguments in Interpersonal Segment 2
According to Group Composition and Education Level

Group Type	Gender	First Year	Fifth Year				
		n=	Mean	SD	n=	Mean	SD
Women only	Women	28	4.58 ^{a,d,e}	3.23	28	2.59 ^{a,f}	2.25
Men only	Men	28	3.44 ^{b,e}	2.92	28	1.41 ^{b,f}	1.91
Mixed	Women	14	1.96 ^d	1.99	14	3.55 ^g	2.88
	Men	14	1.87	1.43	14	2.60 ^{b,g}	2.55
	Total:	84	3.31 ^c	2.88	84	2.36 ^c	2.39

^ap=.00, ^bp=.00, ^cp=.02, ^dp=.01, ^ep=.01, ^fp=.04, ^gp=.01, by simple comparison

Table 3 presents the average rater-coded frequencies of justice and care orientations used in the group discussions; the breakdown is by group composition and gender. Across all groups, both male and female medical students in interpersonal Segment 2 presented justice arguments significantly more frequently than care arguments (care: $M = 2.83$, $SD = 2.68$, justice: $M = 14.02$, $SD = 7.53$).

Table 4 presents the frequencies of justice arguments broken down by education level. Subjecting the data to 4 x 2 ANOVA analysis [4 (gender distributions: men only, women only, men in mixed groups, women in mixed groups) x 2 (level of education: first-year, fifth-year)] showed that gender composition had a significant effect on the medical students' use of justice arguments to solve the dilemma in group discussions [$F(3, 160) = 2.26$, $p=.05$]. Women in women-only or in mixed-gender groups used justice arguments less frequently than men discussing in male-only groups (Table 3, both $p=.03$). The results of Segment 2 supported Hypothesis 1a.

Education level did not significantly affect the use of justice arguments to resolve the dilemma, [$F(1, 160) = 0.32$, $p= .57$]. The results of Segment 2 did not support Hypothesis 2: Overall, fifth-year medical students did not apply justice arguments more frequently than the first-year students in

the group discussions (14.46, SD=8.93 and 13.58, SD=5.82, respectively, $p>.05$).

Table 5 shows the frequency of care arguments according to education level. Gender distribution, not education level, had a significant effect on the frequency of care arguments: $F_{\text{gender}}(3, 160) = 2.67$, $p=.03$, $F_{\text{level}}(1, 160) = 1.09$, $p=.30$. In addition, gender distribution and education level interacted significantly, $F(3, 160) = 5.05$, $p=.00$. Simple comparison tests revealed that in single-gender groups, first-year medical students used care arguments more often than fifth-year students (see Table 5). This was true for both male-only, $F(1,160)= 9.10$, $p=.00$), and female-only groups, $F(1,160) = 8.72$, $p=.00$. The frequency of care arguments for both genders discussing in gender-mixed groups was independent of education level ($p>.05$).

As Table 5 shows, among the first-year students, females discussing in female-only groups used care arguments more frequently than females discussing in gender-mixed groups or males discussing in male-only groups ($p=.01$). In the fifth-year sample, females discussing in female-only groups expressed care arguments more often than males discussing in male-only groups ($p=.04$). In gender-mixed groups, females used care arguments more frequently than their male counterparts ($p= .01$).

To exclude their decision about the dilemma in Segment 1 having an effect on their moral position in Segment 2, the difference between the ratings of 44 participants in both segments was calculated as a control. T-tests revealed that students who only took part in Segment 2 and those who participated in both did not differ in their assessment of care and justice items ($p>.05$). Consequently, it is permissible to compare Segment 1 and 2 in relation to the same sample. In transitioning from Segment 1 to 2, a total of 29 (65.9%) students changed their bioethical reasoning to a justice orientation (4.5 % changed from care, 9.1% from dual, 52.3% from *neither justice nor care* profile.). None of the students changed to a care profile, a tendency not affected by gender ($\chi^2=6.95$, $p>.05$).

DISCUSSION

This multidisciplinary study on first and fifth-year German medical students gathered empirical data on how gender and educational level influence medical students' bioethical reasoning. A 2-segment model was applied: Questionnaire-based intrapersonal Segment 1 surveyed

the students' care versus justice arguments in resolving a hypothetical but realistic bioethical dilemma. These data were compared with the intra-group discussion results obtained in discussion-based interpersonal Segment 2. This comparative analysis revealed that, when the individual students were surveyed impersonally, gender and level of education had no effect on moral reasoning. However, when the dilemma was discussed amongst gender variable groups, these factors significantly impacted ethical orientation.

This is the first multidisciplinary study to investigate the interaction between gender and educational level using empirical methodology, i.e. *ethics in action*. It is also the first bioethical study of medical students to include the care orientation as a target variable. Another unique perspective was obtained by applying a social and communication psychological approach to gather empirical bioethical evidence. This methodology represents the more sophisticated type of comparative analysis demanded by Patenaude, in that it combines linear comparative structures whilst taking the effect of social relations into account (Lind, 2000; Norberg & Udén, 1995; Patenaude *et al.*, 2003; Self *et al.*, 1993; Self & Olivarez, 1996; Self *et al.*, 2003; Jaffee & Hyde, 2000; Robertson, 1996; Udén *et al.*, 1992; Kuhse *et al.*, 1997; Singer *et al.*, 1990).

The results of Segment 1 are consistent with many studies that have investigated moral orientation between the genders in reconciling moral dilemmas (Self *et al.*, 2003; Jaffee & Hyde, 2000; Kuhse *et al.*, 1997; Gilligan, 1982). Some have compared the effects of profession on ethical decision-making or, analogously, the impact of education on medical student's moral and ethical development (Lind, 2000; Patenaude *et al.*, 2003; Robertson, 1996; Udén *et al.*, 1992; Kuhse *et al.*, 1997). A recent interview-driven analysis of graduating medical students investigating how they applied care and justice concepts when discussing moral dilemmas found no significant gender-related correlations between moral orientation components, whilst suggesting a justice predominance among men and a care predominance among women (Self *et al.*, 2003). An intrapersonal Swedish study, designed with a similar methodology to ours, individually interviewed doctors and nurses who were equally stratified by gender and years of professional experience. The authors found no differences in how these groups resolved morally difficult episodes (Kuhse *et al.*, 1997).

In our intrapersonal Segment 1, the only statistically significant difference was a higher prevalence of dual profiles in females. Indeed other research has also observed combinations of care and justice reasoning (Jaffee & Hyde,

2000); Self *et al.* found a duality of care and justice orientations in their young physicians to be as high as 85% (Self *et al.*, 2003; Jaffee & Hyde, 2000). In explanation, care and justice may be not mutually exclusive, but rather reflect a moral ideal (Self *et al.*, 2003). This point has also been stressed by others in reviews of studies on this topic (Donleavy, 2008) or in a study on the late work of Kohlberg and Gilligan (Jorgensen, 2006).

In line with our original assumption of *ethics in action* or *functioning morality* (Bergmann & Luckmann, 1999), the most significant result of Segment 2 was that women used more care and less justice-orientated arguments than men in the interpersonal setting. The notion of the social construction of morality can indeed be operationalised within situational contexts.

By setting up gender-variable discussion groups, we created situations wherein gender and education level became salient characteristics, impacting our students' implementation of their interpersonal moral argumentation. Our findings confirm the social identity theory postulated by social psychology (Tajfel, 1982). Similarly to a study evidencing the impact of salient gender vs. disciplinary identity on physical education students' concerns regarding different kinds of injuries, our study shows a link between work or gender identity and moral reasoning (Levine & Reicher, 1996).

Overall, our study found that the use of care arguments declined as a function of professional socialisation. A justice orientation appeared to predominate among our medical students as a function of educational level. At the university where these studies were conducted, bioethical education was limited to seven compulsory seminar sessions of two hours each, which covered basic applied and research ethics and thus presumably could not establish a rich and diverse ethical argumentation. Given that the implementation of ethical education is subject to controversial discussions across disciplines (Barry & Ohland, 2009), a more limited curriculum like this seems to be the norm rather than the exception. Negotiation of moral conflicts, as reflected in the group discussions, seemed to foster a justice perspective, given that 65.9% of the participants taking part in both studies changed their moral profile from care, dual or *neither justice nor care* profile to justice when transitioning from Segment 1 to Segment 2. This finding might also point to a higher social importance of justice arguments and their association with a higher professional status.

Our findings have both philosophical and scholarly implications in that they reveal that current medical school curricula may undermine

the richness and diversity of ethical argumentation, whilst promoting an environment focused on justice-orientated moral reasoning (Arnason, 2001; Beauchamp & Childress, 2001; Benhabib, 1992; Lind, 2000; Patenaude *et al.*, 2003). As recent philosophical literature on care orientation has shown, care arguments can make a significant and indispensable contribution to a more comprehensive bioethical debate (Conradi, 2001; Freidman, 1995; Rudnick, 2001). In extrapolation, it would be a potential gain if such multivariate perspectives could be fostered in medical ethics education. This conclusion might equally help to resolve the abovementioned tensions between universal principles and particular contexts by teaching physicians to add a greater element of *care* argumentation to their bioethical decision-making process (Arnason, 2001).

One limitation of our study might be its inherently complex methodology and its cross-sectional design. Also, the standardised arguments of the questionnaire might have impaired the activation of a moral perspective. Some participants may have principally favoured one argument, but disliked its phrasing. This, however, does not apply to Segment 2 where participants were allowed to argue freely. Due to our focus on care and justice argumentation our coding scheme was limited to an investigation of *ethics in action* drawing on these two orientations. Arguably, 61% of the participants used arguments that were neither justice nor care or mixed ones. However, a proper analysis of these themes would have required a completely new coding framework. This would have gone beyond the scope of this paper's research question and will be the subject of future studies.

This interdisciplinary study represents the first attempt to reconcile the multifaceted complexity of bioethical decision-making by employing a socio-psychological, socio-scientific and bioethical approach to the gathering of empirical data. We have shown that personal moral judgements might be a function of how decision-makers relate to others in a particular social setting. The interpersonality of a situation should not be underestimated when weighing up the relevance of social factors such as gender, professional role or level of education. Interpersonal perspectives deserve greater attention in bioethical research. Medical ethics education should encourage richness and diversity of arguments.

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ANNEX 1

Bioethical dilemma

The following bioethical dilemma was posed to the students of Segment 1:

"A bed-ridden man requiring long-term care (lacking friends, family or other proxy) is admitted to hospital to be treated for pneumonia. He refuses to eat or drink. The nursing staff repeatedly tries to nourish him intravenously or through a feeding oesophageal tube. The patient repeatedly pulls out the lines and feeding tubes. Eventually, the physician inserts a feeding tube directly into the stomach. Because the patient tries to remove the tube the physician orders the patient to be restrained. Whenever the restraints are removed, the patient tries to pull out the tube again."

Question: Are restraint and forced-feeding an appropriate way to deal with the situation?

ANNEX 2

Questionnaire

1. The patient should not be force-fed because he has a right to decide for himself. He clearly expressed his will by pulling the tube.
2. The patient should be force-fed because he has a right to life-sustaining measures even if he is not aware of them.

3. The patient should be force-fed because physicians and nurses have a duty to do everything they can to save lives.
4. There is not a clear either-or solution to this conflict. The patient's physical self-determination and respect for human life both are at issue.
5. The patient should not be force-fed because any forcible solution will destroy the good relationship between the patient and multidisciplinary healthcare team.
6. Physical restraint could be refrained from if hospitals showed more humanity.
7. The patient should not be force-fed because forcible feeding constitutes an interference with physical integrity.
8. The patient should be force-fed because caring for patients sometimes justifies the use of force.
9. The patient should be force-fed because nurses and physicians bear responsibility for the patient's future.
10. The patient should not be force-fed because it is the duty of physicians and nurses to alleviate suffering and not inflict pain.
11. There is not a clear either-or solution to this conflict. The multidisciplinary healthcare team is responsible for caring for the patient, but may not simply inflict pain.
12. The rights of the patient are the critical issue. The main question is whether the right of physical self-determination is more important than the obligation to respect human life.
13. The patient's relationship with his social environment is the critical issue. The main question is how people interact in this case.

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