

Is health just one more thing to worry about?

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Weighing the worry, measuring the mind

Exercise is good for you, and young people do not get enough of it.' This is close to being a non-contentious statement, and elsewhere in this issue Stuart Biddle summarises some research findings about the beneficial effect of exercise on people's wellbeing. This prompted us to take a look at relevant Health Related Behaviour data, to see if we could contribute further to the 'inactive youngsters' debate. In particular, we wished to see if our survey results supported the belief that exercise is good for the mind as well as for the body.

To begin with, we had to select data relevant to physical activity and to mental state.

The sample

The study was carried out on a sample of 12,690 Year 10 pupils (6509 boys, 6181 girls) who had completed the questionnaire during the first ten months of 1994. This enormous sample was derived from surveys across the UK as far removed as Northumberland, Devon, Liverpool and Suffolk.

Table 1. Percentage frequency of participation in three out-of-school active pursuits during the previous year. Provisional 1994 data; Year 10 pupils.

Activity	Never or hardly ever		Once or twice monthly		Weekly		At least twice weekly	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Jogging	60.4	65.2	19.7	21.4	12.5	9.0	7.4	4.4
Fitness exercises		51.2		22.8		19.0		7.0
Weight training	59.4		16.7		12.5		11.3	

Table 2. Percentage values for VIGTOT — the number of out-of-school active pursuits engaged in at least twice a week. Provisional 1994 data; Year 10 pupils.

	VIGTOT			
	0	1	2	3+
Boys	20.9	28.8	21.5	28.8
Girls	51.4	27.0	11.2	10.3

Exercise and activity levels

We used question 16 in Version 16 of the Health Related Behaviour Questionnaire, which asks the young people how often during the previous twelve months they had taken part voluntarily in listed sports and activities. From the 39 checklist items we selected the following, because they were among the most popular non-seasonal active pursuits:

Jogging

Fitness exercises (girls)

Weight training (boys)

There were four levels of involvement:

Never or hardly ever

Once or twice a month

Weekly

Twice a week or more

We also used the total vigorous sporting activity index derived for each respondent, known as VIGTOT. This measures the number of vigorous sports participated in at least once a week (when in season, if appropriate). VIGTOT values of 0, 1, 2 and 3+ were used in the analysis.

Table 1 presents the percentage of the sample that had participated in the activities. Table 2 shows the percentage that come into the four different categories of VIGTOT.

Even though the activities in Table 1 are among the most popular pursuits, note the comparatively small percentages of young people that are involved in any of them even at a 'weekly' level — well below a widely-recommended regime of three 20-minute exercise sessions per week.

Table 3. A measure of the average amount of worrying done about each problem, on a scale from 0 (never) to 5 (a lot). Provisional 1994 data; Year 10 pupils.

Problem	'Worry index'	
	Boys	Girls
School	1.46	1.83
Money	1.45	1.64
Health	1.32	1.81
Career	1.48	1.72
Unemployment	1.31	1.48
Friends	1.26	2.02
Family	1.30	2.02
How you look	1.78	2.70
Drugs	0.84	1.17
HIV/AIDS	1.25	1.71
Mean	1.34	1.81

Measuring the mind

Several questions in the Health Related Behaviour Questionnaire examine the young people's attitude to commonplace problems and their confidence in themselves. We selected three of these.

Question 50 asks how much they worry about the following problems: School, money, health, career, unemployment, friends, family, how they look, drugs, and HIV/AIDS.

Question 51 derives a value of self-esteem from a checklist of questions dealing mainly with social confidence.

Question 52 derives a 'health locus of control' value, on a scale from powerlessness to complete control over their health. We shall refer to this as 'health autonomy'.

The large bank of information derived from Question 50 was particularly useful. First of all, it allowed us to derive a 'worry index' by calculating the mean values for each problem, based on the following scale:

- 0 = *Never worry*
- 1 = *Hardly ever*
- 2 = *A little*
- 3 = *Quite a lot*
- 4 = *A lot*

Therefore the higher the value, the more of them worry. The summary worry table (Table 3) presents the results. While recognising that this is statistically 'naughty', it does give an extra feel for the comparative degree of worry associated with each problem. It is clear that more girls than boys report higher worry levels about everything!

Exercise and worry

We were now in a position to assemble and explore a hypothesis. The hypothesis was: *If exercise is good for the mind, then people who exercise a lot should tend to worry less than those who do not.*

Tables 4, 5 and 6 present the worry factors against the frequency of jogging, fitness-exercising, and weight-training by the young people in the sample. Only the extreme frequencies (*never or hardly ever* and *at least twice weekly*) are presented. Table 7 presents VIGTOT (the number of vigorous sports participated in at least twice weekly) with values of from 0 to 3+. The highest values of 'worry index', as calculated above, are in bold type, the lowest values are underlined.

Table 5. FITNESS EXERCISERS: Lowest worry index underlined, highest in bold. Provisional 1994 data; Year 10 girls only.

Worry about...	FITNESS EXERCISING	
	Girls	Girls
School	<u>1.77</u>	1.94
Money	<u>1.59</u>	1.73
Health	<u>1.74</u>	1.98
Career	<u>1.65</u>	1.92
Unemployment	<u>1.41</u>	1.58
Friends	<u>1.97</u>	2.08
Family	2.03	<u>1.89</u>
How you look	<u>2.59</u>	2.91
Drugs	<u>1.10</u>	1.29
HIV/AIDS	<u>1.59</u>	1.85

Table 4. JOGGERS: Lowest worry index underlined, highest in bold. Provisional 1994 data; Year 10 pupils.

Worry about...	JOGGING			
	Never or hardly ever		At least twice weekly	
	Boys	Girls	Boys	Girls
School	<u>1.41</u>	1.89	<u>1.46</u>	1.85
Money	<u>1.42</u>	<u>1.61</u>	1.43	1.72
Health	<u>1.28</u>	<u>1.77</u>	1.30	1.87
Career	<u>1.41</u>	<u>1.66</u>	1.73	1.94
Unemployment	<u>1.25</u>	<u>1.42</u>	1.34	1.63
Friends	<u>1.21</u>	<u>2.00</u>	1.31	2.03
Family	<u>1.25</u>	<u>2.00</u>	1.42	2.03
How you look	<u>1.72</u>	<u>2.68</u>	1.95	2.71
Drugs	<u>0.80</u>	<u>1.12</u>	0.96	1.20
HIV/AIDS	<u>1.21</u>	<u>1.65</u>	1.42	1.88

Table 6. WEIGHT TRAINERS: Lowest worry index underlined, highest in bold. Provisional 1994 data; Year 10 boys only.

Worry about...	WEIGHT TRAINING	
	Never or hardly ever	At least twice weekly
School	1.46	<u>1.43</u>
Money	<u>1.42</u>	1.46
Health	1.29	<u>1.28</u>
Career	<u>1.43</u>	1.46
Unemployment	<u>1.25</u>	1.36
Friends	<u>1.23</u>	1.25
Family	<u>1.23</u>	1.36
How you look	<u>1.71</u>	1.89
Drugs	<u>0.81</u>	0.84
HIV/AIDS	<u>1.18</u>	1.32

Table 7. VIGTOT: The number of out-of-school activities pursued at least twice a week. Lowest worry index underlined, highest in bold. Provisional 1994 data; Year 10 pupils.

Worry about...	NO. OF VIGOROUS PHYSICAL ACTIVITIES							
	0		1		2		3+	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
School	1.48	<u>1.81</u>	1.47	1.82	<u>1.44</u>	1.88	1.46	1.84
Money	<u>1.42</u>	<u>1.62</u>	1.45	1.67	1.48	1.67	1.44	1.70
Health	1.34	<u>1.79</u>	1.33	1.83	<u>1.30</u>	<u>1.79</u>	1.31	1.86
Career	<u>1.41</u>	<u>1.66</u>	1.45	1.74	1.49	1.79	1.55	1.93
Unemployment	<u>1.26</u>	<u>1.43</u>	1.31	1.50	1.31	1.47	1.36	1.66
Friends	<u>1.24</u>	<u>2.00</u>	1.25	2.03	1.25	2.05	1.29	2.02
Family	<u>1.26</u>	2.04	1.29	<u>1.99</u>	1.30	2.01	1.36	2.01
How you look	<u>1.69</u>	<u>2.68</u>	1.77	2.72	1.81	2.75	1.84	2.74
Drugs	0.83	<u>1.11</u>	0.83	1.21	<u>0.79</u>	1.24	0.89	1.30
HIV/AIDS	<u>1.16</u>	<u>1.63</u>	1.25	1.80	1.23	1.75	1.34	1.88

Activity	PHYSICAL ACTIVITY FREQUENCY			
	Never or hardly ever		At least twice weekly	
	Boys	Girls	Boys	Girls
Jogging	<u>3.21</u>	<u>2.94</u>	3.23	3.05
Fitness exercises		<u>2.93</u>		3.02
Weight training	<u>3.18</u>		3.30	

Table 8. SELF-ESTEEM: Lowest self-esteem index underlined, highest in bold (scale 1-4). Provisional 1994 data; Year 10 pupils.

Activity	PHYSICAL ACTIVITY FREQUENCY			
	Never or hardly ever		At least twice weekly	
	Boys	Girls	Boys	Girls
Jogging	<u>2.79</u>	<u>2.71</u>	3.05	2.86
Fitness exercises		<u>2.69</u>		2.89
Weight training	<u>2.82</u>		2.98	

Table 9. HEALTH AUTONOMY: Lowest index of autonomy underlined, highest in bold (scale 1-4). Provisional 1994 data; Year 10 pupils.

From the clustering of the underlined figures in these tables (representing the *lowest* worriers in the sample), it can be seen that an obvious majority fall within the 'never or hardly ever' category for the three activities (Tables 4-6), and at level 0 for the number of pursuits in one week (Table 7).

On the face of it, therefore, our data suggest that *people who exercise very little tend to worry less than those who take a lot of exercise.*

To say the least, this result was unexpected.

Do some people just worry?

The answers to questions 51 and 52 show a different pattern (Tables 8 and 9). Here, *the lower values of self-esteem and health auton-*

omy are linked to the lowest level of exercising, so that these do indeed have a positive correlation with physical activity. Evidently Questions 51 and 52 are measuring something different to Question 50.

Questions 51 and 52 (self-esteem and health autonomy) are intended to measure personal parameters that remain stable enough to enable people to be classified by them, for example as having high self-esteem. Question 50 (worries) addresses particular problems, some of which may have happened recently, so that the answers may well be coloured

by experience of specific life-events.

This would conveniently explain the difference between Tables 4-7 and Tables 8-9, but after spending time looking at numerous analyses of our checklist of things people might worry about, we did begin to wonder if worrying is a habit! Personal experience of careworn and carefree friends suggests that it might be, and we have already shown that girls worry more than boys do — evidently a gender characteristic?

We carried out a statistical check, dividing the boys and girls into 'low worriers' and 'high worriers'. To a probability (χ^2) of less than 0.001, a high or low worry category in one of the twelve worry areas was likely to be matched by a similar category in the others.

Therefore, worrying excessively about health does not necessarily mean that health is a particular problem. It could just be one more thing to worry about!

Cause or effect?

Some years ago, when we published data relating to young people's smoking levels, a reporter wanted to use the results to show that 'smoking education' in schools wasn't working.

Our answer had to be that the smoking levels might have been even higher if schools did not address the problem. 'Scientific' research into the effectiveness of smoking education would have required a control group that was (in theory at least) unaffected by the experiment.

Similarly here. Would the 'worriers', who tend to show a higher level of physical activity, worry still more if they did not have the opportunity to participate in active pursuits? We have no control group to enlighten us.

There is, however, a more fundamental question to ask. Regardless of the *effect* of jogging and fitness exercises, why do some young people pursue them and others not? Is it basically about fitness, or forgetting about the worries we have been considering, or even just because friends do them too?

There are limits to the questions we can address using our data, but Table 10 displays the link between assessment of personal fitness and level of physical activity. It shows perhaps an obvious and expected link between the more physically active boys' and girls' perception of themselves as fitter people.

Table 10. Percentage of young people, by personal fitness assessment, involved in physical activities. Each of these activities is pursued at least twice a week.

Provisional 1994 data:

Year 10 pupils.

No. of activities pursued 2+ weekly	PERSONAL FITNESS					
	Unfit or very unfit		Moderately fit		Fit or very fit	
	Boys	Girls	Boys	Girls	Boys	Girls
0	43.8	71.1	30.5	56.0	11.7	32.0
1	32.0	20.2	33.2	27.8	26.0	29.9
2	13.5	5.8	20.9	9.7	23.3	16.9
3+	10.7	2.9	15.4	6.5	39.0	12.1
	100	100	100	100	100	100

Table 11. Percentage of young people involved in physical exercise that are regular smokers. Each of these activities is pursued at least twice a week.

Provisional 1994 data:

Year 10 pupils.

No. of activities pursued 2+ weekly	REGULAR SMOKING	
	Boys	Girls
0	13.6	19.0
1	12.2	16.3
2	10.6	14.2
3+	10.4	13.1

Even this is not a complete answer. This athletic group may feel fit because they are active, but they may also be active because they are worried about losing their fitness if they are not. The activity itself could be positive or protective, or a mixture of both; the 'worry' could be about lack of fitness or losing a present high level of fitness.

Smoking and exercise

Neil Armstrong asked us to explore the links between physical activity and smoking (Table 11).

The results show statistically significant, in fact obvious, differences in smoking habits between high and low exercisers, the high exercisers being less likely to smoke regularly. Other analyses show that high exercisers are also more likely to have given up smoking. The difference is not surprising: perhaps we might have expected it to be greater.

Conclusion

If health educators are to encourage more voluntary physical activity, they need to adopt strategies that find an echo in the young people's attitudes and reflect facilities available in the community. Many of the inactive youngsters in Table 10 still regard themselves as fit, and Neil Armstrong's research has shown, in his own words, that 'children are fit but not active'. Therefore the *pleasure* of physical activity (including the relief when you stop, and the thirst it creates!), rather than the good it does you, may be the message to adopt.

Incidentally, more girls than boys need encouragement in this respect. *Young People in 1994* will show that the percentage of inactive girls rose from 11.2% in Year 7 to 22.3% in Year 11; the boys' figure was steady at about 7%.

Perhaps one last comment should be made. There is such a strong tendency to link fitness and activity together that many of the young people in our sample, who consider themselves anything from 'very unfit' to 'moderately fit', are probably basing their personal assessment on their low levels of physical activity. If they do not think they are fit, they may be less likely to want to attempt active pursuits which could cause them distress or show them up as failures. Perhaps health educators might consider impressing upon them that they are fitter than they really think, and are well equipped to adopt a more vigorous and beneficial lifestyle.