Konrad Monica 1998. "Ova Donation and Symbols of Substance: Some Variations on the Theme of Sex, Gender and the Partible Body". The Journal of the Royal Anthropological Institute, 4, 4: 643-667.

Marre Diana and Joan Bestard 2012 [1st edition 2009], "The Family Body: Persons, Bodies and Resemblance". In J. Edwards & C. Salazar (ed.), European Kinship in the Age of Biotechnology, pp. 64-79. New York, Oxford: Berghahn Books.

Papataxiarchis Euthymios 1992. "Introduction. From the point of view of Gender. Anthropological Perceptions of Modern Greece", in E. Papataxiarchis & Th. Paradellis (ed.) 1992. Identities and Gender in Modern Greece. Anthropological approaches, pp. 11-98. Athens: Kastaniotis and University of the Aegean Editions (in greek).

Paxson Heather 2004. Making Modern Mothers. Ethics and Family Planning in Urban Greece. Berkeley and Los Angeles: University of California Press.

Rabinow Paul 1996. Essays on the Anthropology of Reason. Princeton: Princeton University Press.

Ragoné Heléna 1994. Surrogate Motherhood. Conception in the Heart. Boulder: Westview Press.

Ragoné Heléna 1996. "Chasing the blood tie: surrogate mothers, adoptive mothers and fathers". American Ethnologist, 23(2):352-365.

Rushton Lucy 1992. "Motherhood and the symbolism of the body", in Papataxiarchis & Th. Paradellis (ed.) 1992 Identities and Gender in Modern Greece. Anthropological approaches, pp. 151-170. Athens: Kastaniotis and University of the Aegean Editions (in Greek).

Schneider David M. 1980 [1st edition 1968]. American Kinship: a Cultural Account. Chicago:University of Chicago Press.

Strathern Marilyn 1992. After Nature: English Kinship in the Late Twentieth Century. Cambridge: Cambridge University Press.

Strathern Marilyn 2008 [1992]. Reproducing the Future, Anthropology, kinship and new reproductive technologies. (translated in Greek by P. Bourlakis). Athens: Ellinika Grammata publishing.

Thompson Charis 2001. "Strategic Naturalizing: Kinship in an Infertility Clinic", in S. Franklin & S. McKinnon (ed.), Relative Values: Reconfiguring Kinship Studies, 175-202. Durham: Duke University Press.

Thompson Charis 2005. Making Parents. The Ontological Choreography of Reproductive Technologies. Cambridge Massachusetts, London: The MIT Press.

Tountassaki Eirini 2015. "The child growing inside you will take after you, too". Egg donation, Motherhood and Kinship. Athens: Patakis Publications (in greek).

Wade Peter 2009[2002], Race, Nature and Culture. An anthropological approach. (translated in Greek by N. Katsafourou - N. Georgandidis). Athens: Polytropon publications.

"Real relatives": A statistical approach to perceptions on heterologous assisted reproduction

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1. Introduction

In view of the modern rapid biotechnological developments, the scientific challenge faced by social sciences is to study the ways in which 'new' answers may be given to "old" questions in relation to life and death, the individual and kinship, society and technology. Despite the fact that technological developments are gradually gaining a global dimension, according to anthropological studies the way in which the concepts of the individual, kinship, genealogy or the limits of life and death are perceived, varies significantly between different cultural contexts, different social layers or with reference to gender, race, nationality and religious background. Therefore, particular emphasis must be placed on studying the way in which biomedical practices are intertwined with local cultural, ethical and religious beliefs on the individual, kinship, gender, sexuality and the human body, which affect State policies and public financing, thus creating a framework for processing legal issues and setting priorities and exemptions with regard to medical research.

One of the central issues related to assisted reproduction pertains to heterologous fertilization, namely the ability to use third-party genetic material (sperm and/or ova) and surrogacy methods. The issue is approached in very different ways by EU Member States and raises a series of questions on understanding the concept of kinship, gender (a)symmetries in the reproduction process, perceptions around genetic inheritance and upbringing, as well as on the commercialization of medically assisted reproduction (MAR) technologies[1].

1. See *Konrad* (1980, 2005), *Orobitg and Salazar* (2005), *Almeling* (2006), *Inhorn* (2006), *Bergman* (2011).

As is well known, by means of Laws 3089/2002 "Medical Assistance in Human Reproduction" and 3305/2005 "Implementation of Medically Assisted Reproduction Methods" the Greek legal system allows infertile heterosexual couples or single women who are unable to achieve "homologous" fertilization and childbearing for medical reasons, to receive genetic material donations (sperm and ova), as well as surrogacy services free of charge[2]. In this way, the Greek State has established the legal rights and obligations for using the possibilities offered by MAR technologies, which, at the same time, question predominant perceptions on parenthood and kinship[3].

The purpose of this paper is to present quantitative research data[4 5], on the perceptions of persons who have used or are currently using MAR methods in

2. The two laws also allow for embryo cryopreservation, embryo donation, genetic material research and the freedom to transport genetic material and fertilized ova from and to other EU Member States. As demonstrated through the comparison of international legal frameworks on the basis of the data presented by the European Society for Human Reproduction and Embryology (ESHRE), the two laws establish a favorable legislative framework for medically assisted reproduction, as compared to other EU Member States. Vide ESHRE (2009).

3. The recent works of *Trokana* (2011), *Papaligoura* (2013) and *Tountassaki* (forthcoming) focus on the issue of genetic material donation in Greece from a scientific, psychological and anthropological point of view, respectively.

4. The results are part of the research *(In)FERCIT "(In)fertile citizens: Concepts, practices policies and technologies of assisted reproduction in Greece. A multidisciplinary comparative approach"* carried out by the Laboratory of Family and Kinship Studies of the Department of Social Anthropology and History, University of the Aegean. The research program (In)FERCIT lasts for three years 25/9/2012-24/9/2015 and is implemented within the framework of the Action "Aristeia I" of the Operational Program "Education and Lifelong Learning" and is co-financed by the European Social Fund (ESF) and the Greek State. It provides a detailed ethnographic account of assisted reproduction concepts, practices, policies and technologies in Greece, their interconnection to legal issues and human rights aspects of infertility and reproduction, and attempts a comparison of the Greek project with similar research conducted in neighboring countries (Spain, Italy, Bulgaria, Turkey, Cyprus and Lebanon). The key issues of focus in the first part of our research on Greece are related to: conceptualizations of kinship, gender relations, control and biopolitics issues, attaching particular significance to the question: "What are the concepts of 'natural' and 'normal' created and imposed by assisted reproduction methods?" and "How do subjects accept and/or resist these conceptualizations?".

5. (In)FERCIT combines qualitative with quantitative research. Qualitative research was carried out through open interviews with Greek men and women in reproductive age who have come into contact with the process of assisted reproduction, regardless of whether it has been successful or not. A total of 120 open interviews were carried out with interviewees of a different gender, age, family status, sexuality, religious background and place of residence. Quantitative research was conducted using a questionnaire with 39 sets of questions designed for closed and open-ended responses. The questionnaire comprises three parts which investigate the respondents' perceptions on infertility and MAR, record the respondents' experience with MAR methods and reflect the basic demographic and socioeconomic data of respondents. The quantitative research is still underway and 212 questionnaires have been filled-in and digitized up to now.

relation to the establishment of new forms of kinship and family formations through genetic material donation and surrogacy[6]. Consequently, the aim of this paper is to identify the degree of social acceptance or rejection of perceptions related to human reproduction not in the Greek society as a whole, but among persons who have directly experienced MAR methods and are, therefore, more able to reflect on the value of such methods and their consequences, which lead to the establishment of family units deviating from the typical structure of the heterosexual infertile couple that opts for adopting a child or for using homologous medically assisted reproduction methods.

2. Research methodology

Despite the proportionally large number of clinics and MAR centers in Greece[7], the evidence we have on the number of medically assisted reproduction treatments, sperm or ova donations, as well as surrogacy, is scarce. Out of the fifty centers and clinics reported by the European Society of Human Reproduction and Embryology (ESHRE) in 2006, only nine (less than 18%) have provided statistics on the type and number of MAR treatments performed –such as *in vitro* fertilization, microfertilization, embryo cryopreservation, ova cryopreservation, ova donation, pre-implantation genetic diagnosis[8 9].

If statistics on the use and types of MAR methods are insufficient, information on the socioeconomic characteristics of the population of infertile persons using MAR

6. In like manner, the papers of *Chatzouli* (2015) and *Daskalaki* (2015) attempt to investigate similar matters using as evidence the qualitative research interviews.

7. According to the European IVF-monitoring Consortium for the European Society of Human Reproduction and Embryology, Greece is among the countries with the highest number of medically assisted reproduction centers and clinics in proportion to its population. In 2006, there were 50 clinics and centers throughout Greece (*de Mouzon et al.* 2010: 1853), while it is estimated that their number has increased in the years that followed.

8. According to ESHRE's data on Greece for 2006, the following treatments were performed in the nine clinics that provided statistics: 1,222 in vitro fertilizations leading to 282 pregnancies and 202 births, 2,287 Intra Cytoplasmatic Sperm Injections leading to 605 pregnancies and 340 births and 140 Oocyte Donations leading to 74 pregnancies and 40 births. See *de Mouzon et al* (2010).

9. However, the press frequently publishes articles with statistics that are based on estimates by physicians. Thus, according to an article by *Penny Mpouloutza* in Kathimerini, Sunday Version [Greek Newspaper] (2013: 4) in Greece: 300,000 couples are infertile, 12,000 assisted reproduction treatments take place each year and the average cost of every effort (including the cost of drugs) amounts to EUR 4,000. The journalist estimates that there are currently 70 assisted reproduction medical centers and clinics with an annual turnover of EUR 50 million. However, according to the same journalist, there has been a drop in the number of treatments from 15,000 in 2009 to 12,000 in 2012 and, therefore, clinics and medical centers in Greece have turned towards cross-border reproductive care. See, *Kantsa* (2014).

methods in Greece is practically inexistent. This lack of information has created difficulties with regard to selecting a representative sample, given that there is no information even in relation to basic statistical characteristics of the studied population, so as to allow for sample stratification. Sampling was carried out starting from six clinics, four of which are private (three in Athens and one in Larisa), two are university clinics (one in Thessaloniki and one in Larisa) and two associations supporting people who are using or who are interested in using MAR methods (Cybele and Magna Mater). "Snowball" sampling was also used, starting from the interviewees of the ethnographic part of the research. Interviews were carried out in Athens, Thessaloniki, Larisa, Chania and Mytilene. Finally, the questionnaire was distributed through the electronic forum www.ivf.gr. Research is still in progress. However, a significant number of questionnaires have been filled-in –namely, 212– thus allowing for an initial analysis of answers to reach temporary inductive conclusions on the stance of the sample population towards genetic material donation and surrogacy. On the other hand, it must be noted that the relatively small participation of men in the sample so far, calls for a review of the results when their participation is increased. Sample analysis per source of information and the basic socioeconomic characteristics of the interviewees are illustrated in Table A.1 of the Appendix. The table shows that approximately two thirds of interviewees are 35-44 years old and 58.5% are University Graduates/Technical University Graduates and/or hold a post-graduate title. Almost one in four interviewees is self-employed and one in five is out of the labor market (unemployed, retired, housekeeper etc.).

The questionnaire investigates, *inter alia*, the stance of interviewees towards specific medically assisted heterologous reproduction methods using gamete donors or surrogacy. In particular, it was investigated whether interviewees accept ova donation, sperm donation and surrogacy, either in general or under specific circumstances. The characteristics investigated were nationality, race and religious background of the hypothetical male or female donor. Furthermore, comparisons were made in relation to their views on adoption, under the same conditions. In addition, interviewees were asked about the right of access of same-sex couples to MAR methods. Their ideological stance towards the commercialization of heterologous fertilization services and their opinion on whether genetic material and surrogacy services are currently an object of transaction in the Greek market were also investigated. All interviewees are or have been involved in medically assisted reproduction efforts in some way.

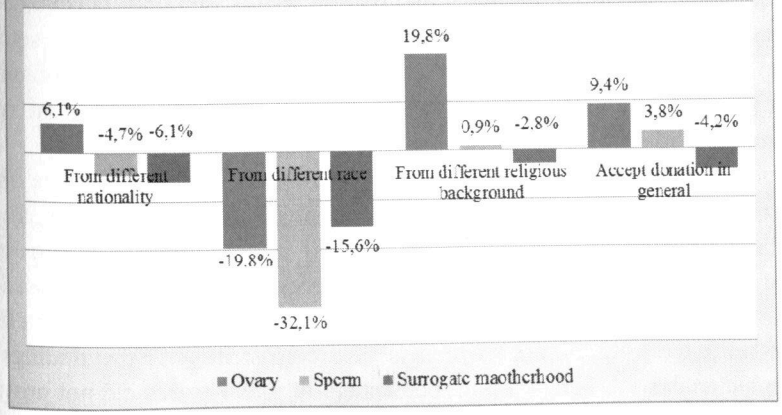
3. General remarks

The overall image of the sample, as analyzed with valuable computing assistance from Albert-Dicran Matossian, who works with us in this project, shows that, when no conditions are set, the relative majority of interviewees accept the donation of genetic material, in the form of either ova or sperm. 40.6% of interviewees accept ova donation and 31.2% reject it. Therefore, there is a difference of 9.4 percentage points between positive and negative answers. The corresponding difference in respect of sperm donation amounts to 3.8 percentage points (41.0% in favor and 37.3% against). Therefore, ova donation is more acceptable than sperm donation. As opposed to ova and sperm donation, surrogacy is rejected by the relative majority of interviewees, given that the difference between positive and negative answers is -4.3 percentage points (34.4% in favor and 38.7% against). (See Graphs A.1 to A.3 of the Appendix).

The great difficulty to accept surrogacy was also reflected in the ethnographic part of the research, while the statistical analysis is consistent with the finding that emerged from the interviews, namely that ova donation is more acceptable than sperm donation[10].

When specific conditions are set in respect of genetic material donation and surrogacy, the general image seems to be very different, as shown in Graph 1:

Graph 1
Indices of degree of acceptance concerning ovary donation, surrogate motherhood and sperm donation
Users of assisted reproduction technologies: Greece 2014
(Difference between percentages of positive and negative answers)



10. Regarding the difficulty to accept surrogacy and preferring ovary donation against sperm donation according to qualitative research, See *Chatzouli* (2015).

Ova donation from a woman of a different race is rejected by 19.8 percentage points and donation from a woman of a different nationality is accepted by 6.1 percentage points. On the contrary, the acceptance of a female donor from a different religious background is high; even higher than its general acceptance, namely 19.8 percentage points. This last finding appears to be a paradox. One possible explanation could be that anonymous ova donation may be rejected by some people due to fears for the existence of an unwanted characteristic of the unknown donor which makes her a "stranger" or, better said, a "non-relative" (e.g. race, nationality or health status). However, when it is clarified that this "non-relative" characteristic is merely the donor's religious background, interviewees are reassured and accept the donation.

Sperm donation is rejected by the relative majority of interviewees, both when the donor is a person from a different race and nationality. The difference between positive and negative answers is -32.1 and -4.7 percentage points, respectively. Sperm donation from donors with a different religious background is marginally positive, by 0.9 percentage points, while a significant percentage of interviewees, i.e. 34.9%, reject it.

A combination of the above findings shows that the negative stance of interviewees is increased when genetic material donation from a different race or nationality relates to sperm, as compared to ova, which reinforces the initial finding that donor sperm is regarded as "third-party" genetic material to a greater extent, compared to donor ova.

With regard to *surrogacy* by donors of a different nationality, race or religious background, the negative result with regard to its general acceptance (-4.7 percentage points as mentioned above), is further increased when setting the condition of race or nationality (-15.6 and -6.1 percentage points respectively). The negative difference with regard to surrogate mothers from a different religious background is slightly reduced, amounting to -2.8 percentage points.

Therefore, it follows that the different race and nationality of the male or female donor have a negative effect on the views of interviewees with regard to genetic material donation, either sperm or ova, as well as with regard to surrogacy. In particular, racial difference has a significant influence on answers. As opposed to race and nationality, religious differences do not seem to have the same negative effect.

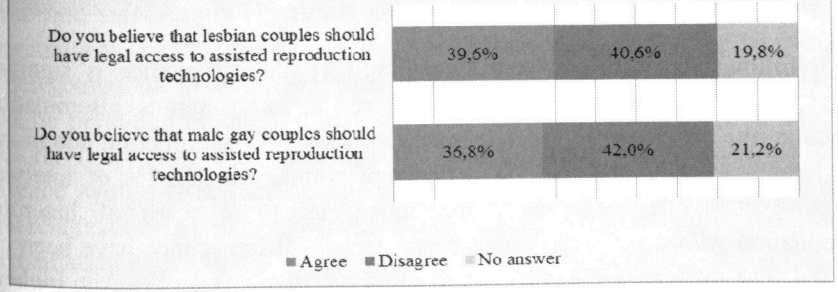
Another interesting finding, which is also consistent with the findings of the ethnographic analysis[11], is that a high percentage of interviewees did not provide any

11. As reflected in the papers of *Chatzouli* (2015) and *Daskalaki* (2015).

answer or expressed their ignorance on genetic material donation and surrogacy. The highest rate of uncertainty relates to the acceptance of ova donation and amounts to 28.3%. And if the female ova donor is from a different race, uncertainty rises to 36.8%. Uncertainty with regard to the acceptance of surrogacy amounted to 26.9%, while it is significantly increased when conditions are set. In particular, uncertainty in respect of surrogacy amounts to 37.3% when the surrogate mother has a different nationality. The lowest rate of uncertainty was recorded in respect of sperm donation and amounts to 21.7%. Graphs A.1 to A.3 of the Appendix illustrate in detail the acceptance and rejection rates, as well as the uncertainty rates with regard to donations.

The technological potential offered by heterologous insemination allows lesbian women to have children, to the extent that they appear to be single women[12]. Although access of same-sex couples to MAR methods is not permitted under the applicable legal framework[13], this research attempted to investigate the stance of interviewees towards this eventuality, the occurrence of which will pave the way for new forms of parenthood and kinship. It follows from the answers provided (see Graph 2) that the percentage of interviewees accepting the legal access of same-sex male and female couples to MAR methods is high and falls slightly short of the corresponding percentage of those rejecting it. Acceptance of the access of same-sex female couples to heterologous reproduction amounts to 39.6% and falls short by only one percentage point from the rate of rejection. Acceptance of access for gay couples is slightly lower, amounting to 36.8%.

Graph 2
Beliefs on access to ART for lesbian and gay couples
Users of assisted reproduction technologies: Greece 2014
(%)

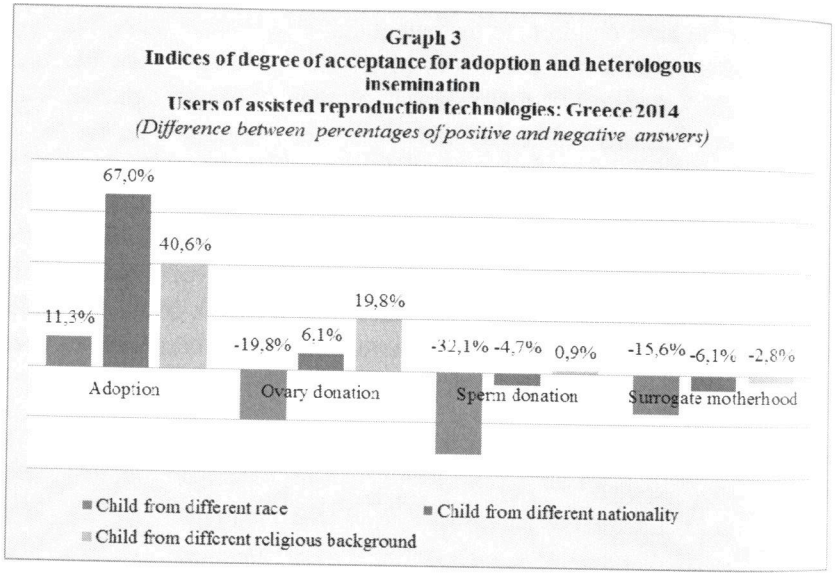


12. See, *Kantsa and Chalkidou* (2014).

13. For a detailed analysis of "homoparentality" and the right to access MAR methods in the Greek legal system see *Rethymiotaki* (2014).

In the context of the quantitative investigation of views on heterologous assisted reproduction, it was also considered useful to carry out a comparison between perceptions on the sense of kinship towards an adopted child, on the one hand, and towards a child born using MAR methods, on the other, when in both cases children or donations come from a different race, nationality or religious background. For this reason, interviewees, all of whom had used MAR methods in the past, were asked whether they would be willing to adopt a child from a different race, nationality or religious background and their answers were compared to those given in relation to heterologous insemination.

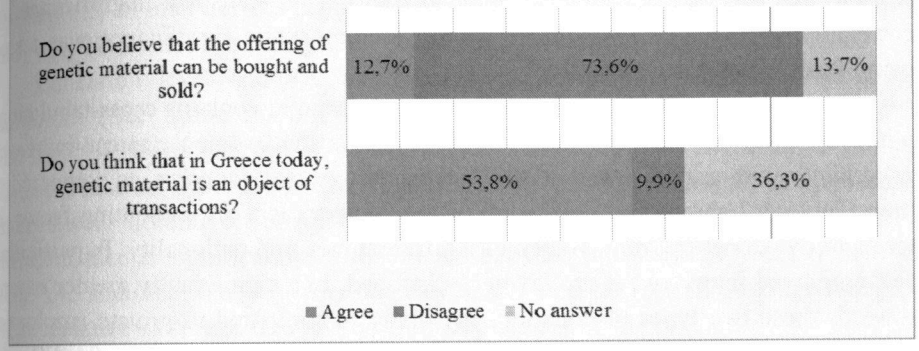
Graph 3
Indices of degree of acceptance for adoption and heterologous insemination
Users of assisted reproduction technologies: Greece 2014
(Difference between percentages of positive and negative answers)



It follows from the answers (see Graph 3) that acceptance is significantly higher in the case of adoption as compared to heterologous insemination. In particular, the difference in the percentage of those who accept child adoption from a different race amounts to 11.3 percentage points, with 55.7% of interviewees accepting it, while, as already mentioned, all three cases of heterologous insemination with a male or female donor from a different race have been clearly rejected. The difference between positive and negative answers is even higher with regard to the possibility of adopting a child from a different nationality, amounting to 67.0 percentage points. On the contrary, two out of three cases of heterologous reproduction using a donor from a different nationality have been rejected. The adoption of children coming from parents with a different religious background is

accepted by 40.6 percentage points, as opposed to surrogacy from a woman with different religious background, which is being rejected. In addition, the adoption of children coming from parents with different religious background is accepted to a greater extent as compared to ova and sperm donation.

Graph 4
Beliefs on genetic material as an object of transaction
Users of assisted reproduction technologies: Greece 2014
(%)



Two related issues were also investigated, namely the degree of trust of interviewees towards the implementation of heterologous reproduction, within the margins of the law, as well as their view on the eventuality of changing and replacing the existing legal framework with another framework that will allow for genetic material transactions and paying for surrogacy. It follows from their answers that the absolute majority of interviewees, i.e. 53.8%, believe that genetic material and surrogacy services are an object of transaction in Greece. An even greater majority, i.e. 73.6%, believe that such transactions should not be permitted. The percentage of interviewees who believe that genetic material transactions should be permitted is small, albeit not insignificant, i.e. 13.7%. (See Graph 4). Therefore, it is clear that, although the vast majority of interviewees having experience with MAR methods approve the legal framework prohibiting the commercialization of heterologous reproduction, they strongly question its implementation in practice.

4. Statistical correlations

The statistical significance of the correlation between the view of interviewees on genetic material donation, surrogacy and adoption, on the one hand, and four

demographic and socioeconomic characteristics of the interviewees, on the other, was subsequently analyzed. In particular, the reference variables were (a) the gender of the interviewee; (b) the age of the interviewee which was divided into three categories: younger than 35 years old, 35 to 44 years old and 45 or older; (c) the education level of the interviewee comprising four categories: lyceum graduate or below, post-lyceum technical training graduate, technical university or university graduate and holder of a post-graduate title; and (d) the profession/occupation of interviewee comprising four categories: self-employed, private employee, civil servant and person out of the labor market. The statistical significance of correlations was analyzed using the x^2 distribution, while significance was tested using Pearson's statistics[14].

The analysis of Tables A.2 to A.5 of the Appendix, contains cross-tabulations with all statistically significant correlations shows that women express increased uncertainty with regard to the general *acceptance of ova donation*, as compared to men. Table A.2 shows that profession of interviewees is a differentiating factor, in terms of ova donation from women of a different race and nationality. In particular, self-employed interviewees are favorably inclined, to a significantly greater extent, towards these two types of donation, especially as compared to private employees or civil servants. In addition, it seems that ova donation from women of a different race generates higher uncertainty rates among people younger than 35 years old, as compared to people over 45, who actually reject this type of donation to a greater extent as compared to the other two age groups. This last finding applies if we are willing to go slightly beyond the maximum statistical margin of error. Answers as to ova donation from women of a different religious background remained statistically unchanged.

Answers as to the *acceptance of sperm donation*, both in general and in respect of specific donor characteristics (nationality, race and religious background) are differentiated on the basis of the occupation, gender and educational level of interviewees (as shown in Table A.3). Firstly, women are less willing, at a significantly lower rate, to accept sperm donation from a different race, as compared to men. Secondly, answers vary significantly according to the professional status of interviewees: self-employed persons accept sperm donation at a greater rate, especially as compared to employees of the private sector. The same professional category accepts, to a greater extent, the donation of sperm from men with a different religious background. Thirdly, lyceum graduates or below accept sperm donation

14. Significance was tested by setting the probability of false rejection of the assumption about independence between the two variables lower than 5.0%.

from men with a different religious background at a significantly lower rate as compared to holders of a post-graduate title. Therefore, it seems that the general acceptance of sperm donation from men with a different religious background is positively related to the education level of interviewees. Finally, the age of interviewees is not a significant differentiating factor with regard to their answers on sperm donation.

The acceptance of *surrogacy* was not found to be significantly correlated to any of the four aforementioned socioeconomic variables and, therefore, its rejection from the majority of interviewees is not differentiated among the different groups to which they may be divided according to the socioeconomic and demographic data used.

Education level and age are the two differentiating factors of views on *adoption*. (See Table A.4). In particular, lyceum graduates or below show a significantly lower degree of acceptance for the adaptation of a child from a different race or with parents from a different religious background, as opposed to interviewees holding a post-graduate title. Acceptance of adopting a child from a different race is significantly differentiated between interviewees younger than 35 years old and older than 45 years old, as younger interviewees show a higher degree of acceptance with regard to this type of adoption.

Finally, the level of education and gender are the two variables found associated with differing views on the existing legal framework and its implementation in practice (see Table A.5). In particular, holders of a post-graduate degree think to a greater extent that illegal *commercialization of genetic material* is taking place currently in Greece. It is worthwhile noting, however, and their degree of disapproval is less pronounced. The view that selling genetic material takes place is also shared more widely by male rather than female interviewees.

5. Conclusions

Two categories of conclusions may be drawn from the statistical processing of the answers given by the sample of 212 interviewees to the relevant questionnaire. The first category relates to the degree of acceptance by all interviewees of the three types of heterologous reproduction investigated through the questionnaire (ova donation, sperm donation and surrogacy) either generally or under specific conditions (race, nationality and religious background of female or male donors). It also relates to the comparison of heterologous reproduction with adoption, the acceptance of its use by same-sex couples and the evaluation of the existing institutional/legal framework that does not allow its commercialization. The second category comprises conclusions related to the demographic and socioeconomic

characteristics that were found to be connected with the acceptance of different types of heterologous reproduction and adoption.

There are six basic conclusions that can be drawn from the first category: Firstly, *ova and sperm donation*, as opposed to *surrogate motherhood*, are accepted by the relative majority of those having already used medically assisted reproduction methods. Secondly, sperm donation is rejected by the relative majority of interviewees, when the donor is a person from a different race or nationality. The same applies to ova donation. The rate of rejection is higher in the case of sperm donation compared to ova donation. Thirdly, as opposed to race and nationality, religious differences do not seem to have a negative effect on the acceptance of ova and sperm donation. Fourth, the rejection rate of surrogacy increases when it is offered by a woman from a different race or nationality. Fifth, acceptance of heterologous MAR, in all its expressions and under all conditions, lags significantly behind compared to the corresponding degree of acceptance of *adoption* and, sixth, the degree of acceptance with regard to the right of *same-sex couples* to use heterologous reproduction methods is high, though slightly lower than the degree of rejection.

With regard to correlations, findings may be summarized in four key conclusions: Firstly, the category of *self-employed interviewees* has the most groundbreaking ideas. This category showed statistically higher acceptance rates in respect of ova donation from a different race or nationality as well as sperm donation, either in general or from a different religious background. Secondly, as probably expected, answers are differentiated according to the education level of interviewees. Respondents with educational qualifications *not exceeding Lyceum certificate* show a significantly higher rate of rejection with regard both to sperm donation and adoption from a different religious background, as well as to the adoption of a child from a different race. In addition, they believe, at a higher rate, that genetic material is not an object of transactions in Greece. On the other hand, *holders of post-graduate degrees* accept, at a higher rate, sperm donation from a different religious background and adoption from a different race or religious background. The same category of interviewees believe, to a significantly higher extent, that genetic material is currently being commercialized and are also at a higher rate of the opinion that such transactions should be permitted. Thirdly, *women* demonstrate increased uncertainty with regard to accepting ova donation and reject sperm donation from donors of a different race at a higher rate as compared to men. In addition they believe, at a comparatively higher rate, that genetic material is not an object of transactions in Greece. Thirdly, interviewees *younger than 35 years old* appear to be more uncertain with regard to accepting ova donation from a woman of a different race, while those *over 45 years old* tend to reject this donation more intensely and accept, to a higher degree, adoption from a different race.

Issues related to reproduction, conception, birth, upbringing, are central to any society, to the extent that they are not only related to human procreation but also to perceptions, ideas and practices pertaining to the way in which society as a whole reproduces itself. Thus, in the context of medically assisted reproduction, the aspects of gender, religion and nationality are central issues where personal choices become intertwined with broader social and cultural formations. On the other hand, the ambivalent and highly diversified stance of the subjects participating in our survey towards the hypothetical use of third-party genetic material, clearly highlights the fact that the ways of establishing and recognizing kinship, even within the same society or culture, are quite complex and relate, *inter alia*, to diverse parameters – some of which predictable, such as the level of education and some others unexpected, such as the profession of the respondent.

References:

Almeling Rene (2006), 'Why do you want to be a donor?': gender and the production of altruism in egg and sperm donation. New Genetics and Society 25(2): 143-157.

Bergmann Sven (2011), Reproductive agency and projects: Germans searching for egg donation in Spain and the Czech Republic. Reproductive Biomedicine Online 23(5): 600-608.

Daskalaki Ivi (2015), Kinship, religion and (in)fertility. The position of the Orthodox Church and narratives from orthodox women and men on MAR. In Venetia Kantsa (ed.) Kinship and medical technology. Assisted reproduction in Greece. Athens: Alexandria (in greek).

De Mouzon Jacques et al., (2010). Assisted reproductive technology in Europe. 2006: Results generated from European registers by ESHRE. Human Reproduction 25: 1851-1862.

ESHRE (2009). Comparative Analysis of Medically Assisted Reproduction in the EU: Regulation and Technologies (SANCO/2008/C6/051). Final Report. [http://www.eshre.eu/Guidelines-and-Legal/Legislation-for-MAR-treatments.aspx].

Inhorn Marcia (2006), Making muslim babies: IVF and gamete donation in sunni versus shi'a Islam. Culture, Medicine and Psychiatry 30(4): 427-450.

Kantsa Venetia (2014), Giving hope: technology of the body in medically assisted reproduction. In Giorgos Alexias, Manolis Tzanakis, Aıgli Chatzouli (ed.) Body under surveillance. Ethical and political connotations of medical technology and social care, 181-206. Athens: Pedio (in greek).

Kantsa Venetia, Aspa Chalkidou (2014), "Same-sex mothers: a contradiction in terms? Sexuality and reproduction from the viewpoint of anthropology". In Maria Kaiafa-

Gbanti, Efi Kounougeri-Manoledaki, Elisavet Symeonidou-Kastanidou (Ed.) Assisted reproduction and alternative family structures, 181-205. Athens-Thessaloniki: Sakkoula (in greek).

Konrad, Monica (1998). Ova donation and symbols of substance. Some variations on the theme of sex, gender and the partiple body. Journal of the Royal Anthropological Institute 4(4): 643-667.

Konrad Monica (2005), Nameless relations: Anonymity, Melanesia and reproductive gift exchange between British ova donors and recipients. Oxford-New York: Berghahn.

Mpouloutza Penny (2013), "4,000 per cycle, EUR 5 million annual turnover". Kathimerini Sunday Edition of 5 June 2013 (in greek).

Orobitg Gemma, Carles Salazar, (20050. The gift of motherhood: egg donation in a Barcelona infertility clinic. Ethnos 70(1): 31-52.

Papaligoura, Zaira (2013), New maternity paths. Assisted reproduction. Athens: Papazisi (in greek).

Rethymiotaki Eleni (2014), Same-sex couples and assisted reproduction: sexual freedom, family life and/or parenthood. In Maria Kaiafa-Gbanti, Efi Kounougeri-Manoledaki, Elisavet Symeonidou-Kastanidou (Ed.) Assisted reproduction and alternative family structures, 147-180. Athens-Thessaloniki: Sakkoula (in greek).

Trokanas Theodoros (2011), Human Reproduction. Private autonomy and its limits. Athens-Thessaloniki: Sakkoula (in greek).

Tountassaki Irini (forthcoming), Ova donation, motherhood and kinship, Athens: Pataki (in greek).

Chatzouli Aigli (2015), Seeds of change, problematics of the familiar. Infertility, MAR and use of third-party material. In Venetia Kantsa (ed.) Kinship and medical technology. Assisted reproduction in Greece. Athens: Alexandria (in greek).

Appendix of tables and graphs

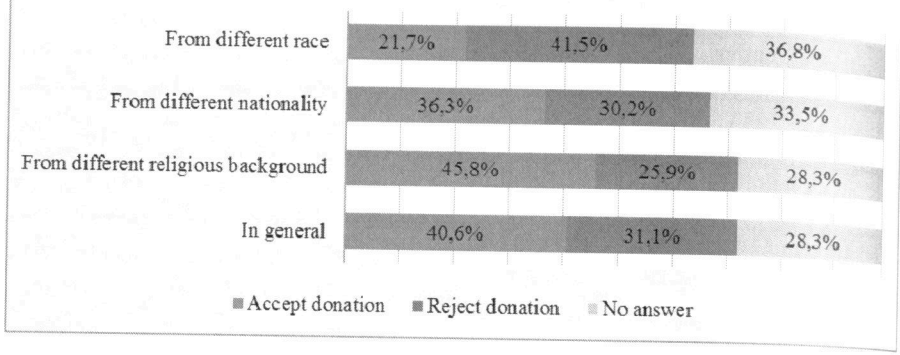
Table A.1

Users of assisted reproduction technologies: Greece 2014
Demographic and socioeconomic data of the interviewees

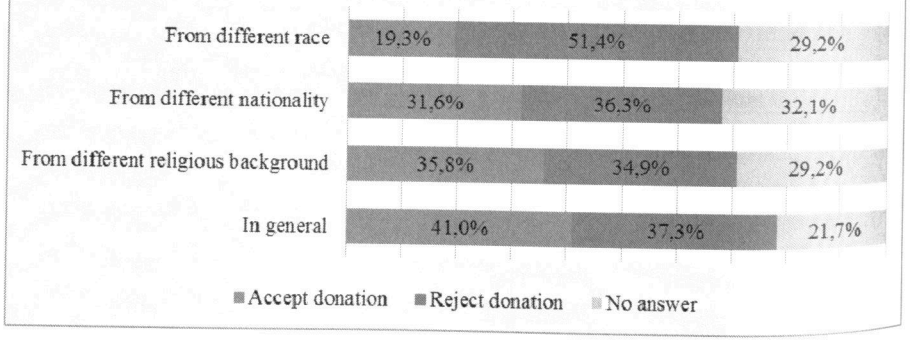
Gender	**Percent %**	**Age**	**Percent %**
Woman	84.8	**<35**	17.8
Man	15.2	**35-44**	65.4
		>44	16.8
Total	100.0	Total	100.0
Level of education	**Percent %**	**Profession**	**Percent %**
Lyceum graduate or below	22.9	Self-employed	25.5
P-L.T.T.G	18.5	Private employee	32.5
T.U.G / U.G.	34.6	Civil servant	22.5
Post graduate degree	23.9	Out of labor market	19.5
Total	100.0	Total	100.0
Questionnaire source	**Percent %**		
Public hospital	34.9		
Private clinic	9.9		
Association	7.1		
Interview	31.6		
Internet	16.5		
Total	100.0		

P-L.T.T.G: post-Lyceum technical training graduate
T.U.G.: Technical University Graduate
U.G.: University Graduate

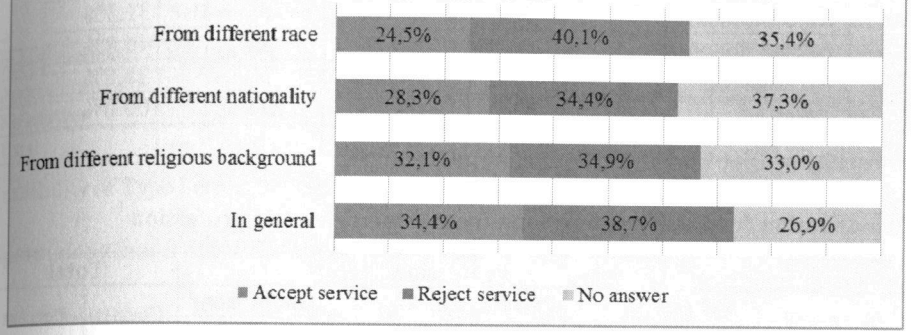
Graph A.1
Acceptance of ovary donation
Users of assisted reproduction technologies: Greece 2014
(%)



Graph A.2
Acceptance of sperm donation
Users of assisted reproduction technologies: Greece 2014
(%)



Graph A.3
Acceptance of surrogate motherhood services
Users of assisted reproduction technologies: Greece 2014
(%)



Graph A.4
Acceptance of adoption
Users of assisted reproduction technologies: Greece 2014
(%)

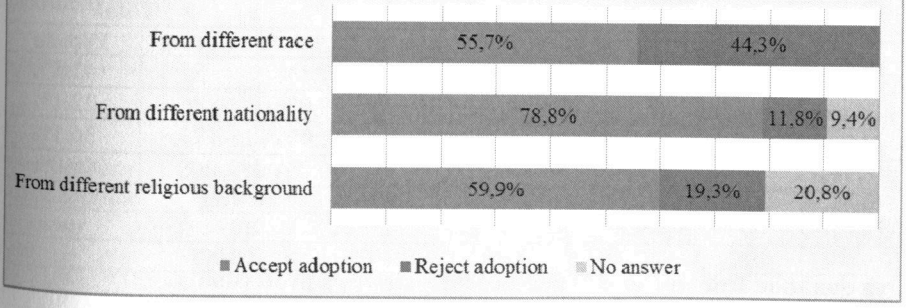


Table A.2. Association of beliefs on ova donation

Ova donation and interviewee's gender

	Gender		Total	
	Woman	Man	Counts	Percent
Reject donation	29.6%	40.6%	66	31.3%
Accept donation	39.1%	50.0%	86	40.8%
No answer	**31.3%**	**9.4%**	59	28.0%
Total	100.0%	100.0%	211	100.0%

Probability of Type I error: 0.039

Ova donation from different nationality and interviewee's profession

	Profession				Total	
	Self-employed	Private employee	Civil servant	Out of labor market	Counts	Percent
Reject donation	**15.7%**	33.8%	**42.2%**	28.2%	60	30.0%
Accept donation	**56.9%**	**24.6%**	40.0%	**25.6%**	73	36.5%
No answer	27.5%	41.5%	**17.8%**	**46.2%**	67	33.5%
Total	100.0%	100.0%	100.0%	100.0%	200	100.0%

Probability of Type I error: 0.001

Ova donation from different race and interviewee's age

	Age			Total	
	< 35	35-44	45 +	Counts	Percent
Reject donation	29.7%	41.2%	57.1%	87	41.8%
Accept donation	16.2%	24.3%	20.0%	46	22.1%
No answer	**54.1%**	34.6%	**22.9%**	75	36.1%
Total	100.0%	100.0%	100.0%	208	100.0%

Probability of Type I error: 0.054

Ova donation from different race and interviewee's profession

	Profession				Total	
	Self-employed	Private employee	Civil servant	Out of labor market	Counts	Percent
Reject donation	**27.5%**	43.1%	**57.8%**	43.6%	85	42.5%
Accept donation	**37.3%**	16.9%	**8.9%**	17.9%	41	20.5%
No answer	35.3%	40.0%	33.3%	38.5%	74	37.0%
Total	100.0%	100.0%	100.0%	100.0%	200	100.0%

Probability of Type I error: 0,0013

Table A.3. Association of beliefs on sperm donation

Sperm donation and interviewee's profession

	Profession				Total	
	Self-employed	Private employee	Civil servant	Out of labor market	Counts	Percent
Reject donation	**19.6%**	**49.2%**	42.2%	35.9%	75	37.5%
Accept donation	**56.9%**	**30.8%**	44.4%	38.5%	84	42.0%
No answer	23.5%	20.0%	13.3%	25.6%	41	20.5%
Total	100.0%	100.0%	100.0%	100.0%	200	100.0%

Probability of Type I error: 0.033

Sperm donation from different race and interviewee's gender

	Gender		Total	
	Woman	Man	Counts	Percent
Reject donation	**54.7%**	**34.4%**	109	51.7%
Accept donation	**16.8%**	**34.4%**	41	19.4%
No answer	28.5%	31.2%	61	28.9%
Total	100.0%	100.0%	211	100.0%

Probability of Type I error: 0.037

Sperm donation from different religious background and interviewee's educational level

	Level of education				Total	
	Lyceum graduate or below	P-L.T.T.G.	T.U.G./U.G.	Post-graduate title	Counts	Percent
Reject donation	**46.8%**	44.7%	32.4%	**18.4%**	71	34.6%
Accept donation	**19.1%**	28.9%	42.3%	**51.0%**	75	36.6%
No answer	34.0%	26.3%	25.4%	30.6%)	59	28.8%
Total	100.0%	100.0%	100.0%	100.0%	205	100.0%

Probability of Type I error: 0.015
P-L.T.T.G.: post-Lyceum technical training graduate
T.U.G.: Technical University Graduate
U.G.: University Graduate

Sperm donation from different religious background and interviewee's profession

	Profession				Total	
	Self-employed	Private employee	Civil servant	Out of labor market	Counts	Percent
Reject donation	**19.6%**	**46.2%**	31.1%	38.5%	69	34.5%
Accept donation	**52.9%**	**24.6%**	42.2%	30.8%	74	37.0%
No answer	27.5%	29.2%	26.7%	30.8%	57	28.5%
Total	100.0%	100.0%	100.0%	100.0%	200	100.0%

Probability of Type I error: 0.039

Table A.4. Association of beliefs on adoption

Adoption from different race and interviewee's age

	Age			Total	
	< 35	35-44	45 +	Counts	Percent
Reject adoption	**27.0%**	44.9%	**57.1%**	91	43.8%
Accept adoption	**73.0%**	55.1%	**42.9%**	117	56.2%
No answer	0.0%	0.0%	0.0%	0	0.0%
Total	100.0%	100.0%	100.0%	208	100.0%

Probability of Type I error: 0.033

Adoption from different race and interviewee's educational level

	Level of education				Total	
	Lyceum graduate or below	P-L.T.T.G.	T.U.G./U.G.	Post-graduate title	Counts	Percent
Reject adoption	**63.8%**	**28.9%**	42.3%	38.8%	90	43.9%
Accept adoption	**36.2%**	71.1%	57.7%	**61.2%**	115	56.1%
No answer	0.0%	0.0%	0.0%	0.0%	0	0.0%
Total	100.0%	100.0%	100.0%	100.0%	205	100.0%

Probability of Type I error: 0.009
P-L.T.T.G.: post-Lyceum technical training graduate
T.U.G.: Technical University Graduate
U.G.: University Graduate

Adoption from different religious background and interviewee's educational level

	Level of education				Total	
	Lyceum graduate or below	P-L.T.T.G.	T.U.G./U.G.	Post-graduate title	Counts	Percent
Reject adoption	21.3%	13.2%	23.9%	18.4%	41	20.0%
Accept adoption	**44.7%**	65.8%	59.2%	**73.5%**	124	60.5%
No answer	**34.0%**	21.1%	16.9%	**8.2%**	40	19.5%
Total	100.0%	100.0%	100.0%	100.0%	205	100.0%

Probability of Type I error: 0.034
P-L.T.T.G.: post-Lyceum technical training graduate
T.U.G.: Technical University Graduate
U.G.: University Graduate

Table A.5. Association of beliefs on genetic material as object of transactions

Do you believe that the offering of genetic material can be bought and sold?
Distribution of interviewees by level of education

	Level of education				Total	
	Lyceum graduate or below	P-L.T.T.G.	T.U.G./U.G.	Post-graduate title	Counts	Percent
No	72.3%	73.7%	**85.9%**	**61.2%**	153	74.6%
Yes	17.0%	5.3%	**5.6%**	**22.4%**	25	12.2%
No answer	10.6%	21.1%	8.5%	16.3%	27	13.2%
Total	100.0%	100.0%	100.0%	100.0%	205	100.0%

Probability of Type I error: 0.019
P-L.T.T.G.: post-Lyceum technical training graduate
T.U.G.: Technical University Graduate
U.G.: University Graduate

Do you think that in Greece today, genetic material is an object of transactions?
Distribution of interviewees by gender

	Gender		Total	
	Woman	Man	Counts	Percent
No	**11.7%**	**0.0%**	21	10.0%
Yes	**49,7%**	**78.1%**	114	54. 0%
No answer	38.5%	21.9%	76	36.0%
Total	100.0%	100.0%	211	100.0%

Probability of Type I error: 0.007

Do you think that in Greece today, genetic material is an object of transactions? Distribution of interviewees by level of education

	Level of education				Total	
	Lyceum graduate or below	P-L.T.T.G.	T.U.G./U.G.	Post-graduate title	Counts	Percent
No	**19.1%**	7.9%	9.9%	**2.0%**	20	9.8%
Yes	**36.2%**	55.3%	54.9%	**69.4%**	111	54.1%
No answer	44.7%	36.8%	35.2%	28.6%	74	36.1%
Total	100.0%	100.0%	100.0%	100.0%	203	100.0%

Probability of Type I error: 0,029
P-L.T.T.G.: post-Lyceum technical training graduate
T.U.G.: Technical University Graduate
U.G.: University Graduate

The drive for openness in donor conception: Disclosure and the trouble with real life*

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Abstract

Openness and children's 'right to know' about their genetic background have become key issues in debates about donor conception and a significant shift towards transparency has taken place in policy frameworks. But whereas openness is now supported in policy, the issue might be less of a 'done deal' for parents themselves; evidence suggest that many still hesitate to disclose. This has caused concern among policy makers and campaigners, putting parents under increasing pressure to tell. In this context it is important to seek to better understand parents' experiences, and why it is that some might feel uncertain about openness. I explore the issue by drawing on original empirical data from a study exploring donor conception and family life, and I show that there are significant insights to be gained from looking at the impact of openness in families. I explore four particular sets of dilemmas introduced by openness, namely decision-making and family boundaries; telling children; telling the wider family and navigating competing moral doctrines. I pursue the argument that an important factor to consider in understanding disclosure and its difficulties is the importance and complexity of family relationships and the impact they have on parents' decision making process. This leads me to argue for a change in direction in debates on openness and for the need of an increased appreciation of the vitality of relationships. I also suggest that openness needs to brought into conversation and balanced against other factors which greatly influence children's and adult's personal lives.

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