

An Investigation of Physical Activity and the Frequency of Alcohol Consumption Amongst 16 and 17 Year Old Students in England and Sweden

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Abstract

This paper investigates physical activity, frequency of alcohol consumption and the inter-relation of these variables amongst samples of 16 and 17 year old students in regions of England and Sweden. Whilst previous research world wide has not demonstrated any consistent relationship between physical activity and alcohol consumption, studies in England have indicated significantly higher alcohol consumption amongst those who participate in physical activities. This is further supported by the results of this study. In contrast, there was no significant relationship between the behaviours amongst the Swedish sample. Consideration is given to the cultural factors that might mediate the relationship between physical activity and drinking behaviours and it is noted that in Sweden there have been greater efforts to pursue diverse health interests within participatory contexts, including physical education in schools. The respective curricular of the two nations are contrasted and the merits of an interventionist health promotion approach are discussed.

BACKGROUND

As Blair, Jacobs and Powell (1985) recognised, the relationships between physical activity participation and other health behaviours may have important implications for health education and health promotion efforts. Physical activity participation may influence other health behaviours in ways that may be either beneficial or detrimental to participants' health. Through investigation of the relationship between physical activity and other health behaviours, we may be better placed to modify participatory environments and practices in order to maximise the desirable impacts and minimise any detrimental impacts of participation.

Whilst research into the relationship between physical activity and smoking behaviours has indicated a consistent negative correlation (Blair, Jacobs & Powell, 1985; Blair, Kohl & Brill, 1990; Shephard, 1989; Wankel & Sefton, 1994) no consistent relationship has been demonstrated between physical activity and alcohol consumption (Wankel & Sefton, 1994). In England, however, Calnan (1989) and the Allied and Dunbar National Fitness Survey (1992) discovered positive relationships indicating higher alcohol consumption amongst those who participate in physical activities.

The research presented here into the relationship between physical activity and the frequency of alcohol consumption amongst students in England and Sweden became possible when an evaluation of upper secondary, that is post compulsory, 'physical education and health' was commissioned at the University of Gothenburg. Preliminary results of that evaluation have been presented elsewhere (Annerstedt & Patriksson, 1997; Berggren, 1998; Zederin & Larsen, 1996). Diverse health behaviours of students were examined and by replicating the research design in England, at University College Worcester, comparative analysis was facilitated through examination of the inter-relation of health behaviours in each country.

Hence, it was possible to examine the relationship between physical activity and drinking behaviours in the respective nations and to explore cultural factors which might mediate those relationships.

METHOD AND SAMPLE

A total of 1,028 students reported their health behaviours by completing a questionnaire. The Swedish sample (n=754, 371 males and 383 females) was drawn from fifteen schools, the English sample (n=274, 150 males and 124 females) from seven schools. A greater sample size was surveyed in Sweden where greater resources were available and where data was collected for a variety of research interests. Nevertheless, the English sample was sufficiently large to allow national comparison. In both nations, schools were randomly selected.

Within the questionnaires, students were required to report the frequency of their consumption of beer, wine and spirits, and their participation in leisure time activity of twenty minutes or more at different intensities. This included activity of high intensity, defined as that activity which induced high heart rate and sweating, and low intensity, defined as light exercise such as walking or easy bicycling. This measure was validated by Engström, Ekblom, Forsberg, Koch and Seger (1993) and was regarded as advantageous since previous research into the association between physical activity and other health behaviours had indicated that intensity may mediate any relationship (Folsom et al., 1985). Spearman rank correlation coefficients were calculated for the inter-relation of variables within each sample.

RESULTS

The activity behaviours and alcohol consumption of each sample are presented, followed by the inter-relation of those variables.

High Intensity Exercise

Students participation in high intensity exercise is presented in figure 1.

Moderate Intensity Exercise

Student participation in exercise of moderate intensity is presented in figure 2.

Alcohol Consumption

The frequency of consumption of beer, wine and spirits is presented for the English sample in figure 3 and the Swedish sample in figure 4.

The Inter-relationship of Activity with Smoking and Drinking Behaviours

The relationship between the measured variables is presented for the English sample in tables 1 and the Swedish sample in table 2.

DISCUSSION

Considering the health behaviours independently at first, it is noted that consistent with previous research (Riddoch & Boreham, 1995), whilst it was a minority of students who participated in the kind of activity associated with improvements in the cardio-vascular system, a far greater proportion took part in physical activity of low intensity in both countries. Despite this similarity, participatory behaviours amongst the Swedish students were more polarised than their English counterparts. Whilst a greater proportion of Swedish students participated three times or more each week

in activity of high intensity, a greater proportion also irregularly or never participated. Furthermore, at low intensity the English sample proved to be slightly, but nevertheless significantly, more active ($r=.1214$, $p<.001$).

With regard to the frequency of alcohol consumption, whilst beer was the most frequently consumed alcohol amongst the English sample, Swedish students reported more frequent consumption of wine and spirits. The only statistically significant difference between the samples' frequency of consumption was the greater rate of beer drinking amongst English students ($r=.1882$, $p<.001$). In the English sample, 48.7 per cent of students reported drinking beer every week and 27.5 per cent of English students drank on at least on two occasions each week, compared to 16.2 per cent and 5.5 per cent respectively amongst the Swedish sample.

It must be recognised that diverse factors may influence alcohol consumption. For example, in contrast to the situation in England where alcohol is widely available, in Sweden it can only be purchased in specially licensed shops controlled by the federal government where it is relatively expensive. This may significantly retard young people's efforts, and perhaps desires, to drink in Sweden. In addition, familiar attitudes to alcohol consumption in accompaniment of food may influence drinking behaviours in the company of peers. Differences in the type of alcohol consumed may result from drinking in different contexts but such considerations are beyond the scope of this paper. In addition, it should be noted that consumption behaviours may be gendered. Analysis showed that males in both samples reported consumption of beer on significantly more occasions than females ($r=.1851$, $p<.001$).

Directing attention to the relationship between physical activity participation and the frequency of alcohol consumption specifically, it is evident that there was some considerable contrast between the two samples. In the English sample, consistent with previous research, there was a positive and significant association between physical activity participation and alcohol consumption. Participation in physical activity of both high and low intensity were positively and significantly related to the frequency of beer consumption, and physical activity of low intensity was positively and significantly related to the frequency of wine consumption. In contrast, there was no significant association between the behaviours amongst the Swedish sample. As Vuori and Fentem (1995) argue, the relationship between the variables, found in the English sample, should not be assumed to be causal. It is unclear whether participatory environments in England operate to attract those who drink alcohol and/or whether those environments themselves promote alcohol consumption.

Again, diverse factors may mediate the relationship between physical activity participation and alcohol consumption, as well as the impact of the association on peoples' participatory decisions. Alcohol consumption within participatory environments may be a gendered behaviour or, on the other hand, the association may be consistent, operating to create gender associations with particular activities. In addition, the nature of the activity itself may be an important variable in understanding the association with alcohol consumption. Casual participation in individual modes of activity for example, are unlikely to place the participant within the kinds of social environments engendered by organised team sports. Clearly, further research is required to explore these areas. It must be recognised however, that particular activities may have very specific cultures within as well as across nations. In consideration of health promotion interests therefore, it may be most

important to be sensitive to the processes by which participatory cultures can effect diverse health behaviours and to consider how such cultures are created, sustained and modified.

Wankel and Sefton (1994) have argued that the relationships between health behaviours are likely to be strongest in those societies in which they are actively promoted. It may be appropriate therefore to actively promote diverse health behaviours within participatory contexts. Physical education can be regarded as a vehicle for the promotion of health behaviours and the curricular of England and Sweden present a significant contrast in this regard.

In the National Curriculum for England and Wales (Department for Education/Welsh Office, 1995) the following general requirement (i.e. the requirement applies across the all activity areas and age groups) was established:

1. To promote physical activity and healthy lifestyles, pupils should be taught:
 - a. to be physically active;
 - b. to adopt the best possible posture and the appropriate use of the body;
 - c. to engage in activities that develop cardiovascular health, flexibility, muscular strength and endurance;
 - d. the increasing need for personal hygiene in relation to vigorous physical activity.

The Swedish curriculum (Utbildningsdepartementet, 1994: 51) , on the other hand, states that the subject 'should focus explicitly on good health and a good environment, so that the pupils will become familiar with the connections between lifestyle, living environment and health in order to bring about quality in life'. Unlike their English counterparts, students in upper secondary school in Sweden continue to receive compulsory physical education after the age of sixteen which 'aims at students becoming more conscious of health and environment, and having a greater opportunity to participate actively in working with questions concerning health, at work and in society as a whole' (Utbildningsdepartementet, 1994: 26). Furthermore, on completion of the course students will 'know different factors that influence people's health and have the ability to discuss the connections between health, lifestyle and environment from a individual point of view as well as from a civic perspective' (Utbildningsdepartementet, 1994: 27).

It is evident from consideration of the English curriculum that activity behaviours are taken to be an integral part of a healthy lifestyle. There is emphasis upon individual physiological function. Social factors that might mediate physical activity behaviours or their contribution to public health are not considered. As Talbot (1997: 15) notes of physical education in England and Wales:

there has been no critical evaluation of the effects on those young people, of the values and practices of the sports organisations and institutions in which they play – we simply expect that young people will somehow learn to resist or cope with the cultural pressures and extrinsic reward systems which have been developed by sports organisations and the commercial sector.

In contrast, the Swedish curriculum (Skolöverstyrelsen, 1994) demonstrates critical concerns, seeking to problematise the relationship between physical activity and health by raising social and moral issues.

In addition, the respective curricula may be considered to present an interesting contrast as to the mode of science upon which the subject is based. Traditionally, physical education has been dominated by the techniques of empirical-analytical science that, when applied in the investigation of health behaviours, has led to the identification of relationships between behaviours, taken as an objective reality. Consistent with this tradition, the English curriculum may be considered to exhibit what has been called the ideology of healthism (Crawford, 1980; George & Kirk, 1988; Kirk & Colquhoun, 1989), 'a belief that the attainment and maintenance of health is a self-evident good which accepts unquestionably the "obvious" link between organised physical activity and health' (Sparkes, 1989: 9). It may also be regarded as essentially technocratic (Charles, 1979; 1990; McKay, Gore & Kirk, 1990; Tinning, 1990) treating health outcomes as ends to be achieved via technical means rather than as social issues. The Swedish curriculum, however, does not demonstrate assumptions of particular associations between health behaviours. To the contrary, it examines diverse factors which might influence the relationship between health behaviours. Consequently, it cannot be considered to be consistent with the ideology of healthism or of technocratic rationality.

Having drawn a distinction between the respective curricula, it should be recognised that influences from other areas of society other than physical education may or may not operate in a consistent manner. Importantly, however, in Sweden there have been far greater efforts to intervene in sports organisation and in media presentation in order to promote particular social interests. Consequently, for example, the commercialisation of sports have been controlled as a result of fears that such developments might undermine social interests. In England, this has not taken place other than in cases where monopolisation legislation has been applied. It should be recognised that the principle of intervening in sports to promote particular social interests is generally accepted in Sweden (Sveriges Riksidrotts Forbund, 1995) and elsewhere in Scandinavia.

In Norway, research has been conducted that has specifically considered the impact of policies concerned with drinking amongst young sports participants. Ligestad (1997) investigated the perceived pressures to drink alcohol experienced by seventeen year old players when they join senior football teams following the Norwegian football association's promotion of alcohol restrictions at its clubs. The results demonstrated that the pressures were lowest in those clubs that had adopted a clear policy against alcohol. In England, whilst alcohol consumption may be regarded as a limit on performance, it may often be treated as an inherent part of the game. Some of the most celebrated stars of English football, such as George Best, have famously struggled with alcoholism, which appears not to have harmed their public appeal, perhaps taken to indicate the extent of their 'natural' ability.

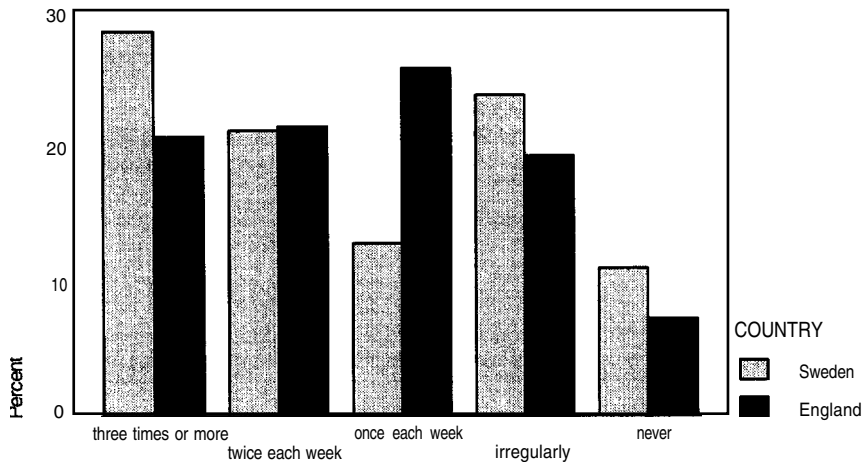
In summary, this research, consistent with previous studies, demonstrates a positive correlation between alcohol consumption and activity behaviours amongst English students indicating that in England, physical activities attract those who drink and/or actually promotes drinking. The relationship is not present amongst the Swedish sample and is therefore not consistent across national boundaries. Whilst the significance of specific participatory cultures within different activities requires further attention, in this paper discussion has focused upon the potential impact of intervening within participatory contexts in order to promote diverse health behaviours. Within participatory contexts generally, and physical education specifically, Sweden offers an interesting model and the respective curricula of each nation present alternative approaches to health related physical education.

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Figure 1. Participation in high intensity activity



Participation in high intensity activity

Figure 2. Participation in low intensity activity

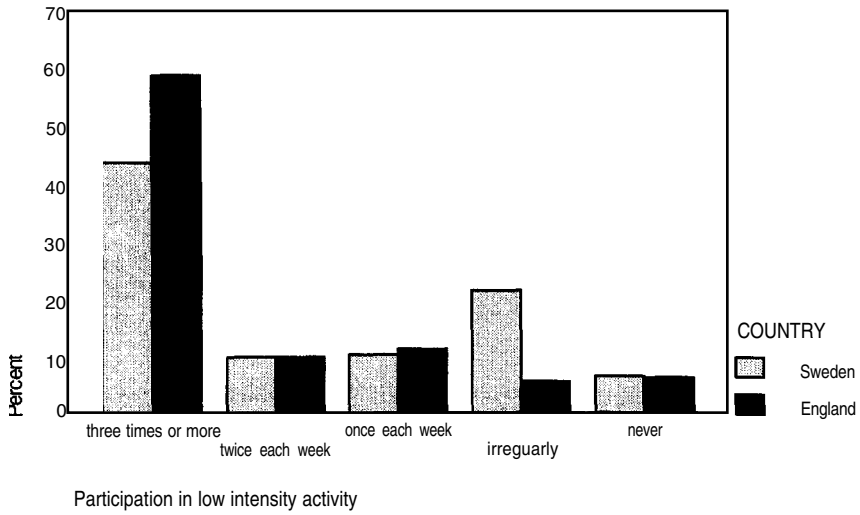


Figure 3. Alcohol consumption (English sample)

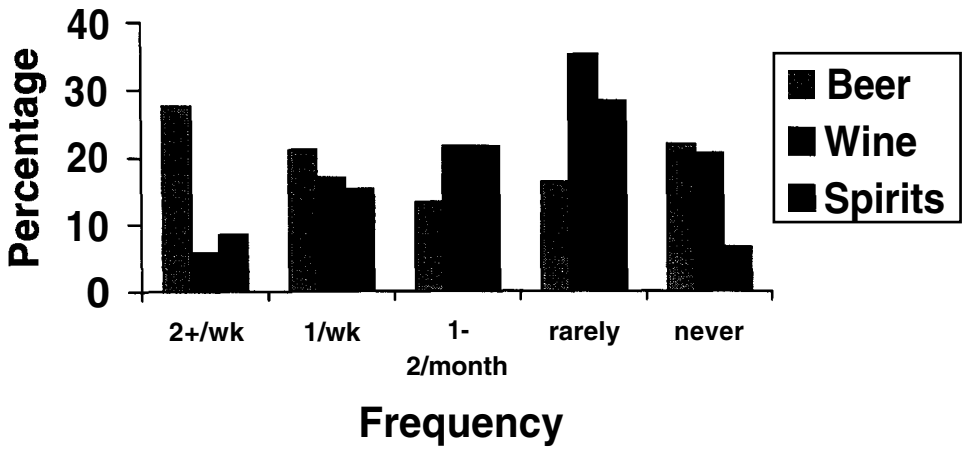


Figure 4. Alcohol consumption (Swedish sample).

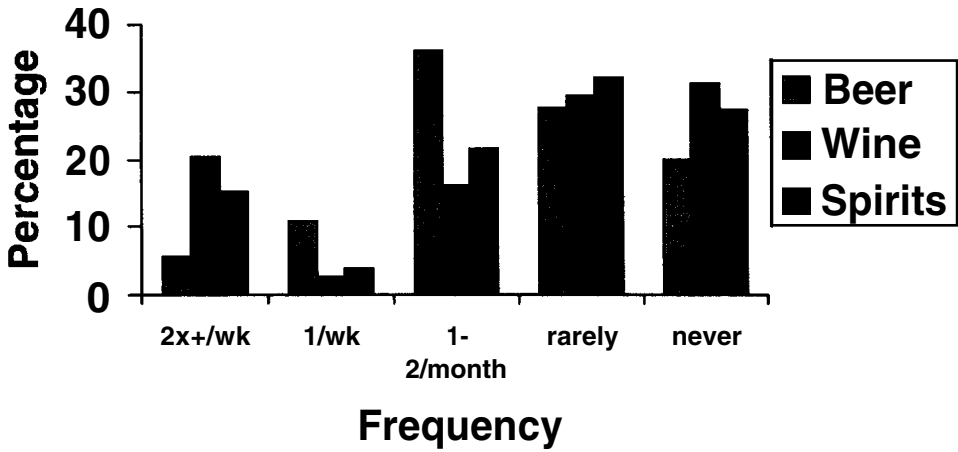


Table 1: The Inter-relationship of Variables in England

Physical activity (Intensity)	Beer consumption (Frequency)	Wine consumption (Frequency)	Spirit consumption (Frequency)
High	0.1375*	-0.0626	-0.0232
Low	0.1508*	0.1413*	0.1085

Note.* p<z.05 **p<.01

Table 2: The Inter-relationship of Variables in Sweden

Physical activity (Intensity)	Beer consumption (Frequency)	Wine consumption (Frequency)	Spirit consumption (Frequency)
High	0.0099	0.0461	0.0315
Low	-0.0022	0.0061	0.0112

Note.* p<.05 **p<.01