An International Study of Personal Health Behaviour, Attitudes and Well-Being in University Students

Full Report

Introduction

Personal health behaviours are activities that heighten risk of disease or promote the maintenance of health. They consist of two broad classes of behaviour: 1) health risk behaviours, or activities carried out with a frequency or intensity that increases risk of disease or injury; these include cigarette smoking, excessive alcohol consumption, certain sexual behaviours and drink-driving. 2) Positive health behaviours, or activities that may help prevent disease and injury, detect disease and disability at an early stage, or enhance health; regular physical activity, avoidance of fat in the diet, eating fruit and fibre, and breast and testicle self-examination, all fall into this category (Steptoe & Wardle, 1996). Personal health behaviours are thought to play a key role in determining the prevalence of diseases of major socio-economic impact throughout the world, including cardiovascular diseases, cancers and accidents (Murray & Lopez, 1996).

Personal health behaviours are determined by a wide variety of factors, including socio-cultural influences (e.g. dietary traditions and religious prohibition of alcohol), legislation (e.g. laws restricting the purchase of tobacco and the use of seat-belts), macroeconomics (e.g. disposable income and taxation on cigarettes), health care provision (e.g. occupational health checks and free dental care), systems of provision of goods and services (e.g. availability of sporting facilities and low fat foods), and socio-demographic factors (age, sex, socio-economic status and education) (Gochman, 1997). In health psychology, there is extensive research on the psychological correlates of health behaviours, governed by models such as the theory of planned behaviour, the health belief model and the transtheoretical (stage of change) model (Fishbein et al., 2001). These models tend to highlight the role of cognitive factors such as beliefs in the benefits of carrying out the behaviour, intentions and efficacy. Broader constructs such as health locus of control and perceived value of health are also relevant. Knowledge or awareness of risk is fundamental to models of health behaviour derived from the health education tradition (Bettinghaus, 1986). These approaches have been used to stimulate behaviour change at the community, general practice and personal levels.

International studies of health behaviour are important since the mortality and morbidity from common causes such as coronary heart disease and cancers varies widely across countries. There are also considerable differences between countries in the prevalence of health risk and positive health behaviours (Currie, Hurrelmann, Setertobulte, Smith, & Todd, 2000; Nicolaides-Bouman, Wald, Forey, & Lee, 1993). In the light of increased globalisation and population mobility (particularly within Europe), it is important to know about patterns of health behaviours in different cultures. However, such comparisons are hampered by several factors. Firstly, investigators are often obliged to study data collected using different measures with different types of population sample in each country, leaving doubts about comparability. Secondly, many international surveys are limited to reports about the behaviours themselves, and do not include attitudinal and knowledge data. Thirdly, there are few studies that have assessed a broad range of personal health behaviours in different cultural and political settings. Quantifying associations between behaviours, attitudes and risk
awareness in different countries allows for tests of the robustness of associations in diverse cultural settings with varying prevalence levels.

In 1989-1991, Steptoe and Wardle co-ordinated the European Health and Behaviour Survey (EHBS), a survey of health behaviour, attitudes and knowledge in university students from 21 countries. Complete data were obtained from 16,483 students. The study was funded through the commission of the European Communities (EU) Biomed 1 programme, and analyses were assisted by a twelve-month grant from the ESRC (Ref 234555). The EHBS provided knowledge about the pattern of a number of health behaviours and associated attitudes and risk awareness, including breast and testicle self-examination, smoking, dietary habits and physical activity (Steptoe et al., 1997; Steptoe, Wardle et al., 1995; Wardle et al., 1997; Wardle et al., 1994; Wardle et al., 1995). Relationships between healthy lifestyle and personality factors were analysed, as were the psychosocial predictors of changes in health behaviour over time (Steptoe, Sanderman, & Wardle, 1995; Steptoe et al., 1994). We also assessed associations between depression, social support and health behaviours (Allgöwer, Wardle, & Steptoe, 2001), and relationships with locus of control (Steptoe & Wardle, 2001b). In addition, the data allowed us to investigate differences between students from Eastern and Western European countries in health behaviour, depression and risk awareness around 1990, a period of great political and social change in the former communist states (Steptoe & Wardle, 2001a).

The present study, called the International Health and Behaviour Study (IHBS), was devised to build on these earlier findings, and to develop further our understanding of the factors associated with healthy behavioural choices. The IHBS was carried out in the same fashion as the earlier EHBS, but with fewer Western European countries and a broader representation of Eastern European and non-European developed and developing countries, as detailed in the Methods section below. The new survey was devised with the following considerations in mind.

Firstly, we were interested in changes in personal health behaviours and attitudes in Europe over the 10 years between the EHBS (around 1990) and the new IHBS (around 2000). There was continuing social and cultural change in Europe over the past decade, with the spread of market economies, the introduction of the single currency, the globalisation of media, and the reduction of barriers to movement of people. Efforts have also been made at health promotion through lifestyle change both within individual nations and internationally by the WHO, World Bank and other organizations. It was therefore appropriate again to compare attitudes and behaviours in different country samples, and to contrast the situation with that prevailing ten years earlier. The same questions as in the EHBS concerning smoking, diet, exercise, alcohol, preventive health behaviour and other activities were asked. Risk awareness and beliefs about the importance of individual behaviours for health maintenance were assessed with the same rating scales. In most countries, students from the same universities studying the same subjects were surveyed, ensuring as far as possible that we were comparing like with like.

Secondly, we were interested in exploring further the differences between Western and Eastern Europe. There continues to be serious concern about the health of the population of the former communist countries of Central and Eastern Europe (McKee & Shkolnikov, 2001). Although many countries in the region have seen an improvement in life expectancy since the early 1990s, premature mortality remains substantially greater than in Western Europe (Cockerham, 1999; Leon & Shkolnikov, 1998). The changes in societal structures such as guaranteed jobs and price controls following the end of communism, have resulted in profound changes in social circumstances. Our earlier analysis showed that students from Poland and East Germany were more depressed (according to the Beck Depression Inventory) and reported lower social support than did Western European respondents. Eastern Europeans
also scored significantly higher in chance and powerful others locus of control (Steptoe & Wardle, 2001a). This pattern suggests that the Eastern European respondents felt that they had less control over their health than did Western Europeans, and that this was associated with poorer emotional well-being and a relatively poor profile of personal health behaviour. The new study included a larger number of student samples from Eastern European countries, in order to explore these issues further.

A third focus of the new IHBS was the contrast between students in mature European democracies and those living in developing countries. The developing countries involved in the survey include Pacific rim “tiger” economies (Korea, Thailand), emerging multicultural democracies (South Africa) and countries such as Colombia and Venezuela. Many of these countries have been characterised by rapid economic growth and urbanisation, and the breakdown of traditional, social and cultural structures. The major diseases of the developed world are becoming increasing prevalent in these developing countries, and a global epidemic of problems such as coronary heart disease is expected unless vigorous efforts are made at primary prevention. Murray and Lopez (1996) have estimated that by the year 2020, chronic diseases such as cardiovascular disease and cancer will be the dominant causes of premature mortality (above infections, perinatal and maternal death) in all regions of the world, including the most deprived.

Very little is known about the pattern of health behaviours in developing countries. Previous waves of urbanisation (for example in Africa in the 1960s) imply there will be an increase in “Western” habits such as smoking, high fat diets and sedentary behaviour, while the breakdown of traditional structures may lead to feelings of dislocation and lack of control. It is likely, therefore, that personal health behaviour and associated attitudes will become increasingly important to health maintenance in the developing world. Data concerning the awareness of risks associated with behaviour is almost completely lacking (Aboud, 1998). It is vitally important that we learn more about young peoples’ understanding of health and behaviour in developing countries, so that strategies can be devised that may help prevent the mistakes of Western cultures.

The rationale for studying University students

The IHBS does not involve nationally representative samples from participating countries, or representative samples of young adults. The study was carried out with University students, who are better educated and generally come from more affluent backgrounds than others in the population. Since both education and affluence are associate with health behaviour, the prevalence of personal health behaviours and strength of attitudes to health may be different from those of the population at large.

The reasons for carrying out the study with University students are described in detail by Steptoe and Wardle (1996). Firstly, in order to make international comparisons, it is necessary to compare like with like. Representative samples are difficult and expensive to collect, particularly with standardized methodology in different cultural settings. University students are an easily accessible, relatively healthy sector of the population with similar educational backgrounds. Comparisons between country results are not therefore due to factors such as health and education that themselves influence health behaviours (Gottlieb & Green, 1984). Secondly, student health is itself a significant issue, since a substantial proportion of young adults in many countries are in higher education. For example, the problem of increasing levels of tobacco use by US college students has recently been highlighted in the Journal of the American Medical Association, while other issues such as depression and alcohol abuse are causes of concern (Core Institute, 2000; Rigotti, Lee, & Wechsler, 2000). Thirdly, university students are an educated elite of young men and women,
and their attitudes and habits are of importance to opinion formation and policy development in the future. In addition, it was possible to collect data in classes in most countries, and this led to a high participation rate.

Objectives

The objectives of the research funded by this grant were as follows:

1. To describe the profile of health behaviours and associated beliefs in young adults from different countries of Europe, and the relationship between behaviour, beliefs and risk awareness.
2. To analyse changes in the prevalence of healthy behaviours in young adults over the past 10 years, by comparing current data (collected in 1999-2001) with information collected in 1989-1991 using similar methods.
3. To investigate differences in health behaviour, self-rated health and attitudes to health in students from the former socialist countries of Eastern Europe and students from Western Europe, so as to help understand the contribution of personal behaviour to the European health divide.
4. To analyse differences in behaviour, attitudes and risk awareness of students from the developing world, and the developed world.
5. To understand associations between health behaviour, psychological well-being and self-rated health from an international perspective.

Methods

This 12 month ESRC grant provided no funding towards the data collection in the IHBS. Most of the data processing was also completed outside the ESRC grant. The funding was provided to complete data entry, data cleaning, and to begin analysis of the data set.

The IHBS was carried out with a network of collaborators in participating countries (see acknowledgements). The anonymous questionnaire used for data collection was developed in English, then translated and back-translated into 17 languages (Bulgarian, Czech, Dutch, Flemish, French, German, Greek, Hungarian, Icelandic, Italian, Japanese, Korean, Polish, Portuguese, Romanian, Spanish and Thai). Collaborators were asked to collect data from around 400 male and 400 female university students aged 17 – 30 years in each country who were not studying medicine or health-related topics. A variety of students were involved, including those studying physical sciences, engineering, law, social science, languages, geography, history and economics. The questionnaire was administered to large groups of students, usually at the end of a class, so participation rates in most countries exceeded 90%. The numbers collected ranged from 471 to 2028 respondents, because of time constraints or the preferences of coworkers. Students were told that the survey concerned activities related to health and that an international comparison was being carried out, but no further details were given. Data collection was carried out from 1999-2001, with the bulk of the data being collected in 2000.

Thirteen of the countries that participated in the EHBS were included in the IHBS, so that 10 year differences in health behaviour and attitudes could be assessed. These countries were Belgium, England, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Netherlands, Poland, Portugal and Spain. Another three countries from Eastern Europe were included, so as to make further East-West comparisons (Bulgaria, Romania, and Slovakia).
Data were also collected from two advanced democracies (the USA and Japan), and from five countries at varying stages of economic development (Colombia, Korea, South Africa, Thailand and Venezuela). Twenty-three countries were therefore involved, with a total of 8,482 men and 10,816 women providing usable data. The sample in South Africa was recruited from a university with almost exclusively black students.

The 14-page IHBS questionnaire has six parts: 1) Measures of personal health behaviours such as dietary choice, physical activity, smoking, alcohol consumption, meal habits, sleeping patterns, weight control behaviours, driving, dental care, breast and testicle self-examination. 2) Ratings of the importance to health of 20 behaviours, including those in section 1, plus others such as avoidance of stress. 3) Assessments of awareness of risk associated with a range of personal health behaviours. 4) Standard measures of sense of control (Lachman & Weaver, 1998), self-rated health (Idler & Benyamini, 1997), and life satisfaction, together with assessments of socio-economic background and religion. 5) The multi-dimensional health locus of control scales (Wallston, Wallston, & DeVellis, 1978) and the value of health scale (Lau, Hartman, & Ware, 1986). 6) The short form Beck Depression Inventory (Beck & Beck, 1972). In addition, personal information such as age, gender, body weight, height, marital status and health status was collected. The IHBS questionnaire can be found on the internet at http://www.ucl.ac.uk/psychobiology/

Results

It will be appreciated that a single research assistant working for one year was only able to carry out limited analysis of this data set, and that much more information will be gleaned from the IHBS over the next few years. Nevertheless, we have been able to make substantial progress, in completing data entry and checking data accuracy, and in carrying out planned analyses relevant to the major objectives. Over the 12 months of the grant, five papers have been written and submitted for publication. To date, one has been accepted for publication, and the other four are under review. Below is a summary of some of the main findings so far.

10-year changes in health behaviour and attitudes

We have analysed differences in smoking, exercise, fruit and fat intake in students sampled in 1990 (EHBS) and 2000 (IHBS). We also assessed trends in beliefs in the importance of behaviours for health, and awareness of the influence of behaviours on heart disease risk. These analyses involved data collected from university students in the 13 European countries (Belgium, England, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Netherlands, Poland, Portugal and Spain) assessed in 1990 (4701 men, 5729 women), and in 2000 (4604 men, 5732 women). The results of these analyses are described in the attached paper (Steptoe et al., in press). Briefly, smoking prevalence increased and fruit consumption decreased between 1990 and 2000, while physical exercise and fat intake were more stable. There were large variations between country samples. Health beliefs weakened, with marked decreases in beliefs about smoking and diet. Across country samples, changes in beliefs correlated with changes in the prevalence of behaviours. Awareness of the effects of smoking and exercise was stable, but knowledge of the role of fat intake increased over the decade. We conclude that the trends in health behaviours, beliefs and risk awareness between the two surveys were disappointing in this educated sector of young adult Europeans. None of the changes over the decade were uniformly positive. There were some encouraging changes in risk awareness, particularly in southern and eastern European countries. The association between changes in
beliefs and prevalence of behaviour emphasises the importance of enhancing positive attitudes to healthier lifestyles.

These analyses are relevant to objectives 1 and 2 of the programme of work.

East and Western Europe

We have begun comparisons of students from Eastern and Western European countries by analyzing depression, life satisfaction, and self-reported health in relation to sense of control (Wardle et al., submitted). Comparison was made between 3,571 male and female University students from five Western European (Belgium, France, Germany, England and the Netherlands), and 4,793 students from five Eastern European countries (Hungary, Poland, Bulgaria, Romania and Slovakia). The short Beck Depression Inventory, measures of life satisfaction, self-rated health, and sense of control and mastery were administered, and health locus of control was assessed.

We found that average depression scores and the proportion of respondents with elevated scores were higher in Eastern than Western European samples. The prevalence of low life satisfaction was greater in Eastern Europeans, and self-rated health was poorer in women but not men. Ratings of control were diminished, but sense of mastery and internal health locus of control were elevated in Eastern Europe. Depression, low life satisfaction and poor self-rated health (women) were associated with low perceived control and mastery, and with strong beliefs in the influence of chance over health. However, taking these factors into account did not reduce the elevated risk of depressive symptoms, low life satisfaction and self-rated health in Eastern compared with Western Europeans. We conclude that even young, educated men and women in a privileged position in Eastern Europe experience greater depression and poorer live satisfaction than Western counterparts. Perceptions of control are reduced in Eastern Europeans, and are associated with poor well-being, but do not explain the excess of emotional distress in the former communist states.

These analyses are relevant to objectives 3 and 5 of the programme of work.

International differences in drink – driving behaviour

We have carried out a number of analyses across all 23 countries in the IHBS of health behaviours and associated attitudes. A paper describing the smoking results has been submitted for publication, and is available on request (Steptoe, Wardle, Cui et al., submitted). Here, we will describe analyses that have been carried out on drink-driving. A paper on this topic is currently under review, and is appended (Steptoe, Wardle, Bages et al., submitted). This topic is interesting both because the problem is a serious one in young people, and because we observed interesting associations between the prevalence of drink-driving and legal constraints in different countries.

The aim of these analyses was to assess the prevalence of drink-driving in young adults of comparable educational status in diverse cultural settings, and to analyse associations with attitudes and legislative practices (legally permitted blood alcohol level, legal age for buying alcohol, and use of random breath alcohol tests). The main outcome variable was self-reported driving after drinking too much in the past year. We found an age-adjusted prevalence of drink-driving was 20% in men, and 7% in women. There was wide variation between countries, and the highest levels were reported in the USA (43% men, 28% women). High rates were also reported by men from South American and Mediterranean countries. Across countries, reported rates correlated highly with national surveys of drink-driving ($r = .76, P <.001$), and with national road traffic accident death rates. There was no association with the legal age for purchasing alcohol or use of random breath tests. However, drink-
driving prevalence was positively correlated with legally permitted blood alcohol levels ($r = .54$, $P = .012$). Thus countries in which allowable blood alcohol levels are greater also have higher levels of drink-driving, either because people take advantage of lenient laws to drink more than is desirable, or because high legal thresholds reflect a tolerant social attitude to drink-driving. In comparison with individuals having strong negative attitudes towards the behaviour, the odds of drink-driving of those with less negative attitudes were 4.35 (3.9 – 4.8), adjusted for age, sex and country of origin.

We conclude that drink-driving is common among male university students in many countries, and in women from the USA. A multi-level approach to prevention involving changes in blood alcohol laws and efforts to shift the attitudes of individuals who drink and drive is suggested by the current results.

These analyses are relevant to objective 4 of the programme of work.

**Activities**

These results have not yet been presented at any conferences. Our international collaboration has helped to increase the research involvement of academic colleagues in a number of Universities that have up to now had limited research capacity in parts of the developing world.

**Outputs**

Five papers have emerged out of this one year grant. One has been accepted for publication, and the other four are under review. Each of these papers has been written by the grant holders in collaboration with collaborators in the international survey. The main research worker on the grant (Weiwei Cui) is a co-author of two of the papers.


Steptoe, A., Wardle, J., Cui, W., Baban, A., Glass, K., Pelzer, K., Tsuda, A., & Vinck, J. (submitted). An international comparison of tobacco smoking, beliefs and risk awareness in university students from 23 countries


**Impacts**

N/A

**Future research plans**
This grant initiated the analysis of this dataset, but work will continue for a number of years. Professor Wardle has obtained funding from Cancer Research UK for a three year post-doctoral scientist to carry out further work, and the researcher (Anne Haase) began work in early 2002.

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References


