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A socioeconomic analysis of secular trends in isonymy in the Jewish community of Gibraltar: 1820 to 1939

This study examines secular trends in the magnitude of inbreeding in the Jewish community of Gibraltar over a 120 year period. Analysis of isonymous unions by socioeconomic status revealed distinctive differences between high versus mid/low status unions. Factors responsible for the elevated rate of inbreeding among the professional/mercantile class and its secular trend are discussed.

Introduction

For most of its history, the Jewish community of Gibraltar played a middleman role in the commercial and political relationships between England and Morocco (MIÈGE, 1982, 1984). The community was founded in 1704 by Sephardic traders, primarily from Morocco, who re-settled in Gibraltar in response to the commercial needs of the newly-established English presence. Gibraltar, therefore, became a new node in a Sephardic trade diaspora that operated in the western Mediterranean from the 10th to the 20th centuries. Trade diasporas are interrelated groups of commercial communities that form a trade network (CURTIN 1984).

Early work on the community suggested that its demographic structure, and hence genetic structure, was relatively homogeneous by virtue of its small size, group cohesion, orthodox expression of the Sephardic version of Judaism, occupational specialization in trade and commerce, religious endogamy, and Gibraltarian status (SAWCHUK 1978). Subsequent work has revealed, however, that there was considerable and sometimes significant variation in mortality, fertility, and marriage patterns along socioeconomic lines (SAWCHUK & HERRING, 1985; SAWCHUK, HERRING & WAKS, 1985; SAWCHUK & HERRING, 1986; HERRING & SAWCHUK, 1986; HERRING, 1987).

The present paper further explores the relationship between socioeconomic stratification and marriage patterns among Gibraltarian Jews by examining class differentials in inbreeding over a 120 year period, 1820 to 1939. The analysis was conducted using the well-known marital isonymy method of CROW & MANGE (1965) which involves estimating the total inbreeding coefficient (F) and its random (F_r) and non-random (F_n) components via the following formulae:

$$F_n = \Sigma(p_i q_i / 4) / N$$

where:

p_i = proportion of males with a specific name
 q_i = proportion of females with a specific name

and:

$$F_r = (P - \Sigma p_i q_i) / 4(1 - \Sigma p_i q_i)$$

$$F = F_n + (1 - F_n)F_r$$

where:

P = proportion of isonymous unions

The method posits a relationship between inbreeding and isonymy if the following assumptions are met: (1) monophyletic origin of surnames, (2) regular transmission of surnames, (3) non random involvement of the sexes in consanguineous unions and (4) no disproportionate representation of either sex among migrants. A more detailed discussion of these assumptions can be found elsewhere (SWEDLUND, 1975; ELLIS & STARMER, 1978; CROW, 1980; LASKER, 1985). The extent to which the marriage data used in this analysis meet these assumptions will be considered in the discussion section of the paper.

Despite the extensive use of isonymy to estimate average inbreeding levels in contemporary populations (see for example: FRIEDL & ELLIS, 1974; McCULLOUGH, GILLES & THOMPSON, 1985; BOLDSSEN, MASCIE-TAYLOR & LASKER, 1986; LASKER, MASCIE-TAYLOR & COLEMAN 1986) and historic populations (ROBERTS & RAWLING 1974; KÜCHEMANN, LASKER & SMITH, 1979; PINTO-CISTERNAS, CASTELLI & PINEDA, 1985; FUSTER, 1986), surprisingly few published studies have examined the influence of socioeconomic status or occupation on inbreeding. Two notable exceptions are BAILIE'S (1981, 1984) work on Scottish fishermen and the Flylingsdales, North Yorkshire studies of SMITH & HUDSON (1984) and SMITH & WILLIAMS (1984).

Given the importance of marriage strategies in the persistence of trading minorities (ZENNER, 1980; CURTIN, 1984) as well as the likelihood that merchants, traders, and brokers organized marital relations differently from servants, porters, and shopkeepers because of the many complex problems associated with long-distance trade (COHEN, 1971;

TABLE 1 - *Isonymic Marriages by Socioeconomic Group. The Jewish Community of Gibraltar, 1820 to 1939: All Marriages.*

	1820-1840		1850-1879	
	High	Mid/Low	High	Mid/Low
I	7	1	9	1
N	101	68	122	54
F _r	.003578	.002757	.004382	.003686
F _n	.013948	.000929	.011013	.000957
F	.017476	.003684	.015346	.004640
	1880-1909		1910-1939	
	High	Mid/Low	High	Mid/Low
I	6	1	2	2
N	108	72	73	76
F _r	.004501	.003279	.004128	.005626
F _n	.009559	.000195	.002766	.000122
F	.014017	.003474	.006883	.005748

where:

- I = the number of isonymous unions
- N = the number of marriages where birthplace and husband's occupation is known
- F_r = the random component of inbreeding
- F_n = the non-random component of inbreeding
- F = total inbreeding coefficient of the group