The Egyptian Journal of Hospital Medicine (October 2024) Vol. 97, Page 4184-4189

Prevalence, Biological Knowledge and Social Perception of Consanguinity in Sharjah

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ABSTRACT

Background: Consanguineous marriages, or marriages between individuals with a shared ancestry, are prevalent in many Middle Eastern and North African populations, including the United Arab Emirates. While, these marriages are often rooted in cultural and social traditions, they are associated with increased risks of genetic disorders. Understanding the prevalence of consanguinity, the level of biological knowledge about its potential consequences, and the social perceptions surrounding it in Sharjah is crucial for public health initiatives and genetic counselling services.

Aim: This study aimed to measure the prevalence of consanguinity in Sharjah, its distribution in various strata of the population, and its biological knowledge and social perception among married adults.

Methods: A cross-sectional study was conducted on a randomly chosen group of 457 married adults during a non-probability convenient sampling. The study environment was at public places in Sharjah. The information was obtained by face-to-face questionnaire after signing the informed consent form.

Results: 23.4% of the participants were consanguineously married, 14.2 % of them were married to first cousins, while 9.2% were second cousins. The highest prevalence of consanguinity was among the locals (27.0%), lowest within non-local non-Arabs (14.5%) while the prevalence between non-local Arabs was (24.2%) (P=0.061). The majority agreed that consanguineous marriage keeps the property and wealth within the family (61.5%). 75.9% were aware that consanguinity might affect offspring's health. However, their knowledge of specific inherited diseases varied; 7.0% of the sample had excellent knowledge, 10.9% had good knowledge, 21.4% had acceptable knowledge, while the majority of the sample (60.6%) had poor knowledge. Moreover, a significant relationship was evident between the consanguineous group and low education level (P=0.0005), early age of marriage (< 25 years old) (P=0.014) and blood related parents (P=0.002).

Conclusion: The study showed that consanguinity is common in Sharjah population, however there is a declining trend compared to results from previous studies. There was poor knowledge about consanguineous marriage impact, therefore further awareness and health education programs are needed.

Keywords: Consanguinity, Consanguineous marriage, Prevalence, Sharjah, UAE.

INTRODUCTION

Consanguineous marriages, or marriages between individuals with a shared ancestry, have been a long-standing practice in many cultures, including those in the Middle East and North Africa [1]. These unions are often rooted in cultural and social traditions. While, it can serve to strengthen social ties and cultural continuity within a community, it also carries a higher risk of transmitting genetic disorders to offspring [2].

The prevalence of consanguineous marriages varies across different populations and regions, influenced by factors such as cultural norms, religious beliefs, and socioeconomic status [3]. It is traditionally common and deeply rooted throughout the Middle East (20-70%). The prevalence of consanguinity in UAE national families was 50.5% in 1997 [4].

In the United Arab Emirates (UAE), consanguineous marriages are relatively common, particularly in rural areas and among certain ethnic groups [5]. However, there is limited research on the specific prevalence of consanguinity within different Emirati communities, including the Emirate of Sharjah. Understanding the extent of consanguineous marriages in Sharjah is crucial for assessing the potential genetic health implications for the population.

In addition to the prevalence of consanguineous marriages, it is important to consider the level of biological knowledge and awareness about the potential risks associated with these unions. Studies have shown that while many individuals may be aware of the general concept of genetic disorders, they may lack specific knowledge about the increased risks associated with consanguinity [6]. This lack of awareness can hinder efforts to promote genetic counselling and preventive measures. Furthermore, social perceptions and attitudes towards consanguineous marriages play a significant role in shaping individual decisions and societal norms. While, some may view these marriages positively, others may have concerns about potential health risks and social stigma. Understanding these perceptions can help inform public health campaigns and educational initiatives aimed at promoting informed decision-making.

The aim of this study was to investigate the prevalence of consanguineous marriages, the level of biological knowledge about genetic risks, and the social

Received: 23/06/2024
Accepted: 22/08/2024

perceptions surrounding consanguinity in Sharjah. By examining these factors, we hope to contribute to a better understanding of the genetic health landscape in the Emirate and inform future public health interventions.

PATIENTS AND METHODS

A multistage cluster sampling technique was employed to ensure the sample accurately represented the population of Sharjah.

- **Sample Characteristics:** The sample comprised 457 individuals.

Inclusion criteria:

1- **Age:** ranging from 18 to 68 years (mean: 36.7 ± 10.2years), 32.2% were 30 years old or below, 34.1% were between 31 and 40 years old, and 33.7 % were 41 or above.

2- **Diversity: a.** Gender: Females constituted 54.5% (n = 249) of the sample.

b. Nationality: The sample included more than 30 different nationalities: 30% were locals, 51.6% were non-locals Arabs, and 16.6% non-locals non-Arabs.

3- Educational level: Out of the total sample 70.9% (n=324) held at least a university degree. These data suggest a relatively well-educated and diverse sample population, allowing for a comprehensive exploration of the study's objectives.

Exclusion criteria: Age: below 18 and above 68 years old and not resident in the UAE.

- **Data collection:** Involved face-to-face interviews using a structured questionnaire translated into Arabic. The questionnaire assessed demographics, marital status, type of marriage (consanguineous/non-consanguineous), age at marriage, knowledge of inherited diseases, attitudes towards consanguinity, and awareness of genetic counselling and prenatal screening services.

RESULTS

Prevalence of Consanguineous Marriage

Our study revealed a prevalence of consanguineous marriage in Sharjah of 23.4% (n=107), as detailed in table (1).

Table (1): Prevalence of consanguineous marriage among participants

Sample size	Non-consanguineous marriage	consanguineous marriage	Total
N	350	107	457
%	76.6%	23.4%	

A breakdown of these marriages indicated that 60.7% (65/107) were between first-degree cousins, while the remaining were second-degree cousin marriages, as illustrated in table (2) and figure (1).

Table (2): Distribution of consanguineous marriages by degree of relationship

Participants with consanguineous marriage	First cousin	Second cousin	Total
N	65	42	107
%	60.7%	39.3%	
% of total participants	14.2%	9.2%	457

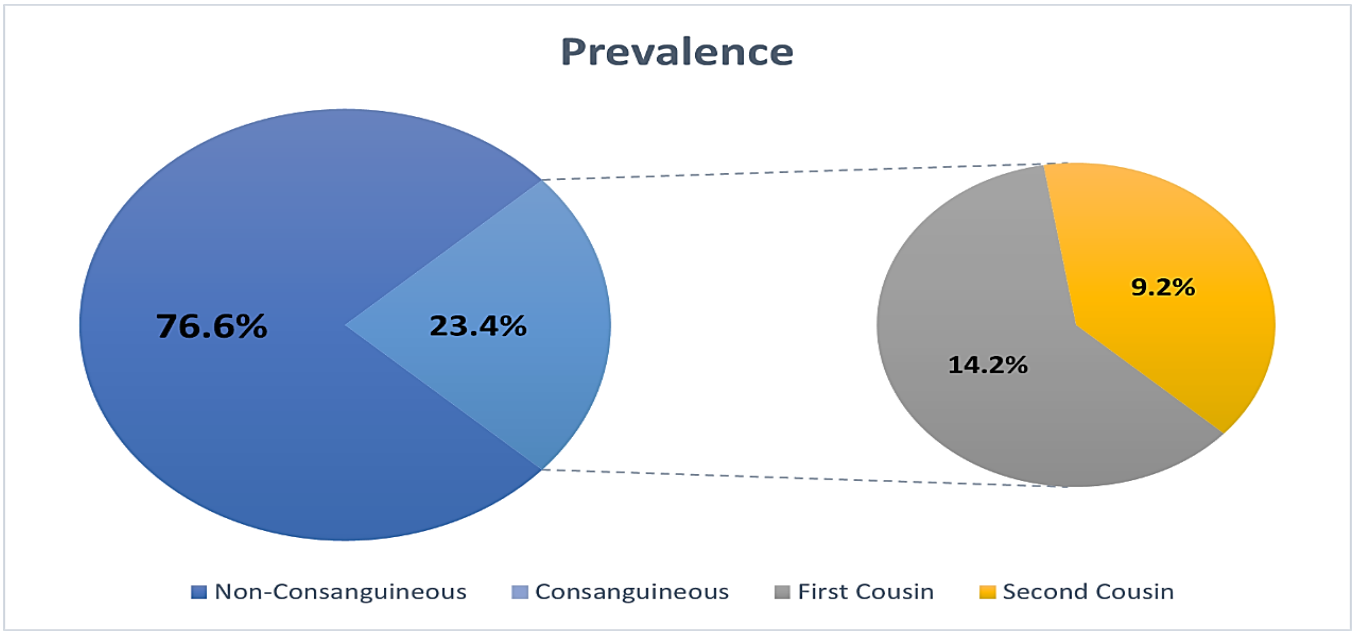

Figure (1): Prevalence of consanguineous marriage among participants and further consanguinity degree distribution.

Variation in consanguineous marriage prevalence across nationalities

Notably, the prevalence varied significantly by nationality as non-local Arabs prevalence was 27.0% compared to 24.2% and 14.5% in locals and non-locals non-Arabs respectively as shown in figure (2).

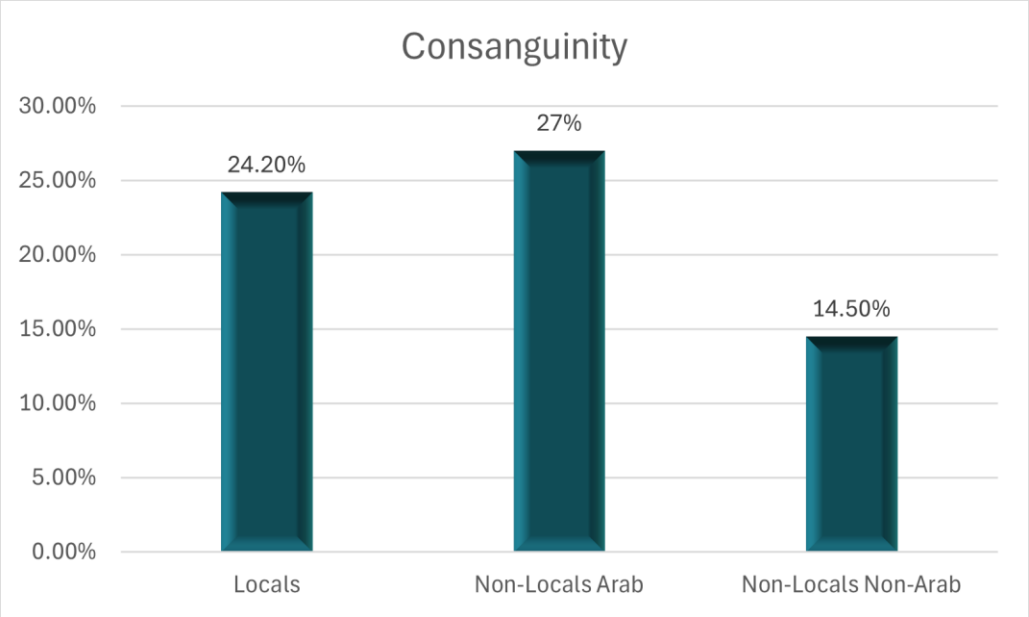

Figure (2): The distribution of consanguineous marriages by nationality.

Knowledge of specific inherited diseases

Interestingly, there was a limited knowledge about potential consequent inherited/congenital diseases among participants (only 7% with excellent knowledge, 60.6% with poor knowledge) (Table 3 and figure 3).

Table (3): Participants' knowledge of inherited/congenital diseases associated with consanguinity

Knowledge of Specific inherited diseases	Excellent	Good	Acceptable	Poor	Total
N	32	50	98	277	457
%	7.0%	10.9%	21.4%	60.6%	

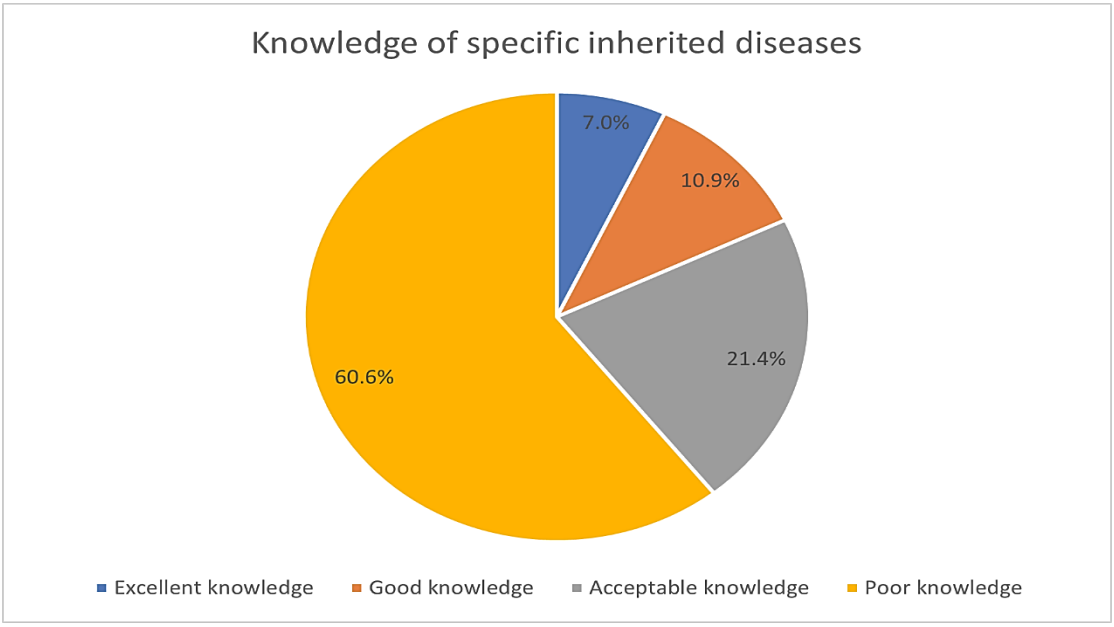

Figure (3): Knowledge of genetic risks.

Participants' response towards consanguinity

A significant majority (71.3%) opposed consanguinity **(Figure 4).**

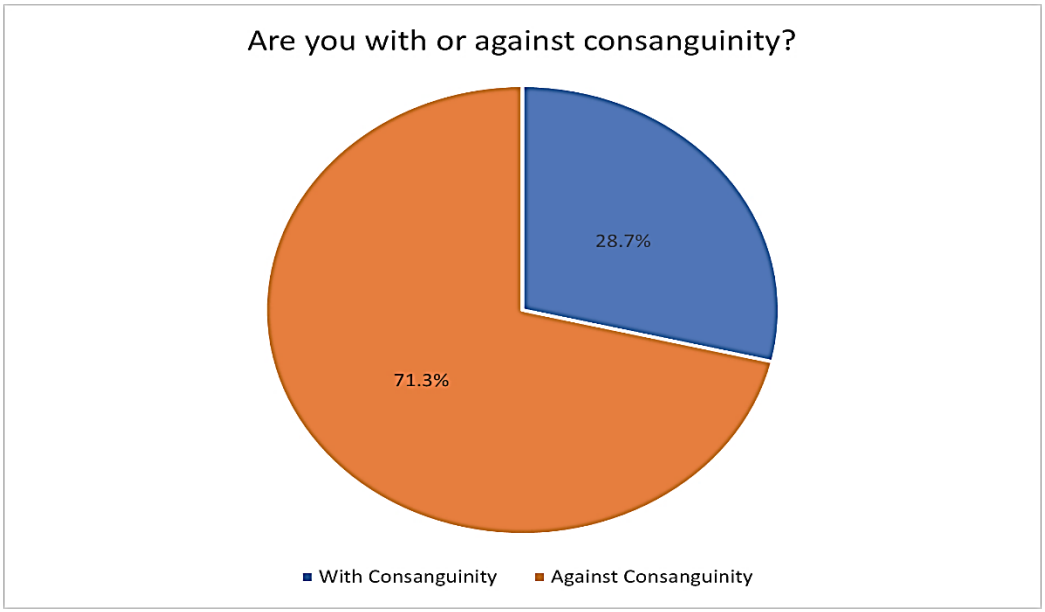

Figure (4): Participants' response towards consanguinity.

Correlations

- There is a significant correlation between consanguinity and education level completed (p< 0.005); 75.8% of non-consanguineous group are highly educated (university degree or higher), while 54.7% within the consanguineous group.
- Within the low educated group, only 24.2% are non-consanguineous, while 45.3% -which is almost double- are consanguineous marriage.
- 69.8% of consanguineous marriage group their age at marriage was 25 years old or less, while in the non-consanguineous group 56.4% with a p-value 0.014.
- 30.2% consanguineous marriage groups their age at marriage was above 25 years, while in the non-consanguineous group 43.6% with a p-value 0.014.
- 39.6% of the consanguineous group had blood related parents compared to only 24.5% of the non-consanguineous group (p=0.002).
- 60.4%of the consanguineous group do not have blood related parents compared to 75.5% of the non-consanguineous group (p=0.002).
- 50.9% of consanguineous group are supporting the consanguineous marriage, while only 21.9% of the non-consanguineous (p<0.0005).

DISCUSSION

While consanguineous marriage rates in European populations typically remain below 0.5%, they significantly increase in regions like North Africa, Saudi Arabia, and South and West Asia, often ranging between 22% and 55% of all unions [7, 8] .

The prevalence of cousin marriage in Sharjah highlights the potential influence of cultural and social factors. A previous study in the UAE found that over half (50.5%) of the population married a relative [4].

This finding suggests that different groups within a population might have varying attitudes towards this practice. This aligns with what we see in Saudi Arabia and Qatar, countries with similar demographics. There, over half the population marries a relative (56% and 54%), showing a significantly higher rate compared to Sharjah. This variation within and between regions underscores the importance of cultural and social contexts in shaping marriage customs.

Knowledge and attitudes

Extensive literature documents the adverse effects of consanguinity, encompassing reproductive behavior, reproductive wastage, increased morbidity and mortality, and genetic disorders [9]. One of the primary adverse effects of consanguinity is the increased risk of rare autosomal recessive disorders in the offspring [10]. Additionally, consanguineous marriages are associated with elevated rates of congenital malformations and inborn errors of metabolism in offspring [11].

However, our study revealed that knowledge regarding the biological implications of consanguinity was generally low, with the average score on a 10-point

scale falling between 3.91 and 4.37. Despite this, a significant portion of the population (75.9%) expressed concerns about the potential increase in genetic diseases associated with consanguinity. Interestingly, 50.9% of individuals within consanguineous marriages expressed support for the practice, citing family ties and perceived compatibility (73.5%) as primary reasons while over two-thirds (65.9%) of the participants were aware that consanguineous marriages could lead to genetic diseases, only a small minority (7%) demonstrated excellent knowledge of these diseases.

In line with our study, **Ahmed *et al.*** [12] found that Saudi Arabian adults had below-average knowledge of the consequences of consanguineous marriages. This aligns with our findings. Another study in Saudi Arabia by **Mahboub *et al.*** [13] reported that most participants had poor knowledge and negative attitudes toward consanguineous marriage. However, older individuals, males, those married to relatives, individuals with frequent family histories of consanguineous marriage, and those with parental consanguinity exhibited significantly more positive attitudes.

Interestingly, despite this limited knowledge (only 7% with excellent knowledge, 60.6% with poor knowledge), a significant majority (71.3%) opposed consanguinity. In fact, inherited diseases were the main concern for those opposing the practice, with 63.4% citing it as a reason. This suggests that people might have a general awareness of the risks without in-depth knowledge. Blood disorders (27.1%), congenital disabilities (24.1%), and diabetes (15.4%) were the most mentioned health worries. Overall, these findings highlight the prevalence of consanguineous marriages alongside a growing awareness of potential health concerns (65.9% aware), even if specific knowledge about genetic diseases remains limited (only 7% with excellent knowledge).

Individuals within these marriages often cited reasons beyond just health, highlighting the complex interplay of factors influencing their perspectives. Cultural values potentially played a role, with 56.7% agreeing that consanguinity strengthens family ties and 48.8% seeing it as an opportunity for cultural continuity. Additionally, economic and practical considerations were mentioned, as evidenced by agreement on keeping wealth within the family (61.5%) and lower dowries (48.8%). However, views on other aspects were diverse. Compatibility within consanguineous marriages was a point of contention (39.2% disagreed, 38.5% agreed), and concerns about increased divorce rates (43.3% disagreed) or hindered social involvement for children (41.6% agreed, 32.4% disagreed) were not widely shared. These findings underscore the multifaceted nature of attitudes towards consanguinity, shaped by a complex combination of cultural influences, personal experiences, and potentially, limited alternative marriage options in specific contexts.

Correlates of consanguineous marriage

There is a negative correlation between education level and attitude toward consanguineous marriage. Increasing level of education decreases the attitude toward consanguineous marriage [14].

A significant association was observed between education level and consanguinity ($p<0.005$). Individuals with lower educational attainment were more likely to be in a consanguineous marriage. Additionally, consanguineous marriages were more prevalent among those who married younger than 25 years old 59.5% compared to 40.5% who married at age of more than 25 years ($p=0.014$). Furthermore, individuals in consanguineous marriages were more likely to have blood-related parents compared to those in non-consanguineous marriages ($p=0.002$). Notably, those within consanguineous marriages expressed a stronger preference for their children to marry close relatives ($p<0.0005$). This finding suggests potential cultural and familial influences contributing to the perpetuation of the practice.

Genetic counselling and prenatal screening

It's important to note that late referrals for prenatal genetic counselling can often be attributed to a lack of awareness and preparedness among primary healthcare providers regarding potential risk factors before pregnancy [15].

Within the participants the awareness of genetic counselling was limited with only 39.4% of participants having heard about it. Consequently, only 12.7% of those aware of genetic counselling actually sought premarital counselling. Prenatal screening, however, was more widely known (75.7%), with 53.2% of participants having undergone such screening.

LIMITATIONS

This study contributes valuable insights into the prevalence and correlates of consanguineous marriage in Sharjah, UAE. The findings revealed a moderate prevalence of consanguineous marriage (23.2%) with variations based on nationality. While, knowledge regarding the potential risks associated with consanguinity was generally low, a significant portion of the population expressed concerns about inherited diseases. Interestingly, some individuals within consanguineous marriages held positive views towards the practice, highlighting the complex interplay of cultural values and personal experiences.

This study acknowledged several limitations: Firstly, the cross-sectional design precludes establishing causal relationships between variables. Secondly, the data

collection was limited to a single city, potentially limiting the generalizability of findings to the entire UAE population. Additionally, potential social desirability bias might have influenced participants' responses, particularly regarding sensitive topics like attitudes towards consanguinity.

CONCLUSION

The study showed that consanguinity is common in the population of Sharjah, UAE. However, there was a declining trend compared to results from previous studies. There was poor knowledge about consanguineous marriage impact, therefore further awareness and health education programs are needed to gain a deeper understanding of the complex factors influencing this practice and to develop culturally sensitive strategies to address potential health concerns while respecting individual autonomy and cultural values.

DISCLOSURE

- Ethical Consideration: Ethical approval from University of Sharjah, College of Medicine Ethical committee.
- Funding: No funding.
- Conflict of interest: None.

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