Students' Attitude Towards Assisted Reproductive Technologies: Comparison Between Students of Nursing and Medical Faculties

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Key Words: *assisted reproductive technology, attitude, medical, nursing, students.*

Summary. *The aim was to assess the attitudes of students from the Faculties of Nursing and Medicine towards new assisted reproductive technologies.*

Methods. A descriptive, cross-sectional study design was applied. The study was conducted in January to February 2016, at the Medical Academy of the Lithuanian University of Health Sciences.

The study population consisted of 4th-year students from the Faculty of Nursing (32.3%) and the Faculty of Medicine (67.7%), who have completed Nursing Ethics and Medical Ethics courses at the Lithuanian University of Health Sciences. In total, 248 students participated in the study.

Results. Students from the Faculty of Nursing, compared with students from the Faculty of Medicine, were more often in favour of the fact that new assisted reproductive technologies are a medical breakthrough ($P < 0.001$) and the science of new assisted reproductive technologies must continue to evolve ($P = 0.037$). Students from the Faculty of Nursing, in comparison with students from the Faculty of Medicine, were also more likely to disagree with the statement that the effects of new assisted reproductive technologies have not been sufficiently investigated ($P < 0.001$) and new assisted reproductive technologies are a new type of business ($P = 0.019$). They were also more likely to question the need for stricter control over the use of new reproductive technologies ($P = 0.020$). Students from the Faculty of Medicine, in comparison with students from the Faculty of Nursing, had a more negative view on the legalisation of euthanasia when thinking about the beginning and the end of life management ethics ($P = 0.008$).

Conclusions. The study participants' overall attitude towards new assisted reproductive technologies was positive. Students from the Faculty of Nursing had a slightly more liberal view on artificial insemination technology than students from the Faculty of Medicine. Medical and nursing students held similar moral positions on the beginning and the end of life management issues, except the legalisation of euthanasia, where medical students had a more negative position.

Introduction

Today it would be difficult to imagine our lives without modern technology. In the last decade, many new and innovative ways were developed to control the phases of human life and to maintain reproductive health (1, 2). These options have raised many questions about the power of technology and human rights to a choice over life-related issues (3, 4).

Advances in medical science and technology, social and cultural developments have changed the content of professional ethics (5). There are many different opinions about what is acceptable in modern medicine and what is not. The professional ethics of a healthcare practitioner have gone through various stages of development (6). One of the biggest challenge for the medical community today is to be professional and make the right ethical decisions when addressing the ethical dilemmas of new assisted reproductive technologies (7, 8).

When the discussion comes to new assisted reproductive techniques, the question when human life begins is paramount. The starting point of human life is very important because it may designate which action or decision is good or bad in various situations (9, 10). When it comes to respecting, nurturing and preserving life, not only psychological, social, medical, but also moral terms matter (7). Such a broad understanding is especially important for healthcare professionals who face similar ethical dilemmas in their daily clinical practice (11).

The moral stance of academic youth on advancements of reproductive technologies and related ethical issues is particularly important, especially when these students are prospective health professionals who will face similar ethical dilemmas during their professional career (12, 13).

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The aim of this study was to assess and to compare the attitudes of students from the Faculties of Nursing and Medicine towards new assisted reproductive technologies.

Methods

Study Design. A descriptive, cross-sectional study design was applied. The study was conducted in January through February 2016, at the Medical Academy of the Lithuanian University of Health Sciences.

Study Sample. The study population consisted of 4th-year students from the Faculty of Nursing and the Faculty of Medicine who completed Nursing Ethics and Medical Ethics courses at university. Students of nursing, midwifery, physical therapy and occupational therapy programmes from the Faculty of Nursing participated in the study. In total, 248 students participated where 168 (67.7%) questionnaires were collected from medical students and 80 (32.3%) questionnaires were collected from students of the Faculty of Nursing. The response rate was 90.0%.

Instrument. An anonymous questionnaire was developed by the study authors and consisted of 29 closed-ended questions, which were divided into three main groups:

1. Attitudes towards new assisted reproductive technologies (20 questions).

2. European values study questionnaire (4 questions), i.e., questions about moral values related to new assisted reproductive technologies (14).

3. General (5 questions), i.e., questions about the main socio-demographic characteristics of the respondents.

In order to clarify the attitudes towards new assisted reproductive technologies in the first part of the questionnaire, we asked the students' opinion on the effectiveness, impact and the latest developments of these technologies as well as about their control and ethical issues. The answers to the questions were rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). For data analysis, the answers "strongly disagree" and "disagree" were combined as the answer "strongly disagree / disagree", and the answers "strongly agree" and "agree" were combined as "strongly agree / agree".

The second part was based on the European values study questionnaire (14). It is a large-scale, cross-national, survey research programme, which aims to determine basic human values prevailing in the population of European countries. With this part of questions, we aimed to assess students' attitudes towards abortion, artificial insemination, euthanasia and scientific experiments on the human embryo. The answers to the questions were rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

The final part of the questionnaire consisted of socio-demographic items on the respondents' age, gender, place of residence, study programme, and the ethics course completed by the respondent.

Ethical Considerations. The study protocol was approved by the Committee on Bioethics at the Lithuanian University of Health Sciences (no. BEC-KS(M)-102).

Statistical Data Analysis. The data were recorded and analysed using the Statistical Package for Social Sciences (IBM SPSS Statistics) version 21.0. Socio-demographic characteristics were calculated by descriptive statistics. Attitudes of students towards new reproductive technologies were analysed using the Chi-square criterion. The Z paired difference test was used to determine whether answers of students from the Faculties of Nursing and Medicine differed significantly. The relationship between two independent variables was assessed by calculating the Mann Whitney U test. The level of statistical significance was 0.05.

Results

In total, 248 respondents answered the questionnaire: 168 (67.7%) were from the Faculty of Medicine and 80 (32.3%) were from the Faculty of Nursing. The distribution of the students by gender was disproportional, as the majority (73.8%) of students were women, while only 26.2% were men. According to the place of residence, the majority of the respondents lived in the city (89.9%) (Table 1).

The assessment of the attitude of the students from two different faculties towards new assisted reproductive technologies (ART) demonstrated that the majority of the respondents (91.5%) agreed with the statement that ART were a medical breakthrough. The students from the Faculty of Nursing were significantly more likely to agree with this statement than medical students ($P < 0.001$).

The study revealed that an overwhelming majority of the respondents were in favour of further developments of the ART science and the students from the Faculty of Nursing were more likely to support this statement than medical students ($P = 0.037$).

The majority of the respondents (74.6%) did not support the statement that ART were an unnecessary waste of resources, while the students from the Faculty of Nursing disagreed with this statement more often than medical students ($P = 0.025$).

Statistically significant differences were found in relation to the attitudes of the respondents' towards the credibility of the health effect if the assisted reproductive technologies are applied. Medical students more often than students from the Faculty of Nursing were in favour of the opinion that the effects of ART have not been sufficiently investigated ($P < 0.001$).

Table 1. Socio-demographic Characteristics of Undergraduate Level Students

Characteristics		n (%)
Gender	Male	65 (26.2)
	Female	183 (73.8)
Place of residence	Urban	223 (89.9)
	Rural	25 (10.1)
Distribution by faculty and study programme	Faculty of Nursing • Programme of Midwifery • Programme of Nursing • Programme of Physical Therapy • Programme of Occupational Therapy	80 (32.3) 17 (6.9) 19 (7.7) 34 (13.7) 10 (4)
	Faculty of Medicine	168 (67.7)

Statistically significant differences were found in the approaches of the students towards ART as a new type of business. Students from the Nursing faculty were more likely to disagree that ART is a new type of business compared with medical students ($P = 0.019$). Similarly, the students from the Faculty of Nursing were more likely to question the need for stricter control over the use of ART than their mates from the Faculty of Medicine ($P = 0.020$) (Table 2).

Table 2. Students' Attitudes towards New Assisted Reproductive Technologies by Faculty

Statement			Strongly Agree / Agree	Neutral	Strongly Disagree / Disagree	χ^2	lls	*P*
Assisted reproductive technologies are a medical breakthrough	NF	n	78	2	0	19.33	2	< 0.001
		%	97.5*	2.5	0.0			
	MF	n	149	7	12			
		%	88.7	4.5	4.8			
The science of assisted reproductive technology must continue to evolve	NF	n	77	2	1	6.59	2	0.037
		%	96.3*	2.5	1.3			
	MF	n	142	12	14			
		%	84.5	7.1	8.3			
Assisted reproductive technologies are an unnecessary waste of resources	NF	n	7	8	65	7.41	2	0.025
		%	8.8	10.0	81.3*			
	MF	n	22	26	120			
		%	13.1	15.5	71.4			
Effects of new reproductive technologies have not been sufficiently investigated	NF	n	23	41	16	9.35	2	< 0.001
		%	28.8	51.	20.0			
	MF	n	74	56	38			
		%	44.0*	33.3	22.6			
The use of assisted reproductive technologies must be more strictly controlled	NF	n	42	25	13	7.86	2	0.020
		%	52.5	31.3	16.3			
	MF	n	90	44	34			
		%	53.6*	26.2	20.2			
Assisted reproductive technologies are a new type of business	NF	n	38	26	16	7.93	2	0.019
		%	47.5	32.5	20.0			
	MF	n	96	33	39			
		%	57.1*	19.6	23.2			

*Comparing between faculties.

Table 3. Students' Assessment of Ethical Dilemmas of Beginning and End of Life by Faculty

Statement		Mean Rank	Z	*P*
Termination of pregnancy is justified	NF	114.13	–1.639	0.101
	MF	129.44		
Euthanasia (intentionally ending life of terminally ill patient) must be allowed	NF	141.20*	–2.642	0.008
	MF	116.55		
Scientific experiments on the human embryo must be permitted	NF	112.39	–1.901	0.057
	MF	130.26		
Artificial insemination or in vitro fertilisation is justified	NF	130.81	–1.018	0.309
	MF	121.49		

*Comparing Nursing Faculty (NF) students with Medical Faculty (MF) students, Mann Whitney U test.

Further, the attitudes of future healthcare professionals towards the ethical dilemmas of the beginning and the end of life were analysed. The results revealed that medical students, compared with the students from the Faculty of Nursing, were in stronger opposition to legalise euthanasia ($P = 0.008$).

The attitudes of the students from both faculties towards assisted reproduction, termination of pregnancy and research on the human embryo did not differ (Table 3).

Discussion

Many ethical questions related to assisted reproductive technologies are similar all over the world. However, individual attitudes are influenced by philosophical, economic, socio-cultural and religious differences (15).

Our study showed that Lithuanian health sciences students from the medical and nursing faculties had more conservative attitudes towards artificial insemination than Danish students: our students do not agree with single female artificial insemination, the creation of excess human embryos, and have a negative attitude towards male germ donation. Danish students have a more liberal view to assisted reproductive technologies: they fully support the donation of both, male and female, gametes, nearly half of those surveyed approve of the excess embryo production, and more than half of students consider all techniques of artificial insemination to be moral (16). The majority of Lithuanian students also approved of the donation of gametes but supported the notion that only married couples should use assisted reproductive technology.

There is no common approach to the unborn life so far and its status is at the centre of opposing positions and confronting discussions. A study that assessed the attitudes of nursing faculty students and already working nurses towards late pregnancy termination revealed that practicing nurses favoured late termination of pregnancy more than students of nursing faculty (17). However, students fully agreed that termination of pregnancy was justified in the case of birth defects, life-threatening situations or rape victims (17). The results of our study echo the same students' opinion about termination of pregnancy where they argued that termination of pregnancy must be permissible.

One of the most important scientific achievements during recent years is undoubtedly stem cell research and its outcomes. Stem cell therapy is considered to be the foundation of a new field of medicine – regenerative medicine. A study conducted in Spain evaluated nursing students' attitudes towards human embryo experiments and showed that the more students were aware of the ethical dilemmas regarding the human embryo, the more favourable they were to the human embryo experiment (13). Students from our study as future healthcare professionals had a rather negative opinion about human embryo experiments and this may be the result of their poor knowledge and lack of understanding about these experiments.

It is clear that the moral position of students in health sciences towards assisted reproductive technologies is a very important part of their practice. According to the result of this study, future health professionals believe that making a decision that does not support their moral values system adversely affects their future practice. Both nursing and medical students must be made aware of these ART issues and be encouraged to work to find answers to these ethical questions.

Conclusions

The general attitude of health sciences students from the Faculties of Medicine and Nursing towards assisted reproductive technologies was posi-

tive. Students from the Faculty of Nursing had a slightly more liberal view towards assisted reproductive technologies. Students from both faculties held similar moral positions on the issues of the beginning and the end of life management, except for the legalisation of euthanasia, where medical students had a more negative opinion.

Statement of Conflict of Interest

The authors state no conflict of interest.

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