The “effective reproduction rate” (R) is the average number of new infections that each case generates. If R is 1 then a state of equilibrium exists. If R is less than 1 then the disease in question will eventually become extinct. For measles R is about 16. This means that each case of measles can expect to generate about 16 new cases in a susceptible population. The aim of herd immunity is to reduce R to less than 1 for each disease thus stopping the disease from propagating in the community.

Over time, as the proportion of children who are immunised in a population increases, the number of new cases of a disease should drop. If, however, enough parents decide not to have their children vaccinated, more cases will start to appear and then the entire population is put at risk. Successful herd immunity relies on health workers and parents’ cooperation to immunise sufficient numbers of children.

Despite recent further evidence of vaccine safety, health scares about the measles, mumps, and rubella vaccine have contributed to a 5% reduction in the number of children being immunised with this vaccine in the United Kingdom. This reduction is sufficient to allow the reproduction rate to start rising again, and as a result a new measles epidemic has been predicted in the United Kingdom within the next two years.1

Abi Berger science editor, BMJ


2 Fall in MMR vaccine coverage reported as further evidence of vaccine safety is published. CDR Weekly 1999;9:227-30.

The SCOFF questionnaire: assessment of a new screening tool for eating disorders
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Eating disorders are among the most common psychiatric disorders in young women. Early detection and treatment improves prognosis, but presentation is often cryptic—for example, via physical symptoms in primary care. Ability to diagnose the condition varies and can be inadequate, and existing questionnaires for detection1,2 are lengthy and may require specialist interpretation. No simple, memorable screening instruments are available for non-specialists. In alcohol misuse the CAGE questionnaire3 has proved popular with clinicians because of its simplicity. We developed and tested a similar tool for eating disorders—with questions designed to raise suspicion that an eating disorder might exist—before rigorous clinical assessment.

Participants, methods, and results

We developed five questions addressing core features of anorexia nervosa and bulimia nervosa using focus groups of patients with eating disorders and specialists in eating disorders; we tested the questions in a feasibility study of patients and staff at an eating disorders unit. None of these participants was involved in the subsequent study. We created the acronym SCOFF from the questions (box). We recruited cases sequentially from referrals to a specialist clinic: 116 women aged 18-40 years who were confirmed as having either anorexia nervosa (n = 68) or bulimia (n = 48), according to the criteria specified in the Diagnostic and Statistical Manual of Mental Disorders. Fourth edition, we recruited 96 women aged 18-39 as controls; these women, recruited through advertising by local colleges, were confirmed as not having an eating disorder. Cases and controls were asked the SCOFF questions orally; they also completed the eating disorder inventory1 and the BITE self rating scale for bulimia.2

No significant differences existed between cases and controls for age or ethnicity. As expected, more cases than controls were in the highest socioeconomic groups (P < 0.001, χ² = 47.4, df = 3), and cases were more likely to be single, separated, or divorced (P < 0.001, χ² = 13.0, df = 1). Mean length of illness for cases was 8 years (SD 4.81; range 1-25). Mean body mass index (weight(kg)/[height(m)]²) for controls, bulimic cases, and anorectic cases was 22.3 (SD 1.90), 24.4 (1.77), and 15.1 (0.76) respectively. All scores on the eating disorder inventory and the BITE scale were consistent with published data for women with or without eating disorders.2,3

All participants found the questions and the term SCOFF acceptable. Setting the threshold at two or more positive answers to all five questions provided 100% sensitivity for anorexia and bulimia, separately and combined (all cases, 95% confidence interval 96.9% to 100%; bulimic cases, 92.6% to 100%; anorectic cases, 94.7% to 100%), with specificity of 87.5% (79.2% to 93.4%) for controls (table).

The SCOFF questions*
Do you make yourself Sick because you feel uncomfortably full?
Do you worry you have lost Control over how much you eat?
Have you recently lost more than One stone in a 3 month period?
Do you believe yourself to be Fat when others say you are too thin?
Would you say that Food dominates your life?

*One point for every “yes”; a score of >2 indicates a likely case of anorexia nervosa or bulimia

1 For text, see end of paper.

2 For text, see end of paper.

3 For text, see end of paper.
Further work is needed to establish validity and reliance in a wider population, and particularly in those at risk of eating disorders in the general population. None the less, there is sufficient evidence of validity for it to be used routinely in all patients considered at risk of eating disorders.

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Contributors: JFM initiated and coordinated the study, discussed core ideas, designed the study protocol, and participated in data collection and analysis and in the writing of the paper. JHL discussed core ideas, participated in protocol design and interpretation of data, and contributed to the writing of the paper. FR led the statistical analysis, participated in data interpretation, and contributed to the writing of the paper. JFM will act as guarantor of the paper.

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5 Greenhalgh T. Papers that report diagnostic or screening tests. BMJ 1997;315:5465.

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