

Safeguards needed now to prevent unethical genetic selection in future

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Embryos should not be selected for behavioural traits such as sexual orientation, antisocial behaviour, and intelligence on the basis of genetic information, according to a report out this week from the Nuffield Council on Bioethics.

Although the report's authors acknowledge that research into links between genes and behaviour is in its early stages, they stress the need to examine ethical and social issues raised by potential developments now, in order to put safeguards in place for the future. "This is a potentially explosive area," said Professor Bob Hepple, of Clare College, Cambridge, one of the authors of the report. "The first question we asked was whether such research should be carried out at all."

Behavioural genetics is a complicated and controversial area of research, not least because of its association with the eugenic practices and policies implemented in several countries in the 20th century.

Although no one gene has yet been shown conclusively to influence any particular behavioural trait, recent years have seen a number of highly publicised claims. Some scientists recently claimed to have discovered the gene predicting homosexuality, for example.

Referring to behavioural traits in general, Professor Hepple said: "Many genes, each having a very small effect, are likely to be involved, and the environment also plays an important role."

The authors assessed current evidence on the associations between genetic variants and behaviour but focused only on behaviours in the normal range of variation (rather than diseases or disorders, such as depression): intelligence, antisocial behaviour, personality traits, and sexual orientation. In the future it may be possible to select embryos that are more likely to have a particular behavioural trait, such as above average intelligence.

Currently the preimplantation selection of embryos is restricted to cases of serious diseases, but the authors urged caution in the future extension of this application. "The effects of genes are not inevitable," said Professor Hepple. "We take the view that the use of selective termination following prenatal diagnosis to abort a fetus merely on the basis of information about behavioural traits in the normal range is morally unacceptable."

The report calls for researchers to pay careful attention to public concerns about the research and its applications, and it recommends that the Gene Therapy Advisory Committee develop guidelines for research into gene therapy for normal behavioural traits.

Concerns were also raised over further exacerbation of the trend towards medicalisation, with people increasingly being encouraged to take treatment to alter behaviour previously considered normal. "We hope that this report—the first in its area—will stimulate debate and discussion between scientists, policy makers, and the public about the ethical and legal implications of behavioural genetics," Professor Hepple said. □

Genetics and human behaviour: the ethical context is accessible at the council's website: www.nuffieldbioethics.org

Cheerful children die younger than gloomy classmates, says study

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Cheerfulness is not necessarily healthy. It may be widely believed that cheerful children become happy, healthy, and even wise adults who live to a good old age, but new research suggests that as adults they tend to die earlier than their less cheerful classmates.

"Children who were rated by their parents and teachers as more cheerful/optimistic, and as having a sense of humour, died earlier than those who were less cheerful," says a report of the research (*Personality and Social Psychology Bulletin* 2002;28; 1155-65).

In the study psychologists looked at health data on 1216 men and women who were first assessed as children in 1922, when several hundred diverse variables were recorded, and who were then monitored at intervals during their adult life.

Among the variables recorded were cheerfulness or optimism and a sense of humour, each of which was scored by parents and teachers on an 11 point scale.

The psychologists merged

the data on cheerfulness with information on the time and cause of death in the people who had died and a number of other variables—including adult personality, risky hobbies, smoking, drinking, and obesity—in an attempt to explain the link between childhood cheerfulness and mortality.

"Cheerful children grew up to be more likely to die in any given year but not more likely to die of any particular cause," says the report.

One theory, the researchers say, is that cheerful children might as adults have had poorer health behaviour because they were less concerned about things that could go wrong with their bodies.

And the results do show that children who were especially cheerful grew up to drink more alcohol, smoke more cigarettes, and engage in riskier hobbies and activities.

But the report cautions: "Although more cheerful children did grow up to smoke and drink more heavily than those less cheerful, these behaviours



Especially cheerful children grow up to drink and smoke more

cannot fully explain their relatively early deaths."

Nor did the cheerful children's greater participation in risky hobbies later in life explain their earlier deaths, say the researchers, from the University of California, the State University of New York medical school, and La Sierra University.

No evidence was found for several theories, including the possibility of a link between cheerfulness and psycho-emotional difficulties, but the report adds, "These data do hint, however, that cheerful children

grow up to be more careless about their health."

It adds, "In contrast with optimism and happiness, cheerfulness is a complex lifelong pattern that leads one in a number of directions, some of which seem to involve unhealthy habits.

"We conclude that although optimism and positive emotions have been shown to have positive effects when people are faced with short-term crisis, the long-term effects of high levels of cheerfulness are more complex and seem not entirely positive." □