

DNA technology application procedures in forensic practice: social and ethical conditioning I

J.J. Gamero^{a,*}, J.L. Romero^a, J.L. Peralta^a,
F. Corte-Real^b, M.C. Vide^b

^a*Legal Medicine Department, Faculty of Medicine, Cádiz University, Fragela s/n, Cádiz 11003, Spain*

^b*National Institute of Legal Medicine, Largo da Sé Nova, 3000-213 Coimbra, Portugal*

Abstract. In the study carried out it is intended, in accordance with the preliminary draft of the International Declaration on Human Genetic Data, that information be gathered concerning the diverse questions regarding DNA analysis and its application in the identification of individuals (sample extraction, laboratory treatment, sample analysis and storage, information from the obtained results, etc.) that different social groups in our country may have. This would enable the establishment of a starting point for public debate and the development of public awareness proposals that may serve as an aid, not in the elaboration of a draft law for DNA database regulation in Spain which we consider to be outside our responsibility, but in the elaboration of later regulations which take into account all the details related with the process previously described. © 2004 Elsevier B.V. All rights reserved.

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1. Introduction

The information obtained from DNA genetic analysis may furnish a large quantity of data which could result in discriminatory consequences in such areas as health, insurance, employment and the law as well as social and family life [1,2]. Among those rights that may be affected are those involving intimacy, liberty, equality and nondiscrimination [1]. The lack of protection afforded to personal health databases as well as the need to regulate the area of forensics (Draft Bill for the regularization of DNA databases in Spain, 1999) must be pointed out.

In the study carried out it is intended, in accordance with the preliminary draft of the International Declaration on Human Genetic Data [3], that information be gathered concerning the diverse questions regarding DNA analysis and its application in the identification of individuals (sample extraction, laboratory treatment, sample analysis and

* Corresponding author. Fax: +34-56-223-139.

E-mail address: joaquin.gamero@uca.es (J.J. Gamero).

storage, information from the obtained results, etc.) that different social groups in our country may have [4].

2. Materials and methods

Once the general aims of the work had been specified and the tasks to be performed had been planned, the development of the task was begun in the following order: production of an opinion questionnaire and the selection of a homogenous group of interviewers; the selection of the sample in accordance with a criteria of randomness and representativity; the purging of non-random errors that do not concern the survey; the analysis of the data obtained, using statistical methods for their summarized description. As a means of collecting the data, the questionnaire form was chosen, since, as well as being convenient for the interviewees, it is an efficient means of coding, purging and an easy way to obtain a large amount of data. The sample choice was performed by using random criteria and by trying to find a cross-section nature in the different sexes and age groups. A stratified survey of the Spanish population was carried out and 1656 questionnaires were completed. Among those interviewed (809 women and 845 men) different age groups were represented (from 18 years of age upward).

The data collected was stored on a computer and statistically analysed with the help of the Statgraphics Plus 5.0 (Statistical Graphics November, 2000) programme. The statistical methods that were used were basically of a descriptive kind, firstly endeavouring to classify and tabulate the data obtained in absolute and relative frequency tables, with both simple and double input. The chi-square test was done to analyze the responses by sex and age.

3. Results

As for the opinion of the surveyed population regarding the need to regulate the obtention of biological samples (blood, saliva, sperm, etc.), when no consent is given 77% were in favour of such regulation. It must be pointed out that when the same question was analyzed in terms of different levels of education and groups of professions, highly significant differences were observed ($p < 0.001$) due mainly to the fact that the percentage of interviewees who agreed with the need to regulate Spanish legislation regarding the obtention of biological samples without the consent of the individual increased as the level of education increased. This same increase was observed when taking into account the different analysed professions (Others: 74.4%; Health: 79.0%; Police: 83.5%; Law: 85.5%).

When the interviewees were asked about the necessity of a national database and DNA analysis for forensic purposes of *all the citizens*, without consent, 57.00% expressed disagreement with the need for such a database. The differences are significant when the different groups of professions are taken into account ($P \leq 0.05$); the interviewees (only 26%) working in the field of law showed little support for a national DNA data bank for all the citizens and without their consent, followed by other professions (32.1%), professions involved in the health sector (38.2%) and professions involved in local and national security and law enforcement (41.4%).

When the interviewees were questioned about the type of samples or persons that should be included in the databases the highest percentage obtained was for the

biological samples found in the place where an unsolved crime had been committed (75.85%); for persons condemned in court for having intentionally committed a crime (71.98%); for biological samples from unidentified corpses and from persons who voluntarily supply such samples (64.99%). When this same question was analysed in relation with the different age groups the answers were seen to be quite homogeneous. For the inclusion of biological samples found in the place of an unsolved crime $P=0.02585$, for biological samples from unidentified corpses $P=0.7976$, for victims of unsolved crimes $P=0.1557$, for persons condemned for criminal negligence $P=0.0803$, for volunteers $P=0.3522$ and for all citizens, including unconsenting persons $P=0.3168$. When the questions asked were related to the different groups of professions, homogeneity in the answers was observed in the cases of biological samples being taken from the scene of an unsolved crime ($P=0.7000$), biological samples from unidentified corpses ($P=0.2022$), victims of unsolved crimes ($P=0.0574$), citizens who voluntarily give samples ($P=0.0660$) as well as in the case of all citizens, including those who do not consent ($P=0.0567$). With regard to this latter group of figures, it must be pointed out that the highest percentages for the inclusion of all the different proposed groups in databases are to be found for those professions involved in local and state security, while those professions involved in the legal system expressed greater doubts, compared to the other studied professional groups, about such a proposal (except in three cases: biological samples found in the scene of an unsolved crime, samples taken from unidentified corpses and persons who voluntarily give samples).

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