

## Consanguineous Marriages – Review and Recommendations

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The rates of the consanguineous marriages, estimated through the coefficient of inbreeding,  $F$ , vary in quite large scale in different populations. Such marriages are undesirable from genetic point of view, as far as they increase the probability of homozygous combination of rare recessive alleles and thus – the rate of recessive diseases. Three mechanisms limit these marriages – family legislation, religious wedding norms and the popular knowledge included in the common law or existing as established traditions. The author's observations are presented on the strongly exaggerated fears and prejudices of common Bulgarians concerning consanguineous marriages. Dangers arising from them are considerably overestimated by Bulgarian public opinion as compared to the legislative and religion preventions.

*Key words:* consanguinity, risks, restrictions, overestimation, Egypt dynasty.

### Introduction

Empiric observations have shown that marriages among blood relatives are connected with an increased risk of heavy hereditary pathology. Such marriages increase the probability of homozygous combination of rare recessive alleles coming from a common progenitor of both spouses and thus – the probability of recessive diseases. Therefore, in many ancient peoples some rules existed restricting sexual relationships and (more or less) official marriages between such relatives. The proximity of the relationship when marriage is prohibited varies in extremely large scale between populations, and does not correspond to their civilization level. Empirically accepted prejudices against consanguineous marriages have gradually been included into the marriage traditions, into the unwritten law, into the religious wedding norms and, much latter – into the written legislations of different countries. Of course, all these restrictions are not equally based on genetic principles and some of them are not genetically grounded at all. On the contrary, dynastical considerations and traditions (to preserve the purity of the royal blood) imposed increased rates of consanguineous marriages in many dynasties. For instance, several pharaohs of ancient Egypt who originated from marriages between extremely close blood relatives lived in good health and ruled their kingdom more than successfully.

It is our impression that Bulgarian traditions include much more negative attitude and much more restrictive marriage behavior towards consanguineous marriages as compared to the real genetic risk and to the restrictions imposed by the East-Orthodox Church and by the Bulgarian civil legislation. The aim of the present study is to compare these traditions to Orthodox-Church norms, to the written Bulgarian legislation and to historical examples.

## Material and Methods

The texts in the theological literature and in the Orthodox manuals concerning the prohibited weddings as well as the corresponding texts of Bulgarian civil legislation were systematized and analyzed from genetic point of view, mainly according to F a r r o w and J u b e r g [2] and S t e r n [3]. Analysis was made of the answers given by 3000 healthy secondary school students to the question "Do your parents have any blood relationship between them ?" with four possible options in a case of positive answer:

- first cousins;
- second cousins;
- third cousins;
- other relation (to be specified).

The author's observations on the common Bulgarian people's attitude towards consanguineous marriages are illustrated by examples from Bulgarian folklore and by the contingency of 102 readers' letters to the author with reference to his article in a daily newspaper.

The meaningless of the most restrictive marriage prohibitions is illustrated by the results of American authors and by an example from the history of ancient Egypt.

## Results and Discussion

The legislative restrictions concerning the marriages between blood relatives are presented in Family Codex of Republic of Bulgaria, article 13, paragraph 2. Marriages are prohibited between blood relatives of all degrees in direct line (i.e., someone's marriage with his/her parent, grand parent, son, daughter, grand child, etc.). As for the collateral line, marriages are prohibited between brothers and sisters (second degree), between their children (first cousins, IV degree) and other relatives up to IV degree inclusive. By the way, the last expression is completely meaningless, as far as, besides the first cousins, the only someone's "other relatives of IV degree" are the brothers and sisters of his grandparents and the grandchildren of his brothers and sisters. The age difference (two generations) evidently makes this prohibition fully superfluous.

Orthodox rules are presented in four items [1]. Points 3 concerns relationships acquired by marriage and point 4 – those acquired by baptism, so they have nothing to do with genetic relationships and with genetic risks. Point 1 is related to the direct line blood relatives and prohibits marriages between them irrespective of degree. Thus the restriction in question coincides entirely with the corresponding one of the Family Codex. Point 2 prohibits marriages between blood relatives in collateral line up to V degree inclusive. Thus, besides marriages between brothers and sisters and between first cousins, someone's marriage with the children of his or her first cousins (i.e., first and half cousins = first cousins once removed) are also prohibited. This is the only difference between the Church and the legislation restrictions.

Among 3000 subjects which we asked about an eventual blood relationship between their parents, we found one case of first cousins and four of second ones. The sample is not large enough as to determine with certainty the coefficient of inbreeding of Bulgarian people, but nevertheless the results show that probably it is among the lowest in Europe, if not in the world.

The common people attitude towards these marriages is determined by ancient prejudices and apprehensions. A lot of people is in panic fear of consanguineous marriages, how distant they may be, believing that they inevitably give rise to severe damages of the generation, to births of degenerates and monsters. Undoubtedly, during the centuries, the family environment pressure has bent unknown number of human destinies by impeding marriages between cousins which loved each other. Although not quite largely, this is reflected in the Bulgarian folklore. For instance, in a folk song from the Shumen region, a young man says to his girl-friend Denka:

“Denke le, we loved each other, Denke le, from the childhood,  
Denke le, from the childhood, Denke le, up to grown.  
Denke le, it was time, Denke le, to take each other.  
Denke le, they made us out to be, Denke le, close relatives.  
Denke le, our mothers, Denke le, two sisters in low,  
Denke le, we both with you, Denke le, two first cousins !”.

Two expressions make evident the strong internal protest of the speaker against the arising situation. First, instead of “it turned out that we are close relatives”, the expression is used “they made us out to be...”. Secondly, the statement that their mothers are sisters in low instead of the confession that their fathers are brothers evidences a hidden desire of the speaker their blood relationship to be presented as not so close as it is in fact.

Another interesting observation in this respect was made many years ago, when we published in the daily newspaper of Varna an article against the overestimation of the dangers arising from the consanguineous marriages by Bulgarian people. During the month following this publication we received 102 readers' letters with reference to it. Among them 89 (about 89%) were extremely close to each other in their meanings. The senders said that they had successful marriages and families with children and, in many cases, grandchildren. However, many years ago, they were infatuated with their cousins (most often second ones); and then their family environments (most often the parents) impeded their marriages. The senders were convinced that their life could be much happier if they had be left to follow the voices of their hearts.

Enormous differences exist between the states of the USA concerning consanguinity restrictions – from states where the marriages between brothers and sisters are the only prohibited to states where the prohibition covers even marriages between second cousins. Nevertheless, no differences were found between the rates of hereditary pathology in different states [2], which confirms once again the low importance of the legislative restrictions.

Finally, the genealogical tree (Fig. 1) of Hatshepsut illustrates the blood relationships in the 18<sup>th</sup> Dynasty of Egypt (1580-1350 B.C.). Hatshepsut, the only female pharaoh of Egypt, originated from a long consequence of close blood related marriages, including such ones between brothers and sisters. Her mother Ahmes was born in a family of brother and sister and married her half a brother Tuthmosis I. Hatshepsut herself was first cousin by mother and half a sister by father with her husband Tuthmosis II. Nevertheless, she lived in a good health and ruled Egypt during 21 years.

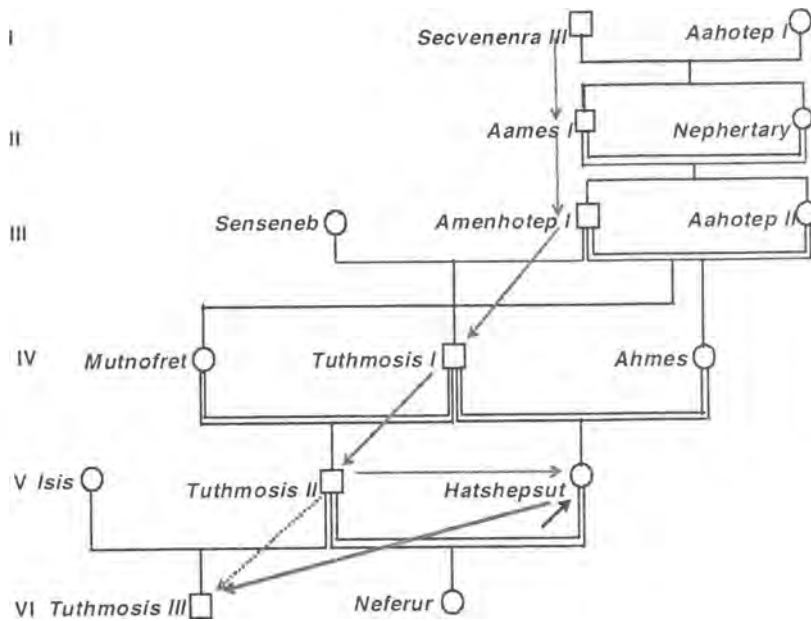


Fig. 1. Genealogical tree of Hatshepsut, Egyptian Pharaoh, from 1479 to 1458 B.C. The consanguineous marriages are presented by doubled connecting lines. The short arrow shows the proband and the long ones – the way of succession of the throne. The long dotted arrow shows a legitimate but not realized succession. After the death of her husband, Hatshepsut seized the throne and the legitimate successor Tuthmosis III took it after the mysterious disappearance (most probably murder) of his step-mother

## Conclusion

Respecting the established traditions of the Church and the legislation of the country, we will not recommend to violate them. However, the importance of the consanguineous marriages in hereditary pathology should not be overestimated. Also, marriage restrictions stronger than legislative ones should by no means be imposed to the young people.

## References

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