HOMO - Journal of Comparative Human Biology 65 (2014) 64–74

Contents lists available at ScienceDirect

HOMO - Journal of Comparative Human Biology

journal homepage: www.elsevier.com/locate/jchb

Determinants of marital behaviour in five Apennine communities of Central Italy inferred by surname analysis, repeated pairs and kinship estimates

M. Capocasa[a,b,*], L. Taglioli[c], P. Anagnostou[d,b], G. Paoli[c], M.E. Danubio[e,b]

[a] *Dipartimento di Biologia e Biotecnologie "Charles Darwin", Sapienza Università di Roma, Piazzale Aldo Moro 5, 00185 Rome, Italy*
[b] *Istituto Italiano di Antropologia, Piazzale Aldo Moro 5, 00185 Rome, Italy*
[c] *Dipartimento di Biologia, Università di Pisa, Via Luca Ghini 13, 56126 Pisa, Italy*
[d] *Dipartimento di Biologia Ambientale, Sapienza Università di Roma, Piazzale Aldo Moro 5, 00185 Rome, Italy*
[e] *Dipartimento di Medicina clinica, sanità pubblica, scienze della vita e dell'ambiente, Università di L'Aquila, Piazzale Salvatore Tommasi 1, L'Aquila, Italy*

ARTICLE INFO

Article history:
Received 29 January 2013
Accepted 23 July 2013

ABSTRACT

The work makes use of surname analysis, repeated pairs and kinship estimates in 11,009 marriage records celebrated in five communities of the Italian Central Apennine (Celano, Lecce dei Marsi, Ortucchio, Roio, Villavallelonga) from 1802 to 1965 with the objective to deepen knowledge of the relative influence of several determinants on their marital behaviour. These towns are part of the same geographic and economic environment: the slopes of the ancient Fucino Lake. This work further elaborates the results from previous studies on the bio-demographic model of the region. The data were analyzed according to three periods of approximately 50 years. Results show the highest inbreeding coefficients in the pastoral towns of Roio and Villavallelonga. Repeated pair analysis highlights a certain degree of population subdivision which declined in time in Celano, Lecce dei Marsi and Ortucchio. The highest and increasing values of RP-RPr in time in Roio suggest a general

* Corresponding author at: Dipartimento di Biologia e Biotecnologie "Charles Darwin", Sapienza Università di Roma, Piazzale Aldo Moro 5, 00185 Rome, Italy. Tel.: +39 06 49912725; fax: +39 06 49912276.
E-mail address: marco.capocasa@uniroma1.it (M. Capocasa).

0018-442X/$ – see front matter
http://dx.doi.org/10.1016/j.jchb.2013.08.001

reduction in genetic heterogeneity. This is possibly due to the celebration of marriages among families selected on the economic basis of pastoralism, as this town historically has had a leading tradition of sheep-farming. Villavallelonga, excluding isonymous marriages, shows an increase in repeated pair unions in time, thus revealing a substructure with marriages among preferred lineages. This is in line with previous results on consanguineous marriages which indicated the tendency of avoiding unions between close relatives in this small geographic isolate. This study demonstrates the influence of geographical (altitude) and social factors (pastoralism) on the marital structures of the investigated populations.

Introduction

Surname analysis proved to be a useful tool for evaluating the demographic history of human populations, through the persistence, entrance or extinction of surnames, and for estimating the effects of potential isolation factors, such as environmental and cultural barriers, on the marital structure of small isolated groups (Devor, 1980; Sivakova et al., 1995; Morelli et al., 2002; Calderón et al., 2005; Alvarez et al., 2010; Boattini et al., 2011; Román-Busto et al., 2012).

The method relies on the use of surnames as analogues of a male unilinear genetic marker. However, together with its potentialities, the limits of this approach are to be taken into account. In fact, within the main factors affecting the use of surnames in 'biological history', it is noteworthy to mention (1) their polyphyletic origin that can bias the analyses (Relethford, 1988a) and (2) their recent origin and stabilization which occurred after the Council of Trent (1545). Since then, the priests noted the surnames of each individual of the community in the parish books of Baptisms, Marriages and Deaths, thus allowing the study of peopling events through at least three centuries.

Despite these limitations, surname analysis has been widely used to evaluate mating structures and demographic events of human populations subject to isolation factors in many western countries (Paoli et al., 1999; Santos et al., 2005; Boattini et al., 2006; Prost et al., 2008; Lucchetti et al., 2011). This is due to the availability of long lasting series of data that allow for minimizing the biases on one hand, and allow for the simple and inexpensive collection of these kind of data compared to the genetic data, on the other.

Italy is characterized by a history of internal migrations, as well as from and towards abroad (Lucchetti et al., 1996; Arru and Ramella, 2003; Ago and Vidotto, 2010). At the national level, this is evidenced by its elevated linguistic diversity and by the presence of ethno-linguistic minorities (Toso, 2008). Moreover, the geographic characteristics of the country with its two main mountain chains, the Alps and the Apennines, provide the ideal conditions for the settlement of many isolated communities.

Therefore, Italy represents one of the most interesting case studies in the European landscape to investigate the effects of geographical and cultural factors of isolation on Mendelian populations (Toso, 2008; Steinicke et al., 2011). Indeed, several of these minorities have been studied in order to evaluate their degree of isolation by means of endogamy rates and inbreeding levels (Martuzzi Veronesi et al., 1996; North and Crawford, 1996; Paoli et al., 1999; Danubio and Amicone, 2001). More recently, other isolated groups were analyzed both from the molecular and bio-demographic point of view, in order to understand the interactions between linguistic, geographic and genetic factors (Mogentale-Profizi et al., 2001; Verginelli et al., 2003; Pichler et al., 2006; Achilli et al., 2007; Colonna et al., 2007; Destro Bisol et al., 2008; Thomas et al., 2008; Messina et al., 2010; Sella et al., 2010; Boattini et al., 2010, 2011; Coia et al., 2012; Montinaro et al., 2012; Capocasa et al., 2013).

The present work re-analyses the marital structure in five sample villages located in the Central Apennines with the objective of further refining the research (Amicone and Danubio, 1998; Danubio and Amicone, 2001; Danubio et al., 2004). At first, some explorative analyses of the levels of inbreeding were conducted and possible patterns of non-random mating strategies were examined. These were