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ART AND AGE – GENDER STEREOTYPES IN MEDICAL STUDENTS' VIEWS

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Abstract. It seems interesting to find out how the situation of the Polish ART practice is reflected in the medical students' opinions. To answer this question we carried out a two-stage research adopting data-driven methodology based upon the grounded theory, in which we collected a mixture of quantitative and qualitative data. Our study has revealed students' high acceptance of IVF and most of the additional procedures, except for IVF in the case of women over 40 and postmenopausal ones. The students' main concerns turned out to be compatible with what is presented in medical literature and commonly accepted in medical practice, so the core categories they focused on in their argumentation were medical evidence and medical standards. Whereas the students were consistently trying to ground their reasoning on medical knowledge, their opinions reflected not only statements based on hard data, but also some gender stereotypes hidden in medical literature.

Keywords: artificial reproductive technology; in vitro fertilization; age limit; gender stereotypes; feminist approach.

Since the first in vitro fertilization (IVF) was performed in 1977, artificial reproductive technology (ART), comprising IVF along with complementary procedures, has developed spectacularly. Although ART would still trigger some controversies, the number of agencies offering ART procedures as well as the number of patients willing to use their services have been rising. It should also be noted that not only the offer of ART has been widening and becoming more accessible, but also the awareness of the indispensability of creating a legal framework for this type of medical practice has been growing. This need has been recognized also in Poland, although for a decade we witnessed an impasse in establishing a legal framework for the ART practice in Poland, and a rather puzzling situation could be observed. By the time when several proposals failed to gain sufficient support (the act regulating ART was finally passed by the Polish Parliament in July 2015) there were already thirty eight ART clinics offering a full range of ART procedures

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in Poland.¹ Additionally, in the time of a legal void a three-year IVF program for 15000 couples was announced by the Polish Government in 2013.² Given that complex background and the fact that IVF still raises ethical questions and doubts in Poland, it seems interesting to take a closer look at how some of the uncertainties concerning ART have been resolved in the sets of medical and bioethical guidelines issued by the Polish Chamber of Physicians and Dentists (PCPD) and the Polish Bioethical Committee (PBC), respectively. PCPD's proposal concerning ART procedures was issued in September 2009 and reconfirmed in January 2013. In 2012 also PBC got involved in the debate on ART in Poland publishing their guidelines regarding IVF and PGD. The documents revealed significant differences between PCPD and PBC's views on ART.³ PCPD adopted a rather conservative approach recommending the prohibition to create spare embryos, the prohibition of all kinds of PGD, that is, both screening-in including screening for human leucocyte antigen (HLA) and screening-out, as well as the prohibition of IVF for postmenopausal patients.⁴ A more liberal stance was presented in two statements issued by PBC, where cryopreservation of gametes and embryos as well as PGD that covers most forms of screening-out (although not the ones for late-onset diseases or for HLA) were allowed. They also called for state funding of IVF and PGD and considered extra partnership donation of gametes and embryos (that is, donation of gametes or embryos by one couple to another) ethically justified.⁵

Taking into account the idiosyncrasies of the Polish ART practice, we found it especially interesting to make an enquiry into medical students' mindset regarding ART procedures, so in 2014 we carried out a two-stage research to address that problem.⁶ In our study we adopted data-driven methodology based upon the Grounded Theory developed by Barney Glaser and Anselm Strauss⁷, which is a research tool of collecting and analyzing data. It requires the initial identification of the researchers' area of interest. The Grounded Theory enables collecting quantitative data or qualitative data, or both. It can include observations, records of many kinds or conversations. The conversations can be held individually or with groups, and can take various forms (face-to-face, telephone, chats, emails, etc.)

¹ SPIN [2011].

² IVF Polish Governmental Program [2013].

³ Alichniewicz, Michałowska [2014].

⁴ PCPD's [2009, 2013].

⁵ PBC's [2012].

⁶ The study was approved by the ethical review board of the Medical University of Łódź (no. RNN/293/14/KB).

⁷ Glaser [1967].

Writing memos throughout the whole research constitutes an important element of the method. The unique element of the Grounded Theory is provided by an open (substantive) coding, that is, the initial conceptualization of all the data. It is carried on until the core category explaining principal concerns emerges. Once the core category has revealed itself, selective coding begins, which means that the data are selectively coded in accordance with the core category. Selective coding can be done both on the data already coded once in the process of open coding or on new data. No pre-research literature review is recommended.

Our area of interest was constituted by the opinions of the medical students of the Medical University of Łódź, from which we collected a mixture of quantitative and qualitative data. In the quantitative stage 344 students were asked to fill in an anonymous questionnaire comprising YES/NO questions on the legal acceptability of ART procedures (table 1). The qualitative stage of our study was conversation with the students who filled in the questionnaire. The conversations were held face-to-face in the groups of 20–30 students and lasted for 15–20 minutes. In the conversation that took place right after students had finished filling in the questionnaire, students were asked to comment freely on the questions and/or their answers. The interviewers did not address students individually nor did they ask particular questions so that the students could speak freely and reveal their genuine views. Nevertheless, the students were continually encouraged to elaborate on the comments they gave. We decided to adopt a rather passive role during the qualitative stage of our study to avoid molding students' opinions. The interviewers took down field notes referring to the various aspects of the study, that is, the students' comments, the number of the active participants, etc. Some students were more active and willing to give more than one comment. On the basis of the notes made during the interviews it has been estimated that approximately 30% of the participants gave at least one comment. Throughout the entire study we wrote memos that helped to conceptualize the data and analyze the students' views and attitudes. On this study material open and selective coding were performed.

Table 1. Questionnaire filled in by the medical students of the Medical University of Łódź in 2014

Questions
Should IVF be legally allowed?
Should PGD be legally allowed?
Should egg donation be legally allowed?
Should sperm donation be legally allowed?
Should embryo donation be legally allowed?

Should IVF be legally allowed for women over 40?
Should IVF be legally allowed for postmenopausal women?
Should IVF be legally allowed for men over 40?

Our analyses of quantitative data revealed that 92% of students were in favor of legal allowance for IVF, whereas 8% were against it. They also in vast majority (87.5% for and 12.5% against) were of the opinion that PGD should be legally accepted. As to gamete donation, the medical students expressed high approval of both egg donation (80.2% for and 19.8% against) as well as sperm donation (83.7% for and 16.3% against). In stark contrast to their approval of IVF, PGD as well as egg and sperm donation remained their opinion on the acceptability of embryo donation, namely 46.9% for and 53.1% against (table 2).

Table 2. Views of the medical students on the acceptability of ART procedures.

	Legal acceptability of ART procedures				
	IVF	PGD	EGG DONATION	SPERM DONATION	EMBRYO DONATION
YES %	92	87.5	80.2	83.7	46.9
NO %	8	12.5	19.8	16.3	53.1

The next set of questions was devoted to the problem whether any age limit for IVF should be legally established. In this part of the questionnaire two age groups of women were distinguished: older than 40 years and postmenopausal. As far as women over 40 were concerned, 54.7% of students approved and 45.3% disapproved of IVF for this group of patients. When asked about their acceptance of IVF for postmenopausal patients they were much more skeptical: only 11.3% of the students were for in comparison with 88.7% who were against the procedure (table 3).

Table 3. Views of the medical students on the acceptability of IVF for women over 40 and for postmenopausal ones

	IVF age	
	>40	postmenopausal
YES %	54.7	11.3
NO %	45.3	88.7

The students expressed, however, more lenient views concerning legal and ethical acceptability of IVF in the case of men above 40, since 69.7% were for and 30.3 were against it (table 4).

Table 4. Views of the medical students on the acceptability of IVF for men over 40

	IVF for a man* > 40
YES %	69.7
NO %	30.3

* 'Man' is understood as a partner of a women (regardless of her age) undergoing IVF.

In the qualitative part of the study in which the students were asked to provide comments to the problems mentioned in the questionnaire, they declared that they accepted IVF, because it became a standard medical practice. "It is a commonly accepted treatment of infertility," "it is a good medical practice," they repeated. For the same reason they accepted PGD, stressing, however, that they understood it as screening-out. Thus, their main concern was whether a given practice is commonly used and the core category revealed in their reasoning was the recognition of standard medical practice. Commenting on additional procedures, they contrasted gamete donation with embryo donation. They viewed the former procedure as a justified medical practice, whereas the latter was equated by them with giving away one's baby: "I do not want my baby to be brought up by strangers." As we have seen, more than half of them claimed that embryo donation should be forbidden. Nevertheless, justifying their opinion they referred to the protection of their own genetic material rather than to the intrinsic value of the embryo that was emphasized in PCPD's guidelines where the protection of "children conceived" and the "integrity and dignity of a human embryo" were considered crucial.⁸ So again, the main concern of the students was with the biomedical sense of the procedure. The fact that the students stressed the significance of their genetic integrity suggested that they systematically tended to focus on biomedical facts as the core category of their reasoning.

Another question discussed by the students was whether IVF should be legally banned for women over 40 and for postmenopausal ones. In their rationale, the students pointed to two groups of issues, namely medical and social ones, but in the discussion they tended to concentrate on the former. Three main points of their argumentation could be identified: a risk for the woman, a risk for the fetus and general issues related to the physiology of reproduction. When asked what they meant by the risk for the woman, they pointed out the risk of a later-age pregnancy for the patient's health, both *in tractu* and *post*. As far as the risk for the fetus was concerned, the students indicated mainly malformations and stillbirth. In their comments students did not refer to the question whether pregnancy re-

⁸ PCPD's [2009, 2013].

sulted from the patient's own frozen egg or from a donated one, which seems an interesting point revealed in our study, worth further investigation.⁹ Instead, they emphasized that the biology of reproduction itself excluded older women, saying: "Women should have children when they are young and healthy." Addressing social dimensions, they claimed that late motherhood would have detrimental impact on the mother-child relationship. Elaborating on the issue, they held that due to her advanced age the mother would not be able to fulfill her maternal duties, for instance, that of accompanying her child in some sport activities. They also emphasized a high risk for the child to be orphaned at a relatively young age. Asked about their opinions concerning IVF in the case of men over 40 as fathers-to-be, they identified neither health nor social risks.

Analyzing the data we collected in quantitative and qualitative phases of our research, what we found particularly interesting was high acceptance of especially two additional ART procedures against the background of a more conservative position of PCPD and the governmental IVF program. Our study revealed students' high acceptance of PGD (screening-out in particular), which according to PCPD should be legally banned. The majority of students also approved of gamete donation that was implicitly rejected in the governmental IVF program where both partners had to be able to provide their gametes. As mentioned above, the main concerns of the students participating in our study were that IVF, PGD and gamete donation are "standard", "common", "normal" and "good", so the core category of their rationale was the recognition of standard medical practice. The fact that they viewed these procedures in such a way indicates considerable evolution in the understanding of medical standards as far as ART is concerned. As Kristin Zeiler and Anna Malmquist put it, the "notions such as legitimate or good medical practice are notoriously open to interpretation."¹⁰ It could be argued that over the time ART has been in use, it has gradually become a "normal" element incorporated into the medical domain.

The set of questions devoted to the legal age limit for IVF revealed some interesting features of the students' attempt to keep their arguments within the limits of biomedical knowledge. They declared that also at this point their reasoning was based on solely medical evidence and they referred to medical literature as the source of their skepticism regarding later-age pregnancy. Actually, in medical literature one can often find the opinion that the risk for the woman's health as well as for the fetus rise with the age of the mother. It should be noted, however,

⁹ We wish to thank the reviewers for pointing our attention to this issue.

¹⁰ Zeiler, Malmquist [2014] p. 350.

that there is a diversity of opinions about the health risk of IVF.¹¹ Apart from some opinions that there are other factors apart from age contributing to the risk of later-age pregnancy, it is quite frequently stated that it is just the advanced age of the mother that has a detrimental impact on the success rate of IVF, pregnancy, and woman's and fetus' health.¹² It seems additionally puzzling that what is meant by advanced reproductive age is not unanimously accepted. Usually it is at least 35 years, but some authors set the limit at 40 years.¹³ Moreover, the difference between the risk related to the age of a genetic mother and the one related to the age of a gestational mother is rarely mentioned. Therefore, a more general question arises whether the negative attitude to later-age pregnancy adopted by the majority of authors and reflected in the students' sweeping claims concerning the risk of later-age pregnancy is based solely on objective evidence.

Although the success rate of IVF has risen over the last decade,¹⁴ there is still data suggesting that "the success of IVF and embryo transfer declines with each year of female age and becomes particularly low in women over 40."¹⁵ Yet in the plethora of papers devoted to the issue of later-age pregnancy the distinction between using the patient's own eggs or ones of the donor's is hardly visible, regardless of the fact that egg donation is often presented as the ART answer "to age-related decline of female fertility."¹⁶ Instead, in the case of older women a higher risk of "pregnancy-induced diseases such as hypertension, preeclampsia, gestational diabetes and placenta previa" is generally stated.¹⁷ The advanced age of mothers is also frequently mentioned as one of the causes responsible for the increased number of stillbirths, especially unexplained ones. Although an abundant number of research reports concerning the relation between the maternal age and the risk of stillbirth have been published over the last decade, the interpretation of the data remains ambiguous. Studies so far have demonstrated a statistically significant association between stillbirths and advanced maternal age,¹⁸ but some authors are of the opinion that the increase is "by no means dramatic."¹⁹ Moreover, even if the findings of the higher risk of pregnancy-induced diseases

¹¹ Zeiler, Malmquist [2014]; Bernstein, Wiesemann [2014].

¹² Balasch, Gratacós [2012]; Huang et al. [2008]; Nybo et al. [2000]; Silver [2007].

¹³ Balasch, Gratacós [2012]; Favilli et al. [2012]; Carolan et al. [2011].

¹⁴ Dickenson et al. [2010] p. 179; NICE [2013].

¹⁵ Balasch, Gratacós [2012] p. 189.

¹⁶ Ibidem, p. 190.

¹⁷ Favilli et al. [2012] p. 1626.

¹⁸ Huang et al. [2008]; Nybo et al. [2000]; Silver [2007].

¹⁹ Bernstein, Wiesemann [2014] p. 287.

are presented in a great number of contributions, the data is still not self-evident. As Louise Kenny and others noticed, “some studies have yielded inconsistent conclusions about both the specific outcomes adversely affected by maternal age and the strength of association.”²⁰ Therefore, Stephanie Bernstein and Claudia Wiesemann could be right in their conclusion that “the underlying pre-existing conditions as well as general physical health, possibly influenced by excessive nicotine use or obesity, seem to be more significant predictors of complications in pregnancy than chronological age.”²¹ Additionally, the differences between the methodologies employed in various studies make the results hardly comparable. Therefore, it has been pointed out that there is still a need for “a dialogue among investigators throughout the world to agree on a uniform system to facilitate comparison of fetal death rates and research into causes and prevention of fetal death.”²²

It should be noted that in comparison with the abundance of studies devoted to the problem of advanced maternal age, there is surprisingly little interest in the influence of advanced paternal age on the health of offspring. The data shows, however, that advanced paternal age constitutes a risk factor for neurodevelopmental disorders. It has also been reported that there is a connection between advanced paternal age and autism, schizophrenia, and lower intelligence quotient.²³ Moreover, there is growing evidence that the risk of spontaneous abortions as well as fetal death is raised by increased paternal age.²⁴ Especially striking seems the fact that dealing with the adverse effects of postponed fatherhood the authors almost invariably tend to underline also some positive effects for children born to older fathers. Even if the authors admit that evidence of the detrimental outcomes of increased paternal age seems convincing, they try to counterbalance it by family and social advantages.²⁵ It seems quite obvious that also the advanced maternal age is associated with similar family and social benefits, but this aspect is rather ignored in the discussions. Thus, the question arises whether the authors share the opinion bluntly expressed by a journalist Maureen Messant who says, “no child will be happy to have a crone as a mother.”²⁶ We argue that the same positive fam-

²⁰ Kenny et al. [2013] p. 1.

²¹ Bernstein, Wiesemann [2014] p. 287.

²² Silver [2007] p. 155.

²³ Dalman, Allebeck [2002]; Hultman et al. [2011]; Rabin [2009].

²⁴ Nybo et al. [2004]; Slama et al. [2005].

²⁵ Balasch, Gratacós [2012]; Bray et al. [2006].

²⁶ Messant [2005].

ily and social background that is pointed out in the case of older fathers should be acknowledged in the case of postponed motherhood. It seems plausible, since nowadays women deciding on postponed pregnancy usually have achieved a stable professional situation and financial security in their careers. Moreover, the image of older women has also changed dramatically over the last decades given how intellectually and physically active they are today in comparison with the generation of their grandmothers and even mothers.

Against this background, the fact that the students did not recognize either medical or social risks concerning late fatherhood while rejecting late motherhood seems very significant. In our study the students' main concerns turned out to be compatible with what is presented in medical literature and commonly accepted in medical practice, so the core categories they focused on in their argumentation were medical evidence and medical standards. Whereas the students were consequently trying to ground their reasoning in medical knowledge, their opinions reflected not only statements based on hard data, but also some gender stereotypes hidden in medical literature.

Concluding remarks

Our study reveals high acceptance of IVF and most of the additional procedures among medical students. They present a significantly more liberal stance towards ART than the authorities of PCPD. A more conservative standpoint is visible only in their reluctance concerning the acceptability of IVF in the case of women over 40 and postmenopausal ones. In our attempts to explain the apparent discrepancy between the opinions of medical students and the ones of PCPD we would like to point to a broader context of the growing significance of medicine as part of contemporary culture. The first IVF in Poland initiated the changes not only in medicine, but also in social discourse. When performed for the first time, IVF was a great novelty, but over time it has become an integral part of both the medical domain and social narrative. For the last decade, the same process has occurred in the case of other ART procedures. Medical students, now in their early-twenties, were brought up in the medical-social narrative in which ART was not any longer perceived as something novel. Medicine is frequently presented as a purely objective discourse, nevertheless our short review of medical literature indicates that it is, at least to some extent, gender biased and as such it both reflects and petrifies gender stereotypes. This can explain the medical students' negative attitude towards late motherhood and a more positive one towards late fatherhood.

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