

The influence of passive and active moral training on medical university on changes of students' moral competence index – results from randomized single blinded trial

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Abstract

Introduction and Objectives. Human's life as well as medical professions consist of many moral dilemmas. The aim of our study was to evaluate moral competences of midwifery students during their whole university education (3 year course) based on their moral competences C-index. **Material and Method:** We performed randomized single blinded 3-year follow-up trial of 72 midwifery students. Standard Moral Judgment Test (MJT) By Georg Lind was used accompanied by own questionnaire. Moral competences were calculated (C-index) according to Lind's methodology. Subjects were also divided into active and passive ethics training to search for differences. **Results.** C-index varied during studies insignificant ($p=0.14$). Randomized groups were equal at the beginning point, no significant differences were noticed. Active ethics teaching did not increase C-index compared to controls in all measuring points (P1-P4, respectively $p=0.41$ and $p=0.38$). **Conclusions.** During 3 year studies at medical university moral competences measured by C-index varied insignificantly, but simultaneously the change in C-index was dependent on its value at the beginning of the trial. There was not statistically significant influence of active ethic's teaching compared to controls. Among social factors parents have strongest influence on students' morality, but growing role of Medical University in this hierarchy raises hopes for improvement in effectiveness of training in ethics.

Key words

Moral competence, moral development, ethics teaching, case learning, midwifer

INTRODUCTION

Human's life as well as medical professions consist of many moral dilemmas. Morality is a complex of values and norms influencing human behavior [1]. Frequently ethical dilemmas refer to critical moments, like death and birth. These situations are called extremely existential. Human's reproduction, planning, controlling and medical help, which is tough during midwifery studies also create difficult decisions. Nurses and midwives are increasingly aware that good health caring includes not only the performance of nursing interventions. In example midwives, directly or indirectly involved in assisted conception services, are likely to encounter ethical controversies and there is scarcity of information on their attitudes towards reproductive health as well their moral competences [2]. Midwives assisting in

termination of pregnancy also face controversy not only in the public arena, but also within the midwifery and nursing professions [3]. Starting from Hippocrates times medical professions stopped to be a craft and begun to be a mission. Thus the humanity expect from physicians, nurses, midwives special skills not only the professional knowledge, but also high morality. Especially in consumptions' world it has a growing importance for medical universities candidates, students and absolvent. The professions like policemen, drivers undergo special psychological and utility tests, which lack on medical universities [4, 5, 6]. The moral conduct in these professions may significantly influence the quality of the service. Therefore, the development of moral judgement plays a crucial role in the teaching of nursing ethics [1].

There are different approaches to moral knowledge. The cognitive trend is based on objective and independent moral order. The noncognitive trend rejects the absolute moral knowledge and the possibility to discover it. But there are still arguments of moral attitudes. There is also a monism conception, which assumes only one true moral order which should always be followed when conflicts appear. It could be a interesting solution, but only in case of one universal philosophy of life all over the world and all humans to be its

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believers. The opposite attitude is called moral pluralism. An individual's level of moral development is determined by the degree of internalization of social norms and values as well as the level of dependence on the external control and behavior [7, 8].

The question is whether in such different approaches to morality there is a possibility to teach it and avoid demagoguery or doctrinal moralistic trend? But every human has so called moral predispositions, which fulfill the term of moral competences. Moral competences are also increasing scientific category [8, 9, 10, 11]. It is usually defined as complex of moral knowledge, skills, attitudes, motivation and evaluation. It consists of the ability to moral autoreflexion taking self comprehension into consideration [1, 12]. Hartman understands moral competences as the ability to determine the aims and to reach them [13]. Moral competences refer to Lawrence Kohlberg stages of moral development. It is assumed, that everyone possesses the moral competences. If one is on postconventional stage of moral development, it means one is oriented toward general ethical rules and is able to apply them in practice, when moral conflicts appear [14].

The ambiguity of morality and difficultness in its precise definition from the beginning created the need to measure this feature. Before we ask if it is possible to influence the level of individual's morality, there is strong need to own the measurement tool. Even Lawrence Kohlberg who had been working on morality development theory also tried to observe it. He developed Moral Judgment Interview (MJI). Other scientifically known moral development measurements tool are: Moral Sense Test (MST) by Hauser et al, The Ethics in Health Care Instruments (EHCI) by Goldi or widespread neo-kohlbergian tool The Moral Judgment Test (MJT) by Georg Lind [1, 9, 10, 15, 16]. The MJT was created 30 years ago to evaluate simultaneously moral attitude and moral competences and is the most frequently used in Europe. It has been translated and validated in 29 languages [1, 9, 10]. The results and questionnaire support the theoretical basics and empirically confirm the cognitive and developmental assumption of Piaget's and Kohlberg's theory. The moral judgment and moral behavior are not only individually-oriented, but reflect their cognitive function. Both aspects are inseparable. The stages are grouped into three levels. First is the pre-conventional level (stages 1 and 2) of moral judgment, characteristic for children up to 7 years. The second is the conventional level (stages 3 and 4) which is characterized by conformity and adherence to rules. The last post-conventional level (stage 5 and 6) is characterized by orientation to conscience, respect for others and commonly shared values [1, 9, 10].

In Poland midwifery students are trained in ethics in both non-university and university programs. Before entering the studies almost all of children have obligatory twelve year ethical training provided by the institution of church and carried out by priests or catholic secular trainer. Over 98% of children attend religion training, the rest has the right to be trained in general ethics [17]. In other study 93% of physicians in eastern of Poland were catholic [18]. At the University ethics is usually taught in first year of bachelor's degree program as 35 hours of philosophy with nursing ethics and 20 hours program of bioethics.

Beside university training moral judgment could also be affected especially in strong catholic nation by social

factors including religion training and strong institutions like church, university. In recent study by Papaharitou certified midwives and midwifery students differed in their moral attitudes toward several aspects of assisted reproduction. They tended to be more liberal than general group of women. There were also important differences crucial for moral competences, the percentage of midwives and midwifery students not believers was about 50% and believers but not religion service attendees was around 40%. Thus personal factors (age, origin and religious beliefs) and provision of information are important in shaping their attitudes towards reproductive medicine and should be considered in complex [2]. There is need to evaluate moral training and moral competences of midwifery students worldwide and with caution for national specificity and national ethical context. Just as medical ethics can and does change over time, in response to developments in medical science and technology as well as in societal values, so does it vary from one country to another depending on these same factors [19].

A large number of bioethics programs use lectures and group discussions to introduce principles and theories, but there is variation in the topics, insensitivity, hours and placement during the study. Not only are there large variations between countries' medical schools, but differences can be seen within countries as well. Additionally medical students perceive bioethics as a "soft" subject of secondary importance compared to other basic and clinical courses in their medical curriculum [19, 20].

The question remains if the moral competence, or excellence of character, and the intellectual virtue, practical wisdom, can be taught? How to develop a moral expertise in midwifery? The most important for our interest in educating nurses and midwives worldwide in this field are: that a skill is teachable (virtue, then, is teachable and teachers can influence moral development), that in learning a skill there is a measurable progress from beginner to expert (building on experience) and that the expert has mastered something and the beginner can learn from observing this (the exemplar and role model) [21].

OBJECTIVES

The aim of our study was to evaluate moral competences of midwifery students during their whole university education (3 year course) based on their moral competences C-index. Additionally we tried to estimate the influence of active case ethic study teaching on the same parameter. The secondary aim was also the evaluation of psychosocial factors influencing moral competences and their changes, among them socially strong institutions (church and eventually university) and religion. Special attention was paid to institution of medical university the students attended.

MATERIALS AND METHOD

The study was performed during the three-year study in midwifery at Karol Marcinkowski University of Medical Sciences in Poznań. The completion of questionnaires, data management and analysis were performed in years 2006–2011. Seventy two students completed Moral Judgment Test (MJT, Georg Lind, Konstanz, Germany) questionnaires, but

67 completed the study and were included in analysis. The measurement in the point 1 (P1) was performed at beginning of the study course. After P1 students were randomly divided into the group with active and passive moral training. The randomization was based on the odd and even number of students group. The passive study group (initially 34 subjects) underwent standard course in philosophy and bioethics (lectures). The active group (initially 33 subjects) additionally to the lectures underwent intensive moral cases analysis (40 cases) and moderated discussions. The study was single blinded, students did not know which group they formed. The lecturer tested all students with their approval by MJT and performed the standard course in philosophy and bioethics. The active group did not know, that their course was additionally enriched by moral active training, which lacked in passive group. The moral training is not included in standard course and was the only factor differing both groups. The measurement P2 was performed a day after philosophy and bioethics training, P3 in the middle of second year and P4 in the middle of third year of midwifery studies. Thus the whole observation of students lasted 3 years. All measurements were performed using polish version of Moral Judgement Test (MJT) with the permission of the author. The questionnaire is widely described in literature. It consists of 2 moral dilemmas, every of them was evaluated by 5 pro and 5 contra arguments in Likert's scale within the range "I fully agree" to "I fully disagree". Special formula designed by Georg Lind was used to calculate the moral competence index (C-index), as described in literature. In previous studies the polish validated version was additionally checked by author by Cronbach alpha. [9, 10, 11, 16]. In other measurements like psychosocial factors, socially important institutions own questionnaire was used with Likert's scale from -2 to +2 to distinguish not only liberalism and conservatism, but also to measure their intensity. Similar Likert's scale was used by other researcher [2]. These data were analyzed as order scale, every question separately. The definition in questionnaire used for responders were respectively: "religion" – the belief and moral system; "church" – the institution of catholic church; "bioethics" – ethical questions in relation to medicine and biology; "own moral system" – if the responder is convinced of having own independent moral system; "primary school" – the 1st to 6th year of primary education, "secondary school" – the 7th to 12th year of general education; "Medical University" – the institution with influencing potential to responders' ethical attitude concerning biomedicine; "parents" – the moral authority; "friends" – the alternative moral authority. As stated above all definitions were made according to known strong social factors which influence moral competences [9, 10].

The data were collected paired and checked by Kolgomorov-Smirnoff test for normality. For statistical analysis nonparametric tests were used. Friedmann's test with Dunn's contrasts for multiple observational points (P1, P2, P3, P4) was used. Data were also subgrouped into subject with originally (P1) higher and lower than median C-index. When analyzing 2 subgroups Wilcoxon test was used. When analyzing more subgroups Kruskal-Wallis test was used. For correlations Spearman's test was used. SigmaStat v3.1 (Systat, USA) was used for statistical calculations. P value lower than 0.05 was considered significant.

RESULTS

The Cronbach alpha for all Pro and Contra questions used in MJT ranged from 0.70 to 0.82 and for C-index it was 0.90. At the starting point (P1) students were randomized into active and passive group. The randomization features are presented in table 1. No statistically significant differences were noticed, the groups were equal at the beginning of the study. The moral competences C-index varied during study, its values at P1, P2, P3 and P4 were 12.9; 11.5; 17.1 and 11.5 respectively. The differences were insignificant (Friedman's test, $p=0.14$) Additionally we analyzed the influence of active ethics teaching on moral competences. The differences in C-index were insignificant in all measuring points (P1-P4) regarding active group ($p=0.41$) and passive group ($p=0.38$). Only shortly after ethics training the increase in C-index was nearly statistically significant in passive group ($p=0.095$) vs active group ($p=0.89$). The influence of medical university on morality competence in both groups is presented in Fig. 1.

Table 1. Equality of groups at the start point (P1) and randomization

parameter	Active group (n=33)	Passive group; (n=34)	Manna-Whitney Test
Age (years)	20.2±0.6	19.9±0.8	P=0.06
Self evaluation of religiosity (0–10)	6.7±2.1	6.3±2.3	P=0.56
Ethics teaching (years)	12.8±1.2	12.8±1.4	P=0.86
„I follow the rules of”			
Religion/church institution	0.24±1.2	-1.27±1.28	P=0.78
parents	0.73±0.8	-0.12±1.61	P=0.25
bioethics	0.6±0.83	-0.53±1.52	P=0.57
own moral system	1.88±0.33	-0.27±1.75	P=0.98
„My morality was influenced by”			
religion	0.49±1.25	0.18±1.17	P=0.68
The church	-0.06±1.09	0.94±0.98	P=0.39
Primary school	0.06±0.97	0.44±1.05	P=0.61
Secondary school	0.70±0.77	1.88±0.33	P=0.88
Medical University	0.52±0.94	0.41±1.08	P=0.41
parents	1.82±0.39	-0.32±1.22	P=0.97
family	0.82±1.1	-0.09±1.16	P=0.53

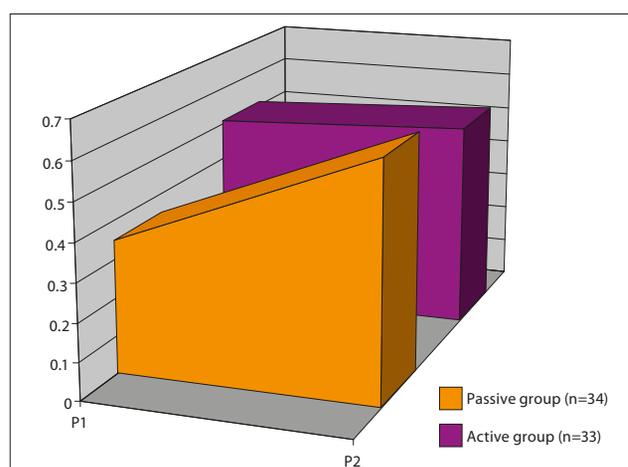


Figure 1. Increase in self-evaluation in Likert's scale of Medical University influence on moral competences in active and passive group of students, before and after ethics training (P1 and P2)

Because many factors could influence moral competences and moral attitude, before and during the studies, we tried to estimate the dynamics during the follow up. We analyzed the

Table 2. Self evaluation of Medical University influence on morality

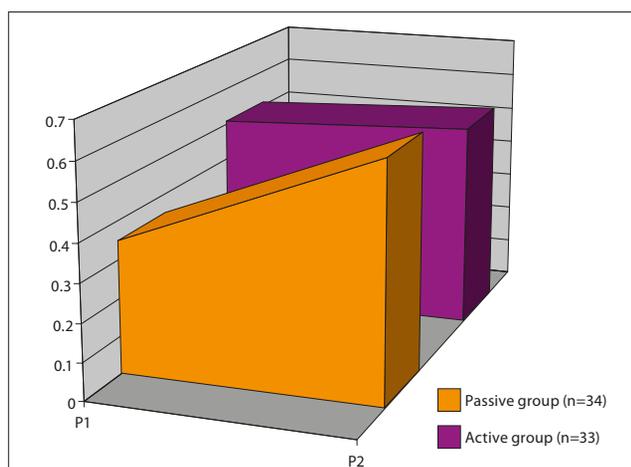
	P1	P2	P3	P4	Friedman's test
All studnets	0.44±0.94	0.57±0.74	0.58±1.06	0,85±1,13	P<0.001 [Tukey Test: P1:P4 p<0.05]
	P1	P2	Wilcoxon Test		
Active group (n=33)	0.51±0.93	0.54±0.71	P=0.89		
Passive group (n=34)	0.42±1.08	0.62±0.77	P=0.095		

Table 3. The hierarchy of self evaluation of moral authorities in subject with C-index primary higher and lower than median value.

subjects with C-index <ME	Mean evaluation in hierarchy	Kruskal-Walis Test, p	Subjects with C-index >Me	Mean evaluation in hierarchy	Kruskal-Walis Test, p
1/ parents	1.78±0.41	P<0.001 [1 vs 2, 3, 4, 5, 6]	1/ parents	1.85±0.35	P<0.001 [1 vs 2, 3, 4, 5, 6, 2 vs 6]
2/ religion	0.72±1.15		2/ sec school	0.71±1.00	
3/ sec school	0.57±0.90		3/ University	0.49±0.89	
4/ University	0.39±0.99		4/ religion	0.17±1.11	
5/ prim school	0.09±1.07		5/ prim school	-0.11±1.06	
6/ church	-0.06±1.22		6/ church	-0.32±1.09	

Prim – primary school, sec – secondary school

institutions and persons that could influence the morality, or at least the moral attitude. Interestingly, students perceive Medical University low in their hierarchy, but the importance of this institution increased statistically during the studies. The results are presented in table 2. The hierarchy how students evaluated moral authorities dependent on C-index at beginning of the study higher and lower than median value. We analyzed also the correlations between C-index and the self-evaluation of morality influences. All correlations were statistically insignificant.

**Figure 2.** Increase in self-evaluation in Likert's scale of Medical University influence on moral competences in active and passive group of students, before and after ethics training (P1 and P2)

DISCUSSION

The assessment of moral judgment competence in our study showed moderate score among midwifery students. Similar results were seen in the study among nurses in Czech republic. [1] The overall changes in moral competences measured by C-index did not change during three years statistically significant. This is interesting observation, but the mean age of respondents (at the beginning about 20 years, at the end 23 years) suggests that their moral development has reached highest values and it is difficult to cause the increase. This remains in accordance with Kohlberg's theory about 6 moral development stages. The moral development starts with the birth and usually takes up to 20 years. The majority of population reaches 4th or 5th stage of moral development, what was confirmed in many empirical works [9, 10, 16]. Also the effort made to increase the moral understanding, decision-making, the ability to argument the behavior during bioethics teaching in active group did not influence the C-index. The so-called Problem Based Learning, which is based among other thing on case teaching, could have overestimated value for university. Especially concerning moral teaching, which is not only the ability to reproduce and use the knowledge, but is also considered in the context of psychosocial factors, moral attitude, psychological features etc.

But the question remains, not if it is legitimate to teach ethics, deontology and bioethics, but how we should do this [13]. As the answer for students demand last decades the so called case studies and Problem Based Learning are the popular trends [22]. It seemed to be attractive compared with long passive lectures and it simplified the work of university teacher. They were more satisfied having the possibility to present their practical experience more than deep philosophical or theoretical presentation. But there are also opposite opinions that although such case oriented teaching is satisfactory for students, but does not guarantee deep preparation to moral decisions. Students should also learn ethical language to distinguish between facts and opinions. They also should be conscious of autonomy, consequences and different ethical theories, with their pros and cons. Only after such basis we should teach practically the rules of ethical thinking [6].

Georg Lind presented also the conception of moral education. The so called Konstanz Method of Dilemma-Discussion (KMDD) is build on Lawrence Kohlberg and Mosche Blat system as well as on Haberman's ethics, discursive Oser's method and dualistic theory of moral development by Lind [10, 23]. It uses the role playing. The genesis of role playing is present from years in Piaget's And Mead's theories. Mead called this phenomenon role-taking and Piaget called it the ability to interpersonal decentralization. The basis is for both common: the condition of cooperation is the ability to see situations from other's position and to overcome own egocentrism. The research on role-taking has long tradition, followed by research on role-playing started by Morento [23]. But all these efforts do not strengthen moral competences, just like it does not happen during speech moderated by teacher. Students will be than concentrated more on making good impression on university teacher, losing their authentic and creative moral thinking. This condition could happen also in our research, because students from active group did not increase their moral competences measured by C-index compared to controls. Moral competences could not be indoctrinated, but should be systematically rank-and-file

tough. Finally the KMDD should develop the ability to be in agreement with own ideals, even when under pressure of majority, prejudice, agitation, authorities or even own laziness [10]. The KMDD was proofed to be valuable method, it was introduced in practice iE in Germany and Columbia. It is recommended by ministries of education. Last years the KMDD has been diffusing worldwide and is intensively used by teachers, trainers and researchers [10].

Despite such pressure on moral education no statistically significant change was noticed. The research by Perry confirms also such trend. During university education in the United States moral competences decrease. Students leave their simple black and white evaluation through values' pessimism to the point at which they feel need to develop personal ethical system [124]. That's why we assumed that the ability to increase moral competences could depend on primary C-index at the beginning of this study (P1). Thus we divided students into group of C-index originally higher (>ME) and lower (<ME) than median values. This stratification was more interesting than differences between active and control study group. As the above mentioned approach is worldwide trend in moral research, the stratification based on initial C-index is inventory approach to moral development research in medical universities [25]. Our research and by Perry are also interested because they confirm once again the Kohlberg's theory. The autonomy is the target of moral development, resulting in some discomfort in believers (in Poland the majority is catholic), because religion limits own decisions. The C-index in our research also reflects these tendencies during follow-up. The curve of C-index illustrates well the Perry's theory, students fall down from initially higher C-index (especially the group of initially higher C-index). This is a phase of pessimism by Perry, but they build once again their own more autonomic ethical system. But not all subject could reach the target, there are many confusing factors and influences, what is visible in not very high C-index at the end of the studies (P4). Higher values were reached in earlier research on our University, but it was a group of experienced midwives and nurses [11]. In the research by Curlin et al in spite of the fact that religions like Christianity, Hinduism, Judaism, Islam which call for altruism, only 31% of believer physicians heal disinterestedly. Among atheists and agnostics these percentage was 35% [26]. This suggests that more autonomy in moral thinking. Hauser proofed also that moral intuition of believers and atheists is comparable referring to moral evaluation [27]. In the study by Pawlikowski et al religiosity correlated weakly positively with most dimensions of attitude towards patients, especially with empathy [18]. But our area of research in western of Poland represents lower than average level of religiosity. We also research not the moral attitude, but the moral competence. Concerning research using Moral Judgment Test by Lind in the study by Buzgova et al and by Auvinen et al also nursing students showed decreasing C-index with age, such trend was also present in this research [1, 28]. Interestingly, we did not observe the increase in moral competences in active training group. Juujärvi in his longitudinal study observed accelerated increase more than proper for age among some professions, but not among nurses. They evolved their morality independently on moral training intervention [29]. The difference with our study consists on stratification, there is probably other target subgroup who benefit from moral training more than the rest of the group.

From the other hand there were studies which demonstrated that an introductory 45 hours bioethics course can improve short-term outcomes in knowledge, comprehension and improved educational outcomes in ethics. The increase was of 12.8% in the same bioethics test [30]. But this does not equal to moral competences and is only well-trained bioethics attitude and eventual practical behavior. The other aspect is the insensitivity of bioethics training, which differs strongly between countries (range 14.8 to 60 hours) [20, 30]. In our study the control group was just the regular training group and we searched for additional increase when modifying and adding to only one factor. In the discussed study no control group was available and the outcome of education in ethics could be reached independently on the type of program or influenced by individual moral competences development over the time and other university trainings [30].

Summarizing we could conclude that students undergo moral evolution during midwifery studies. In some aspects ethic's teaching failed to produce statistically significant influence on moral competences, but all data together suggest the role of university as a strong social institution. The question remains how to teach ethics, especially concerning high standard of ethical competences required in professions like physicians, nurses, midwives. Although the analysis included the 3 years observation of the same population further research is needed to strengthen and widen our knowledge about moral competences, moral development and morality demand in medical professional sector. No research on polish medical universities concerning moral development were found in the literature and these results should initiate the wide discussion about the need to include moral testing and training for medical professions.

CONCLUSIONS

1. During 3 year studies at medical university moral competences measured by C-index varied insignificantly, but simultaneously change in C-index was dependent on its value at the beginning of the trial
2. There was not statistically significant influence of active ethic's teaching compared to controls
3. Among social factors parents have strongest influence on students' morality, but growing role of Medical University in this hierarchy raises hopes for improvement in effectiveness of training in ethics.

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