



# "Gotra And Consanguinity Marriage: Unveiling Hidden Risks To Progeny Health Through Ayurvedic Insights"

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**Abstract:** Non-consanguineous marriages, (*Atulya Gotra Vivaha*) are crucial for reducing the risk of hereditary diseases and congenital anomalies. This practice is emphasized in *Ayurveda* and supported by modern genetics. In order to ensure the health of one's offspring and to stop the spread of defective genes, ancient *Ayurvedic* scriptures like *Acharya Charaka's Atulyagotreeya Shareera Adhyaya* advises not to marry within one's same *Gotra*. Current research indicates that consanguineous marriages raise the risk of autosomal recessive disorder, such as mental retardation and congenital deformities. The lives and health of future generations are at risk due to consanguineous marriages, especially in areas with illiteracy however, because of cultural norms, ignorance, and a lack of awareness. This highlights how important it is to educate people about the risks of Consanguineous marriage. Which can be achieved by premarital (just before marriage) and preconception genetic counselling and train healthcare providers to address consanguinity related risk in offsprings to people. Integrate information on genetic risks and preventive measures into school and university curricula to reach younger generations.

**Key words-** *Gotra, Atulya Gotra Vivaha* Consanguineous marriage, Congenital abnormalities, Autosomal recessive disorders, Genetic counselling.

## I. INTRODUCTION

*Shukra* (sperm) and *Shonitha* (ovum) unite to make the *Garbha* (embryo) in *Garbhashaya*, where *Jeeva* (life) joins together to form the *Garbha*<sup>1</sup>. The aim of *Ayurveda* is to maintain health of healthy individual and cure the disease of diseased person<sup>2</sup>. The first step towards prevention of disease is from birth itself which is achieved by *Atulyagotreeya Vivaha*, promotes unions between people of different *Gotras*<sup>3</sup>. *Chakrapanidutta* mentions that marriage inside the same *Gotra* is regarded as *Adharma* and goes against the *Dharmashastra* precepts<sup>4</sup>. Consanguinity (Latin con = shared, sanguis = blood)

means descends from a common ancestor. It is also defined as the marriage between close relatives. The harmful effect associated with consanguinity is the expression of the rare abnormal recessive traits inherited from common ancestors.

## II. MATERIALS AND METHODS

Modern literature, published research, and a critical evaluation of classical knowledge serve as the foundation for the current study. A potential correlation between the gathered data and its methodical presentation is done.

Consanguineous marriage is defined as a union between two individuals who are related as second cousins or closer<sup>5</sup>.

Degree of closeness	Number of genes they share common
First degree relatives (Brothers and sisters, nonidentical (dizygotic or fraternal) twins, parents and children)	50% of genes are in common.
Second degree relatives (Uncle and aunts, nephews and nieces, grandparents and half-brother and half-sisters)	25% of genes in common.
Third degree relatives (first cousins, half uncles and aunts, half nephews and nieces)	12.5% of genes in common.
Fourth degree relatives (Second cousins, great grandparents, great uncle, great nephews and nieces)	6.25% of genes in common.

Genetic classification of relationship:

Genetic experts have categorized blood relatives relationships based on the percentage of their DNA that they share, indicating the degree of proximity<sup>6</sup>.

### Prevalence of Consanguineous Marriages in India:

Due to social, religious, and cultural customs, consanguineous marriages are more common in India than in many other nations. The recent National Family Health Survey-5 (NFHS-5) indicates that 11% of Indian marriages are consanguineous. And prevalence of up to 28%, consanguineous marriages are particularly common in the southern states/UTs of Tamil Nadu, Puducherry, Andhra Pradesh, Telangana, and Karnataka. This suggests that nearly one out of four women in these states are married to a first or second cousin or other blood related<sup>7</sup>.

### Reasons For Consanguineous Marriages:

Social and cultural factors are the main causes of consanguineous marriage in the community<sup>8,9,10</sup>. High levels of compatibility between the husband and wife as well as between couples and the family contribute to the stability of the marriage. Having the same social connections both before and after marriage is seen as advantageous for Women's status improves their relationship with their in-laws, enhances their financial bonds, fosters solidarity, and lessens the likelihood of hidden uncertainty in health and financial matters. It supports cultural continuity and values transfer. In addition to avoiding the "Dowry Death," it lessens the burden of a dowry or less expensive marriages<sup>11</sup>. Last but not the least, the family wishes to retain their wealth or property inside the family. The girl's parents also want their daughter to live close by and to enjoy the company of their grandchildren.

## Risks of Consanguineous Marriages:

Consanguineous marriages will be having significant risks across multiple domains like,

Genetic risks, Reproductive risks, Health risks of offspring.

### Genetic risks

In communities that are geographically or culturally isolated, the identification of disease genes has frequently proved successful. The process known as "chromosomes being inherited identically by descent" (IBD), in which a chromosome segment from one parent is identical to the equivalent region from the other parent, is largely responsible for this success. Children are more prone to inherit autosomal recessive illnesses when their parents have a close genetic link<sup>12</sup>. First cousins share approximately 12.5% of genes, making offspring homozygous at 6.25% of gene loci. Children from consanguineous marriages are more likely to develop

Thalassemia

Cystic fibrosis

Non-syndromic hearing loss

Congenital heart diseases

Cognitive difficulties

Rare blood disorders<sup>13</sup>.

### Reproductive risks

Reproductive risks for mothers in consanguineous marriages include increased pregnancy wastage and preterm labor<sup>14</sup>, higher rates of miscarriage and abortion, intrauterine growth restriction and increased prenatal and postnatal child mortality<sup>15</sup>.

### Health risks of offspring

Consanguineous marriages pose significant health risks to offspring like congenital heart diseases, Cognitive difficulties, Impaired hearing, Increased risk of birth defects<sup>16</sup>. Approximately 5% risk of abnormality or early childhood death, compared to 2-2.5% in non-consanguineous couples<sup>17</sup>.

## III. DISCUSSION:

The Sanskrit terms "Go," which means cow, and "trhi," which means shed, combine to form the word "Gotra." In this context, Gotra, which means "cowshed," is analogous to a cowshed that guards a certain lineage<sup>18</sup>. The main focus of Ayurveda is prevention of illness. Beginning at birth is the initial step in this prevention. The couple's primary goal is to have a healthy child<sup>19</sup>. The choice of a partner is the first step towards having a healthy child. The partner who would engage in coitus in order to conceive should belong to "Atulya Gotra," according to Acharya Charaka. Both the man and the female must be members of the same clan in order to have a healthy child. It is an immoral behaviour that is not authorized by scripture for members of the same clan to marry. Male and a female from Atulya Gotra are allowed to marry, according to Chakrapani. The Dharma Shastra states that it is a wicked deed whether they are from Tulya or the same Gotra<sup>20</sup>.

According to *Acharya Gangadhara, Shaddhatuka Purusha* who is born in a human womb must follow the *Atulya Gotra* principles<sup>21</sup>. *Dharma shastra* cites both *Atulya Gotra* and *Asapinda*, which mean that different *Pindas* (kinsmen connected to ancestors) should have children, and only these pairs are eligible to marry (*Darakarma*). The *Atulya Gotra* is not only taken into consideration before marriage for couples who get married, but *Gangadhara* also adds that the parents of a girl and boy should be from different clans before marriage. Therefore, even the offspring of *Sagotra* marriages were prohibited from being married since it was deemed to be against *Adharma*<sup>22</sup>.

*Astanga Sangraha* stresses the significance of choosing a *Kanya* from *Atulya Gotra* to prevent *Kula Sanchari Roga* or family-prevalent diseases when discussing the attributes of a girl appropriate for marriage. According to commentator Indu, the *Kula Sanchari Rogas* are *Kushta*, *Paingulya*, and so on<sup>23</sup>.

Sex abnormality in offspring	Classical view	Possible correlation to contemporary science
<i>Dvireta</i>	The progeny becomes a hermaphrodite when sperm and ovum that produces the genital cells of the fetus gets vitiated and these sperm and ovum receive equal division. The distinctive traits of both sexes will be present in such child <sup>25</sup> .	<ul style="list-style-type: none"> <li>Studies show that approximately 71% of children with ambiguous genitalia were born to consanguineous parents<sup>26</sup>.</li> </ul>
<i>Pavanendriya</i>	If the testicles (reservoirs of sperms) of the foetus are afflicted with <i>vāta</i> , then the offspring becomes aspermic <sup>27</sup> .	<ul style="list-style-type: none"> <li>Non Obstructive Azoospermia (NOA). Studies indicate that men with NOA have higher rates of parental consanguinity (33%) compared to the general population<sup>28</sup> (24%).</li> </ul>
<i>Smaskaravaahi</i>	Obstruction of seminal passage by <i>Vata</i> makes offspring <i>Samskara.vaha</i> <sup>29</sup> .	<ul style="list-style-type: none"> <li>Ejaculatory duct obstruction (EDO) It's responsible for infertility in 1–5% of infertile men<sup>30</sup>.</li> <li>Consanguineous marriages, particularly common in Middle Eastern populations, can increase the risk of male factor infertility<sup>31</sup>.</li> </ul>
<i>Kleeba</i>	Male and female sterility are the outcomes of sperm and ovum impairment and insufficiency caused by a hereditary lack of strength and passion <sup>32</sup> .	<ul style="list-style-type: none"> <li>Klinefelter syndrome (47,XXY)</li> <li>20% of males with Klinefelter syndrome have parental consanguinity<sup>33</sup>.</li> <li>38.46% of Turner syndrome patients were born to parents with consanguineous marriages<sup>33</sup>.</li> </ul>

*Acharya Charaka* clearly gives the idea about the genetic perception relating to Consanguinity in *Ayurveda*<sup>24</sup>. There are the eight types of sexual abnormalities described by *Acharya Charaka*. Which will occur due to *Tulya gotriya vivah* leads to defect in *Beeja* of either mother or father.

#### IV. CONCLUSION:

In rural communities, where cultural customs and poor educational attainment contribute to a limited understanding of the genetic dangers connected with blood-relative marriages, the lack of awareness is especially noticeable. Some population of society knowing the consequences regarding consanguineous marriages yet they still prefer consanguinity, indicating cultural persistence despite of awareness. A survey suggests that only 35 (18.7%) out of 187 participants were aware of health hazards associated with consanguineous marriages<sup>34</sup>. There is need for awareness and action to reduce the burden of genetic disorders caused by consanguineous marriages in India especially in southern part of India. We can conclude that there is a clear direct relation between consanguineous marriages (*Tulyagotriya Vivaha*) and congenital/genetic disorders (*Janmajata Vikara*) in their respective offspring's.

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