

Thirty Years of Consanguineous Marriages in Pakistan

Saima Bashir¹, Saman Nazir²

¹ Corresponding Author, Senior Research Demographer, Pakistan Institute of Development Economics (PIDE), Islamabad, Pakistan; Email: saima@pide.org.pk.

² Senior Research Economist, Pakistan Institute of Development Economics (PIDE), Islamabad, Pakistan; Email: saman@pide.org.pk.

Abstract

Almost half of all marriages in Pakistan are consanguineous. Despite its high prevalence, little is known about the change over time in consanguineous unions in Pakistan. Examining the patterns of the cousin marriages is particularly important given the substantial improvement in women's education which is often associated with the decline in consanguineous unions across the world. Our analysis, based on four waves of nationally representative Pakistan Demographic and Health Surveys - PDHS (1990-91, 2006-07, 2012-13, and 2017-18), shows that the prevalence of consanguineous unions remains stable over time. Further, women's education is negatively associated with cousin marriages. Hypergamous (husband is more educated than her wife) unions are more prevalent, but a consistent rise in educational hypogamy (wife is more educated than her husband) is observed during this time. The results show that consanguineous marriages are more likely to be hypogamous than non-consanguineous marriages. Moreover, contraceptive use is lower among women in consanguineous unions. An inverse relationship has been found between the mean fertility and cousin marriages. Women in consanguineous marriages are likely to have fewer children than women in non-consanguineous marriages. Overall, the results show that consanguinity patterns are stable, and there is no evidence that the societal changes such as improvement in women's education and urbanization over time have led to a decline in cousin marriages in Pakistan.

Key Words: Marriages, Consanguineous, PDHS, Education, Pakistan

Article history: Received: August 4, 2022, Revised: August 30, 2022, Accepted: October 13, 2022

Published: November 30, 2022

Copyright License: This is an open-access article under the CC BY

license (<http://creativecommons.org/licenses/by/4.0/>).



DOI:

1. INTRODUCTION

Consanguineous union, i.e., marriage between close relatives, is prevalent in many parts of the world. Pakistan is one such society where consanguineous marriages account for over half of all marital unions (NIPS, 2018). Preference for

consanguineous unions in society is closely related to a number of cultural and socio-structural factors, including efforts to strengthen family ties, agnatic solidarity, dowry-related financial considerations, family support during marital strife, and significantly lower independence for mate choice in a culture (Agha, 2016; Hussain 1999; Lin, Desai, & Chen 2020; Mobarak et al., 2019). Studies show a strong correlation between consanguineous marriages and high fertility, younger marriage ages for women, early childbirth, and child mortality (Fareed et al., 2017; Islam, 2012). Despite consanguineous unions accounting for a larger share in overall marital unions in the country and their interlinkages with gender dynamics, fertility behaviour, and child survival outcomes, recent studies on consanguinity in the country are lacking.

Previously, Hussain (1999) found that a high preference for consanguinity, in Pakistan, is driven by sociocultural issues and not because of financial benefits like family property consolidation or smaller, less expensive dowries. Likewise, Agha (2016) found that the preference for consanguineous marriages is linked to the kinship system. Women prefer consanguineous partnerships for the convenience of remaining close to their parents' families, while parents regard such unions to be socially secure for their children. The study's findings indicate that teenage marriage, low educational attainment for women, and early motherhood are all significant effects of these relationships (Agha, 2016). The contribution of the previous studies on consanguineous unions in the country is valuable (Afzal, Ali, and Siyal, 1994; Hussain and Bittles, 1999, 2000). However, it is expected that social fabric and societal norms-in terms of gender equality, educational attainment, and marriage preferences might have changed during this period. For instant, educational levels across the population have improved over time, but more significantly, a rise in women's higher educational attainment has been observed. At the same time, the labour force participation rate for women remains low; only around one-fourth of Pakistani women with college degrees hold a job outside the home (ADB, 2016). Due to the conventional gender division of roles in Pakistani society, women spend less time working in the paid labour market and more time performing unpaid home duties than men. Even for women with more education, the traditional distribution of labour within the family is under greater stress, which could cause educational differences in mate choice.

In this study, we aim to examine how preferences for consanguineous marriages have or have not changed over time. We also intend to look at the trends for variations in couples' educational differences in consanguineous and non-consanguineous unions. Historically, marital unions in Pakistani society are

hypergamous (husband more educated than wife). However, with more women in higher education, it would be imperative to examine if the trend is shifting toward hypogamy (the wife is more educated than the husband). In literature, we find that women who opt for consanguineous partnerships have fewer opportunities to pursue higher education. Therefore, we anticipate that non-consanguineous unions may be moving toward educationally homogamous/hypogamous marriages, while it is likely that consanguineous unions would continue to be hypergamous. We also aim to see how fertility behaviour and outcomes differ across marital unions. Studies for South Asia show that couples in consanguineous unions have higher fertility (Hussain & Bittles 2004; Nawaz, Zaman & Malik 2021). Also, consanguineous unions are linked to higher mortality, congenital abnormalities, and poor reproductive results (Kanaan, Mahfouz, & Tamim 2008; Rittle et al. 2001).

Educational Assortative Mating in the Marriage Market

Educational hypogamy refers to the unions in which the wife has an educational level that is equal to or higher than that of her spouse, and educationally hypergamous marriages are those in which the wife has less education than her spouse (Esteve, García-Román, & Permanyer, 2012 p. 535). Historically, in developing countries, most marital unions are educationally hypergamous. However, over time, both industrialized and developing countries have seen a drop in educationally hypergamous marriages (Esteve et al., 2016; Esteve, García-Román, & Permanyer, 2012). In literature, we found two probable explanations of the decline in educational hypergamy i.e., evolving gender norms and women's increased access to education globally (Chudnovskaya & Kashyap 2020; Esteve et al., 2016; Lin, Desai, & Chen 2020; Van Bavel, 2012). However, the former reason has been widely contested in literature; especially, in context of developing countries (Lin, Desai, & Chen 2020).

The literature on educational assortative mating is lacking for the country. Furthermore, studies from Pakistan are not conclusive about the relation of education with consanguinity. A study, conducted in the Rahim Yar Khan district, found that illiteracy is a strong predictor of consanguinity. Women who are more likely to be in a consanguineous union include those whose husbands are manual labourers or unskilled employees, as well as those whose parents were married in the same way (Riaz, Mannan, & Malik, 2016).

On the contrary, Jabeen, & Malik, 2014, in their study in the Bhimber district, reported that consanguinity was much higher in the literate group when compared to the non-literate group. They stated that even when literacy and consanguinity are related, the relationship is not always the opposite. In case of Pakistan, an understanding of the educational dynamics within consanguineous and non-consanguineous partnerships is imperative as 50% of marriages in Pakistan are still consanguineous. In our study, we aim to look how marriage preferences differs with educational dynamics.

Consanguinity and Fertility

Fertility behaviour and childbearing outcomes may vary between unions that are consanguineous or non-consanguineous. Al Kandari (2007) found that women who marry in consanguineous unions have greater rates of pregnancy termination and stillbirth. The study shows that Muslim women and those in consanguineous marriages had greater fertility rates. In literature, consanguinity is also associated with the primary effect of raising the proportion of homozygotes for autosomal recessive genetic diseases. For example, Tadmouri et al. (2009) found a high prevalence of recessive illnesses among Arabs and argued that many such illnesses were linked to consanguinity. Furthermore, Omer, Farooq & Jabeen S. (2016) also found a link between cousin marriages, poor maternal and child health outcomes.

Women who marry their first cousins have greater fertility rates than those who marry non-relatives in India and Pakistan. Consanguinity has been connected to several direct and indirect fertility predictors, such as lower mother education, younger maternal age at marriage, the low use of contraceptives, and residing in rural areas (Hussain, R., & Bittles, 2004). Consanguineous couples tend to have greater fertility rates, which may be related to unfavourable pregnancy or child health outcomes. However, as indicated by some studies, the increased fertility in consanguineous marriages may also be associated with general familial or kin support, particularly that related to child-rearing (Agha, 2016; Do & Joshi, 2013; Hussain, 1999). However, the findings are not always consistent.

Similarly, a woman's age is also a significant predictor of consanguineous unions. Women marry earlier in consanguineous unions than in non-consanguineous unions (Agha, 2016; Audinarayana & Krishnamoorthy, 2000; Donbak, 2004). Because reproductive cycles last longer in younger women, it may be a contributing factor to the greater fertility rate in consanguineous unions.

Additionally, research shows that contraception use is less among consanguineous couples than among non-consanguineous couples, which may also be a reason for high fertility rates among the former group. In our study, we look at how fertility preferences differ among consanguineous and non- consanguineous unions.

Data and Methods

The data from four rounds of Pakistan Demographic Health Survey 1990-91, 2006-07, 2012-13, and 2017-18 were used for this study. DHS data were collected by ICF International in collaboration with National Institute of Population Studies (NIPS) and are publicly available. These surveys are nationally representative and cover women of ages 15–49. DHS collects detailed information on mother and child health, fertility history, family planning, reproductive health, nutritional and immunization status, marriage and sexual activity, and husband’s background. The analysis spans almost 30 years from 1990 to 2018. The sample size of ever-married women aged 15-49 is 6, 611 in 1990-91, 10,023 in 2006–2007, 13,558 in 2012–2013 and 12, 364 in 2017–2018.

Various pre-analysis exclusion criteria were applied. We excluded women who reported more than one marital union and those had missing information on number of unions. Further, we dropped women whose information on relationship with husband is missing. We also excluded women who either did not provide information on husband’s education or did not know about their husband’s education. The final analytical sample across four waves thus is 6,438 for 1990-91; 9,715 in 2006-07; 13, 179 in 2012-13, and 11,618 in 2017-18.

2. METHODS

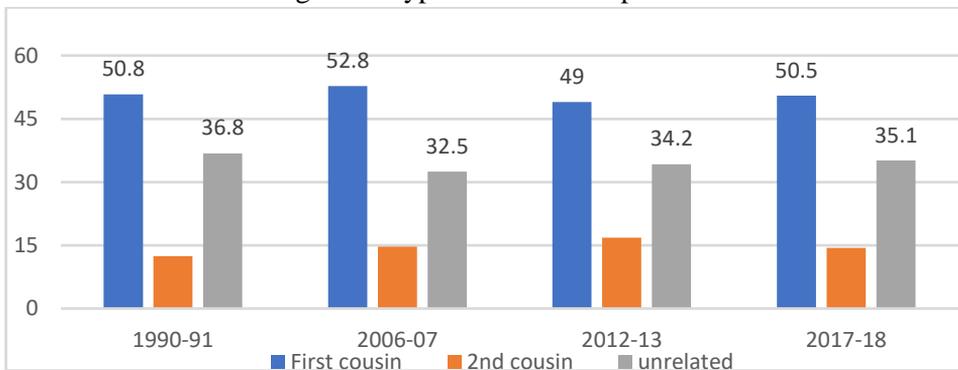
Descriptive statistical techniques were used to observe the prevalence and trends of consanguinity. Further, we performed the comparative analysis of consanguineous and non-consanguineous marriage types by husband/wife’s educational attainment. Third, we looked at the association between consanguinity and fertility. We used age at marriage, mean number of living children, and contraceptive use as our measures. The statistical significance of associations between consanguinity and various determinants is assessed by applying the chi-squared test. We applied the sample weights to account for the clustering and complex survey design. The analysis is weighted and done by using svy command in Stata 13.

3. RESULTS

Trends Over Time in Consanguineous Marriage

Figure 1 shows the prevalence of consanguineous marriages in Pakistan from 1990-2018. During the last three decades, the patterns of cousin’s marriages remain stable. More than 50% of the marriages are among the first cousins either from maternal or paternal side. Only one third of the marriages are non-consanguineous unions while the remaining with the second cousins. This trend is contrary to expectations that increase in women’s education and other societal changes such as urbanization leads to decline in cousin marriages. However, there is no evidence that these societal changes are associated with reduction in first cousin marriages. In fact, the prevalence of first cousin marriages remained mostly stable.

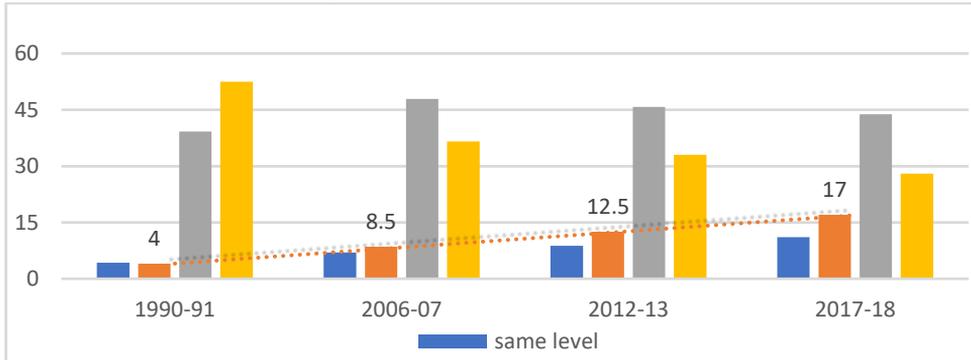
Figure 1. Type of Relationship with Husband



Educational Assortative Mating and Consanguinity

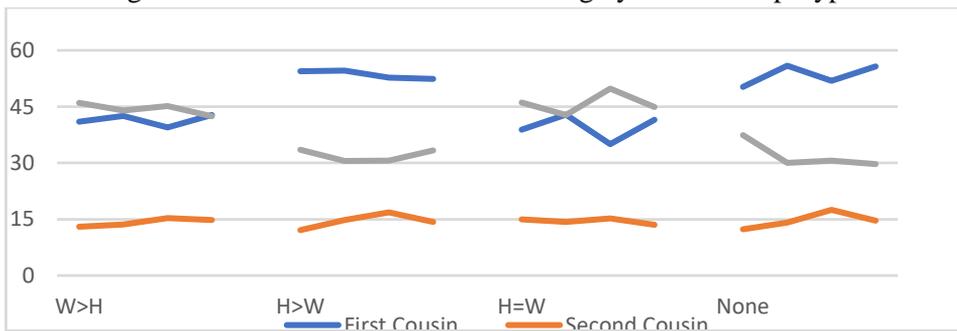
However, some interesting changes are observed in spousal educational differences. As mentioned above, since 1990 there is a substantial improvement in women’s educational attainment. This pattern of increase in women’s education is reflecting in the marriage market as well. Though, educational hypergamy—i.e. when husbands are more educated than wives still persist, a consistent pattern of educational hypogamy is emerging over time. There are only 4 percent couples in which wife was more educated than her husband in 1990. This percentage has increased to 17% in 2017-18. Similarly, there is a considerable decline in couples with no formal education (Figure 2).

Figure 2. Educational Assortative Mating



The association between formal education and consanguinity is still prevalent. The phenomenon of educational hypogamy or homogamy is more common among non-cousin marriages. Whereas consanguineous marriages are more common in couples in which husband is more educated than his wife or both spouses have no formal education (Figure 3). However, we do not see any substantial variation in educational assortative mating by relationship type over time.

Figure 3. Educational Assortative Mating by Relationship Type

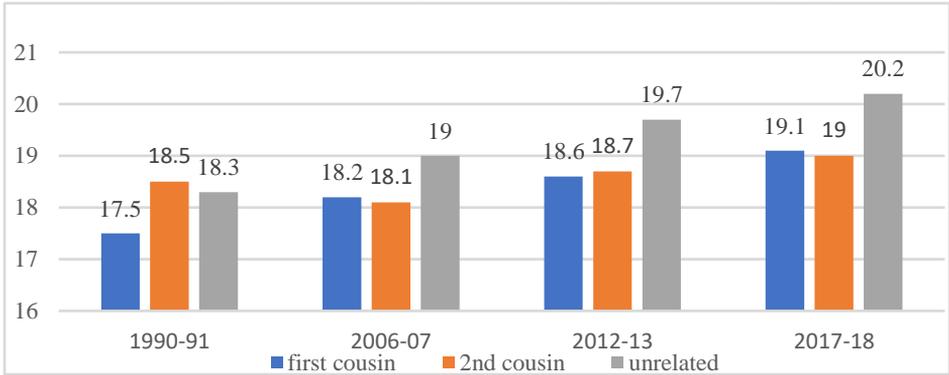


Consanguinity and Fertility

Mean Age at Marriage

The mean age at marriage has significantly increased over time across all relationship types. However, the increase is much higher among non-cousin marriages. In 1990, the mean age at marriage among unrelated couples was 18.3 years and has increased to 20.2 years in 2017-18. The mean age at marriage is 1.1 year higher among non-cousin marriages than cousin marriages in 2017-18.

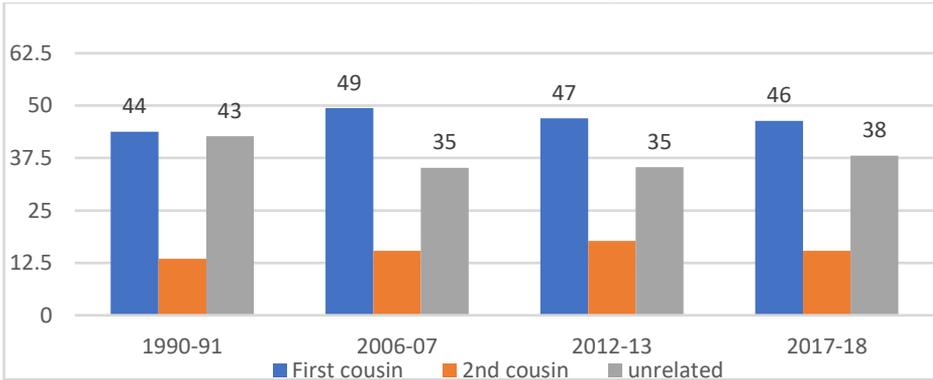
Figure 4. Mean Age at Marriage by Relationship Type



Contraceptive Use

Interestingly, the use of contraception showed a different pattern. Contrary to our expectation, contraception is significantly higher in first cousin marriages than non-cousin marriages over time. Though a decline is observed in contraceptive use among cousin marriages and catch-up trend in contraception is observed recently among non-cousin relationships (Figure 5).

Figure 5. Contraception by Type of Relationship

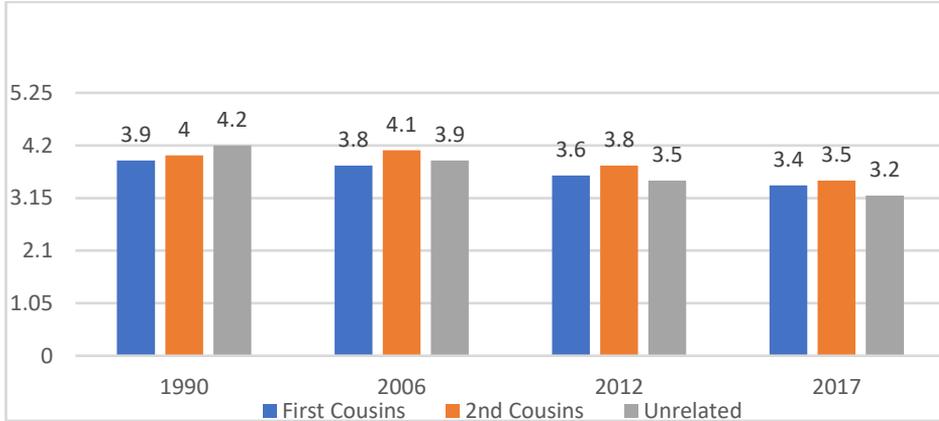


Mean Number of Children Ever Born

The relationship between consanguinity and mean number of children ever born have changed over time. In 1990, the mean number of children ever born were higher among non-consanguineous couples as compared to consanguineous marriages (Figure 6). However, this relationship has reversed over time and now

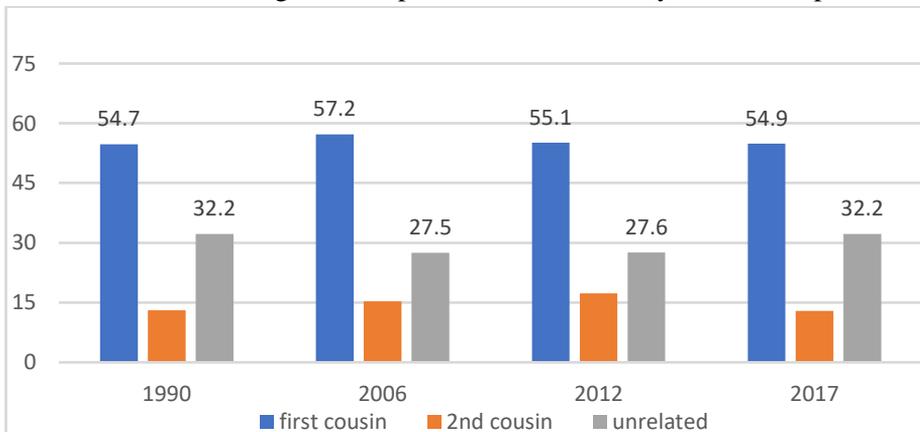
mean number of children ever born are higher in cousin marriages than among unrelated couples.

Figure 6. Mean Number of Children Ever Born by Relationship Type



The higher mean number of children ever born in cousin marriages could be the result of high child mortality among cousin marriages. This is confirmed by experience of child loss by relationship type (Figure 7). The pattern of child mortality remains consistent over time with predominantly higher child mortality in first cousin marriages and lower in marriages among unrelated couples.

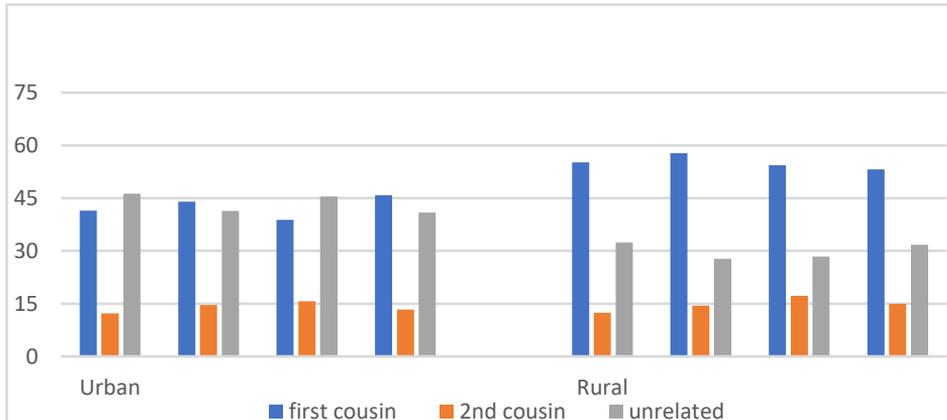
Figure 7. Experience Child Loss by Relationship



Other Correlates of Consanguineous Marriages

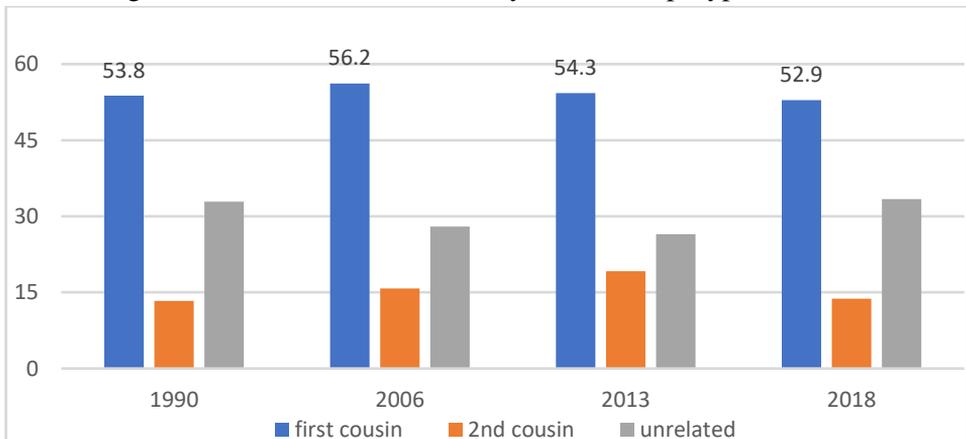
Similarly, the incidence of cousin marriages by urban rural areas shows minor changes during the same period. Marriages among first cousins are more common in rural areas whereas in urban areas non-consanguineous relationships are more common (Figure 8).

Figure 8. Urban-Rural Pattern of Cousin's Marriages: 1990-2017



The prevalence of cousin marriages exhibits minor change with respect to women's employment over time. First cousin marriages are more common among working females as compared to unrelated marriages (Figure 9).

Figure 9. Women's Work Status by Relationship Type



4. DISCUSSION

Consanguineous marriages are a less researched area in the demography though it is prevalent in many parts of the developing world. The practice of consanguineous unions is common in Pakistan. Around 50% of the marital unions are among first or second cousins. Despite the high prevalence of cousin marriages, only few studies have looked at the sociodemographic dynamics of consanguineous unions (Afzal, Ali, and Siyal 1994; Hussain and Bittles, 1999, 2004). Most studies are either dated, localized, or looked at the biological consequences of consanguineous marriages.

We looked at the trends in consanguineous marriages and its relationship to women's own education and spousal educational homogamy. Overall, the results show that the pattern of consanguineous marriages remains stable over time with almost half of the women married to their cousins from 1990-2018. The same pattern is observed in some other countries such as Yemen (Jurdi & Saxena, 2003; Tfaily, 2005), Turkey (Tfaily, 2005) and Iran (Givens & Hirschman, 1994).

Association between women's education and spousal educational homogamy and consanguineous unions was also examined. The association between formal education and consanguinity is still prevalent. Though educational hypergamy still persists, a consistent educational hypogamy pattern is emerging over time. The phenomenon of educational hypogamy or homogamy is more common among non-cousin marriages than cousin marriages. Whereas consanguineous marriages are more common in which the husband is more educated than his wife or both spouses, have no formal education. The findings are consistent with other studies done in similar contexts that educated women are more likely to marry non-relatives than women with no formal education (Assaf and Khawaja, 2008; Hussain and Bittles, 2000; Jurdi and Saxena, 2003; Givens and Hirschman, 1994).

Interestingly, we observed that a consistent pattern of educational hypogamy is emerging over time. Though insignificant, the results indicated that hypogamy is positively associated with consanguineous marriages, as found in other studies (e.g., Lin, Desai, Chen, 2020). Though surprising in Pakistan's cultural context, it makes sense. Mostly, marriages in Pakistan are arranged by parents, and women have little say in these decisions irrespective of their educational status (Hussain and Bittles, 1999). This norm significantly reduces the pool of marriageable men, and given the universal nature of marriage, "marrying men with lower education could be more of a necessity" (Lin, Desai, Chen, 2020).

In the second part of this paper, we looked at how fertility behaviours, namely age at marriage, contraceptive use and children ever born, are influenced by consanguineous marriages. As expected, and observed in other studies, women in related unions are marrying at younger ages and contraceptive use is lower among women in cousin marriages than non-cousin marriages. Moreover, consanguineous marriages are more common among rural couples, women with no formal education, and those who experience child loss. All these factors are associated with lower use of contraception (Hosseini-Chavoshi, Abbasi-Shavazi, & Bittles, 2014; Islam, 2013; Hussain and Bittles, 1999).

The study found an inverse relationship between the mean number of children ever born and cousin marriages. Women in consanguineous marriages are likely to have fewer children than women in non-consanguineous marriages. This result contradicts the studies that found higher fertility in consanguineous unions as a replacement strategy among parents for child mortality. However, when it comes to Pakistan, Hussain and Bittles (1999) found a similar result. They argue that this may result from “random under-reporting of fertility figures or some misclassification of women by consanguinity status” (Hussain and Bittles, 1999, p.136).

5. CONCLUSION

Overall, the study results show that consanguinity patterns are stable, and there is no evidence that the societal changes such as improvement in women’s education and urbanization over time have led to a decline in cousin marriages in Pakistan. The study contributes to the existing literature on consanguinity, educational assortative mating, and fertility. The study is particularly relevant to the family planning, education, and gender policies in the country. The study's findings indicate that without a substantial social change, the decline in consanguineous marriages is unlikely. The cultural preference for consanguineous unions is untestable, as the country has a weak institutional support for childcare, or for women who experience family conflicts, separation, or divorce. Moreover, expansion of education, particularly in the context of the gender gap, is not enough; participation of young women in formal job market is crucial. Until the opportunity cost of having children for women is not high, a shift in fertility behaviour cannot be observed. Formal job market raises the opportunity cost for women and exposed them to more marriageable pool of men with modern family ideals. Similarly, a shift from family support to institutional support in terms of childcare could be one

major step in encouraging the participation of women in the job market, hence, directly, or indirectly raising the opportunity cost for having more children. Availability and accessibility of educational opportunities, women labour market participation, institutional support for childcare, parallel attention to demand-side factors in family planning programs may lead towards a desirable social change in Pakistani society.

REFERENCES

- Abbasi-Shavazi, M. J., McDonald, P., & Hosseini-Chavoshi, M. (2008). Modernization or cultural maintenance: the practice of consanguineous marriage in Iran. *Journal of biosocial science*, 40(6), 911.
- ADB (2016). Policy Brief on Female Labour Force Participation in Pakistan. ADB BRIEFS NO.70. <https://www.adb.org/sites/default/files/publication/209661/female-labor-force-participation-pakistan.pdf>
- Afzal, M., Ali, S. M., & Siyal, H. B., (1994). Consanguineous Marriages in Pakistan. *The Pakistan Development Review*, 33(4), 663-676.
- Agha, N. (2016, January). Kinship in rural Pakistan: Consanguineous marriages and their implications for women. In *Women's Studies International Forum* (Vol. 54, pp. 1-10). Pergamon.
- Al Kandari, Y.Y. (2007) .Fertility and its relationship with sociocultural factors in Kuwaiti society. *EMHJ - Eastern Mediterranean Health Journal*, 13 (6 2007 ,1371-1364
- Audinarayana, N., & Krishnamoorthy, S. (2000). Contribution of social and cultural factors to the decline in consanguinity in South India. *Social biology*, 47(3-4), 189-200.
- Barbour, B., & Salameh, P. (2009). Consanguinity in Lebanon: prevalence, distribution and determinants. *Journal of biosocial science*, 41(4), 505.
- Bhatta, D. N., & Haque, A. (2015). Health problems, complex life, and consanguinity among ethnic minority Muslim women in Nepal. *Ethnicity & health*, 20(6), 633-649.
- Chudnovskaya, M., & Kashyap, R. (2020). Is the end of educational hypergamy the end of status hypergamy? Evidence from Sweden. *European Sociological Review*, 36(3), 351-365.
- Do, Q. T., Iyer, S., & Joshi, S. (2013). The economics of consanguineous marriages. *Review of Economics and Statistics*, 95(3), 904-918.

- Donbak, L. (2004). Consanguinity in Kahramanmaras city, Turkey, and its medical impact. *Saudi medical journal*, 25(12), 1991-1994.
- Esteve, A., García-Román, J., & Permanyer, I. (2012). The gender-gap reversal in education and its effect on union formation: the end of hypergamy? *Population and Development Review*, 38(3), 535-546.
- Esteve, A., Schwartz, C. R., Van Bavel, J., Permanyer, I., Klesment, M., & Garcia, J. (2016). The end of hypergamy: Global trends and implications. *Population and development review*, 42(4), 615.
- Fareed, M., Ahmad, M. K., Anwar, M. A., & Afzal, M. (2017). Impact of consanguineous marriages and degrees of inbreeding on fertility, child mortality, secondary sex ratio, selection intensity, and genetic load: a cross-sectional study from Northern India. *Pediatric research*, 81(1), 18-26.
- GoP (2018). Labour Force Survey 2017-18 (Annual Report). Government of Pakistan Statistics Division Pakistan Bureau of Statistics.
<https://www.pbs.gov.pk/content/labour-force-survey-2017-18-annual-report>
- Hosseini-Chavoshi, M., Abbasi-Shavazi, M.J., and Bittles, A.H. (2014). Consanguineous Marriage, Reproductive Behaviour and Postnatal Mortality in Contemporary Iran. *Human Heredity*, 77:16–25
<https://data.worldbank.org/indicator/SE.TER.ENRR.FE?locations=PK>
- Hussain, R., & Bittles, A. H. (2004). Assessment of association between consanguinity and fertility in Asian populations. *Journal of Health, Population and Nutrition*, 1-12.
- Hussain, R., & Bittles, A. H. (2004). Assessment of association between consanguinity and fertility in Asian populations. *Journal of Health, Population and Nutrition*, 1-12.
- Hussain, R.: Community perceptions of reasons for preference for consanguineous marriages in Pakistan 1999.
<https://ro.uow.edu.au/hbspapers/38>.
- Islam, M. M. (2012). The practice of consanguineous marriage in Oman: prevalence, trends, and determinants. *Journal of biosocial science*, 44(5), 571.
- Islam, M. M. (2013). Effects of consanguineous marriage on reproductive behaviour, adverse pregnancy outcomes and offspring mortality in Oman. *Annals of human biology*, 40(3), 243-255.

- Jabeen, N., & Malik, S. (2014). Consanguinity and its sociodemographic differentials in Bhimber district, Azad Jammu and Kashmir, Pakistan. *Journal of health, population, and nutrition*, 32(2), 301.
- Jaber, L., & Halpern, G. J. (2014). Consanguinity and Fertility and Reproductive Issues. *Consanguinity-Its Impact, Consequences and Management*, 194.
- Kanaan, Z. M., Mahfouz, R., & Tamim, H. (2008). The prevalence of consanguineous marriages in an underserved area in Lebanon and its association with congenital anomalies. *Genetic testing*, 12(3), 367-372.
- Mobarak, A. M., Chaudhry, T., Brown, J., Zelenska, T., Khan, M. N., Chaudry, S., ... & Li, S. (2019). Estimating the health and socioeconomic effects of cousin marriage in South Asia. *Journal of biosocial science*, 51(3), 418-435.
- Nawaz, A., Zaman, M., & Malik, S. (2021). Consanguinity, inbreeding coefficient, fertility, and birth-outcome in population of Okara district, Pakistan. *Pakistan Journal of Medical Sciences*, 37(3).
- National Institute of Population Studies (NIPS) [Pakistan] and Macro International Inc. *Pakistan Demographic and Health Survey 2017-18*, Islamabad, 2018.
- National Institute of Population Studies (NIPS) [Pakistan] and Macro International Inc. *Pakistan Demographic and Health Survey 2012-13*, Islamabad, 2013.
- National Institute of Population Studies (NIPS) [Pakistan] and Macro International Inc. *Pakistan Demographic and Health Survey 2006-07*, Islamabad, 2007.
- National Institute of Population Studies (NIPS) [Pakistan] and IRD/Macro International Inc. *Pakistan Demographic and Health Survey 1990/91*. Columbia, Maryland, USA: NIPS and IRD/Macro International Inc, 1992.
- Omer, S., Farooq, S., & Jabeen, S. (2016). Effects of cousin marriages on adverse pregnancy outcomes among women in Pakistan: A secondary analysis of data from the Pakistan Demographic and Health Survey 2012-13. *Pakistan Journal of Women's Studies= Alam-e-Niswan= Alam-i Nisvan*, 23(1), 65.

- Riaz, H. F., Mannan, S., & Malik, S. (2016). Consanguinity and its socio-biological parameters in Rahim yar Khan district, Southern Punjab, Pakistan. *Journal of Health, Population and Nutrition*, 35(1), 1-11.
- Rittler, M., Liascovich, R., López-Camelo, J., & Castilla, E. E. (2001). Parental consanguinity in specific types of congenital anomalies. *American journal of medical genetics*, 102(1), 36-43.
- Rose, E. (2005). Education, hypergamy and the success gap. URL: http://www.aeaweb.org/assa/2005/0109_1300_0701.pdf on, 29(05), 2014
- Tadmouri, G. O., Nair, P., Obeid, T., Al Ali, M. T., Al Khaja, N., & Hamamy, H. A. (2009). Consanguinity and reproductive health among Arabs. *Reproductive health*, 6(1), 1-9.
- Van Bavel, J. (2012). The reversal of gender inequality in education, union formation and fertility in Europe. *Vienna Yearbook of Population Research*, 127-154.
- World Bank Data (2021). <https://data.worldbank.org/indicator/SE.TER.CUAT.MS.FE.ZS?locations=PK>.