



Study of Spanish public awareness regarding DNA databases in forensic genetics

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1. Introduction

The controversy about the consequences that can be created by the information obtained from genetic analyses began in the United States some years ago. This type of information, given the huge quantity of data that can be provided, may cause discriminatory consequences in areas such as health, insurance, work situation, as well as family and social life [1,3].

On the other hand, we cannot ignore the usefulness that genetic information has provided and continues to provide when concerned with identification purposes. In this sense, mention must be made of the relevance that the analysis of polymorphisms of decoded DNA has gained in Justice departments. This could concern either criminal trials, where there may be biological traces of the perpetrator of the criminal offence, the place or the instrument used in the crime, or civil trials (paternity testing). However, the development of this type of test has been significantly influenced by the differences that exist between the established legal systems, as well as by the heterogeneity of the laboratories involved in this type of study [5].

However, regardless of the efficiency of the identification mentioned above, this type of test may create a series of drawbacks in our country, which means that these tests must be carried out with appropriate respect of basic rights, as well as sufficient technical and legal guarantees.

There is a general agreement about the fact that the research into human genetics can affect the community as a whole [4], and for this reason, it is necessary for society, and

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not only scientists, to discuss and decide what they wish to accept and what they wish to reject [2].

Finally, the study that has been performed intends to provide information about the different points of view that different social groups in our country have on the subject, thereby allowing us to determine a starting point for the development of a public debate, the development of informative and educational proposals, together with a set of rules that the government should produce in the near future, with a view to the production of a specific set of regulations concerning forensic genetics.

2. Materials and methods

For the development of the work, the following order has been followed: (a) production of a questionnaire with a standard level of comprehension; (b) selection of a homogenous group of interviewers with a good standard of education; (c) selection of a random survey (809 women and 845 men) using a stratified survey to obtain a cross-section of sexes, age groups etc.; (d) statistical analysis of the data that involves: tabulation, graphical representation and the synthesis of the data by means of parameters of centralization, location, dispersion and asymmetry, helped by the “Statgraphics Plus 5.0 (Statistical Graphics, November 2000)” computer programme. For the analysis of the homogeneity of the answers among the different sexes and age groups, the chi-square contrast was used.

3. Results

In relation to the voluntary or obligatory nature of the subjection to DNA analysis, when this involves the breach of some of the basic rights of the defendant, the results obtained in the survey showed that 54.99% (Standard Error, SE: $\pm 1.25\%$) of the population asked, didn't show their opposition to a person being subjected to the extraction of biological samples (blood, saliva, hair, etc.) against their will. Likewise, with the exception of the group aged between 25 and 34, the homogeneity of the answer to which we have referred above could be noted, when the analysis compared the different age groups consulted (Fig. 1) significant differences were noticed (5% level of significance) as far as the answers expressed by the different sexes were concerned.

In the same way, when asked if the taking of biological samples could be justified (blood, saliva, hair, etc.), even against the person's will and in the face of a criminal offence in which the perpetrator remains unknown, 79.87% (SE $\pm 1.02\%$) of those interviewed agreed with such a measure being carried out in specific cases and paying attention to the characteristics of the crime committed.

When we explored the citizens' opinion about the need to create specific legislation in our country (Spain) that would regulate the collection of biological samples (blood, saliva, hair, etc. . .) without their consent, 77.00% (SE: $\pm 1.07\%$) of the population interviewed considered that such a measure was necessary.

Likewise, another of the questions which has arisen in many countries, a framework of discrepancies at very different levels, refers to the creation of data banks with the

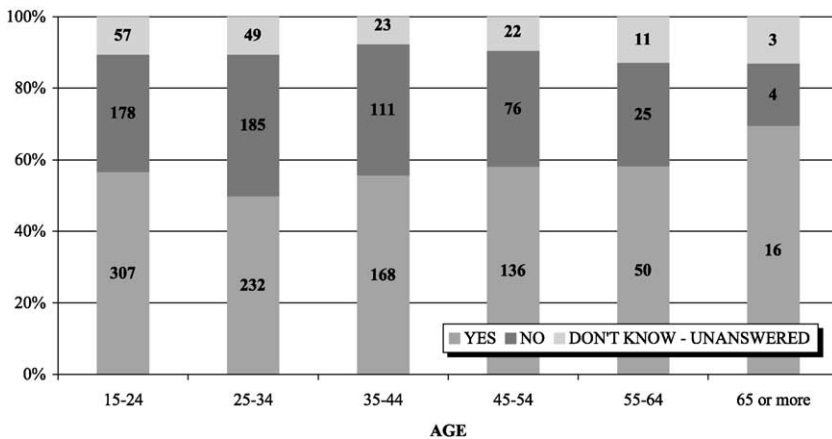


Fig. 1. Should a person be subjected to an extraction of biological samples against his or her will?

information which is a result of DNA analyses performed, as well as the biological samples on which the relevant tests have been performed.

In relation to the last question noted, when the public was questioned about whether they considered a need for the existence of records or a database on a national scale made up of the DNA analyses of *all citizens* for forensic purposes, without their consent, 57.42% (SE: $\pm 1.25\%$) showed their opposition to the need for such records.

On the other hand, when the public was asked about the need to dispose of, on a national scale, records or a database where the genetic analyses of *specific groups of citizens* could be collected for forensic purposes, against their will, the opposition shown on this occasion seemed to ease when compared with the matter raised previously, and public opinion showed a level of 47.55% (SE: $\pm 1.26\%$), against 42.41% (SE: $\pm 1.25\%$) who considered this measure to be necessary.

In this way, when the interviewed population was asked about the need for specific regulations in Spain about records of computerised data that contain the results of citizens' DNA analyses for forensic purposes, the majority of those interviewed gave an affirmative answer in 73.20% (SE: $\pm 1.12\%$), of the cases.

Likewise, when the population studied gave its opinion about the time that the results of the DNA analyses for forensic purposes should remain in storage, it is surprising to see the large number of individuals (52.11%) who considered that this information should only be removed from the database after the death of the person whose results were being stored. This is far ahead of the 23.30% who considered that the removal of the data from the databases should be decided by an Examining Magistrate (Fig. 2).

Passing on to other matters, 74.99% (SE: $\pm 1.11\%$) of those who gave their opinion were in favour of the need for the existence of DNA records or computerised databases on an international scale, the purpose of which would be to act in a coordinated way against delinquency.

Finally, an emphasis must be made of the near unanimity shown (86.74%; SE: $\pm 0.87\%$) by the individuals interviewed when asked about the need for a similar level

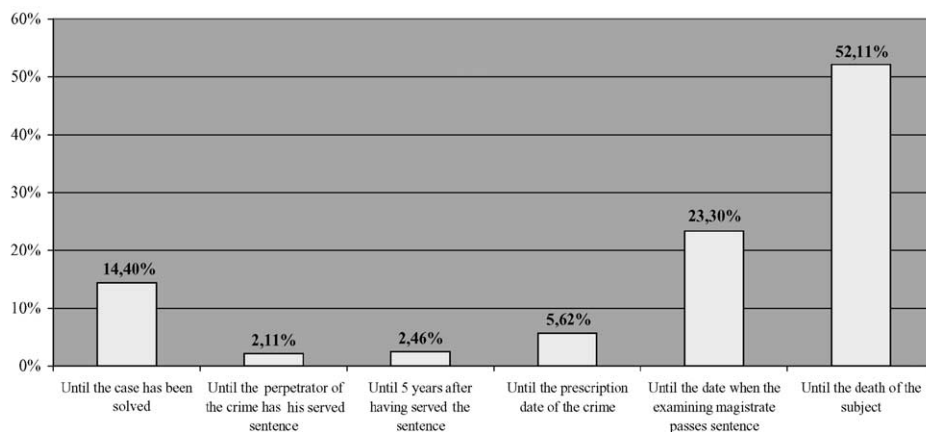


Fig. 2. The period of time that the results of a DNA analysis for forensic purposes should remain in a database.

of protection for the records or databases that store the results of the DNA analyses for forensic purposes between those countries that exchange information or data of this type, with a view to establishing a coordinated fight against delinquency on an international level.

References

- [1] A. Aparisi, El proyecto Genoma humane: algunas reflexiones sobre sus relaciones con el derecho, Tirant lo Blanch, Universitat de València, València, 1997.
- [2] M. Guillen, et al., J. Med. Ethics 26 (2000) 266–271.
- [3] M. Kite, Bionews, February 8, 2001.
- [4] C.M. Romeo, Introd. J. Law Hum. Genet. 1 (1994) 16–20.
- [5] P.M. Schneider, P.D. Martin, Forensic. Sci. Int. 119 (2001) 232–238.