The Rose questionnaire (RQ) was introduced in 1962 as a standardized method of measuring angina and myocardial infarction in population surveys (Appendix). It defines angina as chest pain that limits exertion, is situated over the sternum or in the left chest and left arm, and is relieved within 10 minutes by rest. The diagnosis of angina on RQ predicts morbidity and mortality in European populations independently of other clinical findings, and measures the burden of disease. The RQ has been widely used in its original and modified forms, and in translation to study the prevalence and natural history of ischaemic heart disease, response to interventions, and to make population comparisons.

There is no agreed 'gold standard' which can be used to validate RQ measures of angina but studies have used expert clinical diagnosis, ECG findings, exercise thallium scans and coronary angiography. Clearly without such a standard the terms 'sensitivity' and 'specificity' need to be used with caution. Validation studies have generally reported high specificity (80-95%) but variable sensitivity (19-83%). There is evidence that the RQ is less valid in women. Most validation studies have used the traditional RQ definition of angina. However, there is evidence from population-based studies that the performance of the Rose angina questionnaire in South Asian and European origin populations: a comparative study in Newcastle, UK

Colin M Fischbacher,a Raj Bhopal,a,b Nigel Unwin,a,c Martin Whitea and KGMM Alberti c

Background The Rose angina questionnaire has been extensively used in different cultural settings, but may not perform consistently in different ethnic groups. We set out to assess the performance of the Rose angina questionnaire in UK South Asians compared with Europeans.

Methods Data on major ECG abnormalities, possible or definite Rose questionnaire angina and diagnosed angina were collected from an age- and sex-stratified random sample of 1509 adults from European, Indian, Pakistani and Bangladeshi ethnic groups.

Results The ECG abnormalities were commoner in South Asians than Europeans (6% versus 2% in men). The prevalence in both South Asian and European men of possible Rose angina and diagnosed angina was 18% and 8%, respectively, but definite Rose angina was less common in South Asians (3% versus 6%). Definite Rose angina showed lower sensitivity for other measures in South Asians than in Europeans: sensitivity for a doctor’s diagnosis was 21% in South Asian and 37% in European men. For possible Rose angina, the corresponding figures were 81% and 84%. Similar patterns were seen in women.

Conclusions The performance of the Rose angina questionnaire was sufficiently inconsistent to warrant further work to achieve greater cross-cultural validity. Possible Rose angina performed more consistently across ethnic groups than definite Rose angina and pending further validation studies may be the most appropriate form to use.

Keywords Angina pectoris, ethnic minorities, test performance, questionnaire, ischaemic heart disease, chest pain

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studies\textsuperscript{5,23,29} that exertional chest pain alone (RQP, P for possible) has a similar prognosis to definite RQ angina (RQD).

Almost all validation studies of the RQ have been performed in European or North American 'white' ethnic groups, the exceptions being a study including Americans of Japanese descent\textsuperscript{20} and two that included both black and white US residents.\textsuperscript{24,30} Only one study\textsuperscript{31} has assessed the Rose questionnaire in a population of UK South Asians (of mainly Punjabi ethnic origin). This study, by Patel et al., suggested that the questionnaire was inaccurate in South Asians because of its weak agreement with the respondents' history of cardiac disease and the assessment of a clinician. A comparison group was not included, so the question of whether the performance of the questionnaire was worse than in European populations could not be assessed. The cross-cultural performance of the RQ is important because coronary heart disease (CHD) is a major cause of morbidity\textsuperscript{32} and the leading cause of mortality\textsuperscript{33} in UK residents of South Asian ethnic origin, and several UK studies have used the RQ to report the prevalence of angina in South Asians\textsuperscript{34–36} (though there are no studies linking it to outcomes).

We used data from the Newcastle Heart Project to study the comparative performance of the RQ in three South-Asian groups and a European ethnic group. In order to establish whether the RQ performed equally well in Europeans and South Asians, we tested the hypothesis that compared with diagnosed angina and ECG changes the RQ provided similar sensitivity and specificity, similar levels of agreement with these measures, and similar ethnic rankings of prevalence.

Methods

Interviews and ECG data

The Newcastle Heart Project is a cross-sectional study of a population sample of 1509 Newcastle residents of European (n = 825), Indian (n = 259), Pakistani (n = 305) and Bangladeshi (n = 120) ethnic origin. Full details of the methods have been published.\textsuperscript{36} Europeans were screened between April 1993 and October 1994 and South Asians between May 1995 and March 1997. The response rate was 67% for South Asians and 64% for Europeans. Local ethical committee approval was obtained and all participants gave informed consent. Clinical data included ECG, biochemical, anthropometric and cardiovascular measures. A questionnaire (covering lifestyle and cardiovascular risk factors) was first translated into Hindi, Punjabi, Urdu and Bengali and then back-translated into English. Researchers conferred with translators and back-translators until agreement on translation was reached. South Asians were interviewed in the subject's home and in their preferred language by interviewers of their own ethnic group and gender. European respondents self-completed the questionnaire while attending for screening.

Respondents completed the standard WHO Rose questionnaire (RQ)\textsuperscript{37} and were asked whether a doctor had ever told them that they had angina. Those who fulfilled all the Rose criteria were classified as having 'definite' RQ angina (RQD). Exertional chest pain (with or without other Rose criteria) was defined as 'possible' RQ angina (RQP).

Resting 12-lead ECG were Minnesota coded\textsuperscript{38} by two trained and independent coders, and discrepant reports were resolved with a third independent coder. Probable CHD was defined as Minnesota coding 1.1–1.2 (large Q and QS waves) and possible CHD as Minnesota coding 1.3 (small Q and QS), 4.1–4.4 (ST-T depression), 5.1–5.3 (flattened or inverted T waves) or 7.1.1 (complete left bundle branch block).

Statistical methods

Prevalences were directly age standardized to the 1991 England and Wales population using Stata 7 (Stata Corporation, College Station, TX). Agreement between measures was estimated using Cohen's kappa statistic, which takes the value one when there is perfect agreement and zero when there is no agreement beyond that observed by chance. We used a chi-squared test for heterogeneity ($\chi^2$ HE) described by Donner\textsuperscript{39} to test for differences by ethnic group and gender in the extent of agreement of Rose questionnaire findings with other measures. We used a test for the difference in two proportions to compare sensitivity and specificity.

In recognition of the heterogeneity within the South-Asian groups we present data on Indians, Pakistanis and Bangladeshis separately while focusing on the comparison of Europeans and South Asians.

Results

Prevalence of measures of ischaemic heart disease

The prevalence of diagnosed angina was the same in European and South-Asian men, although lower in Indian than in Pakistani and Bangladeshi men (Table 1). Abnormal ECG findings were commoner in South-Asian than in European men, particularly those showing major Q waves suggestive of probable CHD. The prevalence of RQP angina in South-Asian men was the same as in European men, but lower in Indians and Pakistanis compared to Bangladeshis. The prevalence of RQD angina, in contrast, was lower in South-Asian than in European men. The prevalence was similar in Indians, Pakistanis and Bangladeshis.

The prevalence of diagnosed angina was similar in South-Asian and European women, but ECG abnormalities were commoner in South Asians (specifically Indian and Pakistani). The prevalence of RQD angina was also similar in European and South-Asian women (and less common among Pakistanis and Bangladeshis than Indians) but the prevalence of RQP angina was higher in South Asians.

While RQP angina was about three times as common as RQD in Europeans (men and women) it was six times as common in South Asians.

Agreement between measures

Table 2 shows respondents who reported RQD (versus all those who did not fulfil RQD criteria) and those reporting RQP (versus those who did not fulfil RQP criteria) by recall of a doctor's diagnosis of angina. It shows that agreement (measured by kappa) between RQD and RQP and a doctor's diagnosis of angina was similar in South-Asian and European men.

The capacity of RQD to identify people reporting a doctor's diagnosis of angina (sensitivity) was lower in South-Asian than in European men, but the capacity to identify those who reported no diagnosis (specificity) was slightly higher. In both ethnic groups sensitivity was much higher and specificity lower using RQP, and inter-ethnic differences were smaller than with RQD.

Among women, sensitivity using RQD was also lower in South Asians than Europeans, but for RQP, sensitivity was similar.
Specificity was lower in South Asians than Europeans. The ethnic differences in sensitivity and specificity were generally smaller with RQP than with the RQD, the most significant being the ethnic difference in specificity in women (P = 0.05).

In relation to doctor’s diagnosis, differences in kappa between Europeans and South Asians in both sexes combined were of marginal significance (P = 0.065 for RQD and P = 0.096 for RQP) but combining both ethnic groups kappa was lower in women (P = 0.007 for RQD, P = 0.0005 for RQP).

Table 3 shows that agreement between RQD and ECG abnormalities was similar in South Asian and European men. Specificity was slightly higher, but sensitivity was lower. For RQP, agreement, sensitivity and specificity were higher in South-Asian men.

**Table 1.** Prevalence of abnormal electrocardiogram (ECG) findings, Rose questionnaire (RQ) angina and reported doctor’s diagnosis of angina by gender and ethnic group; percentages directly age standardized to the 1991 England and Wales population; figures are percentage (number). P-values are derived from χ² for differences in proportions. Totals for Indian, Pakistani and Bangladeshi respondents are included in the total for South Asian respondents.

<table>
<thead>
<tr>
<th></th>
<th>European</th>
<th>South Asian</th>
<th>P-valuea</th>
<th>Indian</th>
<th>Pakistani</th>
<th>Bangladeshi</th>
<th>P-valueb</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td></td>
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<tr>
<td>ECG findings</td>
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</tr>
<tr>
<td>Possible CHD (ST/T changes)</td>
<td>11 (63)</td>
<td>14 (54)</td>
<td>0.11</td>
<td>14 (16)</td>
<td>14 (29)</td>
<td>14 (9)</td>
<td>0.99</td>
</tr>
<tr>
<td>Probable CHD (Q/QS changes)</td>
<td>2 (12)</td>
<td>6 (26)</td>
<td>0.01</td>
<td>4 (4)</td>
<td>7 (16)</td>
<td>7 (6)</td>
<td>0.51</td>
</tr>
<tr>
<td>Definite RQ angina (RQD)</td>
<td>6 (29)</td>
<td>3 (13)</td>
<td>0.08</td>
<td>4 (4)</td>
<td>3 (6)</td>
<td>3 (3)</td>
<td>0.88</td>
</tr>
<tr>
<td>Possible RQ angina (RQP)</td>
<td>18 (84)</td>
<td>18 (72)</td>
<td>0.92</td>
<td>13 (14)</td>
<td>17 (35)</td>
<td>33 (23)</td>
<td>0.003</td>
</tr>
<tr>
<td>Doctor’s diagnosis of angina</td>
<td>8 (51)</td>
<td>8 (32)</td>
<td>0.93</td>
<td>5 (7)</td>
<td>10 (20)</td>
<td>9 (5)</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>Females</strong></td>
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<tr>
<td>ECG findings</td>
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</tr>
<tr>
<td>Possible IHD (ST/T changes)</td>
<td>13 (67)</td>
<td>17 (62)</td>
<td>0.20</td>
<td>19 (26)</td>
<td>20 (27)</td>
<td>14 (9)</td>
<td>0.48</td>
</tr>
<tr>
<td>Probable IHD (Q/QS changes)</td>
<td>1 (6)</td>
<td>5 (18)</td>
<td>0.001</td>
<td>8 (14)</td>
<td>3 (4)</td>
<td>0 (0)</td>
<td>0.02</td>
</tr>
<tr>
<td>Definite RQ angina (RQD)</td>
<td>5 (24)</td>
<td>4 (14)</td>
<td>0.85</td>
<td>8 (10)</td>
<td>3 (4)</td>
<td>0 (0)</td>
<td>0.02</td>
</tr>
<tr>
<td>Possible RQ angina (RQP)</td>
<td>14 (66)</td>
<td>23 (85)</td>
<td>0.006</td>
<td>19 (32)</td>
<td>26 (39)</td>
<td>21 (14)</td>
<td>0.38</td>
</tr>
<tr>
<td>Doctor’s diagnosis of angina</td>
<td>5 (27)</td>
<td>6 (27)</td>
<td>0.45</td>
<td>5 (10)</td>
<td>6 (10)</td>
<td>13 (7)</td>
<td>0.11</td>
</tr>
</tbody>
</table>

a For difference between Europeans and South Asians.
b For difference between Indians, Pakistanis and Bangladeshis.

**Table 2.** Numbers/totals (%) of respondents reporting ‘definite’ or ‘possible’ Rose questionnaire (RQ) angina by gender, (self-reported) doctor’s diagnosis and ethnic group; kappa; sensitivity and specificity of Rose questionnaire for a doctor’s diagnosis of angina and 95% CI for the difference. Totals vary because of missing responses.

**Definite RQ angina (RQD)**

<table>
<thead>
<tr>
<th></th>
<th>European</th>
<th>South Asian</th>
<th>Difference (95% CI)</th>
<th>European</th>
<th>South Asian</th>
<th>Difference (95% CI)</th>
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<tbody>
<tr>
<td><strong>Males</strong></td>
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<tr>
<td>Doctor’s diagnosis of angina</td>
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</tr>
<tr>
<td>Yes</td>
<td>17/46 (37)</td>
<td>5/24 (21)</td>
<td>41/49 (84)</td>
<td>26/32 (81)</td>
<td>0.42 (0.27, 0.55)</td>
<td>0.29 (0.11, 0.50)</td>
</tr>
<tr>
<td>No</td>
<td>12/332 (4)</td>
<td>7/276 (3)</td>
<td>39/340 (11)</td>
<td>37/283 (13)</td>
<td>0.57 (0.45, 0.66)</td>
<td>0.48 (0.33, 0.59)</td>
</tr>
<tr>
<td>Agreement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kappa (95% CI)</td>
<td>0.42 (0.27, 0.55)</td>
<td>0.29 (0.11, 0.50)</td>
<td>0.57 (0.45, 0.66)</td>
<td>0.48 (0.33, 0.59)</td>
<td></td>
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</tr>
<tr>
<td><strong>Test performance</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RQ sensitivity</td>
<td>37%</td>
<td>21%</td>
<td>-16 (-38, 5)</td>
<td>84%</td>
<td>81%</td>
<td>-2 (-19, 15)</td>
</tr>
<tr>
<td>RQ specificity</td>
<td>96%</td>
<td>97%</td>
<td>1 (-2, 4)</td>
<td>89%</td>
<td>87%</td>
<td>-2 (-7, 4)</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
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<tr>
<td>Doctor’s diagnosis of angina</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6/25 (24)</td>
<td>2/24 (8)</td>
<td>19/26 (73)</td>
<td>20/27 (74)</td>
<td>0.20 (0.06, 0.38)</td>
<td>0.06 (-0.03, 0.24)</td>
</tr>
<tr>
<td>No</td>
<td>16/324 (5)</td>
<td>11/303 (4)</td>
<td>45/331 (14)</td>
<td>60/310 (19)</td>
<td>0.36 (0.21, 0.47)</td>
<td>0.29 (0.13, 0.38)</td>
</tr>
<tr>
<td>Agreement</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Kappa (95% CI)</td>
<td>0.20 (0.06, 0.38)</td>
<td>0.06 (-0.03, 0.24)</td>
<td>0.36 (0.21, 0.47)</td>
<td>0.29 (0.13, 0.38)</td>
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<tr>
<td><strong>Test performance</strong></td>
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</tr>
<tr>
<td>RQ sensitivity</td>
<td>24%</td>
<td>8%</td>
<td>-16 (-36, 4)</td>
<td>73%</td>
<td>74%</td>
<td>1 (-23, 25)</td>
</tr>
<tr>
<td>RQ specificity</td>
<td>95%</td>
<td>96%</td>
<td>1 (-2, 4)</td>
<td>86%</td>
<td>81%</td>
<td>-6 (-11, 0)*</td>
</tr>
</tbody>
</table>

* P = 0.05.
Among women, specificity was similar, but agreement and sensitivity using RQD was lower in South Asians compared with Europeans. For RQP, agreement was similar in women of both ethnic groups, while sensitivity and specificity was lower in South Asians. Combining both sexes, agreement using RQP was higher in South Asians ($P = 0.051$) and combining both ethnic groups it was lower in women ($P = 0.16$).

### Components of the Rose questionnaire

Table 4 shows that among male respondents with exertional chest pain (RQP) the RQ questions least likely to receive a positive RQ response were those relating to site (among Europeans, Indians and Pakistanis) and related to relief of pain within 10 minutes of rest (particularly among Bangladeshis).

Among women with exertional chest pain the RQ questions least likely to receive a positive response related to site (European and Pakistani women) and relief of pain within 10 minutes (Indian and Bangladeshi women).

Figure 1 shows that in European, Indian and Pakistani men the site of chest pain made the largest contribution to the difference between definite and possible Rose angina. In Bangladeshi men relief of pain by rest and relief within 10 minutes also contributed to the difference. Site was the most important contributor to the difference between RQD and RQP in women.

### Table 3

Numbers/totals (%) of respondents reporting ‘definite’ or ‘possible’ Rose questionnaire (RQ) angina by gender, electrocardiogram (ECG) findings and ethnic group (South Asian or European); kappa; sensitivity and specificity of Rose questionnaire for probable coronary heart disease (CHD) (major Q waves). Totals vary because of missing responses.

<table>
<thead>
<tr>
<th></th>
<th>European</th>
<th>South Asian</th>
<th>Difference (95% CI)</th>
<th>European</th>
<th>South Asian</th>
<th>Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ECG shows probable CHD</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4/11 (36)</td>
<td>4/22 (18)</td>
<td></td>
<td>5/11 (45)</td>
<td>15/26 (58)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25/378 (7)</td>
<td>9/285 (3)</td>
<td></td>
<td>79/389 (20)</td>
<td>56/298 (19)</td>
<td></td>
</tr>
<tr>
<td>Agreement</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Kappa</td>
<td>0.19 (0.04 to 0.37)</td>
<td>0.20 (0.05, 0.41)</td>
<td></td>
<td>0.06 (-0.08, 0.10)</td>
<td>0.22 (0.07, 0.32)</td>
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<tr>
<td>Test performance</td>
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</tr>
<tr>
<td>RQ sensitivity</td>
<td>36%</td>
<td>18%</td>
<td>-18 (-51, 14)</td>
<td>45%</td>
<td>58%</td>
<td>12 (-23, 47)</td>
</tr>
<tr>
<td>RQ specificity</td>
<td>93%</td>
<td>97%</td>
<td>3 (0.2, 7)*</td>
<td>80%</td>
<td>91%</td>
<td>2 (-4, 7)</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>ECG shows probable CHD</td>
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<td></td>
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<tr>
<td>Yes</td>
<td>2/6 (33)</td>
<td>1/16 (6)</td>
<td></td>
<td>3/6 (50)</td>
<td>8/18 (44)</td>
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<tr>
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<td>22/350 (6)</td>
<td>13/326 (4)</td>
<td></td>
<td>63/358 (18)</td>
<td>77/334 (23)</td>
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<tr>
<td>Agreement</td>
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</tr>
<tr>
<td>Kappa</td>
<td>0.11 (0.0, 0.31)</td>
<td>0.02 (-0.04, 0.23)</td>
<td></td>
<td>0.05 (-0.08, 0.11)</td>
<td>0.08 (-0.07, 0.13)</td>
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<td>Test performance</td>
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<td></td>
</tr>
<tr>
<td>RQ sensitivity</td>
<td>33%</td>
<td>6%</td>
<td>-27 (-67, 12)</td>
<td>50%</td>
<td>44%</td>
<td>-6 (-52, 41)</td>
</tr>
<tr>
<td>RQ specificity</td>
<td>94%</td>
<td>96%</td>
<td>2 (-1, 6)</td>
<td>83%</td>
<td>77%</td>
<td>-5 (-11, 0.5)</td>
</tr>
</tbody>
</table>

* $P = 0.05$.
but relief of pain by rest and relief within 10 minutes also contributed substantially among Pakistani and Bangladeshi women. P-values less than 0.05 for comparisons with the European reference group are shown in the Figure.

### Site of chest pain

Figure 2 shows that European men and women mostly reported chest pain in RQD qualifying sites (i.e. sternum or left chest and left arm). In contrast, there were substantial numbers of South-Asian respondents with left-sided chest pain without left-sided arm pain. This pattern was particularly clear in Indians. Right-sided chest pain was commoner in Pakistanis and the pattern of pain was diffuse in Bangladeshis of both sexes, in whom left chest pain was never combined with left arm pain. There was some evidence of ethnic variation in reporting of right-sided chest pain in men ($\chi^2 = 8.8, P = 0.03$), but no evidence of statistically significant variations at other sites.

### Discussion

#### Study strengths and limitations

This is a study of a representative population sample. The response rate was similar across ethnic groups and acceptably high. The survey was developed in close consultation with the community by researchers familiar with the relevant cultures and languages; it used standardized methods, interviewers from the same ethnic group and gender as the respondents, and (for South Asians) face-to-face interviews conducted in the preferred language of interviewees. Europeans completed the questionnaire themselves because we did not have the resources to interview them in the absence of a clear need. Self-completion has been associated with more frequent positive responses, but without differences in the associations with abnormal ECG findings or subsequent coronary mortality.37 This weakness in our study design, moreover, cannot explain differences between Indians, Pakistanis and Bangladeshis.

#### Comparative performance of the Rose questionnaire

Comparing RQ with ECG findings has evident limitations, e.g. angina, may show no abnormalities on a resting ECG, while diagnosed angina, though based on questions similar to the RQ, is influenced by access to health care and diagnostic practices. Complete agreement between these measures and RQ would be neither expected nor desirable. Our results show that the RQ’s known low sensitivity for, and agreement with, ECG and diagnosed angina in Europeans, also applies in South-Asian populations. The RQ performs less well in European women, and the same seems to be true for South-Asian women. In this respect the criticisms of the RQ of Patel et al. are substantiated by our data.

The differences between ethnic groups in the performance of the RQ should be interpreted with caution, for reasons discussed above and since the low power of the study means that the performance measures in different ethnic groups had wide and overlapping confidence intervals. Overall RQD performed less consistently than RQP, the latter being considerably more sensitive than RQD, though less specific. The inter-ethnic differences for RQP were much smaller than those seen with the RQD. While RQP, diagnosed angina and ECG abnormalities all suggested that South-Asian men had a similar or higher
prevalence of angina than European men, RQD suggested that angina was less prevalent. Similarly, in women all the measures except RQD suggested a higher prevalence of angina in South Asians than Europeans. Although the small numbers in individual ethnic groups do not allow firm conclusions to be drawn, RQD also gave lower estimates relative to other measures in Pakistanis and Bangladeshis than in Indians. While Patel et al.'s criticisms are correct, our analysis shows that the RQP performs as well (compared to ECG changes and diagnosed angina) in South Asians as in Europeans.

Site of pain in respondents reporting exertional chest pain

The anatomical location of pain was more variable in South Asians than in Europeans, and 'classical' elements of the history such as left arm pain were less frequent than in Europeans, while 'atypical' features such as right-sided chest pain were more common in Pakistanis and Bangladeshis. Bangladeshis with chest pain mostly failed to report the other features required for RQD. Few South Asians reported that particular combination of left chest and left arm pain required to fulfil the RQD definition. Our data raise the possibility of systematic differences between ethnic groups in the site of reported chest pain. However, given the small number of cases and the fact that ethnic differences in site of reporting were not statistically significant, firm conclusions must await confirmation from further studies.

Explanations for inter-ethnic differences

The lack of power of the study to estimate differences precisely means that chance is a possible explanation, though the general consistency of findings in both sexes and using different measures argues against this. Despite the fact that the questionnaire was back-translated and checked, and respondents interviewed in their own language, the translations are not likely to be culturally equivalent. Chest pain may be experienced, understood, interpreted and described differently in different cultures. The variations may reflect problems with the way those questions were translated, with differing interpretations of symptoms, or with differing pathophysiological processes. Educational and socioeconomic factors may influence the way chest pain is reported; more South Asians than Europeans had had only primary education (36% versus 17%) but more had had further education (33% versus 23%). Studies to develop a cross-culturally compatible version of the RQ for South Asian and Chinese populations are underway in Edinburgh University.

Conclusion

In comparison with ECG and diagnosed angina the RQD performs differently in South Asians than in Europeans, but the RQP performs similarly. In Europeans RQP has been shown to be as discriminating as RQD in prognostic terms and though this remains to be demonstrated in South Asians, RQP is presently the preferred measure of angina in comparative studies involving this population, since it is simpler to translate and administer and gives more consistent results.

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KEY MESSAGES

- Although the Rose questionnaire has been used extensively and in many different cultural settings there is little evidence about its cross-cultural validity.
- In a direct comparison in European and South Asian ethnic groups, the Rose questionnaire did not have a consistent relationship with other measures: there were differences in sensitivity and specificity, in the site of pain and in the pattern of response to individual Rose questions.
- While none of these differences were individually conclusive, our findings suggest caution in the use of the Rose questionnaire in ethnic groups other than the one in which it was originally developed.
- The broader category of possible Rose angina performed more consistently across ethnic groups and pending further work may the most appropriate form to use.

References

Appendix

Criteria for Rose angina questionnaire

1. Have you ever had any pain or discomfort in your chest?
2. Do you get it when you walk uphill or hurry?
3. Do you get it when you walk at an ordinary pace on the level?
4. What do you do if you get it while you are walking?
5. If you are standing still, what happens to it?
6. How soon?
7. Will you show me where it is?

Angina is defined as being present in subjects who answer as follows: Q1: yes; Q2 or Q3: yes; Q4: stop or slow down; Q5: relieved; Q6: 10 minutes or less; Q7: either (a) sternum (upper or middle or lower) or (b) left anterior chest and left arm.

References