

strong association between being a bully or being bullied, depression, and severe suicidal ideation highlights the importance of further investigations into the social, psychological, and environmental factors associated with bullying.

Conclusion

Teachers and clinicians should recognise that being bullied or being a bully are signs of an increased risk of depression and suicidal behaviour among adolescents. Adolescents should be asked if they are involved in bullying either as a victim or as a bully. Whether an intervention is needed to treat depression should be assessed among both bullies and those who are being bullied. A cross disciplinary approach is needed to identify effective interventions to prevent bullying and depression and to reduce the risk of suicide while keeping in mind the close association between these phenomena.

Contributors: RK-H developed and coordinated the formulation of the primary study hypothesis, discussed the core ideas, and participated in planning the collection of data, analysing the data, and writing the paper. MR initiated the school health promotion study and the inclusion of mental health questions in the survey, he discussed the core ideas, and participated in analysing the data and writing the paper. MM brought to the discussion about the core ideas of the study his expertise as a researcher on adolescent suicide and depression, and participated in designing the study, analysing the data, and writing the paper. AR discussed the core ideas of the school health promotion study as well as of this present report, and brought to the process her expertise as an epidemiologist; she also helped analyse the data and write the paper. PR discussed the core ideas of the study and supported the formulation of the hypothesis from the point of view of a clinical adolescent psychiatrist, and participated in writing the paper. MR will act as guarantor for the paper.

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Ethnic and sex differences in selection for admission to Nottingham University Medical School

David James, Lisa Driver

McManus's study of applications to medical school by students in the United Kingdom and the rest of the European Union¹ refuelled the debate about discrimination.^{2,3} McManus showed that 18 measures were independently associated with receiving an offer.¹ Applicants disadvantaged in selection included those from ethnic minority groups and men.¹

We analysed applications to Nottingham Medical School by students from the United Kingdom and the rest of the European Union for 1997, looking at sex and ethnic group.

Methods and results

The admissions process for applicants to University of Nottingham Medical School is detailed in the school's admissions policy document, which is reviewed annually.

Copies are available to all applicants on request and obtainable from us. The process comprises four stages.

Academic stage examines whether the applicant meets the medical school's minimum academic requirement.

Questionnaire stage—Those passing the academic stage complete a questionnaire about work experience, extracurricular activities, and positions of responsibility. These responses are scored.

Statement review—The two statements (applicant's and referee's) on the application form of the applicants with the top 960 questionnaire scores are reviewed by two assessors. Insight, motivation, personality, and communication skills are scored. The 480 candidates with the top scores are selected for interview.

Interview—In an interview of 15 minutes knowledge of Nottingham and the course, insight, motivation, per-

Faculty of Medicine,
Queen's Medical
Centre, Nottingham
NG7 2UH

David James,
admissions subdean
Lisa Driver,
research associate

Correspondence to:
Professor James
davidjames@
nottingham.ac.uk

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Decision by ethnic group and sex. Values are numbers of applicants (percentages of group; percentages of each decision category)

Decision category	Ethnic group			P value of white v non-white	Sex			P value of male v female
	White	Non-white*	Total		Male	Female	Total	
Total No of applicants	1954 (76.8)	591 (23.2)	2545†		1279 (47.3)	1422 (52.7)	2701	
Rejection at:								
Academic stage	384 (69.4; 19.6)	169 (30.6; 28.6)	553 (21.7)	<0.0001	230 (57.4; 18.0)	171 (42.6; 13.0)	401 (14.8)	<0.0001
Questionnaire stage	1015 (74.6; 51.9)	345 (25.4; 58.4)	1360 (53.4)	<0.01	848 (49.3; 66.3)	871 (50.7; 61.3)	1719 (63.7)	<0.0001
Statement review	189 (87.9; 9.7)	26 (12.1; 4.4)	215 (8.5)	<0.0005	74 (38.1; 5.8)	120 (61.9; 8.4)	194 (7.2)	<0.005
Interview	165 (88.2; 8.4)	22 (11.8; 3.7)	187 (7.4)	<0.0005	47 (32.4; 3.7)	98 (67.6; 6.9)	145 (5.4)	<0.005
Offered a place	201 (87.4; 10.3)	29 (12.6; 4.9)	230 (9.0)	<0.0005	80 (33.0; 6.3)	162 (67.0; 11.4)	242 (9.0)	<0.0005

*Asian (Bangladeshi, Chinese, Indian, Pakistani, other Asian) and black (African, Caribbean, other black)

†Does not include 157 candidates whose ethnic group was not supplied to Universities and Colleges Admission Service.

sonality, communication skills, and interest in medical topics are assessed and scored. Offers are made to the 260 interviewees with the top scores.

In 1997, 2701 candidates from the United Kingdom and the rest of the European Union applied to Nottingham through the Universities Colleges and Admission Service. The decision for each applicant was noted along with ethnic group, sex, and stage of the process. Statistical comparison of frequencies was by χ^2 test with Yates's correction.

Significantly more non-white and male applicants were rejected at the academic and questionnaire stages, whereas significantly more white and female applicants were rejected at the statement review and interview stages (table). The net effect was that significantly more white and female applicants were offered a place.

Comment

Discrimination is "the unfair treatment of a person based on an irrational preference."² Selection by ethnic group or sex would be discriminatory because neither predicts success in a medical course or career. We believe, however, that the higher rates of offers to female and white applicants do not represent discrimination. They arise at the academic and questionnaire stages, which are objectively scored without reference to ethnic group or sex. Indeed, at the statement review and interview, where true discrimination could operate, non-white and male applicants are significantly more likely to be offered a place.

Selection on the basis of academic ability is reasonable: a proved relation exists between this and success on a medical undergraduate course.⁴ Our unpublished data for the first 21 years of Nottingham Medical

School show that scores at O level or GCSE and A level are significant independent predictors of success at all stages of the course. Unlike in McManus's study, for most applicants we can select only on achieved GCSE and predicted A level grades rather than achieved A level grades.

Nottingham Medical School is the only one to use a questionnaire in selection. It aims at avoiding discrimination by consistently scoring, for all academically suitable applicants, non-academic factors considered relevant to a career in medicine. We now question, however, whether such factors accurately reflect suitability for medicine. Our goal is that selection is only on the basis of evidence based predictors of success, including perhaps psychometric testing.⁵

We encourage all medical schools in the United Kingdom to examine their admission practices as we have done to ensure that the process is fair and non-discriminatory.

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Comparative efficacy of three mumps vaccines during disease outbreak in eastern Switzerland: cohort study

Matthias Schlegel, Joseph J Osterwalder, Renato L Galeazzi, Pietro L Vernazza

Correspondence to:
Dr Vernazza
Pietro.Vernazza@
kssg.ch

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After the introduction of immunisation against measles, mumps, and rubella, numerous outbreaks of mumps were reported in the 1980s and '90s in Switzerland and southern Europe.^{1 2} The Rubini strain

is still widely used in Europe,³ and we report here a large outbreak of mumps in a population with a high vaccination rate and examine the differential efficacy of the three vaccine strains.