University Students’ Bioethical Perceptions about Genetic Engineering: Genetic Testing and Genetic Diagnosis

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SYNOPSIS

INTRODUCTION

The astonishing new developments in biology and genetics have taken place over the past forty years. Genetically modified foods, treatment of genetic disorders, genetic testing, genetic diagnosis, stem cell research, gene therapy, reproductive cloning and genetic screening are the well known of these studies. These technologies permit us to intervene in the process of life itself and to some extent shape and reshape human nature to our own design. That is why this technology is named as “biological revolution”. These studies provide comfort and benefit for mankind. However, they also raise substantial ethical issues relating to confidentiality, disclosure, privacy, informed consent eugenics, public safety, animal rights, environmental risks, and intellectual property (Bryant & Baggott, 2003; Charlesworth, 1989, p.14.). It seems that citizens will be influenced from the consequences of these issues. University students’ evaluation and decision making on these issues is important as they are citizens in society. Therefore it is important to learn university students’ bioethical perceptions and scientific knowledge of genetic engineering.

PURPOSE OF THE STUDY

The aim of this study is to investigate university students’ bioethical perceptions in relation to the applications of genetic engineering studies and their knowledge in relation to this technology. In this study it is also intended that if university students’ bioethical perceptions and scientific knowledge change in respect of their majors.

METHODOLOGY

a) Sample

The data were collected in the second semester of 2006-2007 academic years at the University of Marmara. 219 university students from three different majors were participated

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in this study. The students who comprise the sample includes; 110 science education students who are prospective science teachers attending a four year pre-service teacher training programme which was not include biotechnology or ethics courses; 35 biology students who were attending a four year science programme which include biotechnology course but was not include ethics course; 74 medical students who were attending a six year medical studies programme which include ethics course but was not include biotechnology course.

b) Research instruments

In order to determine the students’ bioethical perceptions two bioethical dilemmas associated with genetic testing and genetic diagnosis were presented and students were asked to make decisions and give reasons to support their decisions. Bioethical dilemmas obtained from literature (Dawson & Taylor, 2000) and students were asked to give responses to these dilemmas. In addition questions were asked to the students to understand their knowledge and opinions related potential risks of genetic engineering.

c) Analysis

In order to find the results of this study data were analysed by using SPSS base 12. for Windows software. To analyse dilemmas, student responses separated as positive and negative, after that coded was done phenomenologically and categorises were generated.

FINDINGS AND RESULTS

Studies showed that individuals were unable to explain genetic engineering (Chen & Raffan, 1999; Inaba & Macer, 2003; Lewis et al., 1997). The results of this study also showed that most of the students’ definitions of genetic engineering were found partly true and these results were found similar in terms of faculties. However, biology major students could identify the term of genetic engineering more correctly compared to other students. This was not an expected result when we consider that these students learned genetic engineering studies in their biotechnology lessons.

In the assessment of the risks of genetic engineering applications, in this study, most students believed that these technologies have benefits. These results were found consistent with the results of the studies in literature (Inaba & Macer, 2003; 2004) and also did not show any differences in terms of faculty which means that all of the three faculty students were agreed on this idea.

Assessment of the students’ responses and type of reasons related to the dilemmas of genetic testing showed that students’ responses were positive. These results showed similarity in terms of faculties however the reasons given by them were found content dependence.

In Huntington dilemma most of the medical students stated the right based approach to resolve and justify their reasons and these students’ justification of their decision based on the bioethical principle of autonomy. This was an expected result when we consider that medical students attended ethics courses in their faculties before the application of this study.

Results related to Cystic Fibrosis dilemma showed that students’ responses were also positive. Although the results showed similarity in terms of faculties, biology majors stated more positive responses compared to the other majors. The responses and reasons stated by the students seemed to indicate that they considered the bioethical principles of autonomy and non-maleficence. These result showed consistency with the result of a study in literature (Dawson & Taylor, 2000).

When the results obtained from this research are taken into consideration, it can be understood that university students’ knowledge of genetic engineering was not enough. In
In addition, they tended to resolve dilemmas and justify their reasons by considering some of the bioethical principles. Therefore university students should be better informed about practical applications of genetic engineering. Moreover, they need to learn social and bioethical aspects of this technology to become well informed decision makers.

In the light of these results some possible implications for including applications of genetic engineering and bioethics in undergraduate lessons and teaching techniques for bioethics education were suggested.

REFERENCES


