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Debate

TRANSITION IN CONSANGUINITY IN DIR LOWER DISTRICT, A VICTIM OF WAR, NATURAL DISASTER AND POPULATION DISPLACEMENT, IN NORTH-WEST PAKISTAN – A RESPONSE TO STHANADAR *ET AL.* (2015)

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Sthanadar *et al.* (2014), through a population-based study in the Malakand district of Khyber Pakhtunkhwa (KPK), Pakistan, showed that the rate of consanguineous union was 66.4%. In our understanding this is an overestimate and such a high rate of consanguineous union has never been witnessed in any Pakistani population. This estimate of consanguinity in Malakand is higher than reported in all the populations of KPK (Amin, 2013; Ahmad *et al.*, 2015; Ahmad, 2015). In Punjab province of Pakistan, which comprises the most inbred populations, the highest prevalence of consanguineous union was observed in Gujranwala district, i.e. 60% (Bittles *et al.*, 1993). It is important to note that this high rate in Gujranwala was observed around 22 years ago, and there has since been a declining trend in consanguinity due to various factors.

In the study of Sthanadar *et al.* (2014), the data structure and the characteristics of the respondents were only described superficially. Their overestimation of consanguineous union rate in Malakand district could be due to the fact that they only enrolled literate subjects, who might not be representative of the whole population as the literacy rate in Malakand is only 39%. Further, it is quite likely that literate respondents have a higher rate of consanguinity than illiterate individuals. For instance, in the populations of Swat, KPK and Bhimber/Kashmir, consanguineous union rates were observed to be higher in the literate respondents than their illiterate counterparts (Wahab & Ahmad, 1996; Jabeen & Malik, 2013). The rate of consanguineous union was

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significantly higher in the literate sample than in the illiterate subjects recruited from Dir Lower district, which shares a boundary with Malakand district (Ahmad, 2015).

Counter to the observations of Sthanadar *et al.* (2014) in Malakand district, Ahmad *et al.* (2015) found that the rate of consanguineous union in the population of Bajaur Agency was 22%. Bajaur Agency is one of the most adversely affected territories in the ongoing 'war against terrorism'. The majority of the population of Bajaur Agency was forced to leave their homes during the Afghan war and military operations by the Pakistan Army against the Taliban. In 2009, the toll of internally displaced persons (IDPs) from the war-affected and turbulent areas reached 1.7 million (Firdous, 2009; Khan, 2012). The Bajaur Agency population constituted the largest fraction of IDPs settled in transitory camps in other areas of KPK. Even after the ceasefire, a substantial number of families did not return, but managed to settle in other regions for a better livelihood and to escape from the war. Post-war Bajaur Agency is a profoundly impoverished district with a disturbed and disjointed population. The civil administration, health and education infrastructure has been severely damaged. Many of the displaced families in the IDPs camps opted for marriages among non-relatives, probably due to the remoteness of their close relatives and/or availability of better choices in the new settlements. The highly fragmented and disturbed structure of the Bajaur population has also been established in a recent study employing polymorphic genetic markers (Rehman *et al.*, 2014). This situation may explain the low level of consanguinity in Bajaur Agency, large heterogeneity in the rates of consanguineous union rate in samples obtained from different *tehsils* (i.e. 14–25%) and tribal/clan systems (i.e. 8–31%) and the apparent lack of difference in the prevalence of consanguineous union in samples from rural and urban areas (Ahmad *et al.*, 2015).

While interpreting the relatively low rate of consanguineous union in Bajaur Agency, Sthanadar *et al.* (2015) argued over the divergent matrimonial strategies, including marriages between local women and foreign fighters, as a result of factors like increased personal, family and community insecurity. To probe this scenario, we contacted various scholarly government officials and well-educated tribal representatives of Bajaur Agency. After conducting in-depth interviews with ten officials and tribal personals we were unable to record any evidence of marriage between foreign fighters and local women (AUR and SM; personal communications). Even in other tribal Pashtuns of north and south Waziristan Agencies, the existence of such marriages is highly debatable (Hussain, 2008; Jan, 2011). Further, we noted that the Pashtun population is highly ethnocentric and they rarely allow 'others' to mix with the Pashtun blood (Lindholm, 1982; Tapper, 1991). This mixture with foreigners may lead to the 'impurity of blood' as per the Pashtun concept of *Pashtunwali*. Once the *Pashtunwali* is violated by any community member, he/she may suffer serious repercussions (Strickland, 2007).

Sthanadar *et al.* (2015) further showed that consanguinity is on the rise in the KPK province of Pakistan. In support, the authors presented data extracted from the census reports of Pakistan (NIPS, 2013). Here, it is pertinent to mention that several independent studies have highlighted the deficiencies and inaccuracies in the census data of Pakistan (Feeney & Alam, 2003; Zakaria & Muhammad, 2009). In addition to the discrepancies between the past and present trends in various parameters, census data are particularly prone to wide heterogeneity in sampling methods, inadequate training of the enumerators and less representative samples (Feeney & Alam, 2003; Zakaria & Muhammad, 2009). We therefore suggest that census data of Pakistan should be

interpreted with caution. It might not be prudent to conclude solely from the census record that consanguineous union rates are increasing in the whole of KPK.

Alternatively, we argue that the rise in the rate of consanguineous union might be a phenomenon specific to areas with victims of war, adverse law-and-order conditions for an extended period, and extraordinary situations imposed by natural calamities. But this finding may not be generalized to the whole of the KPK. We develop this notion based on: 1) first-hand data collected on consanguinity from Dir Lower district, a war-affected region of KPK (presented below); 2) and the observations of consanguinity in the multiethnic cosmopolitans of KPK (unpublished observation).

We have recently concluded a cross-sectional epidemiological study in Dir Lower district, which adjoins Malakand district. This region is also the victim of Talibanization, military operation by the Pakistan Army against the Taliban and natural disaster. A detailed account of the fieldwork, sampling and consanguinity profile is presented elsewhere (data not shown).

The break-up of marital union types on a temporal scale of 5-year interval revealed a significant shift in the patterns of consanguineous union and inbreeding coefficient *F* (Fig. 1A). In the recent past, i.e. in 1996–2000, there was a declining trend in the rate of consanguineous union and *F*. However, there was a striking rise in the prevalence of consanguineous union as well as inbreeding coefficient after the 1996–2000 period. This transition point markedly coincides with the initiation of the Afghan war (after 9/11), subsequent military operations by the Pakistan Army in various regions of KPK and the consequential migration of IDPs. Further, the KPK faced one of the worst floods in its history in July 2010. Dir Lower and Swat districts were declared the worst affected areas in the KPK province. The flood further confounded the vulnerabilities of people in Dir Lower, resulting in huge population displacement together with increased constraints on food and livelihood. The situation was more pronounced in the Adenzai *tehsil* of Dir Lower where an estimated 3800 houses were damaged by the flood leaving thousands homeless (Khan & Mohmand, 2011).

In order to further understand the dynamics of consanguineous union over time, the mean 'age at marriage' across the temporal scale was examined (Fig. 1B). A gradual decline in the age at marriage was observed up to the 2001–2005 period. However, there was a steady increase in age at marriage after 2001–2005. Understandably, the deteriorating law-and-order situation, economic recession and family/community insecurity led to the delay in matrimonial commencement and hence a rise in age at marriage. The most common type of consanguineous marriage was first cousin union. In order to further delineate the specific types of marriage increasing over time, the distribution of patrilineal and matrilineal first cousin unions was examined (Fig. 2A). Matrilineal unions were found to follow the trend of overall consanguineous union, i.e. decline up to the years 1996–2000 and rise sharply afterwards. On the other hand, the rates of patrilineal marriages do not show much variation over the period 1991–2005. First cousin unions were further analysed with respect to spousal alignment, i.e. parallel-cousin or cross-cousin marriages, and plotted by time interval (Fig. 2B). Interestingly, a marked increasing trend in the rate of cross-cousin marriages was observed (Pearson correlation coefficient: $R^2 = 0.722$). Conversely, there was a general decline in the rate of parallel-cousin marriages ($R^2 = -0.299$). This provides further evidence that the traditional pattern of marital unions was changing due to the extraordinary situation imposed by the war, insecurity of family/community and natural disaster.

In conclusion, the presented analyses depict a transition in marital unions in Dir Lower district before and after the war situation. This transition may have been

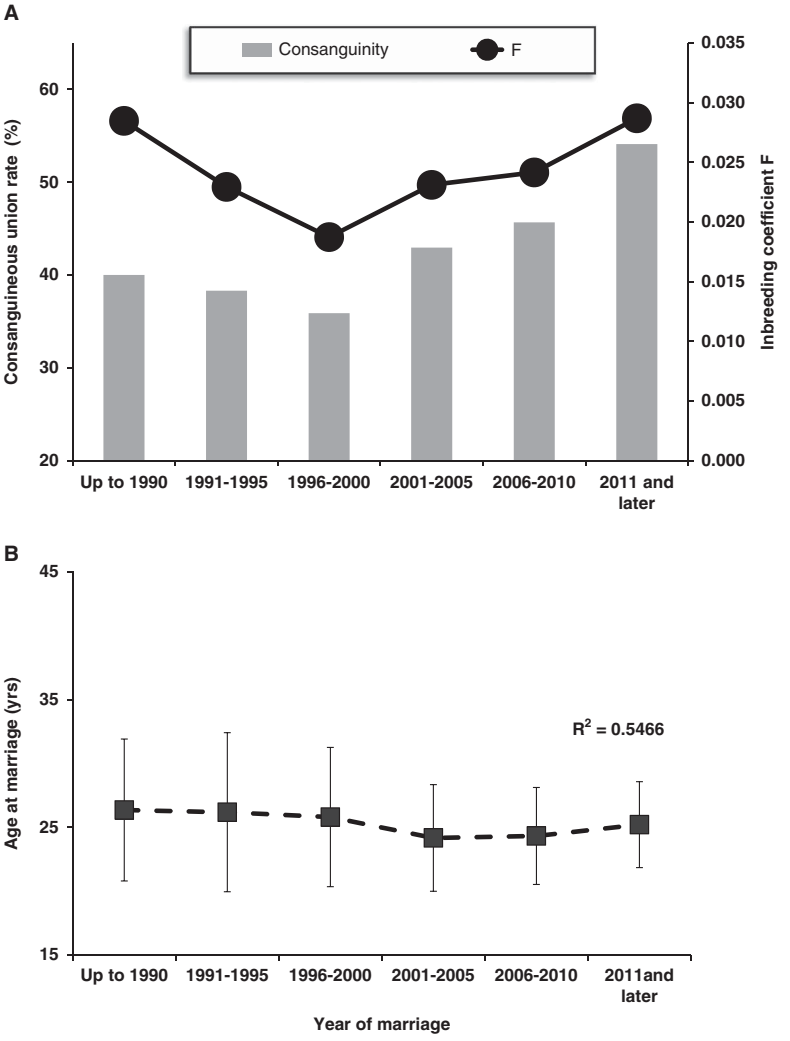

Fig. 1. A, distribution of consanguineous unions (bars, left *y*-axis) and inbreeding coefficient *F* (line/dots, right *y*-axis) over time in Dir Lower district, Pakistan, in 5-year intervals. B, fluctuations in the mean 'age at marriage' (with standard errors) over the study period. Spearman's R^2 value is shown.

augmented by the flood in this region. War situations are associated with economic recession, uncertainty and insecurity, population displacement, differential mortality of males and the loss of bread-winners; these factors arguably make consanguineous union a more plausible choice than non-consanguineous union. Nonetheless, in a reasonable number of cases in Dir Lower district the parents of the prospective groom were unable to pay bride-price, which is obligatory in marriages among non-related couples. These data also provide clues to the specific types of marriages, which are increasing over time.

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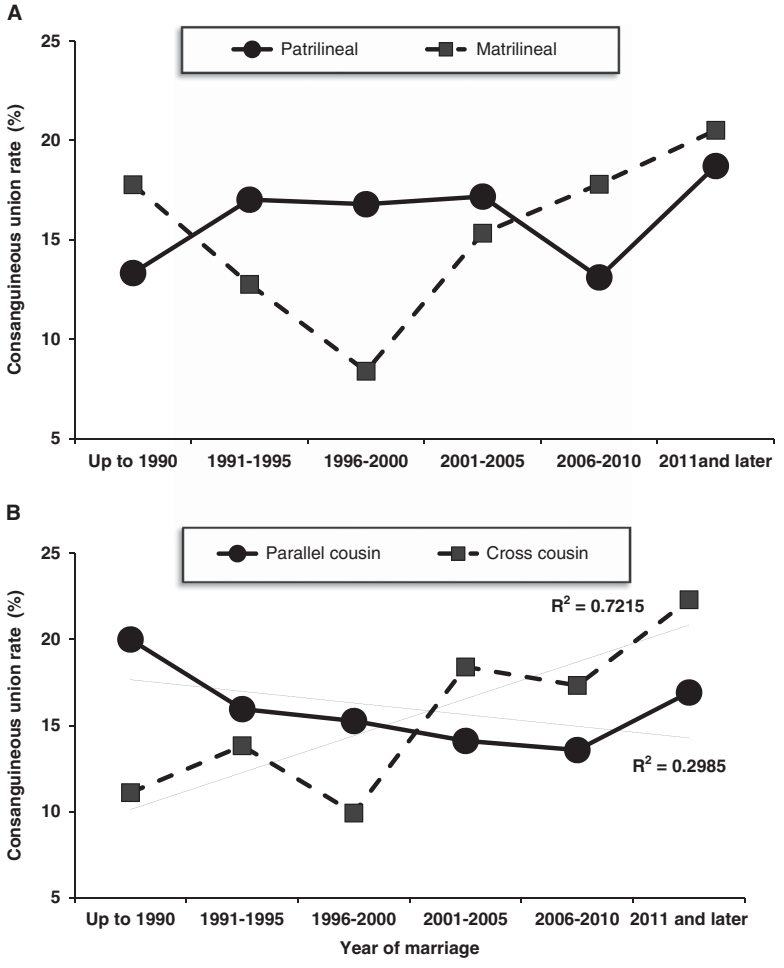

Fig. 2. A, variation in patrilineal and matrilineal marriages over time. B, distribution of parallel-cousin and cross-cousin unions over time in Dir Lower district, Pakistan. Spearman R^2 values are shown.

Further, matrilineal marriages, particularly cross-cousin types, are becoming the most common betrothal types in Dir Lower district. We suggest, however, that these findings may not be generalized to the whole of KPK province, which is highly heterogeneous in terms of ethnicity, socio-demographics, traditions and peace and security conditions.

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