

The Issue of the Sex of a Conceived Child in Islam:

From the Pre-Islamic Conceptions to the Current Methods of Genetic Selection of the Sexes

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The Qur'an warns against the practice of preference of male over the female sex in children, which led pre-Islamic Arabs to infanticide of girls. Muslim's hadith of the 9th century explains the causes of the formation of embryo with male or female sex, and the Islamic scholars in the Middle Ages still respected this tradition, which however has its roots in ancient Greece and in the Hippocratic tradition, especially in the writing *De victu* – "On Diet" – the author of which is unknown. An important medieval Islamic author confirming the authenticity of this tradition is Sunni lawyer Ibn Qayyim al Yawziyyah with his work *Tuḥfatul Mawdūd fī Ahkām al-Mawlūd*, whose teaching is currently experiencing a great revival among muslims. Introducing new procedures in the context of ARTs (Assisted Reproductive Technology) in recent times has raised new issues within Islamic bioethics, new challenges that also involve preimplantation diagnostics in the question of sex selection out of medical or non-medical reasons.

1 Introduction

The question of the sex of the child is very widespread in the history of the religions of the world, although it is not given the necessary attention in the literature and is usually mentioned only marginally. Male preference could be analyzed in the context of all five current world religions, regardless of the theoretical anchoring of sex equivalence in their holy scriptures. For Arabic tribes of the pre-Islamic period, the practice of infanticide of girls in the form of burial alive was a matter of course. The Qur'an also hints at this practice: "... when the souls join their bodies and buried alive will be asked, because of what sin she was killed" (Qur'an 81:7–9). Adnan sets out two key reasons that have led to the widespread practice of girls' infanticide in pre-Islamic times: fear of poverty and fear of dishonour. Girls were considered less executive and useful for family life than boys and they had the status of persons connected to ornaments (see Qur'an 43:16–19), which was a picture of the negative female qualities and vanity. At the time of the wars and the capture of the daughters of the proud Arab fathers by the enemies who invaded their territory, the infanticide of the girls was done immediately after their birth, so that later there was no rape, the abuse by the enemies, which would always mark families in the sense of defamation of their honor (Adnan 2004, 30–31).

Prophet Muhammad addressed the Arab tribes in particular with two revolutionary ideas: that God is the only one and that the infanticide of the girls is not to be done because it is evil, wrongful act. In the early Meccan Surah 16 it is written: "*And when one of them is informed of [the birth of] a female, his face becomes dark, and he suppresses grief. He hides himself from the people because of the ill of which he has been informed. Should he keep it in humiliation or bury it in the ground? Unquestionably, evil is what they decide*" (Qur'an 16: 58–59).

The question of the formation of a particular sex in a future child has already been dealt with in Islam in Muslim's Hadith, which originated in the 9th century. The Hadith informs that one Jew came to Muhammad and asked him, how the fertilization works in the case when a boy or a girl is conceived: "*He [the Jew] said: I have come to ask you about a thing which no one amongst the people on the earth knows except an apostle or one or two men besides him. He [the Holy Prophet] said: Would it benefit you if I tell you that? He [the Jew] said: I would lend ears to that. He then said: I have come to ask you about the child. He [the Holy Prophet] said: The reproductive substance of man is white and that of woman [i.e. ovum central portion] yellow, and when they have sexual intercourse and the male's substance [chromosomes and genes] prevails upon the*



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female's substance [chromosomes and genes], it is the male child that is created by Allah's Decree, and when the substance of the female prevails upon the substance contributed by the male, a female child is formed by the Decree of Allah. The Jew said: What you have said is true; verily you are an Apostle. He then returned and went away. The Messenger of Allah [may peace be upon him] said: He asked me about such and such things of which I have had no knowledge till Allah gave me that." (Sahih Muslim 003:0614).

Shams al-Dīn Abū 'Abd Allāh Muḥammad ibn Abī Bakr ibn Ayyūb al-Zurī l-Dimashqī l-Hanbalī, who is well-known as Ibn Qayyim al-Jawziyya ["The son of the principal of the school al-Jawziyya"] was very interested in the issues connected to formation of particular sex of the child based upon the Qur'an and Hadith in conjunction with Hippocratic tradition, mainly the doctrine of the writing *De victu*. He is one of the most famous medieval (13th–14th century) Sunni theologians and lawyers because he was a student of the mischievous Ibn Taymiyyah. The education of Ibn Qayyim far exceeded the time requirements of an expert in the legal science in particular of the Hanbali madhab, for which he is generally considered; his contribution in his studies has tended to be reduced to questions of evidence in court proceedings, as he enrolled in the history of legal science in Islam. His spiritual motivation to examine issues related to embryology and genetics consisted of the desire to direct believing Muslims in everyday life, while respecting the principle of unity of faith and reason.

We have found out, that scientific studies on issues of sex selection in children connected to the threat of PGD [1] were published already in the late 1980s. Since about 2000, the focus of articles has changed: from the PGD threat there is a shift to the factual aspect of PGD processes; only exceptionally, we can also find in this period some studies on ethical justification of the usage of sex selection in children. The bioethical dimensions of sex selection have become a priority of scientists' interest about five–six years later and continue to this day, focusing in particular on the following three aspects:

- elimination of X-linked hereditary diseases;
- the sex balance in society;
- male preference in a traditionally masculine-based religious society, e.g. in Judaism and Islam.

2 Methods

The issue of our study required the analysis of holy scriptures as a basis; analysis of Qur'an and Hadith. Subsequently, we have proceeded to analysis and comparison of the writings of Ibn Qayyim al-Yawziyyah: Tuḥfatul Mawdūd fī Ahkām al-Mawlūd and the anonymous writing of Hippocratic tradition – *De victu*. In order to be able to confront the state of the problem in a historical aspect with the present one, we had to use the scientific databases of the studies, with which we have worked by entering the key words of our topic. We have used these databases: Web of Science, Pubmed, Ovid, Google Scholar, and iGoogle Scholar. To the findings from the databases we have added the latest findings published in monographs of English, Bosnian, Croatian, and Czech provenience. So that our analysis of chosen issue can be comprehensive – including the expert and lay world, at the end we have used the database of Bosnian islamic periodic *Preporod*, which is being issued by *Rijaset islamske zajednice u Bosni i Hercegovini*, and which is the most important periodic in Balkan part of *umma*. *Preporod* serves on communication of islamic scholars and mullahs who inform and give religious guidance to believers; they are dealing with the most acute questions of Muslims'everyday life. Sex selection subject has been analyzed in our study using diachronic and synchronic approach.

3 Results

Current Islamic reproductive bioethics respects first Qur'an, Hadith and Shari'a, to which are the results reached by the reason added; that means, the results of the science, which should be in the harmony with the Revelation, e.g. holy scriptures: "*If it comes to it [to the collision between reason and Revelation], then it is only a seeming obstacle that must be eliminated in a professional manner. In removing that contradiction, the following hypotheses must be applied: that a scientific matter that is in the conflict with religious attitudes and teachings, has not yet reached the level of scientific fact, or that the religious attitude and teaching that is in a collision with a scientific fact is not authentic or not understood in the right way*" (Topoljak 2010, 89).

Since a healthy man in Islam is only the one who takes care both of his physical and spiritual aspect, it is not possible for the responsible believer to ignore the reproductive and genetic health issues. The question of sex selection, which belongs to the two mentioned areas, has evolved. We have captured this development continuously from pre-Islamic times to today.

Ibn Qayyim al Yawziyyah has analyzed in his work *Tuḥfatul Mawdūd fī Ahkām al-Mawlūd* also the questions of formation of embryo with male or female sex and has tried to explain this phenomenon by using Qur'an, Hadith, and thoughts of the antique writing *De victu*. He argues, that creation of a child is based exclusively on the copulation of male and female. This model, continuity, which was determined by Allah for all humankind was not disrupted by exceptions, which are Adem and Hava (Adem was created from the soil and by breathing the soul, while Hava was drawn from him) and Messiah (Eesa ibn Maryam was created from Maryam's water and malak's air blasting). Ibn Qayyim has mentioned in Hadith, which is repeatedly introduced by Sahih al-Buchārī, Sahih Muslim, Sahih al-Tirmidhi, and Sahih al-Nasa'i: "The male's seed is white and dense, and the woman is watery and yellow. Which of them overcomes and prevails, the child will look like him" (El-Dževzijje 2011, 166).

So, according to Ibn Qayyim, there are two kinds of semen: the male and the female. They are of different colors and consistency. He also counts on two different power relations between male and female semen: overriding and overpowering. In the case of overriding of one type of semen, that will be a reason, why a child resembles mother or father. In the case of overpowering of one type of semen, the result is a child of the sex of more powerful semen. Ibn Qayyim argues, that there is no reasonable explanation for the predomination of one type of the semen and that there is no natural cause. He attributes this overall to the will of Exalted Creator. The sex of the child is Allah's gift and depends on His will, knowledge and power (El-Dževzijje 2011, 169–170). Ibn Qayyim has taken the folk conceptions in the question of prettiness or ugliness of child, e.g. if a mother during the sexual intercourse thinks on persons she loves and misses them, a conceived child will look like them: "Nature is being transmitted, and that is the fact that everyone knows" (El-Dževzijje 2011, 173). He refers to Hippocrates and his *Book on Children in Mothers' Wombs* without mentioning its title and paraphrases its content as follows: "If there will be more male seed than female seed, the child will look like the father. If there will be more female seed than male seed, the child will look like the mother. He says: the seed descends from all body organs. From the healthy goes healthy seed, and from the ill ill. He says: Bald-headed give birth to bald-headed. The wise give birth to wise, and powerful to powerful" (El-Dževzijje 2011, 172). When compared the attitudes of Ibn Qayyim and those attributed to Hippocrates, we can see a difference in the conception of power versus number of semen, which decides of which sex or resemblance will a child be. Further observations connect-

ed to Ibn Qayyim's linking-up to the writing *De victu* will be presented in the Discussion.

Regarding genetic research there are current guidelines in Islam issued in Kuwait in 1998: "Islam must move to the fore in genetic research. Recourse to genetics to cure hereditary or acquired pathologies does not contradict the acceptance of divine will. Research treatment and diagnoses on the genetic condition of a person must be performed with the previous and free consent of the individual concerned [2] or, if incapable, of the guardian. If consent cannot be obtained, the research may be carried out if it brings about a clear benefit for the health of the person. Every genetic diagnosis must be treated with confidentiality. Genetic research must never have priority over the rules of the Shari'a and respect for human rights" (Atighetchi 2007, 239).

In the context of today's embryology and genetic engineering is the question of the sex of the offspring formulated in connection with medical indication of sex selection, but also in relation to non-medical individual wishes of future parents to have their offsprings of balanced male and female sexes [3] or they want to choose a specific sex because of personal sympathy or fulfillment of the religious requirement of keeping the genealogy through a male offspring. In antiquity and continually and in the Middle Ages, there was a conception, that a particular sex in the semen of men and women predominates (semen of man and women combine to form the embryo of a particular sex); we could in the context of today's possibilities of PGD talk about its analogy in Ericsson's method (Beernik, Dmowski, and Ericsson 1993, 382–386), which also works with some thoughtful dominance of elements of complex genetic material: "In Ericsson as sperm passes through albumin gradient, the differences in mass between the X and Y chromosomes cause the females dragged down by the weight of the extra 'leg' of the X sex chromosome. The method has a 70–72 % success rate [4] for boys and a 69–75 % success rate for girls" (Dezhkam, Dezhkam, and Dezhkam 2014, 289). Use of isolated sperm in women who were taking clomiphene citrate resulted in about 70 % female births. The other method to select the sperm sex is Micro Sort method. According to Shia jurisprudence there are no obstacles to use PGD and Ericsson method, which are accepted by the U. S. Food and Drug Administration (FDA). Authors Dezhkam L., Dezhkam H., and Dezhkam I. see the only problem when dealing with the use of Micro Sort and Ericsson method, and that is the possibility of committing the sins of unlawful sight and unlawful touch (Dezhkam, Dezhkam, and Dezhkam 2014, 290).

Contemporary Islamic religious publications for both expert and lay believers point out that a woman was wrongly condemned in the past for giving birth to a daughter instead of a son because she cannot make a decision about the sex of a child. She does not bear any responsibility in this question and therefore there's no sense to scold her for that and attack her (Jakubović 1997, 16). This is explained using the cytogenetic explanation that the female egg contains only the chromosome X, whereas the sperm can be either chromosome X or Y. The female (XX) is born if the egg is fertilized with the X chromosome sperm; the boy (XY) is born when an egg is fertilized with sperm with Y chromosome. The responsibility for the sex of the child is therefore fully on the male sex chromosome (Taslaman 2016, 173). To keep the principle of consensus on science and faith, the authors point out to the Qur'anic text: "that He created pairs, male and female sexes from one sprouted drop of seed" [5] (Qur'an 53:45–46). They deduce that the Qur'an claimed 1400 years ago that the sex of a child depends on the genetic basis of sperm, which until recently has not been known to science.

4 Discussion

The basic premise of human reproduction in Islam is the institution of marriage, the contractual relationship of men and women, respectively man and a maximum of four women, who is he able to provide the same standard, to secure their housing and nutrition. The man has to choose a suitable wife, who will be a good educator for their common children. The child has the right to a Muslim name and religious education, especially to the knowledge and memorizing of the Qur'an (Hájek and Bahbouh 2016, 49). Allah gives a baby to spouses as a gift. Allah is also a Donor of reason and consequently also the achievements of science that serve the benefit of humanity. Therefore, Muslim spouses are invited to use the achievements of science also in the area of reproduction.

Medieval conception of formation of sexes presented in Ibn Qayyim's work takes over the antique conception of existence of two types of semen: male and female. The existence of female semen is presented in several works of Hippocratic tradition: *De victu*, *De morbis*, *De mulierum affectibus*, *De natura pueri*, and *De genitura (De semine)*. Next to this conception antiquity had also another one: that the father is the only procreator, and the mother plays the role of keeper and nourisher of his seed. The author of *De victu* believes, that fertilization is possible only in one day per month; he writes on the changes of humidity of the uterus on which the success of the fertilization depends. He describes the inception of new human being as a mixture of two parental seeds, that

could be of both sexes (Hippokrates 2012, 524–525). Depending on the process of genesis of new being, the author of *De victu* speaks in its 28th chapter of three types of males, and later in 29th chapter of three types of females that can be formed (Hippokrates 2012, 469–471). Here we can find also the origin of Ibn Qayyim's conception of predomination (in his words: overriding and overpowering) of male and female semen, which determine the sex of conceived embryo. There is a dualism of the strong one, and the weak one. This dualism, or better to say, oppositeness is also present in the *De victu's* explanation of the nature of males and females: while males lean towards fire and are growing because of the food and diet that are dry and warm, females lean towards water and are growing thanks to food and diet that are wet, cold and mild [6]. At the end of our analysis of Ibn Qayyim's inspiration by the doctrine of *De victu* in the topic of the origin of sexes we would like to mention, that to already introduced particularities, diet has to be added. In *De victu* it is said, that concrete diet can influence the formation of male or female sex in embryo. Analogously, Ibn Qayyim speaks of the diet as a key factor in the issue of prettiness or ugliness of future child.

In order to encourage reproduction in spouses who are unable to conceive the offspring naturally, Islam allows to use ARTs to the extent that complies with the requirements of religious writings and conclusions of Islamic scholars in fiqh and medicine. However, it is interesting that on the list of great sins, which includes the change of Allah's creature in terms of intervention in the body for beauty and wearing a wig, are according to the magazine *Preporod* of Islamic community in Bosnia and Herzegovina still in 2003 both usage of ARTs, cloning and sex selection (without mentioning medical indications connected to X-linked diseases) (Sedić 2003, 3). This example clearly shows, how big is the difference between Islamic scientific perception of specific religious problems and between their interpretation by mullahs to laity. Although there are always some exceptional cases of Muslim infertile spouses who are interested in the attitude of religious authorities to state-of-the-art in ARTs, the communities of Muslim-believers are generally much more reticent and more conservative in their attitudes. But to be fair, we have to mention that in 2017, in this same magazine *Preporod*, an interview with the distinguished Bosnian professor of tafsir, Enes Karić, was published, and Karić has significantly shifted the paradigm of the connection between the conclusions of the historical Islamic authorities and the present world presented in this magazine when he said: "Of course, we need traditions, history, and historical studies, we also need to study the past, but in no way in the manner to get drunk on the past and that we out of this 'drunkenness' project a falsified

present or future. I have never considered Islamic authorities, such as those of seven centuries ago, to solve our present needs" (Tucaković 2017, 14).

The current attitudes of Islamic scholars to the use of PGD have already been highlighted in our study in 2015 (Zaviš 2015, 190), where we have referred to a high positive PGD rating for eliminating the genetic causes of a child's severe diseases, but also to a warning against the use of PGD for choosing the sex of the child and eliminating embryos of the undesirable sex. Islamic scholars consider it a particularly controversial question of the use of PGD in the creation of "rescue siblings", whose life is justified only by the task of providing assistance in the form of donation of needed necessary body organ or a tissue to already living, but fatally ill sibling. A special place in this context have bioethical debates of Muslim scholars on the situations, when the elimination of the hereditary disease is conditioned by the choice of the sex of the embryo, as in the case of DMD (*Duchenne muscular dystrophy*), haemophilia A and B; in general, we can speak of a group of *X-linked Mendelian recessive diseases*, which can be prevented right by choosing a female embryo. Most Muslim scholars agree on the use of disease prevention. Already at the first international conference on bioethics in the Muslim world, which took place in 1991 in Cairo, the PGD was its main theme, and out of eight factual conclusions, directives, two (no. 4 & 5) relate directly to the subject of our analysis:

Sex selection is allowed if a particular gender is predisposed to a serious genetic disability. One of the first couples to choose this technique was hoping that their child would avoid a lethal hydrocephalus disease that is conditioned by X-linked heredity that almost always affects only boys. Embryonal selection of sex allows the elimination of a variety of X-linked hereditary diseases including haemophilia, DMD and fragile chromosome X syndrome.

PGD aimed at changing the hereditary features of pre-embryos (e.g. hair and eye color, intelligence, body height), including sex selection, is prohibited (Nordin 2012, 256).

Sachedina, however, points out that, despite the positives of the PGD in the prevention of diseases, the phenomenon of medically unindicated sex selection of a child has been expanding in many countries, which he does not consider moral. The preference of boys in some cultures has led to the systematic destruction of female embryos, which is a disruption to the fundamental determination and respect of the dignity of human beings according to the Qur'an and Hadith, which apply to all human beings without the preference of

one of the sexes. According to Sachedina in Islam, there is no justification for the selective abortion intervention based on the choice of the child's sex (Sachedina 2009, 108). Sex-selective abortion is in Islam essentially in general strictly forbidden and therefore there is no need for further discussions on this topic (Dezhkam, Dezhkam, and Dezhkam 2014, 289).

The ever-present preference of male offsprings in Muslim spouses who undergo PGD has been analysed in 2015 by the authors Chamsi-Pasha and Albar. They state the following preference criteria for male offspring: ensuring continuation of the family, support and care for aging parents, raising family standards, maintaining family assets, and possibility of making specific religious rituals. Fatwa released in 2007 by Islamic World League – Islamic World Association, however, prohibits sex selection practices for social reasons. Conversely, medically indicated sex selection is allowed. However, some Sunni scholars allow exceptions to the admissibility of medically unindicated sex selection, and that is in the case of a woman who has given birth to five or more daughters, while her husband still insists on a male offspring (Chamsi-Pasha and Albar 2015, 110).

In Shi'ite Islam, which is open to new ARTs because of the greater flexibility of their theological-legal system than the Sunni one, it is even envisaged to provide third-party donation. Tappan points out that PGD is needed right in such cases because it is necessary to have knowledge of cardiologic, psychological, oncological diseases, diabetes, etc., to which the offspring has the right to be alerted to be able to count with their treatment. Tappan, however, based on his research in Iran, has concluded that none of the Iranian clinics had a genetic information storage system. He states: "*If clinics are concerned about the archiving of donor information in case their child summoned to court on inheritance, this lack of information could have a detrimental effect on the lives of children*" (Tappan 2012, 111).

5 Conclusion

The Human Genome Project with an international effort to map and sequence the entire human genome in 2003 has alerted all religious and ethical commissions, authorities, because the first feelings that it has aroused in the public was the fear of abuse. A huge relief has provided information on the use of genetics to prevent and treat disease conditions before and after birth. Islam has welcomed and supported the idea of using the prevention of hereditary diseases, which can also be done by choosing the sex of the future child. Genetic prevention and genetic treatment (see Sabatello 2009,

198–199) are the forms of helping humankind which was created for serving and worshiping Allah, the Donor of life and the Donor of reason, which his servants are obligatory to use, support and develop its achievements. We have seen in our analysis of the topic of sex selection in the history of Islam that it has gone through a lot of changes both regarding the attitude towards female sex, towards responsibility of women, conceptions of formation of female sex, to current possibilities to select particular sex on the basis of medical indication or non-medical motives, wishes or religious com-

mitment of future parents. Sex selection based on egoistic motives of future parents is not considered to be an argument for the interruption of conceived child of unwanted sex in Islam. Modern religious authorities in Islam strongly support such current and prospective research in genetics, which will bring health, and in the same time will not be misused on fulfilling the selfish ambitions of wealthy individuals regarding reproduction, ARTs, and sex selection, which are contradictory to Allah's will.

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Notes

- [1] PGD – *Preimplantation Genetic Diagnosis* – preimplantation genetic diagnosis of embryos or oocytes before *in vitro fertilization* (IVF). It is used to identify DNA mutations that produce genetically transmitted diseases. The PGD also allows recognition and selection of the future child's sex out of medical (e.g. inheritance of diseases in the lineage of male offsprings, so-called x-linked diseases when the female sex of the child is chosen) and non-medical reasons (e.g. for religious reasons, for the family to have a male heir and continuator).
- [2] Muslim patients use to consult their health condition and decision to undergo particular medical procedure, examination or treatment with their family members before giving an official informed consent. Gynecological or sexual issues belong together with end-of-life issues to the most sensitive in Muslim patients (Daar and Al Khitamy 2001, 62).
- [3] According to Valjan this is a justified request when there is a wish to ensure family balance and it has educational significance. When family consist of the parents and the offsprings of different sexes, it reaches better educational usefulness and also psychological balance. However, parents should never feel guilty, if this wish of children with different sexes occurs in them if they are open to accept the conceived child no matter of what sex, without psychological and abortifacient rejection of this child. Responsible parenthood should be planned and be without any signs of egoism. The way, how would parents like to reach their planned family depends only upon them, and the state where they are living should not, or has no moral right to involve into their decision making (Valjan 2004, 228, 230).
- [4] There are several expert polemic studies on this height of rates in males in Ericsson. Some web sites of the ARTs clinics show lower percentage prediction.
- [5] Arabic translation according to Qur'an in Arabic and Bosnian edition (Sarajevo: AA): "*ve ennehū haleka-zze-vdžejni-žžekere ve-l'unšā n'min nutfetin izā tumnā*".
- [6] This antagonism of dry and wet, warm and cold, male and female reminds us of the Chinese dualism represented by the basic principles of the world *Yin* and *Yang*, where *Yin* is female, wet, cold, dark, connected to water and soil, and passive, while *Yang* is male, dry, warm, bright, connected to fire and wind, and active.

References

- Adnan, Gunawan. 2004. *Women and The Glorious Qur'an: An Analytical Study of Women-Related Verses of the Sūra An-Nisa*. Göttingen: Universitätsverlag Göttingen.
- Atighetchi, Dariusch. 2007. *Islamic Bioethics: Problems and Perspectives*. Dordrecht, Netherlands: Springer.
- Bearnink, Ferdinand J., Paul W. Dmowski, and Ronald J. Ericsson. 1993. "Sex Preselection Through Albumin Separation of Sperm." *Fertility and Sterility* 59 (2): 382–86.
- Bukhari, Muslim, Malik, Dawud Hadith Collection. 2018. Accessed August 20, 2018. <http://www.quranexplorer.com/hadithebook/english/index.html>.
- Chamsi-Pasha, Hassan, and Mohammed Ali Albar. 2015. "Assisted Reproductive Technology: Islamic Sunni Perspective." *Human Fertility* 18 (2), 2015: 107–12.
- Daar, Abdallah S., and A. Binsumeit Al Khitamy. 2001. "Bioethics for Clinicians: 21. Islamic Bioethics." *Canadian Medical Association Journal* 164 (1): 60–3.
- Dezhkam Lotfollah, Dezhkam Hakime, and Iman Dezhkam. 2014. "Sex Selection from Islamic Point of View." *Iranian Journal of Reproductive Medicine* 12 (4): 289–290.
- El-Dževzije, Ibn Kajjim. 2011. *Ukrasi novorođenčeta*. Sarajevo: Bookline.
- Fagová, Lucia. 2017. "Využitie metód umelého oplodnenia podľa islamského práva." Master theses, Univerzita Komenského: Evanjelická bohoslovecká fakulta.
- Hájek, Marcel, and Charif Bahbouh. 2016. *Muslimský pacient: Principy diagnostiky, terapie a komunikace*. Praha: Grada Publishing.
- Hippokratés. 2012. *Vybrané spisy I*. Praha: Oikoymenh.
- Jakubović, Ibrahim. 1997. "Odgovornost muškarca za (spolno) obilježje djeteta." *Preporod* 618: 16.
- Korán. 2001. Translated by Helena Hoghová and Livia Muntágová. Žilina: Knižné centrum.
- Kur'an s latiničnom transkripcijom i prijevodom na bosanski jezik*. 2018/1439. H. G. Prijevod značenja Kur'ana na bosanski jezik: Besim Korkut. Saradnici na projektu: Sejo Redžić, Munib Ohranović, and Slamir Kaplan. Sarajevo: AA.
- Nordin, Musa Mohd. 2012. "An Islamic Perspective of Assisted Reproductive Technologies." *Bangladesh Journal of Medicine Science* 11 (4): 252–57.
- Sabatello, Maya. 2009. *Children's Bioethics: The International Biopolitical Discourse on Harmful Traditional Practices and the Right of the Child to Cultural Identity*. Leiden: Martinus Nijhoff Publishers.
- Sachedina, Abdulaziz. 2009. *Islamic Bio-medical Ethics: Principles and Application*. New York: Oxford University Press.
- Sedić, Fuad. 2003. "Veliki grijesi. 105. Mjenjanje Allahovog stvaranja." *Preporod* 748: 3.
- Tappan, Robert M. 2012. "More Than Fatwas: Ethical Decision Making in Iranian Fertility Clinics." In *Islam and Assisted Reproductive Technologies: Sunni and Shia Perspectives*, edited by Marcia C. Inhorn and Soraya Tremayne, 103–129. New York: Berghahn.
- Taslaman, Caner. 2016. *Kur'an nenadmašni fenomen*. Sarajevo: Dobra knjiga.
- Topoljak, Sulejman. 2010. *Socijalne kategorije ljudi u svjetlu islamskog učenja i pedagogije*. Novi Pazar: EL-Kelimeh.
- Tucaković, Ekrem. 2017. "Intervju: Akademik Enes Karić." *Preporod* 3/1085: 12–14.
- Valjan, Velimir. 2004. *Bioetika*. Sarajevo, Zagreb: Svjetlo riječi.
- Zaviš, Monika. 2015. "Bioetička problematika v religionistickom kontekste: súčasný postoj šari'e k vybraným metódam asistovanej reprodukcie." In *Bioetické výzvy a súčasnosť*, edited by Zlatica Plašienková, 181–192. Bratislava: Univerzita Komenského.