

HEALTH EFFECTS OF CONSANGUINITY MARRIAGE⁺

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Abstract

Marriage in family especially in blood relation is a common feature in our society . Such marriage are calls consanguineous marriages which has a long standing tradition and offers significant social and economical benefits . The study conducted to identify the health effects of consanguineous marriage on the reproductive outcomes. Stratified random sample (600 couples) were selected from 12 blocks in Ninavah governorates, as a rate of (50) households from each block (341 couples of the sample of consanguineous marriage while 259 couples were of non-consanguineous marriage), the all subjects were interviewed directly for the purpose of the study . It last (5) months to complete (February through June –2004) . Frequency , prevalence rate and chi-square were used in statistical analysis of findings of this study. Statistically significant relation at ($P < 0.01$) were, shown for the variables: Abortion, Still birth , Infant death and Congenital abnormalities, while the variables: Twins and Prematurity had no significant relation as pregnancy outcomes in relation with consanguineous marriage . The study concluded that consanguineous marriage has an adverse health effects on offspring . Community health education through mass media regarding this social phenomena and its negatory consequences was the main recommendation.

المستخلص

إن الزواج العائلي خصوصاً في قرابة الدم يعتبر ظاهرة عامة في مجتمعا، وإن مثل هذا الزواج يدعى زواج القرابة ويعتبر تقليداً بعيد المدى ويمتلك منافع إجتماعية وإقتصادية هامة. أجريت هذه الدراسة للتعرف على التأثيرات الصحية لزواج الأقارب ، تم اختيار عينة عشوائية طبقية (٦٠٠ زوج) من (١٢) قاطع في محافظة نينوى بمعدل (٥٠) زوجاً من كل قاطع (٣٤١ زوجاً من العينة من الأزواج القريبى، ٢٥٩ زوجاً من الأزواج غير القريبى) ، وتم مقابلة جميع أفراد العينة مباشرة لتحقيق هدف البحث . استغرقت الدراسة خمسة أشهر (شباط – حزيران / ٢٠٠٤) . لقد تم استخدام التكرار ، معدل الانتشار ومربع كاي كوسائل احصائية لتحليل نتائج البحث . أظهرت الدراسة وجود علاقة احصائية ذات دلالة معنوية عند مستوى دلالة (٠,٠١) لكل من المتغيرات؛ الإجهاض، الولادة الميتة، وفاة الرضيع والتشوهات الخلقية، في حين لم تظهر أية علاقة احصائية ذات دلالة معنوية لكل من المتغيرات؛ التوأم والولادة الخديجة كمخرجات الحمل في علاقتها مع زواج القرابة. استنتجت الدراسة بأن لزواج الأقارب تأثيرات صحية غير مرغوبة على الذرية .

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ان التنقيف الصحي للمجتمع خلال وسائل الاعلام بخصوص هذه الظاهرة الاجتماعية وتأثيراتها السلبية كان من أهم توصيات الدراسة .

Introduction

Around the globe consanguineous marriage have been practiced by many societies from the immemorial . It is widely practiced in ASIA , North Africa , Switzerland , Middle East , some parts of China , Japan and fisherman communities in Europe and America [1] . Sociologists and doctors argue that such tests remain rare in a conservative society because of social taboos , economic consideration and lack of health awareness , where marriages among relatives stands at nearly 51% of all consanguineous marriages [2] .

Several investigators stressed the relationship of consanguinity and health. This study objects to explore the effects of consanguinity on fertility, reproductive wastage , infant mortality and congenital malformations .

Methodology

All women with a history of pregnancy and/or delivery were included in this study . The sample were identified to explore the adverse effects of consanguineous marriage on the reproductive outcomes. It composed of (600) couples , (341) couples of consanguineous marriage (56.8% of the total sample) and (259) couples of non-consanguineous marriage (43.2% of the total sample) . The subjects were selected randomly from (12) stratified blocks of Ninavah Governorate , as a rate of 50 households from each block . All the subject mothers were interviewed directly by trained interviewers to take the important information . The study took (5) months to conduct (February through June) for the year 2004. Chi-square was used to analyze the results of the study.

Results

Table (1) : Fertility by duration and type of marriage relation.

Duration of marriage	1 – 3 y.		4 – 6 y.		7 – 9 y.		10 -12 y.		Total	
	Preg.	P/W	Preg.	P/W	Preg.	P/W	Preg.	P/W	Preg.	P/W
Consanguineous	106	1.64	271	3.5	543	5.92	633	5.8	1553	4.405
Non-consanguineous	115	1.65	283	3.4	476	5.2	598	6.3	1472	4.345

Preg.=Pregnancy

P/W=Pregnancy/Women

The table presents fertility as measured by number of pregnancies per women with intervals of marriage duration.

Table (2): Abortion and types of marriage relation.

Marriage relationship	Number	Rate/1000 Pregnancy
Consanguinity	151	97.231
Non-consanguinity	117	79.48

The table presents the occurrence of abortion by consanguinity relation. It indicates statistically significant difference at ($P < 0.01$)

Table (3) : Still birth and types of marriage relation.

Marriage relationship	Number	Rate/ 1000 Pregnancy
Consanguinity	16	11.54
Non-consanguinity	9	6.69

The table presents the occurrence of still birth by consanguinity relation . It indicates a statistically significant difference at ($P < 0.01$).

Table (4) : Twins and types of marriage relation.

Marriage relationship	Number	Rate/1000 Pregnancy
Consanguinity	9	5.795
Non-consanguinity	18	8.832

The table presents the birth of twins by consanguinity relation . It is obvious that there is no significant difference at acceptable level.

Table (5) : Prematurity and types of marriage relation.

Marriage relationship	Number	Rate/1000 Pregnancy
Consanguinity	15	10.823
Non-consanguinity	12	8.915

From this table it is obvious that there is no significant difference regarding premature alive according to the type of marriage relation at acceptable level.

Table (6) : Infant death and types of marriage relation .

Marriage relationship	Number	Rate/1000 Pregnancy
Consanguinity	95	68.543
Non-consanguinity	67	49.78

Statistically significant difference at ($P < 0.01$) is indicated from this table regarding infant death by consanguinity.

Table (7) : Congenital abnormalities and types of marriage relation.

Marriage relationship	Number	Rate/1000 Pregnancy
Consanguinity	87	62.771
Non-consanguinity	53	39.376

From this table statistically significant difference is indicated at ($P < 0.01$) regarding congenital abnormalities according to the types of marriage relation

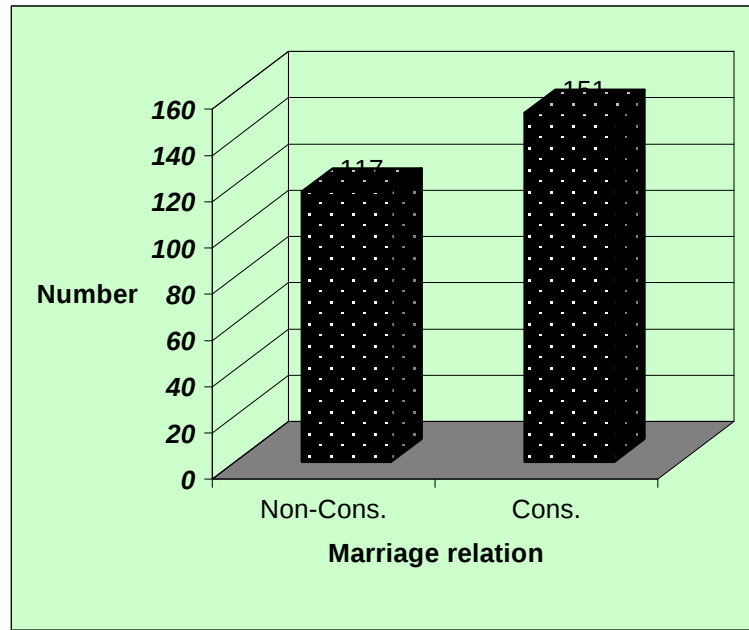


Fig. (1): Abortion & Types of marriage relation/1000 Pregnancy

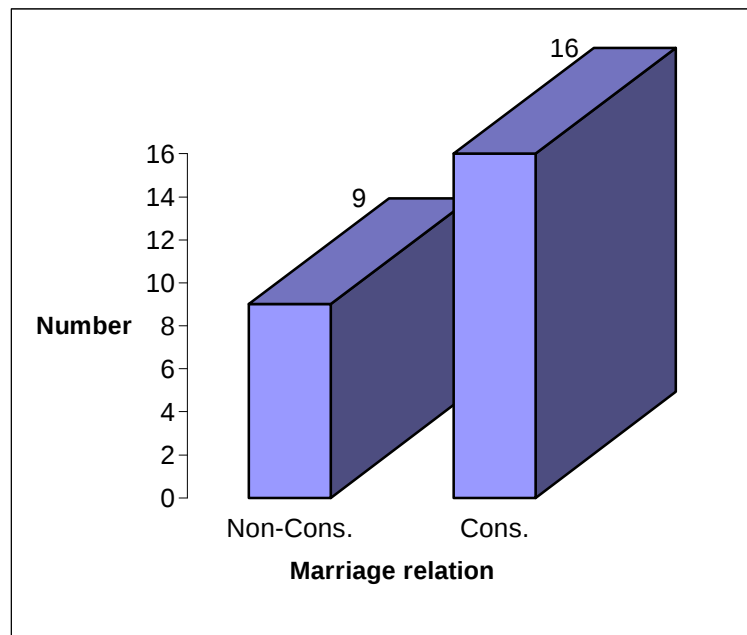


Fig. (2): Still birth & Types of marriage relation/1000 Pregnancy

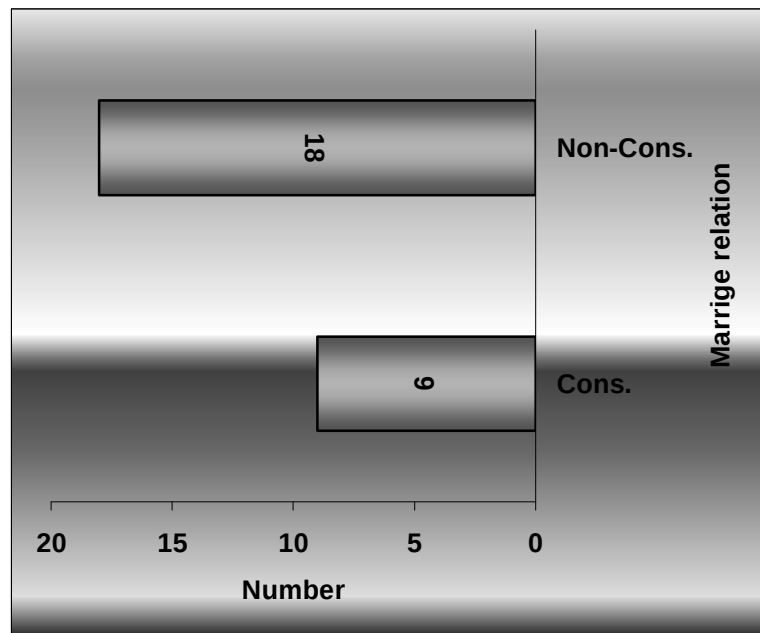


Fig. (3): Twins & Types of marriage relation/1000 Pregnancy

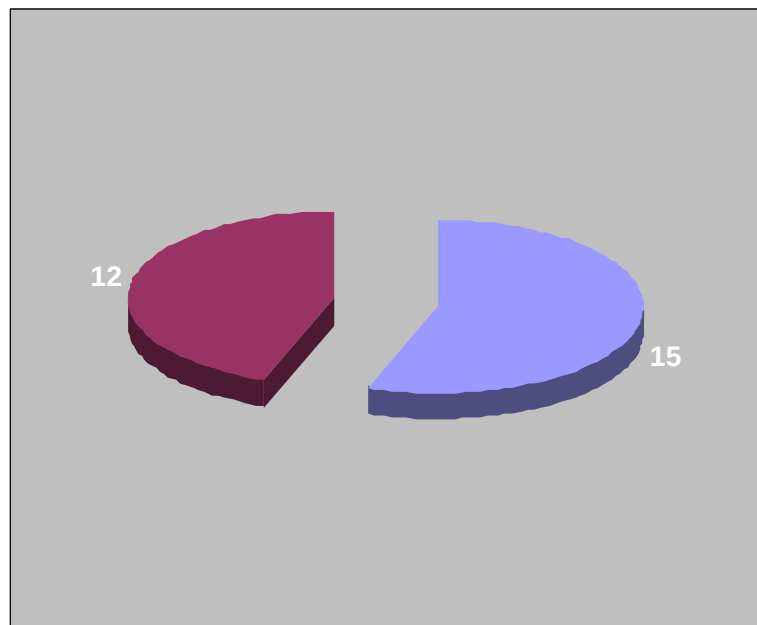


Fig. (4): Prematurity & Types of marriage relation/1000 Pregnancy

Fig. (5): Infant death & Types of marriage relation/1000 Pregnancy

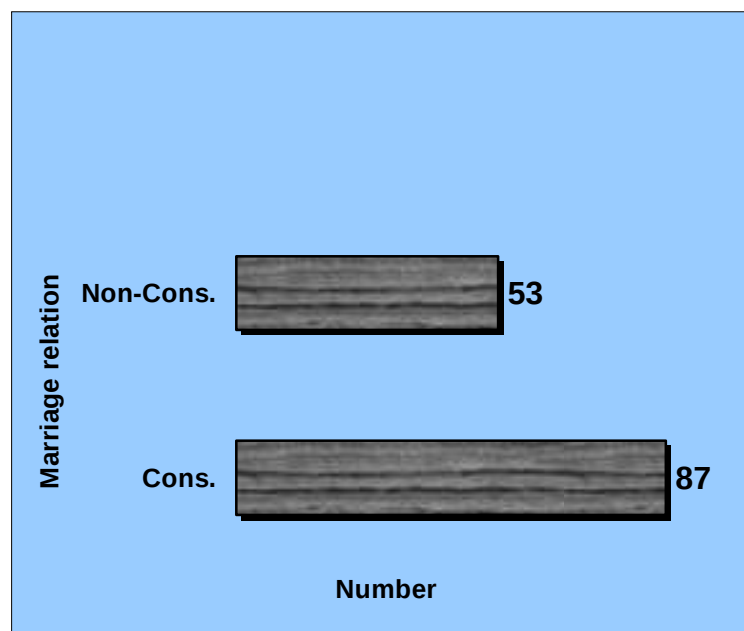


Fig. (6): Congenital abnormalities & Types of marriage relation/1000 Pregnancy

Discussion

The results of this community-based study can be identical or contradict with some previous studies . In this study fertility , twins and prematurity had not any significant differences between consanguineous and non-consanguineous marriages. [3,4,5] contradicted our findings regarding fertility.[6] supported our findings which indicates that there is no any significant relationship of twins between consanguineous and non-consanguineous . Also , [7] supported our findings that prematurity did not indicate significant relationship with consanguinity .

As shown in table (2) , it indicates that there is statistically significant difference between consanguineous and non-consanguineous marriages regarding occurrence of abortion at ($P < 0.01$) . [8,9,10,11] supported the evidence that consanguinity lead to an increased likelihood of spontaneous abortion .

Statistically significant difference indicated between consanguineous and non-consanguineous marriages ($P < 0.01$) as in table (3) regarding occurrence of still births . [4,12] found that still birth rates were significantly higher in consanguineous marriages .

Infant death (death of an infant before one year of age) as an important indicator of community health showed in this study statistically significant difference between consanguineous and non-consanguineous marriages at ($P < 0.01$) as in table (6) . [1] referred that several scientific studies had shown that consanguinity leads to death of infants before , during or immediately after birth . [13] found in his study in India that (14.07%) and (9.39%) of infant mortality had found among couples having consanguineous against non-consanguineous marriage respectively . [14] found in their study that postneonatal mortality and childhood morbidity in the offspring of consanguineous Pakistani parents from families of more than one consanguineous union was (3) fold increase against non-consanguineous parents .

The study findings found a statistically significant difference in offspring of consanguineous marriages at ($P < 0.01$) regarding congenital abnormalities (the study was to establish the relationship of consanguinity and congenital abnormalities and to exclude another causalities) as shown in table (7). The cases accepted for analysis in this study were Congenital hip dislocation , Blindness , Ear anomalies , Strabismus , Diabetes , Breast anomaly , Cleft lip , Cleft lip and palate , Oesophageal atresia , Hypopadius , Limb anomaly , Spina bifida and Cardiac septal defect as congenital abnormalities . [14,15,16,17,18,19,20] referred that consanguinity can lead to an increased birth prevalence of recessive disorders through inheritance of a copy of a recessive allele (gene) from each parent , for any particular allele in the father , the chance that the mother inherited the same allele from the same source is $1/8$, further for any gene the father passes to his child , the chance is $1/8$ that the mother has the same gene and $1/2$ that she transmits that gene to the child so $1/8 \times 1/2 = 1/16$. [20,21,22,23,24,25] agreed upon that consanguineous marriage favours the manifestation of recessively inherited disorders such as metabolic diseases , genetic forms of deafness and blindness , hemoglobinopathies , blood cancer and some types of congenital malformations and mental retardation . While [1] indicated that some scientists contradict these findings and state that other biological factors could be accountable for the results and not consanguinity alone .

Eventually , [26] mentioned that consanguineous marriages results in an increased probability of abortion , miscarriage , still birth , neo-natal death , infant juvenile death, physical and mental defects and susceptibility to infectious diseases.

Conclusion

The study concluded that :

1. More than half of this field study subjects (56.8%) were of consanguineous marriage.

2. Statistically significant differences were seen of abortion , still birth ,infant death and congenital abnormalities (the all at $P < 0.01$) in relation to consanguineous marriage.

Recommendation

1. Community health education through mass media regarding the predictable adverse health effects of consanguineous marriage .
2. Conduct specified hormonal and alleles testing.
3. Increase awareness of premarital testing phenomena.
4. Broad community based and in depth studies can be conducted to cover the effects of all dimensions of consanguineous marriage phenomena .

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