

## Study on Consanguineous Marriages and the Resulting Genetic Diseases

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### Abstract:

After the questionnaire was distributed in this research to a sample of males and females from the community, which amounted to more than 50)), we entered the answers and sorted them through the statistical program SPSS.

We obtained several conclusions that we summarize in several points as follows:

1. From Table (1) we conclude that there is a significant relationship between (the number of children who have genetic diseases \* The family insists on marrying relatives despite knowing about genetic diseases, adhering to customs and traditions.
2. From Table. (2) we conclude that there is a significant relationship between) medical examination and counseling before marriage prevents young men and women from marrying, marriage to relatives is forced without consultation.

3. Table (3) We conclude that there is a significant relationship between (age \* I see that genetic diseases are transmitted in all cases of consanguineous marriage.
4. Table (4) We conclude that there is a significant relationship between (the educational stage \* medical examination and counseling before marriage reduces the psychological effects on the individual and the family such as anxiety and isolation.
5. Table (5) We conclude that there is a significant relationship between) gender \* the spouses know that genetic diseases may appear in the children as a result of their marriage.
6. Table (6) We conclude that there is a significant relationship between) diabetes \* marriage between relatives is more secure in terms of continuity and success because all parties know each other
7. Table (7) We conclude that there is a significant relationship between) infectious blood diseases are more dangerous than genetic blood diseases \* marriage between relatives is facilitated in terms of dowry and other things
8. Table (8) We conclude that there is a significant relationship between) infectious blood diseases are more dangerous than genetic blood diseases \* hemolytic anemia (one of the The most important hereditary anemia diseases)
9. Table (9) We conclude that there is a significant relationship between) Hereditary diseases do not constitute a concern in societies because they are rare \* Family income
10. Table (10) We conclude that there is a significant relationship between) Yeast deficiency (which is a deficiency in one of the enzymes found in red blood cells and leads to blood breakdown) \* Type

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### 1.1. Introduction

Consanguineous marriage is a controversial and interesting topic in our societies, as it is linked to several aspects, including social, cultural and health. Historically, many cultures tended to encourage consanguineous marriage due to family ties and ancient traditions, but with medical and scientific progress, there are concerns about the increased spread of genetic diseases and associated health problems. If we look at the health aspect, consanguineous marriage may increase the possibility of transmitting defective genes to future generations, which leads to an increased likelihood of the emergence of genetic diseases such as thalassemia, renal cysts and other congenital malformations. In addition, there may be psychological and social effects of consanguineous marriage related to family complications and personal relationships [1,2].

Hence, some doctors and health specialists believe that encouraging marriage between individuals outside the family can reduce the risk of transmitting genetic diseases and contribute to improving public health. However, this issue must be dealt with sensitively and with respect for the traditions and cultural values of societies [3].

1-2 Importance of the research: The importance of this research is evident in the interaction of social and health issues, as it highlights the balance of individuals' rights to maintain marriage traditions in society with the need to reduce the risks of genetic diseases. The results of this research can guide health awareness and social policies to promote premarital genetic disease screening and improve the quality of life for individuals and societies. The research reflects the importance of a comprehensive understanding of the interactions of social and medical factors to promote the health of society in general [4, 5].

### 1-3: Research problem

The research problem lies in the challenges facing society in trying to achieve a balance between maintaining the traditions of consanguineous marriage and reducing the risks of genetic diseases. This includes analyzing cultural and social challenges, in addition to exploring ways to enhance awareness and understanding among community members regarding the importance of genetic disease screening. The research also requires taking into account legal aspects and local legislation [6,7].

1-4: Research methodology: The research methodology includes a comprehensive review of the literature related to genetic consanguineous marriage. Data will be collected from various sources, including studies and field research, if available. The methodology will also include interviews with specialists in the medical and social fields to understand the challenges and directions. The data will be analyzed using statistical methods and research techniques to reach results [8,9].

1-5: Research objective: The research objective is to understand the impact of consanguineous marriage on genetic diseases and explore how to balance preserving social traditions and providing recommendations to reduce health risks. The research also aims to raise awareness about the importance of screening for genetic diseases before marriage and explore ways in which awareness can be enhanced and informed decisions can be made in this context[10,11].

1-6: Causes of occurrence: The causes of the increased likelihood of genetic diseases are due to consanguineous marriage due to blood kinship, which increases the likelihood of transmitting defective genes as a result of inheritance. This increase in genetic similarity between partners can increase the likelihood of inheriting harmful genetic variants. The challenges of genetic diversity and the effects of consanguineous association are two major factors that contribute to the increased risk of genetic diseases in this context[12].

1-7: Research sample: The research sample includes a diverse group of individuals affected by consanguineous marriage and carrying genetic diseases. The sample is carefully selected to represent different cultural and social contexts. It includes the following elements: Individuals married to relatives This category includes couples with blood relatives Individuals suffering from genetic diseases Individuals suffering from genetic diseases are selected as part of the sample to analyze the impact of consanguineous marriage on the transmission of those diseases Unmarried individuals to examine their future decisions regarding consanguineous marriage Geographic and cultural diversity The distribution of the sample in different geographical and cultural areas ensures a comprehensive representation of individuals willing to participate Individuals who agree to participate in the research and provide the necessary information are selected This sample aims to provide a comprehensive view of the impact of consanguineous marriage on genetic diseases, with attention to the diversity of different contexts and challenges[13,14].

1-8: Structure of the research on consanguineous marriage and genetic diseases: Introduction to the topic and its importance Clarity of the goal and research hypothesis Direction to the social and health necessity of understanding the impact of consanguineous marriage Literature review Review of previous relevant studies and research Analysis and comparison of previous results Research methodology Explanation and detailing of the method of data collection Description of the variables and tools used Data analysis Quantitative analysis of the research results and how to interpret them, Highlighting the relationship between consanguineous marriage and genetic diseases[15].

## 1. 9. Challenges and Discussion:

Exploring the socio-cultural challenges Discussing the balance between social customs and genetic health Conclusions and recommendations Drawing conclusions and policy and awareness guidelines Identifying future paths for research in this field[16], This structure allows the research to be organized in a logical manner to achieve the research objectives in a way that is consistent with, Research Hypothesis

: There is no relationship between consanguineous marriage and genetic diseases  $H_0$

: There is a relationship between consanguineous marriage and genetic diseases  $H_1$

### 2-2: Chi-square test

It is considered one of the parametric statistical methods and is used in analyzing nominal data and is a statistical test used to determine whether the differences between the observed frequencies and the theoretical or expected frequencies are differences due to the sample or are statistically significant differences Observed frequencies are the number of observed cases observed in each cell or category of the categories that classify the phenomenon studied and obtained from a study sample under the condition of the alternative hypothesis Expected and theoretical frequencies (Expected or Theoretical Frequencies)

It is the number of cases present in each cell or category of the categories that classify the phenomenon being studied and which determine and stipulate the null hypothesis. The chi-square test is generally known as a measure of the extent of the discrepancy between the expected frequency and the observed frequency, as follows[17,18].

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

Where  $O_i$  is the frequency observed in cell number  $i$  '  $E_i$  is the expected frequency in cell  $i$  is the number of children who have hereditary diseases \* The family insists on marrying relatives despite knowing about hereditary diseases, adhering to customs and traditions[19]. Table(1) .

Table No. (1) chi-square = 42.079 and sig value = 0.043 Asymptotic which is less than the significance level (0.05) and this means that there is a relationship between the two phenomena and therefore we accept this hypothesis  $H_1$ :

:  $H_0$  There is no relationship between (the number of children who have genetic diseases \* the family insists on marrying relatives despite knowing about genetic diseases in adherence to customs and traditions [20].

$H_1$ : There is a relationship between (the number of children who have genetic diseases \* the family insists on marrying relatives despite knowing about genetic diseases in adherence to customs and traditions[21].

Medical examination and counseling before marriage prevents young men and women from marrying, marriage to relatives occurs compulsorily without consultation.[22].

**Table (2).**

| Chi-Square Tests             |                     |    |                                   |
|------------------------------|---------------------|----|-----------------------------------|
|                              | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square           | 42.079 <sup>a</sup> | 28 | .043                              |
| Likelihood Ratio             | 51.798              | 28 | .004                              |
| Linear-by-Linear Association | 2.269               | 1  | .132                              |
| N of Valid Cases             | 72                  |    |                                   |

| Chi-Square Tests             |                     |    |                                   |
|------------------------------|---------------------|----|-----------------------------------|
|                              | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square           | 43.536 <sup>a</sup> | 16 | .000                              |
| Likelihood Ratio             | 45.486              | 16 | .000                              |
| Linear-by-Linear Association | .536                | 1  | .464                              |
| N of Valid Cases             | 72                  |    |                                   |

Table No. (2) chi-square = 43.536 and sig value = 0.000 Asymptotic which is less than the significance level (0.05) and this means the best relationship between the two phenomena and therefore we accept this hypothesis H1: H0 There is no relationship between (medical examination and counseling before marriage prevents young men and women from getting married, marriage between relatives is forced without consultation.: H1 There is a relationship between (medical examination and counseling before marriage prevents young men and women from getting married, marriage between relatives is forced without consultation.

Age \* I see that genetic diseases are transmitted in all cases of marriage between relatives[23].

**Table (3) .**

| Chi-Square Tests             |                     |    |                                   |
|------------------------------|---------------------|----|-----------------------------------|
|                              | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square           | 28.981 <sup>a</sup> | 16 | .024                              |
| Likelihood Ratio             | 28.548              | 16 | .027                              |
| Linear-by-Linear Association | 1.377               | 1  | .241                              |
| N of Valid Cases             | 72                  |    |                                   |

From Table No. (3) chi-square = 28.981 and the value of sig = 0.024 Asymptotic which is smaller than the significance level (0.05) and this means the best relationship between the two phenomena and therefore we accept this hypothesis H1: H0 There is no relationship between (age \* I see that genetic diseases are transmitted in all cases of consanguineous marriage : H1 There is a relationship between (age \* I see that genetic diseases are transmitted in all cases of consanguineous marriage, Academic stage \* Medical examination and counseling before marriage reduce the psychological effects on the individual and the family such as anxiety and isolation, Table(4) .

| Chi-Square Tests |
|------------------|
|------------------|

|                              | Value               | df | Asymptotic<br>Significance (2-<br>sided) |
|------------------------------|---------------------|----|------------------------------------------|
| Pearson Chi-Square           | 34.843 <sup>a</sup> | 12 | .000                                     |
| Likelihood Ratio             | 32.910              | 12 | .001                                     |
| Linear-by-Linear Association | 11.573              | 1  | .001                                     |
| N of Valid Cases             | 72                  |    |                                          |
| .                            |                     |    |                                          |

From Table No. (4) chi-square = 34.843 and the value of sig = 0.00 Asymptotic which is less than the significance level (0.05) and this means the best relationship between the two phenomena and therefore we accept this hypothesis H1: : H0 There is no relationship between (the educational stage \* the medical examination and counseling before marriage reduces the psychological effects on the individual and the family such as anxiety and isolation. : H1 There is a relationship between (the educational stage \* the medical examination and counseling before marriage reduces the psychological effects on the individual and the family such as anxiety and isolation[24].

Gender \* The couple knows that genetic diseases may appear in the children as a result of their marriage, Table(5)

| Chi-Square Tests             |                     |    |                                          |
|------------------------------|---------------------|----|------------------------------------------|
|                              | Value               | df | Asymptotic<br>Significance (2-<br>sided) |
| Pearson Chi-Square           | 17.855 <sup>a</sup> | 4  | .001                                     |
| Likelihood Ratio             | 18.443              | 4  | .001                                     |
| Linear-by-Linear Association | 4.855               | 1  | .028                                     |
| N of Valid Cases             | 72                  |    |                                          |

From Table No. (5) chi-square = 17.855 and sig value = 0.001 Asymptotic which is less than the significance level (0.05) and this means the best relationship between the two phenomena and therefore we accept this hypothesis H1:

H0: There is no relationship between (gender \* The couple knows that genetic diseases may appear in the children as a result of their marriage.

H1: There is a relationship between (gender \* The couple knows that genetic diseases may appear in the children as a result of their marriage. Diabetes \* Marriage between relatives is more guaranteed in terms of continuity and success because all parties know each other[25].

Table(6) .

| Chi-Square Tests |
|------------------|
|------------------|

|                              | Value               | df | Asymptotic Significance (2-sided) |
|------------------------------|---------------------|----|-----------------------------------|
| Pearson Chi-Square           | 33.006 <sup>a</sup> | 16 | .007                              |
| Likelihood Ratio             | 33.050              | 16 | .007                              |
| Linear-by-Linear Association | .254                | 1  | .614                              |
| N of Valid Cases             | 72                  |    |                                   |

From Table No. (6) chi-square = 33.006 and sig value = 0.007 Asymptotic which is smaller than the significance level (0.05) and this means the best relationship between the two phenomena and therefore we accept this hypothesis H1:

: H0 There is no relationship between (diabetes \* Marriage between relatives is more secure in terms of continuity and success because all parties know each other.

: H1 There is a relationship between (diabetes \* Marriage between relatives is more secure in terms of continuity and success because all parties know each other.

Infectious blood diseases are more dangerous than hereditary blood diseases \* Marriage between relatives is facilitated in terms of dowry and other things[26].Table (7) .

| Chi-Square Tests             |                     |    |                                   |
|------------------------------|---------------------|----|-----------------------------------|
|                              | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square           | 36.232 <sup>a</sup> | 16 | .003                              |
| Likelihood Ratio             | 33.186              | 16 | .007                              |
| Linear-by-Linear Association | 10.015              | 1  | .002                              |
| N of Valid Cases             | 72                  |    |                                   |

Chi-Square Tests From Table No. (7) chi-square = 36.232 and sig value = 0.003 symphonic which is less than the significance level (0.05) and this means the best relationship between the two phenomena and therefore we accept this hypothesis H1:

: H0There is no relationship between (Infectious blood diseases are more dangerous than hereditary blood diseases \* Marriage between relatives provides facilities in terms of dowry and other things.

: H1There is a relationship between (Infectious blood diseases are more dangerous than hereditary blood diseases \* Marriage between relatives provides facilities in terms of dowry and other things. Infectious blood diseases are more dangerous than hereditary blood diseases \* Hemolytic anemia (one of the most important hereditary anemia diseases)

Table(8) .

|  | Value | df | Asymptotic |
|--|-------|----|------------|
|--|-------|----|------------|

|                              |                     |    | Significance (2-sided) |
|------------------------------|---------------------|----|------------------------|
| Pearson Chi-Square           | 24.345 <sup>a</sup> | 16 | .082                   |
| Likelihood Ratio             | 24.345              | 16 | .082                   |
| Linear-by-Linear Association | .056                | 1  | .812                   |
| N of Valid Cases             | 72                  |    |                        |

From Table No. (8) chi-square = 24.345 and sig value = 0.082 Asymptotic which is greater than the significance level (0.05) which means there is no relationship between the two phenomena and therefore we reject the alternative hypothesis H1 and accept the null hypothesis H0

: H0 There is no relationship between (Infectious blood diseases are more dangerous than hereditary blood diseases \* Hemolytic anemia (one of the most important hereditary anemia diseases.

: H1 There is a relationship between (Infectious blood diseases are more dangerous than hereditary blood diseases \* Hemolytic anemia is one of the most important hereditary anemia diseases.

Genetic diseases do not constitute a concern in societies because they are rare \* Family income, Table (9).

#### Chi-Square Tests

|                              | Value               | df | Asymptotic Significance (2-sided) |
|------------------------------|---------------------|----|-----------------------------------|
| Pearson Chi-Square           | 10.717 <sup>a</sup> | 8  | .218                              |
| Likelihood Ratio             | 13.849              | 8  | .086                              |
| Linear-by-Linear Association | .595                | 1  | .440                              |
| N of Valid Cases             | 72                  |    |                                   |

From Table No. (9) chi-square = 10.717 and sig value = 0.218 Asymptotic which is greater than the significance level (0.05) and this means there is no relationship between the two phenomena and therefore we reject the alternative hypothesis H1 and accept the null hypothesis H0

: H0 There is no relationship between (Genetic diseases do not constitute a concern in societies because they rarely occur \* family income.

: H1 There is a relationship between (Genetic diseases do not constitute a concern in societies because they rarely occur \* family income.

Yeast deficiency (which is a deficiency in one of the enzymes found in red blood cells and leads to blood breakdown) \* type

**Table (10) .**

| <b>Chi-Square Tests</b>      |                    |    |                                   |
|------------------------------|--------------------|----|-----------------------------------|
|                              | Value              | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square           | 8.009 <sup>a</sup> | 4  | .091                              |
| Likelihood Ratio             | 7.849              | 4  | .097                              |
| Linear-by-Linear Association | 3.694              | 1  | .055                              |
| N of Valid Cases             | 72                 |    |                                   |

From Table No. (10) chi-square = 8.009 and sig value = 0.091 Asymptotic which is greater than the significance level (0.05) which means there is no relationship between the two phenomena and therefore we reject the alternative hypothesis H1 and accept the null hypothesis H0

: H0There is no relationship between (deficiency of yeast which is a deficiency in one of the enzymes found in red blood cells and leads to blood breakdown) \* type.

: H1There is a relationship between (deficiency of yeast which is a deficiency in one of the enzymes found in red blood cells and leads to blood breakdown) \* type.

Some recommendations that can be included in our research on consanguineous marriage and genetic diseases:

1. Study previous cases: Study the cases that have been reported around the world about consanguineous marriage and its genetic effects. Are there certain diseases that appear more commonly in these cases? What conclusions have been reached?
2. Modern technologies: Explore modern technologies in the field of genomics and genetics and how they can be used to identify potential genetic risks before marriage, such as DNA analysis and comprehensive genomics.
3. Cultural context: Take into account cultural considerations, as consanguineous marriage is a tradition in some societies. Are there changes in attitudes towards this topic? How can people be made aware of potential risks without interfering with their cultural values?
4. Genetic counseling: Highlight the importance of premarital genetic counseling, and how doctors and specialists can educate individuals about the tests and techniques available to assess genetic risks.
5. Preventive measures: Focus on preventive measures and prevention of genetic diseases such as early treatment and adaptation to potential cases, and the role of doctors in this context.
6. Legislation and policies: Examine policies and legislation related to consanguineous marriage and genetics in different countries and how legislation can be improved to protect the health of individuals and families.

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