International Journal of Linguistics Applied Psychology and Technology
https://ijlapt.strjournals.com/index.php/ijlapt
vol. 02 issue 05 (2025)
ISSN: 3048-4529

Consanguineous and Non-Consanguineous Marriages and Personality Dispositions of the Children

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Abstract

The present study aimed to examine the influence of parental consanguinity on personality traits among school-going adolescents. The study utilized a sample of 146 participants (19 males and 127 females) from different schools of Sindh. Out of 146 participants, 106 participants (14 males and 92 females) born to consanguineous parents. Participants were assessed on five personality dimensions (Extraversion, Agreeableness, Conscientiousness, Neuroticism, & Openness) and trait forgiveness scale. An independent samples t-test was used to compare students from consanguineous and non-consanguineous families. Findings indicated that students from consanguineous parents scored significantly higher in Extraversion, Agreeableness, Conscientiousness, and Openness compared students born to non-consanguineous parents. Further, analysis indicated Trait forgiveness was significantly lower in students born to consanguineous parents than in students born to non-consanguineous parents proposing that students born in cousin marriages (consanguineous) tend to have higher trait forgiveness scores compared to those born in non-cousin marriages (non-consanguineous). The analysis suggests several important points: Higher trait forgiveness among consanguineous students may be influenced by cultural or familial dynamics that promote forgiveness within close-knit families. Understanding these associations can provide valuable insights into the genetic and environmental factors influencing personality and interpersonal relationships.

Key terms: *Trait, Forgiveness, Consanguinity, Disposition, Marriage, Family*

Introduction

Marriage is a social union or legal contract between individuals that creates kinship. It is an institution in which interpersonal relationships, usually intimate and sexual, are acknowledged in a variety of ways, depending on the culture or subculture in which it is found.

Such a union may also be called *matrimony*, while the ceremony that marks its beginning is usually called a wedding. People marry for many reasons, most often including one or more of the following: legal, social, emotional, economical, spiritual, and religious. These might include arranged marriages, family obligations, and the legal establishment of a nuclear family unit, the legal protection of children and public declaration of love (Krier et al. 2006; Gallagher, 2002).

Endogamy represents the oldest form of social control over marriage. In this the tradition of marrying within one's own tribe or group. During the times, when interactions with external groups is restricted, marrying within the same group becomes a natural outcome. In many societies of Pakistan, cultural norms still strongly encourage individuals to marry within their social, economic, or ethnic circles. While the exogamy is the practice of marrying outside one's group. It is common in societies with highly intricate kinship systems, where marriage is prohibited among large groups of individuals who share a common ancestry. However, arranged marriages are common in societies where the extended family serves as the fundamental unit. In these societies, people are of the view that love develops between the partners after marriage, with significant consideration given to the socioeconomic benefits the union brings to the broader family. On the other hand, in societies where the nuclear family is dominant, young adults generally select their own partners. In such societies, people are of the view that love precedes and influences marriage, with less emphasis placed on the socioeconomic factors of the match (Mursaleen, Kamrani & Ramzan, 2024; Mumtaz, Ayaz, Kamrani, 2023) . For the Anglo-Saxons and early tribal communities in Britain, marriage was primarily about building relationships. They viewed it as a strategic means to forge diplomatic and trade alliances. Through marriage, peaceful connections, trading partnerships, and mutual obligations were established with others (Coontz, 2000).

Around 1.1 billion individuals presently reside in countries where consanguineous marriages are prevalent, with one in every three marriages within these regions being between cousins (Hamamy et al., 2011). Such marriages are longstanding and respected tradition in many communities across North Africa, the Middle East, and West Asia—regions spanning from Pakistan and Afghanistan in the east to Morocco in the west, as well as South India (see Figure 1). In these areas, intrafamilial marriages represent 20–50+% of all marriages. First cousin marriages (with an inbreeding coefficient of F=0.0625) are particularly common, accounting for 20–30% of all marriages in some areas. On average, first cousins share one-eighth of their genetic material inherited from common ancestors (such as grandparents), making their offspring autozygous at 1 in 16 of all loci, reflected by an inbreeding coefficient (F) of 0.0625. The mean inbreeding coefficient, denoted as "α," is calculated as $\Sigma F_i m_i$, where F_i represents the inbreeding coefficient for a specific type of consanguineous marriage, and m_i is the proportion of that category within the population (Hamamy et al., 2011)**.** This practice is associated with a higher rate of congenital anomalies and autosomal recessive disorders, including metabolic disorders, deafness, retinal dystrophies, intellectual and developmental disabilities, and complex congenital heart conditions (Teebi & El-Shanti, 2006). Pakistan has one of the highest rates of cousin marriage globally, with 49.6% of ever-married women married to their first cousins and an additional 8.3% married to second cousins (NIPS & ICF,

2019). These elevated levels of consanguinity in Pakistan offer an ideal opportunity to study the factors influencing cousin marriage. While consanguinity is declining worldwide, it remains prevalent in Pakistan. As the fifth most populous country, gaining a better understanding of this distinct aspect of family formation is crucial, as it has significant implications for broader population dynamics.

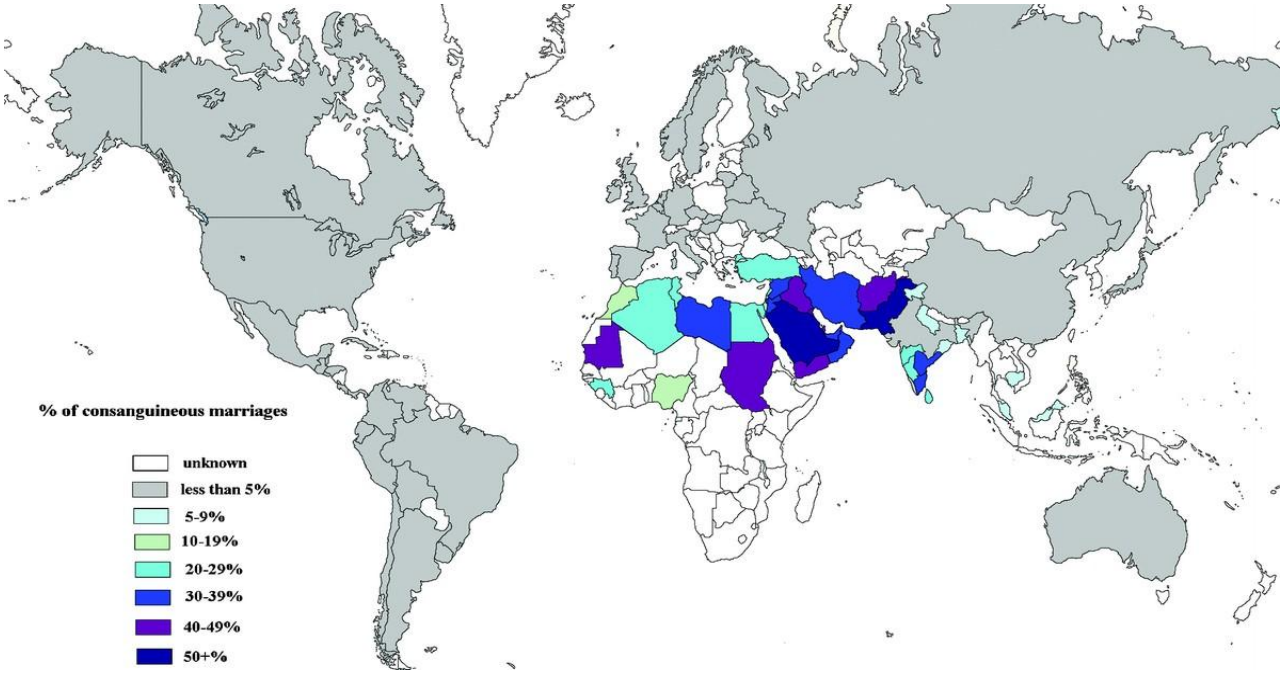

Figure 1: Global total consanguinity rates

Source:(Consang, 2025)

Marriage can be considered an institution in its own right. An institution is defined as a framework or system of social order and cooperation that regulates the behavior of individuals within a community. Institutions serve a social purpose, exhibit permanence, and go beyond individual lives and intentions by establishing rules that guide cooperative human interactions. Marriage embodies all these characteristics, qualifying it as an institution. The connection between marriage and procreation is deeply intertwined as an institution. It is unlikely that the concept of marriage would exist without the capacity for men and women to engage in procreative sexual relations. As Russell (1929) noted, "it is through children alone that sexual relations become of importance to society, and worthy to be taken cognizance of by a legal institution". The first and foremost purpose of marriage as an institution is procreation and child-rearing by fulfilling the social objective of ensuring the continuation of society in a stable, loving, committed, and natural environment. This framework supports the conception and upbringing of children while safeguarding the interests of both the children and society as a whole. Marriage seeks to establish a nurturing, secure, and committed setting for every child brought into the world. Its structure is designed to promote and uphold ideals and norms that best serve the well-being of children.

In a cohort study (Maguire, Tseliou, & O'Reilly, 2018) involving 363,960 participants found that individuals born to consanguineous parents had a higher likelihood of using psychotropic medications in adulthood. Specifically, children of first-cousin parents were over three times more likely to be prescribed medications for common mood disorders and more than twice as likely to receive treatments for psychoses compared to those born to unrelated parents. In an Indian study found the risks associated with consanguineous marriage are significant. Unfortunately, the general public seems unaware of the drawbacks of such marriages and their potential links to the prevalence of related health issues. In India, a major challenge in conveying genetic risk information is that the public's understanding of biological heredity and disease causes is limited and superficial. Many people perceive physical and psychological illnesses as resulting from environmental factors such as accidents, infections, tragic events, God's will, or the influence of harmful spirits (Kundu & Jana,. 2024). Bittles (1994) has shown considerable sympathy for the practice, concluded his 2015 Galton Lecture by observing that, due to industrialization, the balance has shifted, and the biological drawbacks of cousin marriage now outweigh any remaining benefits. Its prevalence serves as "the cornerstone of the perpetuation of the [Pakistani] biraderi," as well as other clan structures like the Bangladeshi brath-thitho (Shaw, 2014). Clans provide "all societies a glimpse of their origins.", wherein people's actions are primarily guided by norms based on the family's collective memories, rituals, and roles, rather than by individual conscience (Ahmed, 2013). The clan itself fulfills "every function and wields every power, with the individual and collective being undifferentiated and inseparable" (Nash, 2024). Its primary goal is to ensure the kin group's survival against adversity by fostering solidarity and securing resources across generations, making it particularly resistant to state control (Din, 2006).

Objectives of the study

The current study investigates cousin marriages, with a comparative analysis of marriages outside the family. It further emphasizes that the essential purpose of marriage is procreation, with the family environment playing a pivotal role in shaping the personality development of the offspring. The researcher further examines the correlation between personality traits in children, comparing those born to cousin marriages with those whose parents are unrelated by blood, to assess the impact of familial genetic ties versus non-related parental backgrounds.

Hypotheses

Following hypotheses are formulated to be tested in the study,

1. Children born to cousin marriages will score higher on the Big Five Personality Inventory compared to children born to parents unrelated by blood

2. There will be a significant difference in the levels of trait forgiveness between children born to cousin marriages and those born to parents unrelated by blood.

Methodology

This research employs a cross-sectional study design, conducted in Hyderabad**,** Pakistan. The study encompasses two distinct groups of students, spanning grades VIII through XII, drawn from a diverse array of public and private educational institutions. These young scholars hail

from families of middle socioeconomic status, serving as a microcosm reflective of the broader Pakistani populace.

The participants of this study are required to possess a proficient understanding of the English language, as the questionnaires administered are exclusively in English. A total sample of 200 male and female students was selected through the simple random sampling technique, subsequently divided into two distinct groups. The first group, comprising 100 students (N=100; 50 males and 50 females), consisted of individuals born to consanguineous parents, forming the experimental group. Conversely, the second group, also comprising 100 students (N=100; 50 males and 50 females), represented those whose parents were non-consanguineous, serving as the control group.

The students were assessed through the administration of the Big Five Personality Inventory (BFI) and the Trait Forgiveness Scale (TFS)**.** Prior to participation, respondents were thoroughly briefed on the purpose and nature of the study, after which they were provided with a consent form to formally signify their voluntary agreement to partake in the research. Subsequently, a concise demographic questionnaire was distributed, designed to gather essential information about their ancestry and familial dynamics, enabling the segmentation of data for nuanced analysis. The statistical evaluation of the findings was carried out using descriptive statistics and independent t-tests, and, while the odds ratio was employed to estimate the relative risk with precision.

Measures

1. Trait Forgiveness Scale (Berry et al, 2005) is a self-report tool where individuals rate how often they forgive in various situations. It shows how likely someone is to let go of resentment and move on, measuring their general tendency to forgive rather than their response to specific incident. It has been assumed that trait forgiveness is more prevalent in consanguineous marriages than non-consanguineous marriages due to the unique dynamics of family relationships. Shared prolong and profound familial bonds, uniform cultural norms, and collective values generate harmony, loyalty and forgiveness in consanguineous marriages. These and many other factors encourage a great tendency to forgive to preserve familial relationships. On the hand, non-consanguineous marriages may lack these built-in family ties, and as such forgiveness depends on individual personality traits, not the general personality traits.

2. The Big Five Inventory (BFI) developed by John, Donahue, and Kentle (1991), is a 44-item tool designed to efficiently assess five key personality traits:

- **Agreeableness**: Being kind, cooperative, and trusting.
- **Conscientiousness**: Being organized, responsible, and reliable.
- **Extraversion**: Being outgoing, energetic, and assertive.
- **Neuroticism**: Experiencing emotional instability.
- **Openness**: Being open to new experiences.

BFI is a widely used tool for studying differences in personality traits, making it suitable for examining variations in children from consanguineous and non-consanguineous marriages. It

offers a clear framework to explore how genetic and environmental factors related to these marriage types may shape personality development. Using this inventory can reveal patterns and provide valuable insights into the relationship between genetics, family ties, and personality.

Results

Table 1

Descriptive Analysis showing Participant's Characteristics (N = 146).

Variable	Male (n = 19)	%	Female (n=127)	%	Total
Age					
11-13 Years	1	0.6	1	0.6	1.2
14-15 Years	6	4.1	55	37.7	41.8
16 & Older	12	8.2	71	48.7	56.9
Academic Class					
8th	0	0	1	0.6	0.6
9th	7	4.8	24	16.4	21.2
A Level	2	1.4	7	4.8	6.2
Matric	0	0	17	11.6	11.6
First Year	3	2.1	22	15.1	17.2
Intermediate	7	4.8	44	30.1	34.9
O Level	0	0	12	8.2	8.2
Type of School					
Autonomous/Semi-Private	0	0	57	39	39
Missionary/Community	0	0	3	2.1	2.1
Private	8	5.5	40	27.4	32.9
Public/Government	11	7.5	27	18.5	26
Socioeconomic Status					
Lower	0	0	4	2.7	2.7
Lower Middle	11	7.5	31	21.2	28.7
Upper	1	0.6	8	5.5	6.1
Upper Middle	7	4.8	83	56.8	61.6
Family Type					
Joint	7	4.8	44	30.1	35
Nuclear	12	8.2	83	56.8	65
Mother Tongue					
Sindhi	9	6.2	45	30.9	37.1
Urdu	7	4.8	35	24	28.8
Balochi	2	1.4	8	5.5	6.9
Punjabi	0	0	23	15.8	15.8
Lasi	0	0	1	0.6	0.6
Balti	0	0	1	0.6	0.6
Hindko	0	0	1	0.6	0.6
Pashto	0	0	6	4.1	4.1
Siraiki	1	0.6	7	4.8	5.4
Residential Orientataion					
Rural	4	2.7	14	9.6	12.3
Urban	11	7.5	76	52.1	59.5
Mixed	4	2.7	37	25.3	28

Table 1 discribes the distribution the sample on the demographic variables of age, academic class, school type, socioeconomic status, family status and mother tongues.

Table 2

Descriptive analysis showing the proportion of the population with consanguineous parents by level of consanguinity

Variable	Male (n = 14	%	Female (n=92)	%	Total
First Cousins	4	3.8	25	23.6	27.4
Second Cousins	2	1.9	17	16	17.9
Distant Relatives	1	0.9	20	18.7	19.6
Within the same extended Family	3	2.8	19	18	20.8
Other Close Blood Relations	4	3.8	11	10.4	14.2
Total	**14**	**13.2**	**92**	**86.7**	**99.9**

Table 2 presents data of participants born to consanguineous parents.

Table 3

Independent Sample t-Test Showing Mean Differences on the Variable of Big Five between students born to consanguineous and non-consanguineous parents.

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Big Five	Non-consanguineous	40	127.5116	20.88902	3.18555
	Consanguineous	106	146.1845	15.06245	1.48415

Independent Samples Test

		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	SED
Big Five	Non-consanguineous	8.336	0.004	-6.061	144	0.000	-18.67	3.081
	Consanguineous			-5.313	61.041	0.000	-18.67	3.514

Table 3 shows the significant difference, between students born to consanguineous and non-consanguineous parents on the variable of Big Five. The mean difference suggests that students from consanguineous marriages score higher on Big Five traits compared to those from non-consanguineous families.

Table 4

Independent Sample t-test Showing Mean Differences on the Variable of Big Five (Extraversion, Agreeableness, Conscientiousness, Conscientiousness, Neuroticism & Openness) between students born to consanguineous and non-consanguineous parents.

Group Statistics

		N	Mean	Std. Deviation	SEM
Extraversion	Non-consanguineous	40	23.02	6.371	0.972
	Consanguineous	106	25.71	4.976	0.490
Agreeableness	Non-consanguineous	40	29.23	7.659	1.168
	Consanguineous	106	31.87	5.689	0.561
Conscientiousness	Non-consanguineous	40	25.07	7.818	1.192
	Consanguineous	106	29.67	6.103	0.601
Neuroticism	Non-consanguineous	40	20.49	6.333	0.966
	Consanguineous	106	24.88	5.683	0.560
Openness	Non-consanguineous	40	29.70	6.871	1.048
	Consanguineous	106	34.05	5.113	0.504

Independent Samples Test

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	SED
Extraversion	Non-consanguineous	5.44	0.021	-2.72	144	0.00	-2.68	0.94
	Consanguineous			-2.46	64.39	0.01	-2.68	1.08
Agreeableness	Non-consanguineous	5.84	0.017	-2.29	144	0.02	-2.64	1.14
	Consanguineous			-2.03	62.21	0.04	-2.64	1.29
Conscientiousness	Non-consanguineous	6.24	0.01	-3.81	144	0.00	-4.60	1.20
	Consanguineous			-3.44	64.37	0.00	-4.60	1.33
Neuroticism	Non-consanguineous	1.13	0.28	-4.11	144	0.00	-4.39	1.06
	Consanguineous			-3.93	71.65	0.00	-4.39	1.11
Openness	Non-consanguineous	5.22	0.02	-4.21	144	0.00	-4.35	1.03
	Consanguineous			-3.74	62.29	0.00	-4.35	1.16

Table 4 shows the personality traits between students born to consanguineous and non-consanguineous parents. The results indicated significant differences in Extraversion, Agreeableness, Conscientiousness, and Openness, with students from consanguineous backgrounds scoring higher in all these traits compared to those from non-consanguineous. However, Neuroticism did not show a statistically significant difference between the groups.

Table 5

Differentiation statistics between students born in non-consanguineous and consanguineous marriages on the variable of trait forgiveness.

Group Statistics

		N	Mean	Std. Deviation	SEM
Trait Forgiveness	non-consanguineous	40	29.42	7.731	1.179
	consanguineous	106	33.11	6.228	0.614

Independent Samples Test

Variable		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	SED
Trait Forgiveness	Non-consanguineous	4.369	0.038	-3.031	144	0.003	-3.688	1.217
	Consanguineous			-2.775	65.845	0.007	-3.688	1.329

Table 5 reveals statistically significant differences in trait forgiveness between students from consanguineous and non-consanguineous families. The results indicate that students born to consanguineous parents have higher trait forgiveness levels. The mean difference suggests that consanguinity significantly impacts trait forgiveness.

Discussion

The first hypothesis proposed that children born to cousin marriages would score higher on the Big Five Personality Inventory compared to children born to parents unrelated by blood. The findings supported this hypothesis, indicating that children of cousin marriages exhibited higher scores across the Big Five dimensions: openness, conscientiousness, extraversion, and agreeableness. However, insignificant difference was found in neuroticism. These results align with previous research suggesting a potential genetic relatedness within families can influence personality traits and development (Bouchard & Loehlin, 2001; Bouchard & McGue, 2003).

Studies on the genetic basis of personality traits have demonstrated that personality is moderately heritable, with genetic factors accounting for approximately 40-60% of variance in traits (Plomin et al., 2012). The higher scores observed in children from consanguineous marriages could be ascribed to the greater genetic similarity between parents, leading to a more homogeneous genetic influence on personality development (Segal, 2012). Furthermore, cultural, social, and parental influences may strengthen particular personality traits in cousin marriages because of the shared family environment (Buunk & Massar, 2020). Research has also examined how environmental and cultural factors affect personality traits. For example, McCrae and Terracciano (2005) discovered that socio-environmental factors contribute to personality differences. This is particularly important in cousin marriages, where personality traits are greatly influenced by upbringing, cultural customs, and family dynamics. Strong familial ties and social expectations may encourage higher conscientiousness and agreeableness in collectivist societies where cousin marriages are common (Schwartz, 2014). These results could be explained by the possibility that the genetic similarity between parents in cousin marriages results in more consistent genetic traits that are passed on to their children, which could lead to more noticeable aspects of personality. The greater chance of acquiring comparable genetic markers linked to personality traits may be the cause of this (Segal, 2012). According to McCrae et al. (2000), these observed differences may also be influenced by shared family environments and cultural factors.

The distinctions between consanguineous and non-consanguineous students' Big Five personality traits in Pakistan offer intriguing insights into social and cultural dynamics. In Pakistan, consanguineous marriages between blood relatives are rather common because of cultural and familial customs that place a high value on preserving social cohesiveness and family ties (Hussain & Bittles, 1998). Students who are consanguineous have higher scores in neuroticism, extraversion, conscientiousness, openness, and agreeableness, which suggests that they might benefit from the close-knit and supportive family environments often associated with cousin marriages. For instance, the strong social networks and regular family interactions that encourage sociable and outgoing behavior may be the reason for the higher extraversion scores (Tariq et al., 2016). Likewise, higher Agreeableness scores might suggest consanguineous students are more cooperative and sympathetic, perhaps as a result of the focus on mutual support and the well-being of the entire family. Consanguineous students' higher conscientiousness scores might be a reflection of the value placed on accountability and hard work in these households, where members frequently assume important roles and responsibilities from an early age (Hussain & Bittles, 1998). However, consanguineous students may have higher levels of anxiety and emotional instability due to higher Neuroticism scores, which may be related to the demands and expectations of close-knit family structures (Tariq et al., 2016; Mursaleen, Shaikh, Kamrani, 2025). Students who are consanguineous may have higher Openness scores because they have been exposed to a wider range of viewpoints and experiences within their extended family networks. Collective decision-making processes and the requirement to adjust to different familial roles and responsibilities may also have an impact on this trait (Hussain & Bittles, 1998).

The second hypothesis suggested that there would be a significant difference in the levels of trait forgiveness between children born to cousin marriages and those born to parents unrelated by blood. The findings supported this hypothesis, revealing that children born to cousin marriages showed higher levels of trait forgiveness. This finding is consistent and supported by previous studies highlighting the influence of genetic predispositions on forgiveness tendencies (McCullough et al., 1997). The higher scores of trait forgiveness observed in children of cousin marriages could be attributed to the close-knit family structures usually linked with such marriages. These families may highlight the importance of maintaining harmonious relationships and resolving conflicts, which leads to a more forgiving attitude in their descendants (Worthington & Scherer, 2004). In the perspective of consanguineous marriages, the family structure tends to be more cohesive and codependent. These families often show strong family bonds, mutual support, and collective family well-being. Such an environment may raise a higher degree of forgiveness among children as they learn to navigate and sustain harmonious relationships within their extended family network (Hussain & Bittles, 1998). Likewise, the genetic resemblances between parents also play a role in shaping the psychological mechanisms underlying forgiveness (Worthington et al., 2014). Forgiveness is commonly influenced by different biological, psychological and environmental factors. Research suggested that adolescents raised in highly cohesive family structures, such as those found in cousin marriages, may develop stronger interpersonal bonds and social obligations, developing higher levels of forgiveness (Toussaint & Webb, 2005). In collectivist cultures where cousin marriages are more common, forgiveness is often highlighted as a means of maintaining familial harmony and avoiding relationship conflicts (Hook et al., 2012). However, genetic factors may also contribute to variations in forgiveness. Research by Reed and Enright (2006) suggests that personality traits such as Agreeableness and Conscientiousness—both of which were found to be higher in children from consanguineous parents—are positively correlated with tendencies of forgiveness. Individuals scoring high on Agreeableness tend to show greater empathy and a willingness to forgive (Brown, 2003). Similarly, higher conscientiousness is associated with moral responsibility, which may encourage forgiveness as a social and ethical obligation (Roberts et al., 2006). Further analysis suggested that the higher level of trait forgiveness among consanguineous students is influenced by cultural or family dynamics that promote forgiveness within close families (Buss, 1991; Mursaleen, 2020). Increased level of trait forgiveness is often associated with improved psychological well-being, lower levels of stress, and improved interpersonal relationships (Toussaint, Owen, & Cheadle, 2012).

Conclusion

Findings of the current study and detailed literature review offer valuable insights into the influence of cousin marriages on personality traits and trait forgiveness. The significant results proposed that genetic connectedness and family environment both play significant roles in shaping the development of personality. These findings have important implications for understanding the complex interaction between personality, genetics and environment. The observed differences in the Big Five personality traits concerning consanguineous and non-consanguineous students in Pakistan highlight the importance of familial and cultural

backgrounds in shaping individual personalities. These findings underscore the importance of culturally sensitive approaches in psychological and educational practices. The intimate family environments typical of cousin marriages influence personality development and forgiveness levels. The present study results highlight the significance of culturally sensitive educational and mental health programs such as counseling programs, which address the individual needs of students from different familial and cultural backgrounds.

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