GENETIC COUNSELLING

Consanguineous marriage is the preferred choice for a significant proportion of the world's large populations, especially in Asia and Africa. The biosocial phenomenon of consanguinity illustrates that it is much more difficult for the humans to overcome the social rule of behaviour imposed on them. Thus inbreeding continues to be frequent among rural populations and also in many urban isolates where social custom, religion, language, illiteracy, low population mobility and other factors play a vital role. The frequency of consanguineous marriages varies greatly among different ethnic and religious groups.

Many recent studies have assessed inbreeding effects in terms of high rates of miscarriage, still birth, abortion, juvenile, child and infant mortality, increased risk of illness, susceptibility to infectious diseases and higher incidence of inborn physical and mental defects. Indeed, the range of these effects varies considerably from population to population and from region to region. Adverse genetic effects in man is associated with the presence of deleterious recessive genes hidden in heterozygous conditions that are expressed by homozygosis in the offspring. The incidence of genetic disorders may be either due to a single deleterious gene or more of such genes, and the magnitude of reproductive problems might be modified by the environmental modulators. Furthermore, recurrent risks for multifactorial diseases have been estimated based on the assumption of additive effects of genes and environmental factors, a continuous underlying liability and a critical threshold level for disease (Falconer 1981).
Studies in several South Indian populations have indicated high rates of inbreeding, often associated with significant levels of consanguinity-related detrimental effects. In the present communities the strong caste system besides socio-economic considerations have encouraged related marriages in them. Traditionally out of ignorance and superstition, the castes in the region sincerely believe in the age-old notions about the cause of repeated abortions, stillbirths and incidence of dreadful diseases in their families as maladies which fall upon them as curse and punishment from God for the sins and evil deeds committed by some members of the family. In a bid to receive remission from such sins, the people observe and do a variety of propitiatory acts suggested by the local bogus priests or sorcerers such as helping the poor, perform sacrificial offerings and poojas, conducting pilgrimage etc. Sometimes the illiterate people even go to the extent of life sacrifice of their own young children to the rural deity.

Under this circumstance, it is imperative that people should be made aware of and enlightened of the fact that most of such maladies have genetic predisposition, and that the incidence of dreadful diseases are controlled by deleterious recessive genes which become expressed by homozygosis and get accumulated in the population as a consequence of human inbreeding. The empirical data of alarming degree of consanguinity-related risk effects observed in almost all the caste groups studied here should form an eye-opener in this context. Proper counselling to prospective related spouses, especially those belonging to socially backward and illiterate communities is essential. Counselling should be
based on the data of empirical risk effect of the phenomenon of inbreeding. Such data on the inbreeding communities of the state of Tamil Nadu is very much lacking barring a few isolated attempts restricted to some Northern districts of the state (North Arcot). In this context, the data obtained from the present study of 15 inbreeding communities of the Kanyakumari district assumes importance as it yields valid clues regarding the extent of harmful effects of inbreeding in the various communities. Most of the communities were found to have alarming harmful effects ascribable to the practice of close-kin marriages.

Literacy, especially of women is one of the socio-demographic factors known to play a major role on increasing the frequency of related marriages. In this study, women were found to be less educated, a good number being even totally illiterate. In such cases marriages were conspicuously contracted at very low age, very often by parental compulsion, and this has obviously resulted in significant hike in the frequency of related marriages, which were found to be positively associated with greater magnitude of risk effect occurring in them. In view of this, counselling, by incorporating appropriate proposals for literacy promotion is warranted. It is expected that by promoting literacy, especially to girls, can reduce chances of their early marriages, and this can indirectly reduce related marriages to which young illiterate girls are prompted by social custom and by parental compulsion. The following are a few tangible proposals that deserve consideration in this regard:

a) Parents should be encouraged to persuade their wards, especially daughters for schooling.
b) Social service organizations and other non-governmental organizations (NGOs) may pay special attention for literacy promotion in communities with low literacy level.

c) The Government should implement special schemes to ensure compulsory primary education to the girls of illiterate communities.

d) Promotion of child labour must be strictly banned, as this would indirectly act against inclination to schooling.

e) Establishment of vocational training centres for training girls after primary / secondary level schooling. This will keep them engage themselves in self-earning enterprises which can be effective in postponement of their marriage to higher age.

f) Implementation of bonus schemes for late marriage of women.

g) Strict enforcement of family law concerning minimum legal age at marriage for females.

h) Registration of all marriages by local legal authority and

i) Parental counselling to make them aware of the need and importance of female education.

A successful approach to overcome the burden imposed by consanguinity should be formulated in consideration of the following obstacles for enlightening the people towards a free and well informed choice of spouse.

a) In many of the present communities, close-kin marriages are associated with low age at marriage of female spouses resulting from parental compulsions. In such circumstances, it is unwise to direct the young couples against their parental interest as it makes intrafamilial and intercommunal strife.
b) A section of the people strongly believe that the practice of consanguinity makes them open to enjoy some tangible socio-economic benefits. Further, they seem to believe that the risks associated with inbreeding are within the socially accepted limits for the society.

In the circumstance, an effective genetic counsellor must be one who is endowed with appropriate knowledge of genetics, psychological insight, skill, empathy and respect for the beliefs and cultures of the consultants.

The recent developments in medicine brought out several scientific positive measures that have immense value for reducing the occurrence of genetically affected progenies through early diagnostic methods as given below:

a) Early ultrasound examination can detect a good proportion of infants birth problems mostly before the seventeen weeks of gestation, and suggest the necessity of timely abortions of affected foetuses. The medico-genetic experts should discuss this with religious authorities for lifting religious constraints on prenatal diagnosis and termination of acute undesirable pregnancies,

b) Genome mapping for rare genetic diseases in populations would impart genetic-based advices to prospective marriage partners who are prone to marry close relatives by giving them authentic genetic informations on the nature and magnitude of the risk likely to be confronted if they opt for close-kin marriage. Prediction of
linkage relationship of probable spouses must be accurately adopted for the purpose of early prenatal diagnosis.

In general, for effective diminution of the genetic risks of related marriages, special intervention programmes including literacy promotion schemes along with medico-genetic strategies that cater to the problems associated with related marriages must be planned and implemented with a net work of guidelines by health professionals, geneticists, religious authorities and social workers.