Original Article

Health Professionals' Opinions About Oocyte/Sperm Donation

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Abstract

Background :Although decisions about reproduction are made by couples themselves, socio-cultural, religious, ethical and moral values are effective in assisted reproduction techniques.
Aim: This descriptive study was performed to reveal health professionals' opinions about oocyte/sperm donation.
Methods: The study population included all health professionals working in an obstetrics and pediatrics hospital between May and August in 2015. The study sample comprised of 342 health professionals accepting to participate in the study. Data were collected with a questionnaire composed of 28 questions about demographic features and opinions about oocyte/sperm donation.
Results: Of all the participants, 69% reported that using donated oocytes/sperms in infertile couples is not acceptable. Eighty-three point eight percent of the women and 74.6% of the men objected to using donated oocytes/sperms to have children in case their spouses had a problem preventing conception. Eighty-nine point five percent of the nurses, 88.4% of the midwives and 61.9% of the doctors did not want to have children through donated oocytes/sperms. The participants most frequently agreeing to permit embryo donation were midwives at the rate of 41.6% and the participants most frequently disagreeing to permit it were nurses at the rate of 47.8%. The participants most frequently objecting to recommending oocyte/sperm donation in the media were nurses at the rate of 44.7%.
Conclusion: As education of health professionals increases, so does the rate of accepting oocyte/sperm donation.

Keywords: Health Professionals, Oocyte/Sperm Donation, Embryo Donation

Introduction

An increasing use of assisted reproductive techniques in the last years has caused many debates about ethical issues concerning parenthood, human reproduction, practice and politics (Adams & Light, 2015). Even if the decision of reproduction is made by couples themselves, culture of societies and regulations for reproduction technology can be effective in this decision. Socio-cultural and religious status is more effective than ethical and moral values in preparation of regulations and assisted

reproductive techniques are banned without considering educational status of the society and whether the society is ready to discuss them (Sabatello, 2015). Oocyte donation can be a good treatment option in women with early ovary dysfunction, severe X-linked inherited disorders, inefficient oocytes and/or an unqualified embryo, peri- and post-menopausal women and women experiencing failure more than once during previous attempts of assisted reproduction. (Lampiao, 2013; Halvaei, Khalili, hasemi-Esmailabad, Nabi &, Shamsi, 2014). However, lack of awareness or misbeliefs about sperm donation negatively affects this donation (Lampiao, 2013). In addition, due to cultural beliefs and norms considering the sperm as the key to maintenance of ancestry and kinship, sperm donation is not regarded as sexually and morally acceptable (Culley, Hudson & Rapport, 2013). Embryo donation can be a choice of treatment for women with unqualified oocytes, premature ovarian failure, ovarian failure due to gonadal dysgenesis or chemo/radiotherapy, failure of in-vitro fertilization (IVF), genetic diseases and male spouses having serious infertility (Halvaei, Khalili, hasemi-Esmailabad, Nabi &, Shamsi, 2014). Nevertheless, embryo donation is more debatable than oocyte donation in moral, psychological and ethical aspects. For example, donated embryos are exact genetic siblings of donors' children (Wanggren, Baban & Skoog Svanberg, 2014).Ethical issues about informing family members and the children to be born are as important as procedures followed in sperm and oocyte donations. Health professionals play an important role in discussing different opinions about sperm and oocyte donations and offering accurate information. There is limited knowledge about attitudes to IVF and the important role of IVF staff, and most of the studies have focused on doctors' opinions (Leeb-Lundberg, Kjellberg & Sydsjö, 2006). Healthcare providers are responsible for implementing legal processes about reproduction treatment. In Sweden, the main responsibility of doctors is to determine appropriateness of donors and recipients. However, it has been reported that couples receiving donor insemination therapy are not supported by health professionals (Lalos, Gottlieb & Lalos, 2007). In a study in the USA, doctors were found to be the only health professionals to support and encourage couples getting this therapy (Shehab, Duff, Pasch, Mac Dougall, Scheib & Nachtigall, 2007). Although Swedish laws allow lesbian couples to receive donated sperms, one third of Swedish gynecologists/obstetricians object to it (Skoog-Svanberg, Lampic, Bergh & Lundkvist, 2003). Although organ donation is permitted by Turkish laws, oocyte/sperm donation is not allowed. When the number of embryos obtained during IVF is higher than expected, excess embryos are frozen and stored for five years upon the permission of the couples. When the duration of storage of embryos is longer than one year, the couples write a petition to state that their request for this storage is still valid each year. When one of the couples asks for discontinuation of storage or dies, when the couples get divorced or when the five-year period ends, the embryos are disposed by the committee responsible for the storage. The couples who will receive assisted reproduction treatment can only get their own reproductive cells. Donation of oocytes/sperms, obtaining embryos from donors, using embryos derived from oocytes/sperms from candidates for assisted reproduction treatment in other candidates or using embryos derived from other people in the candidates is forbidden. When a pregnancy against these rules is detected, the center responsible for it is sentenced to severe punishments (http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod).

Health professionals, who constitute some part of the society and represent the society, can be affected by the cultural structure and religious beliefs concerning oocyte/sperm donation and can have different opinions about the issue regardless of their education. The impetus for this study is that the number of studies directed towards revealing opinions of health professionals about oocyte/sperm donation in Turkey is limited.

The aim of the study is to determine opinions of health professionals regarding oocyte/sperm donation.

Methods

Study Design: This study has a descriptive design

Study Population and Sample: The study population included all health professionals working in a obstetrics and pediatrics hospital between May and August in 2015. The sample was composed of a total of 342 health professionals accepting to participate in the study, of whom 42 were doctors, 137 were nurses, 114 were mid-wives and 49 were

laboratory technicians and radiography technicians.

Data Collection and Tools: Data were collected with a questionnaire prepared by the researchers in light of the literature. (Isikoglu et al, 2006; Baykal, Korkmaz, Ceyhan, Goktolga, Baser, 2008). The questionnaire was piloted on 20 health professionals. Since the participants of the piloting study reported no problems with the questionnaire, no changes were made. It was composed of 28 questions about demographic features (age, marital status, occupation and education etc.) and opinions about oocyte/sperm donation. After the health professionals were informed about the study, those accepting to participate in the study were requested to complete the questionnaire. Data were collected by two researchers.

Ethical Aspects of the Study: A detailed report about the aim, methods and data collection tools was submitted to the ethical committee of a university (Approval number: 23655; Approval Date: 5 August, 2010). After ethical approval was obtained, written permission was taken from the state hospital where the study was performed. The participants were assured that obtained data would be used and published for scientific purposes, and in accordance with the Declaration of Helsinki, informed consent was obtained from them.

Data Analysis: Statistical analysis of data were made with Statistical Package for Social Sciences. Descriptive statistics (frequency, percentage, mean and standard deviation) were utilized to describe the main variables of the study. Chi-squared test was employed to compare opinions of the health professionals about oocyte/sperm donation in terms of some features. $p<0.05$ was considered significant.

Results

The mean age of the participants was 34.10±7.7 years (range: 19-63 years). Of all the participants, 75.5% were female, 24.5% were male, 75.4% were married and 67.3% had at least one child. The mean duration of work experience was 12.35±8.0 years (range:1-38 years). Out of all the participants, 28% were graduates of a two-year university program, 23.8% were graduates of a four-year university program, 12.3% were doctors, 41.8% were nurses and 31.6% were midwives (Table 1). Half of the participants reported that family members or people they knew had infertility. Sixty-nine percent of the participants did not find using donated oocytes/sperms acceptable and 46.8% of the participants said that it was not acceptable according to Islamic principles. Eighty-seven point seven percent of the participants reported that not only genes but also the environment in which individuals grow up and environmental factors play a role in personality of a person, and 76.6% of the participants said that they could love their babies from donated oocytes/sperms as much as their babies from their own oocytes/sperms.

Twenty-two point five percent of the participants thought that couples receiving donated oocytes/sperms should not know names, addresses and telephones of individuals donating their oocytes/sperms. Fifty-seven percent of the participants said that individuals donating their oocytes/sperms do not have the right to demand that these babies belong to them. Seventy-eight point three percent of the participants suggested that both couples receiving oocytes/sperms and individuals donating them should get psychological counseling. Similar rates of the participants reported that using donated oocytes/sperms should be allowed in case of a chronic disease, advanced ages of couples, a disabled child and history of a genetically transmitted disease. However, 55.8% of the participants were against using donated oocytes/sperms under any circumstances (Table 2).Eighty-three point eight percent of the female participants and 74.6% of the male participants objected to using donated sperms when their spouses had a condition preventing them from having children. Eighty-six point four percent of the married participants and 83% of the participants having live children said they did not want to have children from donated sperms. Concerning the distribution of the participants disagreeing to have children from donated oocytes/sperms by education and occupation, 92.9% of the high school graduates, 24.7% of the participants graduating from university or having an MSc, 89.5% of the nurses, 88.4% of the midwives and 61.9% of the doctors did not want to have children by using donated oocytes/sperms. The rate of the midwives, doctors and graduates of university and MSc agreeing to have children by using donated oocytes/sperms was significantly higher ($p<0.05$). Gender, marital status and having live children did not significantly affect opinions of the participants about oocyte/sperm donation ($p>0.05$) (Table 3).

Table 1. Descriptive characteristics of the health professionals (n: 342)

	Number N	Percentage (%)
Gender		
Female	271	75.5
Male	71	24.5
Marital Status		
Married	258	75.4
Single	84	24.6
Education		
Nursing High School	56	5.1
Two-year university program	112	28.0
Four-year university program, MSc and MD	174	23.8
Occupation		
Doctor	42	12.3
Nurse	143	41.8
Midwife	108	31.6
Other health professionals (laboratory technician and radiology technician)	49	14.3
Having children		
Yes	230	62.3
No	112	23.7

Table 2. Opinions of the health professionals about oocyte/sperm donation (n: 342)

	Number	Percentage (%)
Is there infertility in family members or people you know?		
Yes	171	50.0
No	171	50.0
Do you think donated oocytes/sperms should be used in treatment of infertile couples?		
Yes	106	31.0
No	236	69.0
Do you think conception in a Muslim woman with donated oocytes/sperms is acceptable?		
Acceptable	52	15.2
Unacceptable	160	46.8
Don't know	130	38.0
Do you think the role of the environment and environmental factors in personality is as important as genes?		
Yes	300	87.7
No	42	12.3
Do you think parents love their children from donated oocytes/sperms as much as their children from their own oocytes/sperms?		
Yes	262	76.6
No	80	32.4
Do you think oocyte/sperm recipients should know the name, address and telephone of the donors?		
Yes	77	22.5
No	265	77.5
Do you think oocyte/sperm donors can demand children from their own oocytes/sperms		

belong to them?		
Yes	60	17.5
No	195	57.0
I'm not sure	87	25.5
Do you think oocyte/sperm recipients and donors should be offered psychological counseling?		
Yes	298	87.1
No	44	12.9
Who you think should get psychological counseling? Oocyte/sperm recipients, oocyte/sperm donors or both?		
Oocyte/sperm donors	2	.7
Oocyte/sperm recipients	63	21.1
Both	233	78.3

Table 3. Health professionals accepting to have children from donated oocytes/sperms when their spouses have infertility and affecting factors (n=342)

		Accepting to have children from donated oocytes/sperms				χ^2	p
		Yes		No			
		n	%	n	%		
Gender	Female	44	12.6	227	83.8	3.150	0.456
	Male	18	25.4	53	74.6		
Marital status	Married	42	13.6	216	86.4	2.421	0.236
	Single	20	23.6	64	76.4		
Having children alive	No	23	20.3	89	91.7	.650	0.452
	Yes	39	17.0	191	83.0		
Occupation	Doctor	16	38.1	26	61.9	17.741	**0.001**
	Nurse	15	10.5	128	89.5		
	Midwife	23	19.9	85	88.4		
	Other health professionals	8	17.3	41	83.7		
Education	High school	4	7.1	52	92.9	11.328	**0.001**
	Two-year university program	15	13.4	97	86.6		
	Four-year university program, MSc and MD	131	75.3	43	24.7		

χ2=Pearson Chi-Square

Table 4. Opinions of Health Professionals about Oocyte/Sperm Donation when they are Infertile (n: 342)

		Doctor		Nurse		Midwife		Lab. technician Radiology technician Chemist		χ^2	*p*
		n	%	n	%	n	%	n	%		
Do you think embryo donation should be permitted?	Yes	20	22.5	22	24.7	37	41.6	10	11.2	23.190	**0.001**
	No	22	8.7	121	47.8	71	28.1	39	15.4		
Is infertile couples' receiving oocytes/sperms donated by people they know (sister, close friend etc.) acceptable?	Acceptable	15	28.8	18	34.6	11	21.2	8	15.4	16.621	**0.001**
	Unacceptable	27	9.3	125	43.1	97	33.4	41	14.1		
Is infertile couples' receiving oocytes/sperms donated by people they don't know acceptable	Acceptable	22	20.2	31	28.4	45	41.3	11	10.1	21.755	**0.001**
	Unacceptable	20	8.6	112	48.1	63	27.0	38	16.3		
Do you think being an oocyte/sperm donor should be recommended in the media?	Yes	15	25.0	17	28.3	23	38.3	5	8.3	15.624	**0.001**
	No	27	9.6	126	44.7	85	30.1	44	15.6		
Do you think women having tubal ligation should be asked whether they want to donate their oocytes?	Yes	18	13.7	47	35.9	50	38.2	16	12.2	5.738	0.314
	No	24	11.4	96	45.5	58	27.5	33	15.6		
Do you think oocyte/sperm donors should be informed when children from their oocytes/sperms are born?	Yes	7	9.6	32	43.8	21	28.8	13	17.8	1.656	0.622
	No	35	13.0	111	41.3	87	32.3	36	13.4		
Do you think children from donated oocytes/sperms should be informed about their donors?	Yes	8	9.8	28	34.1	37	45.1	9	11.0	9.186	**0.001**
	No	34	13.1	115	44.2	71	27.3	40	15.4		
Do you think children from donated	Yes	16	17.4	36	39.1	28	30.4	12	13.0	3.090	0.078

oocytes/sperms should be informed about their status?	No	26	10.4	107	42.8	80	32.0	37	14.8	

χ2=Pearson Chi-Square

The highest rate of the participants agreeing to permit embryo donation was midwives (41.6%) and the highest rate of the participants disagreeing to permit embryo donation was nurses (47.8%). A significantly high rate of the doctors and midwives agreed to permit embryo donation ($p<0.05$). The highest rate of the participants agreeing that infertile couples can get oocytes/sperms from people they know (sisters and close friends etc.) were nurses (34.6%) and the highest rate of the participants agreeing that infertile couples can get oocytes/sperms from people they do not know were midwives (41.3%). The rate of the doctors who found receiving oocytes/sperms from family members, friends and acquaintances acceptable and the rate of the doctors and midwives who found receiving oocytes/sperms from strangers acceptable were significantly higher ($p<0.05$).

While 44.7% of the nurses were against recommending oocyte/sperm donation in the media, significantly higher rates of the doctors and midwives were in favor of recommending oocyte/sperm donation in the media ($p<0.05$). The highest rate of the participants agreeing to ask women who will have tubal ligation whether they want to donate their oocytes were midwives (38.2%) and the highest rate of the participants disagreeing with this idea was nurses (45.5%) without a significant difference between the participants having different occupations ($p>0.05$).

A significantly higher rate of the midwives agreed that children from donated oocytes/sperms should be able to receive information about their donors ($p<0.05$). The highest rate of the participants disagreeing that donors should be informed when children are born (41.3%) and the highest rate of the participants disagreeing that children from donated oocytes/sperms should be informed about their status (42.8%) were nurses. There was not a significant difference between the participants in terms of their opinions about informing donors and children ($p>0.05$) (Table 4).

Discussion

Although decisions about reproduction are made by couples themselves, socio-cultural, religious, ethical and moral values are effective in assisted reproduction techniques. In some societies, they are strictly forbidden without taking account of the role of social values and education levels in making decisions and drafting regulations. In this section, opinions of the health professionals about oocyte/sperm donation will be discussed.

Most of the health professionals did not find using donated oocytes/sperms for treatment of infertile couples acceptable and almost half of the health professionals said it was not acceptable according to Islamic principles. In a study performed by Khalili et al. in Iran and Turkey, while 16% of the health professionals objected to oocyte donation, most of the health professionals were in favor of oocyte donation to infertile couples (Khalili et al, 2008). Donations of gametes, sperms and oocytes have been banned for religious reasons in several European countries, South America and Islamic countries (Shufaro & Schenker,2014). Several fatwas and bioethical decisions were issued in 1980 to argue that donations of sperms, oocytes and embryos were unacceptable (Inhorn, Patrizio & Serour, 2010). Also, in Turkey, where most of the population is Muslim, Islamic principles are thought to be effective in decisions to forbid these donations.

Most of the health professionals noted that the role of genes in personality is as important as that of environmental factors and the environment in which an individual grows up, and that they will love their children from donated oocytes/sperms as much as their children from their own oocytes/sperms. Most of the studies on people other than health professionals have emphasized that the environment in which children grow up is more important than genes. (Halvaeiet al, 2014; Isikoglu et al, 2006). Opinions of health professionals in the present study, who are members of the Turkish society and resemble it, are consistent with those reported in the literature.

About one fourth of the health professionals thought that couples receiving donated

oocytes/sperms should not know the name, telephone and address of individuals donating their oocytes/sperms. There have not been regulations about oocyte donation in many countries. However, it is important to guarantee rights of donors, regulate the relationship between oocyte donors and recipients and to protect rights of children to be born (Shufaro & Schenker, 2014). While information about oocyte/sperm donors was kept confidential on the website of The Human Fertilization and Embryology Authority in The United Kingdom, before 1 April, 2005, it was issued later that children born from donated oocytes/sperms have the right to ask for the name and the latest recorded address of donors. In England, individuals donating their gametes do not have any legal responsibility for children from their donation (http://www.hfea.gov.uk/1973.html accessed Aug. 6, 2016).

In the present study, more than half of the health professionals disagreed with the idea that donors can look for children from their gametes and that children from their gametes belong to them. In a study by Lampic et al., the participants reported that contacting donors could damage the relationships between donors and children and/or their families (Lampic, Sunnerud & Skoog Svanberg, 2007). In addition, in Skoog Svanberg et al.'s study, 24% of the male participants and 13% of the female participants noted that contacting donors could impair the relationships between donors and children and/or their families (Skoog-Svanberg et al, 2003).

Despite the fact that infertility is not categorized as a life-threatening disease, it is a health condition with social, cultural and psychological aspects affecting couples. It should be kept in mind that infertility does not only affect women and has physiological and psychological effects and that counseling services should be part of health care services concerning assisted reproduction techniques (Kılıç, Apay & Beji, 2011; Denton, Monach, Pacey, 2013). Most of the participants in the current study suggested that both oocyte/sperm donors and the recipients should get psychological counseling and that use of donated oocytes/sperms should be permitted in case of a chronic illness in the family, advanced age of couples, a disabled child and history of genetically transmitted illnesses. In Khalili et al.'s study, most of the health professionals emphasized that psychological counseling is essential for both donors and recipients. They also noted that oocyte counseling programs should be created for health specialists and health professionals working in infertility clinics (Khalili et al, 2008).

A high rate of the health professionals in the present study did not want to have children from donated oocytes/sperms when their spouses have a health problem causing infertility. Significantly higher rates of midwives, doctors and health professionals having a BA or an MSc found oocyte/sperm donation acceptable. A higher rate of the doctors considered receiving oocytes/sperms from people they know acceptable and significantly higher rates of doctors and midwives found receiving oocytes/sperms from strangers acceptable compared to the health professionals having other occupations. In a study by Lampic et al. in IVF clinics in Sweden, Denmark, Norway and Finland, most of the female doctors reported that they might be able to receive oocytes from women they do not know (98%, 88%, 82% and 100% respectively). However, percentages of the female doctors in favor of receiving oocytes from women they know were lower (34%, 71%, 59% and 82% respectively). Likewise, most of the male doctors agreed to get sperms from men they do not know (93%, 100%, 82% and 100% respectively); however, the rate of the male doctors who supported receiving sperms from men they know was lower (34%, 71%, 59% and 82% respectively). (Lampic, Svanberg & Sydsjö, 2009) . Similarly, in Skoog Svanberg et al.'s study, 77% and 54% of the female doctors supported receiving oocytes from women they do not know and from women they know respectively. Besides, 78% and 77% of the male doctors were in favor of receiving sperms from men they do not know and from men they know respectively (Skoog-Svanberg et al, 2003).

In the present study, significantly high rates of the doctors and midwives agreed that embryo donation should be permitted. In a study by Wanggren et al. in Sweden, most of the health professionals were in favor of embryo donation (77%) and the health professionals approving it at the highest rate were doctors (81%) (Wanggren et al, 2014). In Skoog-Svanberg et al.'s study in Sweden, 40% of the health professionals lent support for embryo donation (Skoog-Svanberg et al, 2003). In a study by Ajayi and Dibosa-Osadolor in Nigeria, of all the obstetricians, 80.4%, 84.3% and 65.7% were in favor of sperm, oocyte and embryo donations

respectively (Ajayi & Dibosa-Osadolor, 2013). In a study with health professionals and ethical scientists, while most of the human genetics specialists and obstetricians agreed about oocyte donation to infertile couples, they objected to embryo donation (Krones et al, 2006). In Wanggren et al.'s study, three fourth of female health professionals and almost all male health professionals reported that embryo donation should be permitted (Wanggren et al, 2014). In Skoog-Svanberg et al.'s study, a higher rate of the male health professionals were in favor of embryo donation compared to the female health professionals (50% vs. 37%) (Skoog-Svanberg et al, 2003).

In the present study, the nurses objected to recommending oocyte/sperm donation in the media. However, significantly higher rates of the doctors and midwives supported it. Khalili et al. reported that most of the Turkish and Iranian health professionals approved of informing the public about oocyte donation through mass communication tools (Khalili et al, 2008). The results of the present study seem to be consistent with those of the studies showing that health professionals supported embryo donation.

A significantly higher rate of the midwives agreed that children should be given information about their donors. In Skoog Svanberg et al.'s study, nearly half of the health professionals (45% of the males and 36% of the females) said that children from donated oocytes/sperms should be offered information about their genetic origins when they become adults (Skoog-Svanberg et al, 2003). In Lampic et al.'s study with doctors in IVF clinics in Sweden, Denmark, Norway and Finland, 68% of the Swedish doctors agreed that children should be informed about their donors when they become adults while 93% of Danish doctors were against it (Lampic at el, 2008). In the present study, 13% of the doctors disagreed with the idea that donors should be informed about the birth of the child. Lampic et al. reported that although 62% of Swedish doctors were in favor of informing the donors about the birth of the child, the rates of Danish and Norwegian doctors supporting this idea were lower (Lampic at el, 2008).

In countries where oocyte donation is allowed, changes in laws or guidelines concerning assisted reproduction techniques are made. They are mostly directed towards protecting health, rights and privacy of oocyte donors (Shufaro & Schenker, 2014). Nonbiological parents avoid revealing that their children are from donated oocytes/sperms in case their relationships with their children can be disrupted (Wise & Kovacs, 2016). The reason why the health professionals in this study want to keep information about oocyte donors confidential can be a possible disruption of relationships between children and their nonbiological parents or possibility of children's leaving their nonbiological parents when they find their biological parents.

Conclusion

In light of the results of this study, doctors, midwives and health professionals with a BA or an MSc degree are more likely to accept oocyte/sperm donation. Sociocultural factors can be effective in accepting oocyte/sperm donation. When physical and psychological traumas experienced by Turkish infertile women are taken into account, it is important that appropriate regulations about oocyte/sperm donation can be adopted and factors likely to be effective in this issue should be examined. It can also be recommended that health professionals should be equipped with sufficient knowledge so that they can inform and provide counseling for individuals, and that accurate information about the issue should be shared in the media.

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References

Adams J, Light R. (2015). Scientific consensus, the law, and same sex parenting outcomes. Social Science Research. 53:300–310.

Ajayi R., Dibosa-Osadolor OJ. (2013). Opinion of obstetricians and gynaecologists on ethical issues in the practice of in-vitro fertilisation and embryo transfer in Nigeria. African Journal of Reproductive Health. 17(1):130-136.

Baykal B, Korkmaz C, Ceyhan ST, Goktolga U, Baser I. (2008). Opinions of infertile Turkish women on gamete donation and gestational surrogacy. Fertility and Sterility. 89(4):817-822.

Culley L, Hudson N, & Rapport F. (2013). Assisted conception and South Asian communities in the UK: Public perceptions of the use of donor gametes in infertility treatment. Human Fertility (Camb). 16(1):48–53.

Denton J, Monach J, Pacey A. (2013). Infertility and assisted reproduction: counseling and psychosocial aspects. Human Fertility (Camb) 16(1):1.

Halvaei I, Khalili MA, Ghasemi-Esmailabad S, Nabi A, Shamsi F. (2014). Zoroastrians support oocyte and embryo donation program for infertile couples. Journal of Reproduction& Infertility. 15(4):222-228.

Human Fertilisation & Embryology Authority, Re-Register as an identifiable donor, http://www.hfea.gov.uk/1973.html (accessed Aug. 6, 2016).

Inhorn MC, Patrizio P, Serour G. (2010). Third party reproductive assistance around the Mediterranean: comparing Sunni Egypt, Catholic Italy and multisectarian Lebanon. Reproductive Biomedicine Online. 21(7):848-853.

Isikoglu M, Senol Y, Berkkanoglu M, Ozgur K, Donmez L, Stones-Abbasi A. (2006). Public opinion regarding oocyte donation in Turkey: first data from a secular population among the Islamic World. Human Reproduction. 21(1):318–323.

Khalili MA, Isikoglu M, Tabibnejad N, Ahmadi M, Abed F, Parsanejad ME, Ghasemi M, el Jamal H. (2008). IVF staff attitudes towards oocyte donation: a multi-centric study from Iran and Turkey. Reproductive Biomed Online. 17 (3):61-66.

Kılıç M, Apay SE, Beji NK. (2011). Infertility and Culture. Florence Nightingale Hemşirelik Dergisi. 19(2):109-115.

Krones T, Neuwohner E, Bock K. Manolopoulos K, Tinneberg HR, Richter G. (2006). Attitudes of patients. healthcare professionals and ethicists towards embryonic stem cell research and donation of gametes and embryos in Germany. Reproductive Biomed Online. 13(5):607-617.

Lalos A, Gottlieb C, Lalos O. (2007). Legislated right for donor insemination children to know their genetic origin: a study of parental thinking. Human Reproduction. 22(6): 1759–68. doi:10. 1093/humrep/dem063.

Lampic, C., Sunnerud, S., Skoog Svanberg, A. (2007). Nurses promote openness regarding the genetic origins after gamete Donation. Acta Pædiatrica/Acta Pædiatrica. 96:1500–1504.

Lampiao F. (2013). What do male students at the College of Medicine of the University of Malawi say about semen donation? TAF Preventive Medicine Bulletin. 12(1):75-78.

Lampic C, Svanberg AS, Sydsjö G. (2009). Attitudes towards gamete donation among IVF doctors in the Nordic countries—are they in line with national legislation? Journal of Assisted Reproduction and Genetics. 26: 231–238.

Leeb-Lundberg S, Kjellberg S, Sydsjö G. (2006). Helping parents to tell their children about the use of donor insemination (DI) and determining their opinions about open-identity sperm donors. Acta Obstetricia et Gynecologica Scandinavica. 85(1):78–81.

Sabatello M. (2015). Regulating gamete donation in the U.S.: ethical, legal and social implications. Laws. 4(3):352–376.

Shehab D, Duff J, Pasch LA, Mac Dougall K, Scheib JE, Nachtigall RD. (2007). How parents whose children have been conceived with donor gametes make their disclosure decision: context. influences. and couple dynamics. Fertil Steril. 89(1):179–87. doi:10.1016/j.fertnstert.2007.02.046

Skoog-Svanberg A, Lampic C, Bergh T, Lundkvist O. (2003). Public opinion regarding oocyte donation in Sweden. Human Reproduction. 18(5):1107-1114.

Shufaro Y. & Schenker JG. (2014). The risks and outcome of pregnancy in an advanced maternal age in oocyte donation cycles. The Journal of Maternal-Fetal & Neonatal Medicine. 27(16):1703-1709.

Assisted Reproductive Treatment Applications and Assisted Reproductive Treatment Centers About regulations in Turkey. Official Gazette No. 29135 dated 30 September 2014 http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod

Wanggren K, Baban M, Skoog Svanberg A. (2014). Attitudes toward embryo donation among staff at in vitro fertilization clinics. ACTA Obstetricia et Gynecologica Scandinavica. 93:765–770.

Wise S, Kovacs G. (2014). Secrecy, family relationships and the welfare of children born with the assistance of donor sperm: Developments in research, law and practice. Families, policy and the law: Selected essays on contemporary issues for Australia, May. https://aifs.gov.au/publications/families-policy-and-law/9-secrecyfamily-relationships-and welfare-children-born.Accessed May 3, 2016.