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Research Paper

The Overlapping Melee between Natural Feeling and Science as the Determinant of Marriage Partner: An Ethical Interrogation of Prenatal Diagnosis

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Abstract
Most often than not, love reigns supreme in the choice of life partners with little attention given to compatibility in terms of genotype and the likes. This means of selection is almost as old as man himself. It has been the case since the era of our forefathers especially in Africa, where choices of their life partners were made through natural feeling that is hinged basically on the physical appearance and character of the woman. No serious consideration was given to medical compatibility due to the fact that medicine was still at the crude stage. This accounts for the multiple mortality rate experienced as a result of sickle cell anemia (SCA) hidden under the guise of incurring the wrath of the gods. The advancement in medicine in our contemporary world has helped in reducing these burdens by opening the eyes of the intending couples to consider the genotype and genetic make-up in the choice of life partners. The paradigm seems to be gradually shifting from the use of natural feeling to scientific consideration in the choice of partners. The question then is: what should be the major determinant in the choice of life partner, natural feeling or science? The crux of this paper is to cut loose the web of entanglement that could either make us settle for the blind crude choice of partners or succumb to the sophistication of medicine or making a synergy between science and nature. The method the paper intends to employ shall be analytical.

Keywords: *Amniocentesis, chorionic villus sampling (CVS), coelocentis, fetoscopy, marriage, prenatal diagnosis (PND).*

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I. Introduction

The advancement in medicine and science in general has intensified efforts to ensure that the general public is being sensitized on the need to know their genotype compatibility with their partners before consenting into marriage. This awareness would help to forestall the possibility of raising children that would pose constant health challenges to the family. With this mindset, there could be heavy reliance on medicine and science which could inhibit the freedom of making a choice that will be devoid of the fear of the consequences. With or without awareness of one's genotype, the question is: should medical quest prevail over natural feelings in the choice of life partner?

The importance of premarital genotype screening has helped in averting the possibilities of families giving birth to sickle cell anemia (SCA) children which may pose a serious difficulty to their growth and medical conditions. It must be noted at this juncture that the likelihood of couples running into some medical cases such as Down syndrome, even after the premarital genotype screening especially in the developing world still holds sway. How would these types of scenario be avoided? Should the baby be disposed or lured to death after delivery? Is there any means of preventing such medical anomaly before the baby is born? Should prenatal diagnosis be therefore encouraged or discouraged?

In attempting to answer the questions raised above, this paper is saddled with the objective of examining very briefly the meanings of prenatal diagnosis and some of the prenatal diagnoses so as to guide our thought in analyzing the possible ethical issues that could arise between science and natural feelings in the choice of life partners. The paper also examines the nature of marriage and the likely conditions that ought to be before consent is reached. This would avail us the opportunity to examine the arguments in the justification of the position to take. The paper will conclude by querying the importance attached to medicine to the detriment

of natural feelings in the choice of partners, and argue this as the possible reason for the disconnect we find between husband and wife.

PRENATAL DIAGNOSIS(PND)

The curiosity that prompts us to examine prenatal diagnosis is to know if the condition of a conceived fetus can be checked for defect and possibly corrected before delivery. A diagnostic test can be used to confirm a chromosome abnormality such as Down syndrome or an inherited condition in the baby. Prenatal refers to any time during the pregnancy (Government of Western Australia, 2020). It is hoped that prenatal diagnosis gives assurances to the mothers that their fetus is not affected by any chromosomal or genetic disorder. Prenatal Diagnosis is a technology that has been put in place in order to attend to the genetic disorders inherent in pregnancy through screening and diagnosis of the fetus. The baby is examined by the doctor before birth by monitoring the growth so as to see if there are complications or problems with the foetus. The following prenatal testing shall be briefly examined:

Amniocentesis

This medical procedure is done by withdrawing some amniotic fluids from the amniotic sac surrounding the fetus. Amniotic fluid is the fluid that surrounds and protects the baby during pregnancy. The intention for this procedure is to check for chromosomal abnormalities, fetal infections as well as sex determination. A hollow needle is inserted into the uterus to screen the abnormalities in the developing fetus. This prenatal procedure when carried out helps to avoid giving birth to children with chromosome abnormality (Down syndrome and sickle cell), neural tube defects (spina bifida and anencephaly) and genetic disorder (cystic fibrosis). The dangers commonly associated with this medical procedure are that it could minimally cause miscarriage, bring injury to the mother or baby, it may cause infection or induced labour. It is usually done between the 15 to 18 weeks of pregnancy (Robinson, 2020).

Chorionic Villus Sampling (CVS)

According to Kulkarni and Vengalath (2014), the procedure is done at 8 to 11 weeks of gestation. Chorionic Villus Sampling is another form of prenatal diagnosis to determine the genetic or chromosome disorders in fetus. This procedure is quite different from that of amniocentesis. A thin plastic tube is passed through the vagina and cervix so as to reach the placenta in order to remove a sample. The test helps to detect birth defects, genetic diseases including the fetus genotype, and other problems during pregnancy. Just like amniocentesis, chorionic villus sampling also has the possibility of leading to miscarriage and lesser risk of infection.

Coelocentesis

This is a new method that surfaced as a result of guiding against the possibility of miscarriages that could occur when amniocentesis and chorionic villus sampling methods are used in prenatal diagnosis. Coelocentesis is a new technique that avoids the puncture of the amnion which may likely lead to miscarriage. The coelomic fluid is often aspirated under the guidance of ultrasound scan (Ross et al., 1997). It is usually performed after 10 weeks of gestation.

Fetal blood sampling

It is often referred to as fetoscopy (Brynn and Melissa, 2019). This is a medical technique for removing small amount of blood from the fetus during pregnancy. It is carried out as part of diagnosing, treating or checking possible problems with the unborn baby at certain times during the pregnancy probably the 18^{th} week or later. The problems it helps to detect include: chromosome abnormalities, anemia, Rhesus disease, oxygen level of the baby and infection. The risks inherent in order techniques are also possible in the fetal blood sampling.

Ultrasound

This is done at any stage of the pregnancy and it provides an image of the baby in the womb. A gel is applied to the abdomen to allow sound waves pass from the ultrasound into the womb. For this to be effective, the bladder should be comfortably full to get a clear image. The result is seen immediately via the screen or monitor, and the paper result can be given or sent to the doctor as the case may be.

UNDERSTANDING MARRIAGE

It is presumed that every married couple desires the consummation of the marriage with the gifts of healthy children. Regardless of the culture one emanates from, the society naturally expects to celebrate with those who have accepted to be united as one body after some few months or even years. These celebrations

could come in forms of baby showers, christening or the dedication of the newborn, depending on one's religious affiliations. The experiences we often see between two people who had let go of their relationships or decided to ignore all medical incompatibilities and went ahead with the union which eventually led to given birth to babies with congenital defects prompted us into writing this paper. It would not be out of place to have a holistic understanding of marriage before delving into ethical analysis of prenatal diagnosis.

Regardless of the religion or custom, the institution of marriage is the foundation for family. Marriage serves as the bedrock for having a family. This accounts for the reason why marriage is seen as a contract or alliance between a man and a woman. In *The History of Human Marriage,* Westermarck defines marriage as:

> a relation of one or more men and women which is recognized by the custom or law and involves certain rights and duties both in the case of the parties entering the union and in the case of children born of it (Westermarck, 2012).

In Westermarck's definition, we would discover that whatever is sealed between the man and the woman is backed by law or custom of the society. As it were, marriage permits sexual relationship between the husband and the wife which is expected to result into giving birth to and rearing of children. The upbringing of the children, who are the necessary gifts to the marriage, is the responsibility of the parents. This is a pointer to the words of Majumdar and Madan (1956) in their book *An Introduction to Social Anthropology* where they defined marriage as "a biological satisfaction (that of sex) and a psychological satisfaction (that of having children) on individual plane, and on the wider collective plane, it ensures a two-fold survival, that of the group and its culture". After a careful look at this definition, we would see that there was a stress on the importance of sex, children and the survival of the children. It would therefore mean that the biological union which is a part of marriage does not only intend to produce children but that the children produced ought to survive. Hence, there is the need to either ensure that the intending couples are genetically compatible or access the available prenatal procedures in order to have healthy children. All hands must be put on deck in terms of efforts, resources and discipline, to ensure that the children are well raised and enjoy good access to the means of attaining sound health.

So many perspectives have been given to the understanding of marriage between a man and a woman. It is viewed as a biological and juridical union that is more *interpersonal*, *spiritual* and *existential* (Komanchak and Dermot, 1999). These three words are very key in the analysis of the Christian marriage. For the sake of this write-up, working with the mindset that we do not intend to examine the theology of marriage, we shall consider briefly only the first dimension. The interpersonal life between the wife and the husband is very essential because marriage is living together, the sharing of the life-supporting tasks between a man and a woman who are married together in the eyes of the church and the community. This marriage is borne out of a decision they freely made without any duress, promising each other to stay together in love until death do them part. With this, offspring are expected to be produced and providing those things necessary for the development of the children. This is why the Code of Canon Law describes the primary purpose of marriage as the procreation and education of children (Canon 1013). As a matter of fact, it is argued that the biological sexual union between a man and a woman in marriage was considered the most essential ingredient. The sexual knowledge of each other consummates the marriage. The marriage gives fullness of life in which the children are gifts to the couple. Little wonder Doms (1939) refers to marriage as the "two-in-oneship" of the spouses. This two-in-oneship of the spouses exists as soon as marriage is celebrated, but it is not consummated until the marriage act takes place. By marriage act, he refers to the specific *actussecundus* (literally means the second act)of marriage. In this act the partners really become one, and thus make real and actual for themselves their marital two-in-oneship. In a simple way, Doms (1939) meant that mutual help and procreation are the two-in-oneship and they are the ends of marriage. The completing of this two-in-oneship is orientated naturally to two remote ends, one of which is on the personal level, the other on the biological level (Cahill, 1989).

In furtherance to the above, for the two-in-oneship in marriage to be attainable, the couples-to-be ought to be involved in each other. They are to fulfill certain conditions so as to depict that the consent given was not done out of any inhibition or restrain. In the light of this, we shall highlight some of the important conditions given by Cicurel Deborah in the choice of life partner: "a sense of humour; no game-playing; a strong friendship; reliability; romance; sexual attraction; a sense of fun; shared values; they get on with your family; the ability to talk about the future together…" (Cicurel, 2015). A critical look at these conditions will make us discover that they have been carefully selected because choosing a life partner is one of the most important decisions anyone could make. The conditions she discussed are not scientifically inclined but borne out of natural feelings. If these conditions are meticulously put into consideration in the making of the choice, then it would be easy to discharge the "two-in-oneship" advocated by Doms (1939). A searching look at these conditions of marriage would not really differ from that found in other religions that solemnize the union between two partners.

In other religions, we can hardly notice any disparity with the Christian beliefs in the essence of marriage. Religions such as Islam and Traditional religion place an important value on sex and companionship, and advocate marriage as the foundation of families. In Islamic religion for instance, it is believed that Almighty Allah created men and women as company for one another so that they can become parents. For the Muslims, marriage makes an incomplete human being a complete one. As the Holy Quran succinctly puts it: "it is He who created you from one soul and created from it its mate that he might dwell in security with her…" (Quran 7:189).

ETHICAL ISSUES IN PRENATAL DIAGNOSIS

The ethical issues that could possibly be identified range from the inherent risks found in the medical procedures and the justifications one might intend to give for the use of these procedures in attaining a desired goal. In an attempt to advocate the supremacy of natural feelings or love in the choice of life partner over medical procedures or science, the need to consider the safety of these prenatal diagnoses deserves mentioning. When these procedures were analyzed above, it was mentioned that they are relatively safe. No matter how minimal a risk is, the need to take it very seriously looms because one cannot guarantee when precisely this risk would happen. None of these risks associated with any of the procedures can be swept under the carpet. There is no gain-saying the fact that the benefits these procedures would bring such as helping us in detecting and treating problems during the pregnancy cannot be over-emphasized. The necessary questions that could come to mind are: should we only be concerned with the end result of the procedures without minding the potential risk when it is carried out? Should we damn all the consequences of the procedures in a bid to secure a healthy future for the unborn baby? Should abortion be regarded as a component of prenatal diagnosis in taking care of the deformed or unhealthy fetus? In having a shot with the questions, the need to review the enumerated risk in the medical procedures in contradistinction with the intention for approaching the procedures become necessary. This would help us to know if the benefits outweigh the likely risks.

In the different approaches of prenatal diagnosis or testing we earlier mentioned, we did say that some of the aforementioned risks are minimally inherent in the procedure. For instance, the likelihood of any of the procedures resulting into miscarriage is about 1%. Shall we because of this minimal risk jettison a procedure that could forestall future medical anomaly in the child? How sure are we that the procedure is absolutely necessary? What happens if the procedure undergone confirms no defects in the fetus and miscarriage eventually occurs? How do we know the actual one that would or would not lead to miscarriage or other possible risks? If the procedure confirms the unhealthy state of the fetus as the case of having an SS genotype, should the baby be kept or one opts for an abortion? Should we terminate an innocent life or bring a child with a disease condition that has the tendency to experience so much suffering to the world? How sure are we that the termination will not be surrounded with complications?

With or without the obvious benefits that one could achieve with the use of prenatal testing, there is the necessity to ensure that the service users do not embrace the procedures under the veil of ignorance. The intricacies involved should be clearly spelt out to them to enable them take discerned decisions. This boils down to the fact that the autonomy of the candidates becomes sacrosanct irrespective of the underlining favour the caregiver might intend to give the patients. If the service users are fully informed of the benefits and risks involved, this would go a long way to lighten the burden off their minds. It is pointer to the assertion of Heather Skirton et al. (2015) that the "European guidelines on the provision of prenatal-testing should stress the need for prenatal testing to be offered without coercion, and also that provision of accurate, understandable information be provided to ensure a fully informed choice" By implication, having a prenatal test is a decision for you and your family. Even when nothing could be done concerning a defective fetus, it would at least prepare the family for the eventualities they might experience after the birth.

The principal purpose of prenatal procedures is to "enable meaningful reproductive choice with regard to parenting or avoiding a child with a serious disorder or disability (Hazar et al., 2016)." It must be called to mind that there are medical or genetic conditions that run in the family. Those pregnant mothers with family medical history are always filled with anxiety and eager to go for medical diagnosis in order to know the state of health of their babies. Families with genetic conditions most often, do not feel good about their situation and would have craved for a better life if the opportunity were to present itself. This is because "negative messages about the value of people with genetic conditions are sent out, and these make them and their families more vulnerable to discrimination, stigma or abuse" (Nuffield Council on Bioethics, 2017). If the prenatal diagnosis is accessed, it would keep the families fully informed about the present medical condition of their foetus and the next line of action to take. Encouraging prenatal diagnosis to a reasonable level might be protecting the future of the unborn. Ordinarily, if an anencephalic or trisomy or Down syndrome baby were to see his future to make him know the gravity the genetic impairment would have on him as he grows, he would probably have opted for another chance or not to have been born at all. If we are to be futuristic, it will be difficult for anyone to genuinely choose a life of suffering and incompleteness that may result out of genetic condition. Every sane

person desires a good life and not a life of vulnerability enshrouded in stigma and abuse. If a foetus is diagnosed of a significant medical condition that defies treatment, the family might be enmeshed in a deep ethical quagmire in taking decision on why the mother should continue to nurse the pregnancy.

The prenatal diagnosis which are meant to salvage the future of the unborn of chromosomal or genetic conditions are themselves not completely devoid of defects and consequences. If the medical diagnosis that intends to cater for the future of the unborn ends up creating defects, then it could be worrisome. As it were, certain congenital defects known as "limb deficiencies or limb reductions defects" (Centre for Disease Control, 1995)" have been reported among infants whose mothers underwent chorionic villus sampling. Study has shown that resultant effect of this on mothers is very minimal in which the inherent value in it might be worthy of tempting one to embark on it. Severity of the defects is based on the timing of the prenatal diagnosis. This accounts for the reason why we placed so much emphasis on the best time to approach each of these prenatal diagnoses during the pregnancy. The possibility of approaching any of these procedures prior to the stipulated time might lead to the adverse effects. The older a woman is, the more prone the baby she carries to chromosomal and genetic condition. Hence, when a woman is over 35 years of age, there is the need to seek medical advice during pregnancy especially when she is aware of her family medical history. The introduction of coelocentesis has helped in forestalling the issue of miscarriage that was minimally present in amniocentesis and chorionic villus sampling (Ross et al., 1997). In order to avoid the risk in amniocentesis and chorionic villus sampling, one has the option of embracing coelocentesis.

Ethical Analysis of Prenatal Diagnosis as a Condition for Making a Choice of Life Partner

Having attempted to expose some of the issues that are inherent in the use of prenatal diagnosis, it becomes imperative to examine how the procedure could be adopted as a condition in the choice of life partner in marriage. One important point to note here is that prenatal diagnosis helps the couples to know the health condition of their babies so as to either brace up for the challenge ahead or take an informed decision. It is suggested that the prenatal diagnosis would lift the inhibition that genotype incompatibility has placed on a man and a woman who naturally have feelings for each other and had to bury such feelings in order to avert the consequences on their babies. As it were, no sane husband and wife would naturally want to take the risk of giving birth to babies with chronic health challenges such as sickle cell, Down syndrome, anencephaly, trisomy etc.

Naturally, every action taken should tend towards the good of the whole. This may betaken as the reason the utilitarian would argue that, it is more cost effective to terminate the affected fetuses so as to reduce the socio-economic and emotional consequences of the disease (Fadare, 2009). If one had experienced the pains and agony of a sickle cell child, one would definitely wish to watch such from a distance rather than having one as a child in his homestead. Most of the developing countries do not have the medical sophistication to avert the chance of mothers giving birth to sickle cell babies and also the right way of managing such patients. The developed countries have introduced pre-implantation genetic diagnosis (PGD) which enables only genetically healthy embryos to be transferred to the uterus (Fadare, 2009). It must be noted that this particular medical practice is not without its own ethical quagmire such as being seen as a greenlight to select the traits of the embryo and the destruction of embryos.

The need to have the intending parents fully informed becomes very imperative. It would guide them to make free and informed choices about when they are to become parents, how many children they are to have, and whether or not to make use of technologies such as prenatal testing. It would also help them to take decision on the choice of their partners even in the face of incompatibility. This is commonly referred to as "reproductive autonomy" (Nuffield Council on Bioethics, 2017). In order to genuinely assist the intending parents and to completely unveil them of the possible medical ignorance, medical experts are expected to be a part of the marriage counselling team. In the western world, this has been the practice unlike in the developing countries that the responsibility is left basically to the discretion of the ministers of God, who most often are not medical experts. If the measure is put in place, science might be of great service in corroborating the stance of natural feeling in the choice of marriage partner. Whatever the outcome of the pregnancy the mother might end up carrying, they would have been adequately informed on what lies ahead.

The cures for some of these genetic and chromosomal diseases have not been found. This has condemned us to engaging in the termination of the lives of the infected fetuses which violates the principles of the right to life (McLean, 1997). We are caught between either respecting the right to life of the genetically conditioned fetus or putting an end to the growth. Unlike eugenics, prenatal diagnosis does not have the intention of selecting the traits of the genes of fetuses before conception takes place, but it wades in so as to check if the fetus is genetically or chromosomally conditioned. The plausibility lies with either to unknowingly allow the nurturing of a diseased fetus with so many potentials of suffering to be born; or undertaking the prenatal diagnosis to brace up for the chromosomal or genetic impairment which may enable the baby to be saved from likely suffering by terminating the fetus especially the ones without genetic cure/treatment. There

are cases of households with Down syndrome children who are always sad about their situation and cannot make bold to identify with such children in the public. They would rather prefer to always lock them up at home alone while the rest of the family members are busy with their daily hustle and activities. Such children, having being locked up at home alone would not even have access to the whole house but are confined to a particular room. Although there are families who have taken it upon themselves to give such children a good life by enrolling them in special school that could train them to be relatively fit into the society.

II. CONCLUSION

Taking a cursory look at the above discourse, we would discover that the paper drew our attention to the fact that the role of natural feelings in the choice of life partner has been subsumed in the prominence of science or medicine. The way one naturally feels about his/her partner might hit a stumbling block if it does not correspondent with scientific compatibility. The possibility of *love at first sight* leading to marriage is borne out of sheer luck, if and only if their genotypes match, except they want to engage in medical gamble. The questions then are: which of these considerations should take prominence in the choice of life partner: natural feelings or scientific compatibility? Should there be a synergy between the natural feelings and science in order to determine the condition for the choice of life partner in marriage?

If marriage is based majorly on compatibility with little emphasis on natural feelings, there is the tendency for the man and the woman not to be naturally connected but to consent due to fear of the unknown. Some relationships that were based on genuine love and natural feeling have been halted having found out that their genotypes do not match. Little wonder then that the importance given to medicine/science over natural feelings could be seen as the reason for the disconnect between the husband and wife, which may eventually lead to separation. We cannot deny the fact that the priority given to science or medicine has gone a long way to curtail some likely genetic health challenges such as sickle cell anaemia (SCA) but would it fully overcome all chromosomal defects? Study has shown that even with genotype compatibility, there are some defects such as Down syndrome which can only be discovered through prenatal diagnosis. A woman who gives birth after attaining the age of 35 is more prone to experiencing this. Should we therefore promulgate an artificial law, forbidding all women who had attained that age not to attempt giving birth? Should they make babies and embrace prenatal diagnosis in order to monitor the development of these babies? Should they settle for coelocentesis that has been proven not to abhor miscarriage? Are we not gradually sticking to the blend of science and natural feelings as the yardstick for selecting a life partner?

We must be guided that this paper does not intend to promote the denial of the rights to life of the unborn with defects but to open our eyes to the reality of alleviating unnecessary and avoidable suffering that the baby could be prone to. The misery enshrouded in the lives of people living with sickle cell anemia or the stigma tagged on people with trisomy or Down syndrome is better imagined than experienced. Every sane parent would desire a good life for his children and not a life of misery and stigmatization. The knowledge derived through prenatal diagnosis by the parents would go a long way to enable them make an informed decision to either accept the reality and brace up for the challenges ahead or take a proxy decision on behalf of the unborn.

REFERENCES

[1]. Brynn, L.& Melissa, S. (2019). Traditional prenatal diagnosis: Past and present. In: Brynn, L. (ed.). Prenatal diagnosis, 2nd edition. USA. Humana Press. P.7

[2]. Cahill, L. S. (1989). Catholic Sexual Ethics and the Dignity of the Person: A Double Message." Theological Studies. 50. Pp. 120-150.

[3]. Centre for Disease Control (CDC) (1995). Chorionic Villus Sampling and Amniocentesis: Recommendations for Prenatal Counselling." Morbidity and Mortality Weekly Report: Recommendations and Reports. Vol. 44. July 21. Atlanta Georgia. P.4

[4]. Cicurel, D. (2015). 17 Important Qualities to Look for in your Life Partner.Metro Lifestyle.Retrieved 22nd April, 2020, from www.metro.co.uk/2015/07/17-important-qualities-to-look-for-in-your-life-partner-5272592/amp/

[5]. Doms, H. (1939). The Meaning of Marriage. New York. Sheed and Ward. P.58

[6]. Fadare, J. (2009). "Some Ethical Issues in the Prenatal Diagnosis of Sickle Cell Anaemia."Annals of Ibadan Postgraduate Medicine.7(2).Pp. 26-28.

[7]. Government of Western Australia (2020).Prenatal screening and diagnostic tests.WA Genetics Council Prenatal Diagnosis Committee. Retrieved 22nd February, 2020, from https://www.health.gov.au/resources

[8]. Hazar, H., Dupras, C&Vardit, R. (February, 2016). Non-invasive Prenatal Testing: Review of Ethical, Legal and Social implications." Bioethique Online. Pp. 1-14.

[9]. Heather, S., Lesley, G.& Lyn, C. (2015)."An Easy Test by a Hard Decision: Ethical Issues Concerning Non-invasive Prenatal Testing for Autosomal Recessive Disorders."European Journal of Human Genetics. 23. Pp. 1004-1009.

[10]. Robinson, J. (2020). "Pregnancy and Amniocentesis."WebMD. Retrieved 23rd March, 2020, from www.webmd.com

[11]. Komanchak, C. M.& Dermot, L. (1999).The New Dictionary of Theology. Bangalore.Theological Publications in India.P.627.

[12]. Kulkarni, M.L. &Vengalath, S. (2014). Prenatal Diagnosis of Genetic Disorders. Retrieved 22nd March, 2020, from https://www.researchgate.net/publication/14429690

[13]. Majumdar, D.N. &Madan, T.N. (1956).An Introduction to Social Anthropology. India.Asia Publishing House.

[14]. Nuffield Council on Bioethics (2017)."Non-invasive Prenatal Testing: Ethical Issues. March, 2017. Retrieved 22nd February, 2020, from www.nuffieldbioethics.org/nipt

[15]. Ross, J.A., Jurkovic, D.&Nicolaide, K. (1997).“Coelocentesis: A Study of Short-term Safety.” Prenatal Diagnosis.17(10).Pp. 913-917.
[16]. McLean, S. (1997). “Prenatal Diagnostic Tests and the Social, Legal and Ethical Implications.” Retrieved 15th March, 2022, from https://www.ndsu.edu/pubweb/-mcclean/plsc431/students/mclean.html
[17]. The Canon Law Society of Great Britain and Ireland (1994).The Code of Canon Law, 5th ed. India. Collins.
[18]. Westermarck, E. (2012). The History of Human Marriage.Forgotten edition. London. Macmillan & Co. Pp 1-670