Relationship of sexual abuse to motivation for strenuous exercise


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Aim. Sources of motivation for intense physical exercise are poorly understood. Based on views that link such behaviour to preexisting psychopathology, we tested the hypotheses that history of childhood sexual abuse would be greater in intense exercisers than in non-exercisers, and that effects of abuse on self-esteem, perfectionism and body dissatisfaction would help to explain any link between abuse and exercise.

Methods. Consecutive attenders at two types of exercise were recruited: weight training and running. Sedentary attenders at a further education college provided a third, comparison group. Each group contained 64 men and 64 women. Participants completed questionnaires to record history of sexual and physical abuse in childhood and adulthood, body dissatisfaction, self-esteem, and positive and negative perfectionism.

Results. Adult, but not childhood abuse, was reported by more weight-trainers than others. Abused individuals were more anxious and depressed, were more negative about themselves and were more concerned with avoiding failure in general. Women abused in childhood were more concerned with avoiding failure at exercise in particular.

Conclusion. These results suggest hypotheses that link adult abuse to intense weight training habits and, in women, that link child abuse to feelings of failure in exercise.

KEY WORDS: Exercise - Running - Sexual offenses.

Despite the benefits of physical exercise for physical and mental health, levels of exercise in the general population remain low, and take-up and retention in formal exercise training programmes are poor.

Nevertheless, there exists a group of people who exercise intensely, even to the extent of harming consequences such as ignoring injury and illness. One interpretation of committed and intense running has been as an addiction, but this probably only applies to a proportion of committed runners and does not explain why these people begin to run. Moreover, there is no evidence that the concept of addiction applies to forms of exercise other than running.

There have been several suggestions that motivation for intense exercise is related to psychopathology. One retrospective report suggested a high incidence of psychopathology in intense runners. The appearance of clinical levels of depression two weeks after cessation of regular running was interpreted as reflecting the loss of protective.
effects of regular exercise against preexisting pathology. More specifically, Yates et al. proposed that running was related to anorexia nervosa such that both represented pathological attempts to control body weight. A more speculative link between running and anorexia is that each has been interpreted as masochistic behaviour; i.e. motivated by the infliction of pain or harm on oneself. Plausibly, intense exercise might provide a socially sanctioned and relatively harmless way to incur pain and suffering.

These views are difficult to test. Assuming that people with psychological problems take up exercise to reduce those problems, one should not expect to find higher levels of psychopathology in exercisers than sedentary people. An alternative approach to investigating the role of psychopathology in intense exercise is to examine the history of the kinds of traumatic events, particularly in childhood, that have been linked with adult psychopathology. In particular, patients with eating disorders are known to report a greater incidence of childhood sexual abuse than comparable groups. Plausibly, the experience of abusive events might predispose people to inflict further abuse on themselves by intensely exercising. However although, in a previous study, it was noted that 13% of a sample of female weightlifters had been raped as teenagers or adults, no systematic evidence is available that compares the incidence of abuse between committed exercisers and others.

The present study is therefore a preliminary test of the prediction that the reported history of sexual abuse would be greater in committed exercisers than non-exercisers. Moreover, because of the putative link between exercise and anorexia, and the association of anorexia with motivation to change body shape, we hypothesised that abuse would be more associated with exercise designed to influence body shape-weight training than with exercise which is aimed at performance-i.e. running. It is possible that experience of abuse affects, not the type of exercise that people take up, but the intensity of motivation for exercise. Motivation for exercise was therefore also assessed. In addition, we examined psychological variables that might mediate any effects of abuse on exercise behaviour or motivation to exercise. Anxiety and depression were measured because of evidence that these are sequelae of abuse, together with self-esteem and body image. Positive and negative perfectionism were included because of the theory that perfectionism mediates the motivation of anorexic patients to influence their body form and size.

Sexual abuse is frequently associated with physical abuse and, in childhood, with disturbed parenting. Therefore recollection of these adversities was also assessed to check whether they could account for any apparent effects of sexual abuse.

Materials and methods

Participants

We sought to recruit equal numbers of males and females who were regular participants in either weight training or running together with a comparison group who did not engage in regular physical exercise. Gymnasia and running clubs were selected through classified pages of the telephone directory and contacted by telephone. Each suitable organisation agreed to offer access to its members. Consecutive attendees on study days were asked to take part in a study of "the reasons why people participate in different activities". Recruitment continued until 64 males and 64 females had consented in each of three groups (see below). Of the 141 weight trainers and 135 runners who were approached 13 and 7, respectively, declined to take part. Participants were first screened for exercise habits to exclude those who (i) participated in running or weight-training for less than one hour a week (ii) had a history of regular running or weight-training of less than six months or (iii) participated in both forms of exercise. A comparison group was formed by attendees at a further education college who were approached consecutively as they entered a dining facility; of the 131 approached, 9 declined. Members of the comparison group were excluded if they participated in any type of formal exercise. Participants were assured of confidentiality and anonymity before completing the questionnaire (see below) in a private area.

Questionnaires

A frontsheet requested background and demographic information. Other measurements included: body satisfaction, (only "head" and general "body" satisfaction were considered), recollection of maternal care and maternal overprotection (Parental Bonding Instrument 21), self-esteem, positive and negative perfectionism, anxiety and depression (Hospital Anxiety and Depression Scale). In the exercise groups only, motivation for exercise was measured using the items of the Sport Motivation Scale.

Recollection of childhood abuse was assessed by the Medical History Questionnaire used previously by Drossman...
et al. Sexual abuse was defined as a positive response to one or more of the following questions: "Has anyone ever touched the sex organs of your body when you didn't want this?", "Has anyone ever made you touch the sex organs of their body when you didn't want this?", "Has anyone ever tried forcefully or succeeded to have sex with you when you didn't want this?". A single question about physical abuse asked: "When you were a child did an older adult hit, kick or beat you?". Responses "occasionally" or "often" on a Likert scale were regarded as abused, "seldom" and "never" were regarded as not abused. Questions were written separately for childhood and adulthood, childhood being defined as thirteen years or younger.

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<th>TABLE I.--Characteristics of the samples.</th>
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Data analysis

The items of the Sport Motivation Scale were subjected to principal components analysis to determine subscales appropriate for this participant group. The number of components to retain was decided with the help of a scree test before varimax rotation. Component-based scores were formed by summing items loading at 0.50 or above on each scale.

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<th>TABLE II.--Numbers and % of participants in each group who reported sexual or physical abuse (and, in brackets, numbers of participants who failed to provide relevant data).</th>
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<td>Abuse reported (%)</td>
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Continuous data were examined to confirm approximation to the normal distribution. The comparability of exercise groups in exercise habits, age, marital status, weight and height was assessed by analysis of variance or $x^2$ test, as appropriate. The incidence of abuse of each kind, in both childhood and adulthood, was then also compared between the three exercise groups by $x^2$ test. For both childhood and adulthood reports, separate analyses of variance compared sexually abused vs non-abused subjects. The three exercise groups were then compared on the same psychological variables by analysis of variance; the sedentary group was excluded from analysis of the exercise motivation scales. In all analyses of variance, gender was included as a factor and significant interactions with gender are reported. Where relevant, significant F-ratios and interactions were examined by post hoc tests using Tukey's HSD. The criterion for significance was p<0.05.

Results

Sample

The sample comprised 64 males and 64 females in each of 3 groups: weight trainers, runners and non-exercisers, although several in each group declined to answer questions about abuse (Table II). The groups were similar in sociodemographic characteristics (Table I). They were comparable also in exercise habits (mean years of regular exercise and mean weekly hours in weight trainers and runners: 5, 3, respectively). As expected, weight-trainers were heavier than non-exercisers who were heavier than runners ($F=10.08$, d.f.=2,361, p<0.001; Table I).
TABLE III.-Results of principal components analysis of responses to motivation questionnaire. Loadings reaching 0.40 are shown and, for each component-based scale, Cronbach’s [alpha].

Motivation scale

Four components of motivation were identified (Table III). "Positive internal" described enjoyment of learning and personal development. "Positive external" concerned external influences such as social rewards. "Negative internal" described motivation by guilt and anxiety over exercise. Finally, "failure" described feelings of incompetence and lack of control over exercise. Cronbach’s alpha indicated acceptable reliability for each scale (Table III).

Psychological status of exercise groups

The groups differed on only two measures of psychological state. Positive perfectionism was significantly higher in weight-trainers (mean=73.96) and runners (72.98) than in non-exercisers (69.50; F=5.55, 2,369, p<0.01). For negative perfectionism, the interaction of group x gender (F=3.51, 2,366, p<0.05) indicated that female weight trainers had higher negative perfectionism scores than male weight-trainers (means: 55.08, 60.34; 57.27, 56.17; 57.0, 53.73 for: male and female weight-trainers, male and female runners, male and female non-exercisers, respectively). On the motivation scales, positive external motivation was greater in runners than weight trainers (means: 20.4, 16.5, F=15.36; 1,242; p<0.001); no interaction with gender was significant.

Abuse

Sexual abuse in childhood or adulthood was reported by 24 (7%) and 57 (16%), respectively of the respondents. These two measures of abuse were associated with each other, 8 subjects reporting both, 9 reporting child abuse only, 37 reporting adult abuse only and 291 reporting neither (X²sup 2^= 18.24, p<0.001). Physical abuse was less common, being reported by only 19 (5%) and 1 (0.3%) of the sample in childhood and adulthood, respectively. It was not associated with sexual abuse, in either childhood or adulthood, and is not considered further.

Differences between rates of childhood sexual abuse reported by the different groups did not approach significance (Table II). However, reports of adult abuse did differ (*sup 2^= 7.25, p<0.05). The difference was confined to females (*sup 2^= 8.28, p<0.05) and absent in males. A further analysis confirmed that the effect reflected the contrast between weight trainers and both other groups combined (*sup 2^= 7.20, p<0.005).

TABLE IV.-Relationship between sexual abuse in childhood or adulthood and scores on psychological variables and exercise motivation scales. Means and F-ratios are shown, *: p<0.05; **: p<0.01; ***: p<0.001.

Table IV shows that sexually abused subjects (whether in childhood or adulthood) were more emotional, had a
more negative view of themselves and more negative perfectionism and recalled poorer maternal care. There were no interactions with gender on these scales. Of the motivation scales, only Failure was related to history of sexual abuse. Subjects who reported sexual abuse in childhood had more feelings of failure (Table IV). The interaction of gender x abuse (F=6.91; 1,120; p<0.01) indicated that this effect was present in females (abused: mean 13.09; nonabused: 7.00) but not males (abused: 8.43; non-abused: 8.16). The analysis of failure was repeated using self-esteem, negative perfectionism, anxiety and depression as covariates. The main effect of abuse was no longer significant (F=3.77; 1,206; p<0.05) but the interaction of abuse x gender remained highly significant (F= 13.79; 1,206; p<0.001), confirming that the observed differences in feelings of failure in relation to exercise between abused and non-abused females could not be accounted for by general fear of failure or feelings of distress or inadequacy.

Discussion and conclusions

The two exercise groups were similar in their exercise habits. The method of recruitment ensured that they were exercisers and their self-report indicated an average of 3 hours weekly exercise. Nevertheless, psychological differences between these groups and sedentary individuals were few. Weight-trainers had greater positive perfectionism, as has been described previously for athletes.23 Higher negative perfectionism characterised female weight trainers specifically. Although there is considerable evidence from longitudinal studies that regular strenuous exercise reduces depression and anxiety,1 cross-sectional evidence is hard to interpret. Similar levels of depression and anxiety to those of sedentary subjects in this study could have arisen either if exercise habits were unrelated to psychopathology or if exercise had successfully reduced initially elevated levels.9

A significant proportion of this young adult sample reported sexual abuse. The prevalence of child sexual abuse varies widely in previous reports between around 5% and 50%,27,28 although comparison is difficult because of differences in methodology and definitions of abuse. The prevalence found in the present study is at the lower end of this range. It was similar to that reported in one recent community survey of young adults,29 although lower than in another.30 Prevalence would be underestimated in the present study if those who declined to answer questions on abuse had, in fact, been abused. Physical abuse was also examined because of evidence that it is associated with sexual abuse and might account for some of the effects of sexual abuse.27,30,31 However, reports of physical abuse in the present study were few, and they were independent of sexual abuse. Sexual abuse was associated with the psychological sequelae that have been reported previously: abused participants were more anxious and depressed, were more negative about themselves and more concerned with avoiding failure. Those reporting sexual abuse as children tended also to report abuse as adults, and adult abuse had similar sequelae to childhood abuse. Adult and child abuse differed, however, in their association with exercise. Whereas there was no evidence of elevated prevalence of childhood abuse in exercisers, reports of adult abuse were more common in weight trainers. This effect was restricted to females-in whom abuse was the more common.

Therefore, whereas there is no evidence to support the hypothesis that child abuse predisposes sufferers to participation in intense exercise as adults, the findings would be consistent with such an effect of adult abuse. The relationship of abuse to motivation for exercise was also different from that predicted. Abused individuals were no more positively motivated to exercise than others. Moreover, in females at least, child abuse was associated with greater feelings of failure in relation to exercise. Although abused participants were more depressed and had lower self-esteem and greater fear of failure (negative perfectionism) generally, these effects could not account statistically for their greater feelings of failure associated specifically with exercise. These findings therefore provide empirical support for the suggestion, based on clinical impressions, that abuse can lead women to a negative view of exercise.32 Future research could examine whether the negative view is specifically about exercise or about their own ability to perform exercise.

A cross-sectional, non-randomized study such as this has severe limitations. Nevertheless, certain conclusions are clear. Findings are not consistent with a theory that intense exercise habits can be a response to childhood abuse. Neither does a history of abuse increase the positive motivation for exercise. Instead, the findings suggest two further hypotheses that can be tested in future research. The first is that committed weight-training exercise is, in some individuals, a marker of abuse occurring in adulthood. The second is that child abuse leads participants to view their exercise performance particularly negatively. These hypotheses can help to guide future research into the links between abusive experiences and intense exercise. Because abuse affects only a minority of the populations being studied, large samples will be necessary to test these hypotheses definitively and to examine the interrelationships of different forms of abuse and the variables that might account for the effects of abuse.

[Sidebar]
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