RESEARCH REPORT

# Continuing inequality: gender and social class influences on self perceived health after a heart attack

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**Study objective:** To investigate the effect of social class and gender on self perceived health status for those recovering from an acute myocardial infarction.
**Design:** A longitudinal survey design was used, collecting both qualitative and quantitative data. Quantitative data are reported in this article, obtained by questionnaire over the first year after the event. SF-36 and EQ-5D (EuroQol) were used to measure self perceived health status.
**Setting:** Community based study in a city in the north of England.
**Participants:** A consecutive sample of 229 people discharged from hospital after acute myocardial infarction.
**Main results:** Overall gain in health status was found to be statistically significant over the year. Improvements were greatest in domains relating to role fulfilment and pursuit of normal and social activities. When analysed by gender, women showed poorer improvement than men, particularly in the domains relating to physical and social functioning. Analysed by social class, those without educational qualifications showed poorer improvement in pain experience and vitality. Access to a car was significant in avoiding physical limitations and promoting general health.
**Conclusions:** Existing gradients between the health of women and men, and between the social classes, are maintained and probably exacerbated by the experience of acute illness, and health professionals need to be made aware of social groups who are at risk of poor rehabilitation.

Social inequalities in health have been the subject of much research and academic debate over the past 20 years, and more recently have also come to the forefront of UK government thinking about health strategies for the future. The "Saving Lives" white paper[1] expressed concern at widening health inequalities in UK and made tackling ill health among the least advantaged groups a government priority. The Acheson Report[2] acknowledged that gains in length of life over recent decades have not been matched by improvement in life years free of disabling illness, and poorer groups within the population are disproportionately likely to experience limiting long term illness.[3 4]

The incidence of heart attack or acute myocardial infarction (AMI) is strongly related to both gender and social class.[1] There is also evidence that women do less well in rehabilitation than men,[5] and are often "invisible" in the literature discussing heart disease.[6] Outcomes for survivors of AMI are less satisfactory in areas of deprivation than for those living in more prosperous areas.[7 8] Taking a social model of health,[9–11] this research has used health related quality of life (HRQoL) to investigate self perceived health status in survivors of AMI. There is evidence in the literature that age, gender, and social class affect HRQoL in the general population, with women, older people and those from manual occupations reporting poorer HRQoL than men, younger people and those in non-manual occupations.[7] The research question for this study addressed the problem of how pre-existing inequalities in health status were affected by the common experience of a heart attack. Was the relative disadvantage in health status of women and those from more deprived backgrounds increased or ameliorated by the experience of AMI?

## METHODS

Data collection for this research was carried out in a northern English city between 1998–9. There are two acute hospitals in the city, which serve the city and part of an adjoining rural area. A longitudinal survey approach was adopted, collecting

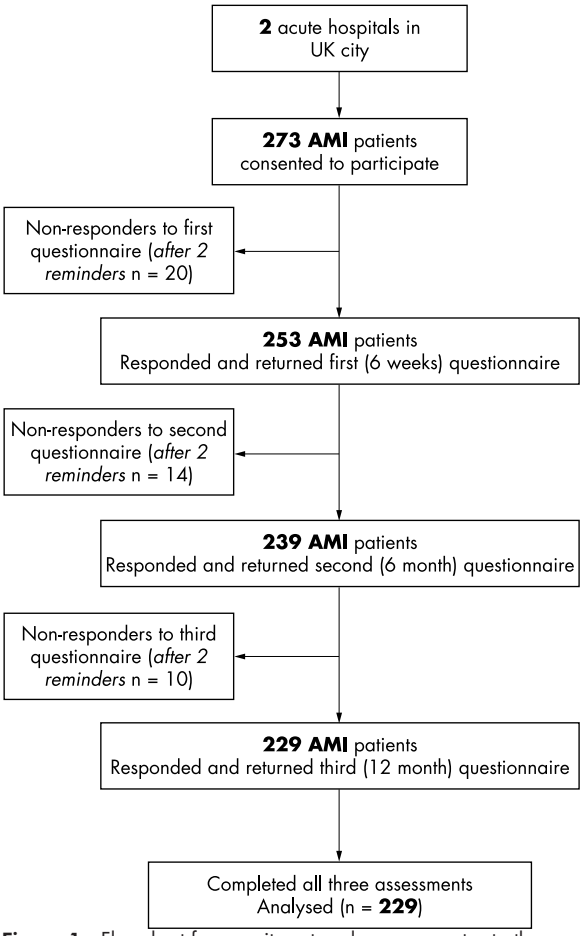


**Figure 1** Flowchart for recruitment and response rates to the survey.

**Table 1** Health status domains measured

| SF 36 domains | Abbreviation used |
|---|---|
| Physical functioning | PF |
| Role functioning—physical | RP |
| Bodily pain | BP |
| General health perceptions | GH |
| Vitality | VT |
| Social functioning | SF |
| Role functioning—emotional | RE |
| Mental health | MH |
| EQ5-D single index | SDI |

both quantitative and qualitative data. After local ethical committee approval, a consecutive sample of 273 people who had recently had an AMI was recruited with cooperation from cardiac rehabilitation nurses at both hospitals in the city. Patients with a diagnosis of acute AMI were approached before discharge from hospital, and asked to return a consent form direct to the researcher by post. Patients with a first or subsequent AMI were included, with an upper age limit of 80 years. A participation rate of nearly 60% of those approached by the nurses was achieved. Of the 273 people who consented to take part, 229 (83.9%) completed all three data collection stages (see fig 1).

Data collection was carried out at six weeks, six months, and one year after discharge from hospital. The postal questionnaire developed contained standard measures of HRQoL (SF-36[12] and EQ-5D[13]), and demographic questions, as well as items relating to attendance at rehabilitation classes. Social class was measured on the Standard Occupational Classification by present or last occupation,[14] and by possession of educational qualifications (defined as GCE O level/GCSE passes or higher). Results relating to attendance at rehabilitation classes are reported elsewhere (unpublished data).

The SF-36 is the most commonly used health status measure in the world today.[15] It originated in the USA,[16] but has been anglicised for use in the UK.[12] It contains 36 questions measuring health across eight dimensions—physical functioning (PF), role limitations due to physical problems (RP), bodily pain (BP), general health perceptions (GH), vitality (VT), social functioning (SF), role limitations due to emotional problems (RE), and mental health (MH). Responses to each question within a dimension are combined to generate a score from 0 to 100, where 100 indicates "good health". Thus, the SF-36 generates a profile of HRQoL outcomes (see table 1).

The EQ-5D is a six item self completed questionnaire. The EQ-5D has five single item dimensions: mobility, self care, usual activities, pain, and anxiety/depression. The five dimensions of the EQ-5D are measured on a three point ordinal scale: no problem, some or moderate problems, and extreme problems. The combination of five dimensions, each with three levels, leads to 243 possible health states. The utility values for each health state can be constructed into a weighted health state index or single derived index (SDI) using the recommended scoring algorithm,[17] where values are applied to all health states. The SDI values range from 1.0 ("full health") to –0.59. To aid comparability with the SF-36 dimensions the SDI values were multiplied by 100.

The main outcome for determining sample size was the general health perceptions (GH) dimension of the SF-36. From a study of adults[18] aged 65 or more the mean GH score was 54 (SD 24). To have 80% power of detecting a 10 point mean difference in GH scores between two social class groups as statistically significant at the 5% (two sided) level would require 92 AMI patients per group. With a 20% drop out or non-response rate, 115 patients in each social class group would be needed (230 in total).

After consenting to take part in the study, participants were sent the first questionnaire at their home address about six weeks after their AMI, to be returned directly to the researcher. A further questionnaire was sent six months after AMI and a third after one year. At each point non-responders were sent two reminders, but were excluded from subsequent follow up if they still failed to respond.

Data were analysed using SPSS for Windows. For the purpose of this article, results from the six week and one year questionnaires only are reported. Comparisons between groups were tested for significance using a two independent sample *t* test. For comparisons within a group over time we used a paired *t* test. We report the unadjusted mean difference

**Table 2** Characteristics of the sample

| | Whole sample | Men | Women | p Value |
|---|---|---|---|---|
| Age (y) | | | | |
| Number | 221 | 166 | 55 | |
| Mean | 62.4 | 61.8 | 64.4 | 0.088* |
| SD | 10.0 | 10.2 | 9.1 | |
| Range | 38–80 | 38–80 | 39–80 | |
| Age group | N (%) | N(%) | N(%) | |
| <41 | 5 (2.3) | 4 (2.4%) | 1 (1.8%) | |
| 41–50 | 24 (10.9) | 22 (13.3) | 2 (3.6) | |
| 51–60 | 61 (27.6) | 47 (28.3) | 14 (25.5) | |
| 61–70 | 76 (34.4) | 54 (32.5) | 22 (40.0) | |
| 71+ | 55 (24.9) | 39 (23.5) | 16 (29.1) | 0.067† |
| Total | 221 (100) | 166 (100) | 55 (100) | |
| Social class | | | | |
| I-IIIN | 92 (44.2) | 67 (40.6) | 25 (58.1) | |
| IIIM-V | 116 (55.8) | 98 (59.4) | 18 (41.9) | |
| Total | 208 (100) | 165 (100) | 43 (100) | 0.039‡ |
| Educational qualifications | | | | |
| No qualifications | 135 (64.0) | 95 (59.4) | 40 (78.4) | |
| Some qualifications | 76 (36.0) | 65 (40.6) | 11 (21.6) | |
| Total | 211 (100) | 160 (100) | 51 (100) | 0.014‡ |
| Car access | | | | |
| Access to car | 142 (77.2) | 114 (82.6) | 28 (60.9) | |
| No access to car | 42 (22.8) | 24 (17.4) | 18 (39.1) | |
| Total | 184 (100) | 138 (100) | 46 (100) | 0.002‡ |

*Two independent samples *t* test; †$\chi^2$ test for trend; ‡$\chi^2$ test.

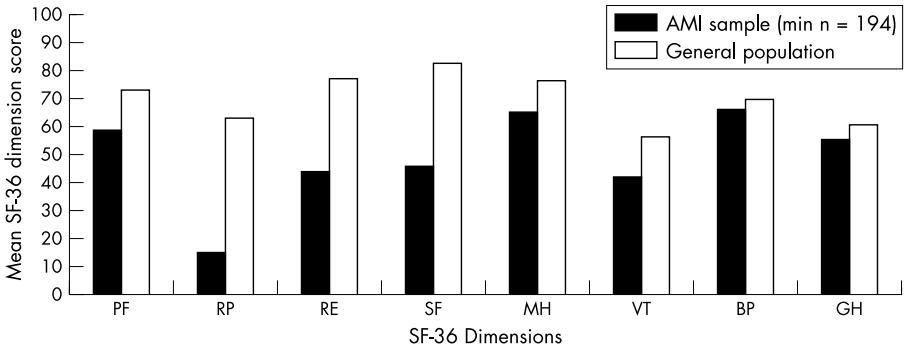


**Figure 2** SF-36 profile of mean scores for AMI patient sample (six weeks after MI) compared with age and sex matched general population sample.

and 95% confidence intervals. As HRQoL is known to vary with age and gender, we used multiple linear regression to adjust the HRQoL outcomes for age and gender (and for 12 month outcomes, six week HRQoL). We also report the multiple regression coefficients for the effects along with their associated 95% confidence intervals.

## RESULTS

The characteristics (age, six week health related quality, gender, social class, educational level) of the 229 patients who completed all three assessments were similar (not significantly different, $p>0.05$)) to the 24 patients who only completed the first assessment. Therefore the analysis will be based on the 229 patients who responded to all three assessments.

Table 2 shows the 229 AMI patients by gender, age, and social characteristics. Although all 229 patients completed the health status measures, some missing data were recorded for individual items concerning social characteristics.

Figure 2 compares the mean scores at six weeks after AMI on the eight dimensions of the SF-36, matched by age and sex to a general population sample from the same city. The AMI patients had poorer HRQoL on all eight dimensions, the differences being statistically significant ($p<0.02$) for all dimensions except bodily pain.

Table 3 shows change in HRQoL over the year after AMI. All the domains except general health perceptions show a statistically significant improvement in the mean ($p<0.01$) between six weeks and one year. As can be expected, the two domains measuring role limitations show the greatest improvement, and improvement in several other domains is small.

### Gender differences in health status

At six weeks, men scored higher than women for PF, BP, GH, VT, MH, and SDI. Women scored higher than men for RP, RE, and SF (table 4). There were statistically significant differences between the genders for PF ($p=0.052$) and VT ($p=0.004$), after adjusting for the effect of age. At one year, however, men showed greater HRQoL than women on all domains (table 5). Multiple regression analysis at one year (table 5) showed statistically significant differences between the genders (adjusting for age and six week HRQoL) in PF ($p=0.002$), RP ($p=0.024$), and SF($p=0.027$) domains.

Analysis of the one year data therefore showed consistent advantage for men after controlling for the effect of age and HRQoL at six weeks. Whereas men showed improvement in PF over the year of the survey, moreover, women showed slight deterioration from the level they were achieving at six weeks ($p=0.25$; mean change −3.6 (95% CI: −9.8 to 2.6), although this was not statistically significant.

For each of the measures of heath status that approximated to a normal distribution, a "change" score was calculated representing the numerical difference between a person's score at six weeks and that at one year. For all domains except general health perceptions, men on average showed a greater improvement than women over the year. The greatest gain for both genders was in the social functioning domain.

### Differences in health status by social class

Generally SOC I-IIIN (professional and non-manual) scored higher on all domains at all time periods than IIIM-V. However at six weeks there was a significant difference between the two groups only on the RE dimension after adjusting for age and

**Table 3** Change in health status between six weeks and one year

| Domain | N | Six week mean (SD) | Year mean (SD) | Change over year (95%CI) | p* |
|---|---|---|---|---|---|
| SF36 Physical functioning | 222 | 60.0 (23.5) | 62.9 (27.5) | 3.0 (0.0 to 5.9) | 0.050 |
| SF36 Role functioning—physical | 189 | 14.7 (29.2) | 46.1 (44.4) | 31.4 (24.7 to 38.1) | 0.000 |
| SF36 Bodily pain | 226 | 66.4 (25.3) | 70.6 (25.5) | 4.2 (1.0 to 7.4) | 0.010 |
| SF36 General health perceptions | 218 | 55.5 (21.4) | 55.2 (23.1) | −0.3 (−2.8 to 2.1) | 0.793 |
| SF36 Vitality | 218 | 42.9 (20.9) | 50.2 (23.1) | 7.3 (4.6 to 10.0) | 0.000 |
| SF36 Social functioning | 229 | 46.6 (24.8) | 63.1 (25.3) | 16.5 (13.1 to 20.0) | 0.000 |
| SF36 Role functioning—emotional | 184 | 42.8 (44.2) | 63.4 (43.0) | 20.7 (13.8 to 27.5) | 0.000 |
| SF36 Mental health | 222 | 66.0 (21.1) | 71.3 (20.6) | 5.3 (2.8 to 7.8) | 0.000 |
| EQ5–D single index (SDI) | 222 | 68.3 (23.3) | 71.8 (24.3) | 3.5 (0.5 to 6.5) | 0.024 |

A positive mean change indicates a health gain from six weeks to one year follow up. *p value from paired *t* test.

**Table 4** Health status at six weeks by gender, adjusted for age

| | Men | | | Women | | | Difference (unadjusted) male to female | | | Difference (adjusted for age) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Domain | N | Mean | SD | N | Mean | SD | Mean diff | CI | p | Mean diff | CI | p |
| SF36—physical functioning | 166 | 61.1 | 23.1 | 54 | 52.8 | 24.8 | 8.4 | 1.1 to 15.6 | 0.024 | 7.1 | –0.1 to 14.2 | 0.052 |
| SF36—role limitations–physical | 149 | 14.6 | 29.4 | 49 | 16.3 | 30.9 | –1.7 | –11.4 to 7.9 | 0.724 | –1.3 | –11.1 to 8.4 | 0.788 |
| SF36—bodily pain | 166 | 66.7 | 25.5 | 54 | 65.0 | 25.2 | 1.7 | –6.1 to 9.6 | 0.667 | 2.1 | –5.8 to 10.0 | 0.593 |
| SF36—general health perceptions | 163 | 56.6 | 21.2 | 54 | 52.6 | 21.1 | 4.0 | –2.5 to 10.6 | 0.224 | 4.3 | –2.3 to 10.9 | 0.200 |
| SF36—vitality | 162 | 44.6 | 20.6 | 54 | 35.5 | 19.7 | 9.1 | 2.8 to 15.4 | 0.005 | 9.5 | 3.1 to 15.8 | 0.004 |
| SF36—social functioning | 166 | 45.1 | 24.6 | 55 | 48.1 | 25.0 | –3.0 | –10.6 to 4.6 | 0.441 | –2.7 | –10.4 to 4.9 | 0.482 |
| SF36—role limitations–emotional | 148 | 43.5 | 44.1 | 47 | 45.4 | 45.8 | –1.9 | –16.6 to 12.8 | 0.797 | –0.9 | –15.6 to 13.9 | 0.905 |
| SF36—mental health | 165 | 66.6 | 21.4 | 54 | 63.0 | 19.8 | 3.5 | –3.0 to 10.0 | 0.285 | 4.8 | –1.6 to 11.2 | 0.143 |
| EQ5–D single index | 163 | 68.9 | 23.9 | 55 | 65.7 | 20.4 | 3.3 | –3.8 to 10.4 | 0.365 | 4.0 | –3.1 to 11.2 | 0.263 |

**Table 5** Health status at one year by gender, adjusted for age and six week baseline

| | Men | | | Women | | | Difference (unadjusted) male to female | | | Difference (adjusted for age and six week baseline) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Domain | N | Mean | SD | N | Mean | SD | Mean diff | CI | p | Mean diff | CI | p |
| SF36—physical functioning | 163 | 66.5 | 26.2 | 52 | 49.9 | 27.1 | 16.7 | 8.4 to 25.0 | 0.000 | 11.0 | 4.2 to 17.8 | 0.002 |
| SF36—role limitations-physical | 155 | 50.6 | 44.2 | 48 | 37.0 | 45.3 | 13.6 | –0.9 to 28.1 | 0.065 | 16.9 | 2.2 to 31.5 | 0.024 |
| SF36—bodily pain | 165 | 72.0 | 24.9 | 54 | 65.4 | 27.2 | 6.5 | –1.4 to 14.4 | 0.106 | 5.3 | –1.5 to 12.0 | 0.128 |
| SF36—general health perceptions | 162 | 55.8 | 22.6 | 51 | 52.5 | 24.2 | 3.3 | –4.0 to 10.6 | 0.370 | 0.7 | –4.9 to 6.3 | 0.807 |
| SF36—vitality | 164 | 52.0 | 22.0 | 53 | 41.8 | 24.9 | 10.2 | 3.1 to 17.3 | 0.005 | 4.4 | –1.7 to 10.5 | 0.158 |
| SF36—social functioning | 166 | 64.6 | 24.8 | 55 | 58.2 | 26.3 | 6.4 | –1.3 to 14.1 | 0.103 | 7.9 | 0.9 to 14.8 | 0.027 |
| SF36—role limitations-emotional | 155 | 66.2 | 41.4 | 47 | 53.9 | 47.4 | 12.3 | –1.7 to 26.4 | 0.086 | 13.0 | –0.8 to 26.8 | 0.065 |
| SF36—mental health | 165 | 72.6 | 19.7 | 53 | 67.2 | 22.5 | 5.4 | –0.9 to 11.8 | 0.095 | 3.2 | –2.1 to 8.5 | 0.239 |
| EQ5—D single index | 164 | 73.5 | 23.9 | 53 | 66.0 | 25.5 | 7.5 | –0.1 to 15.0 | 0.053 | 5.3 | –1.3 to 11.9 | 0.112 |

**Table 6** Health status at one year by educational qualifications, adjusted for age, gender and and six week baseline

| | Had qualifications | | | No qualifications | | | Difference (unadjusted) qualifications to no qualifications | | | Difference (adjusted for age, gender, and six week baseline) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Domain | N | Mean | SD | N | Mean | SD | Mean diff | CI | p | Mean diff | CI | p |
| SF36—physical functioning | 74 | 70 | 25.9 | 132 | 58.4 | 27.6 | 11.2 | 3.5 to 18.9 | 0.005 | 2.8 | –3.5 to 9.2 | 0.377 |
| SF36—role limitations-physical | 74 | 56.4 | 43.8 | 123 | 41.2 | 44.5 | 15.2 | 2.3 to 28.1 | 0.020 | 14.4 | 1.5 to 27.3 | 0.029 |
| SF36— bodily pain | 75 | 77.8 | 21.4 | 134 | 66.3 | 26.4 | 11.5 | 4.5 to 18.6 | 0.001 | 8.5 | 2.3 to 14.7 | 0.007 |
| SF36— general health perceptions | 73 | 61.2 | 22.0 | 131 | 51.1 | 22.8 | 10.0 | 3.5 to 16.5 | 0.003 | 4.0 | –1.2 to 9.3 | 0.133 |
| SF36—vitality | 75 | 55.7 | 23.3 | 132 | 46.1 | 22.5 | 9.7 | 3.2 to 16.2 | 0.004 | 6.1 | 0.6 to 11.6 | 0.030 |
| SF36—social functioning | 76 | 66.7 | 25.2 | 135 | 60.5 | 24.8 | 6.2 | –0.9 to 13.2 | 0.086 | 5.3 | –1.2 to 11.8 | 0.107 |
| SF36—role limitations- emotional | 73 | 74.4 | 37.5 | 121 | 56.7 | 45.1 | 17.7 | 5.3 to 30.1 | 0.005 | 5.8 | –7.1 to 18.6 | 0.376 |
| SF36—mental health | 75 | 75.9 | 19.8 | 134 | 68.4 | 20.9 | 7.5 | 1.7 to 13.4 | 0.011 | 2.7 | –2.4 to 7.7 | 0.296 |
| EQ5—D single index | 75 | 77.4 | 22.3 | 133 | 67.7 | 25.4 | 9.7 | 2.8 to 16.6 | 0.006 | 4.2 | –2.1 to 10.4 | 0.189 |

gender (p=0.012; adjusted mean difference 16.6, 95% CI: 3.7 to 29.5). At 12 months, after adjusting for age, gender, and six week HRQoL, significant differences between the social class groups were found for RP (p=0.006; adjusted mean difference 17.9, 95% CI: 5.2 to 30.6). There was some evidence of differences between the social class groups at 12 months in BP (p=0.067) and RE (p=0.060), after adjustment for age, gender and six week HRQoL, but these differences were not statistically reliable.

Similarly, those with some educational qualifications showed statistically significant higher scores at six weeks, after adjustment for age and gender on several domains of HRQoL; SDI (adjusted p value 0.014), PF (adjusted p value 0.012), RE (adjusted p value 0.001), GH (adjusted p value 0.002), and MH (adjusted p value 0.009). At 12 months VT (p=0.03), BP (p=0.007), and RP (p=0.029) were significant after adjustment for age, gender, and six week HRQoL (table 6). This suggests that possession of educational qualifications is associated with relative improvement over the year in energy, pain and physical role limitations.

Car access, taken as a measure of relative deprivation, was associated with higher scores on all domains at all time periods, but only the differences between those with and without car access at six weeks for VT (p=0.022), MH (p=0.018), and PF (p= 0.023) were statistically significant after adjustment for age and gender. However, statistically significant differences between those with and without car access were evident at 12 months for GH (p=0.020) and RP (p=0.029) after adjustment for age, gender, and six week HRQoL (table 7).

**Table 7** Health status at one year by car access, adjusted for age, gender, and and six week baseline

| | Car access | | | No car access | | | Difference (unadjusted) car access to no car access | | | Difference (adjusted for age, gender, and six week baseline) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Domain | N | Mean | SD | N | Mean | SD | Mean diff | CI | p | Mean diff | CI | p |
| SF36—physical functioning | 143 | 65.7 | 27.6 | 44 | 54.0 | 26.1 | 11.6 | 2.4 to 20.9 | 0.014 | 1.3 | –6.3 to 9.0 | 0.722 |
| SF36—role limitations–physical | 135 | 51.2 | 44.5 | 40 | 35.6 | 42.7 | 15.6 | –0.5 to 31.3 | 0.051 | 18.4 | 1.9 to 35.0 | 0.029 |
| SF36—bodily pain | 143 | 70.3 | 26.2 | 46 | 69.8 | 24.2 | 0.5 | –8.1 to 9.1 | 0.907 | –3.3 | –10.9 to 4.3 | 0.395 |
| SF36—general health perceptions | 141 | 57.0 | 22.3 | 45 | 48.8 | 25.0 | 8.2 | 0.4 to 15.9 | 0.039 | 7.5 | 1.2 to 13.7 | 0.020 |
| SF36— vitality | 143 | 51.6 | 23.0 | 45 | 45.2 | 24.1 | 6.4 | –1.4 to 14.3 | 0.108 | 0.6 | –6.2 to 7.3 | 0.871 |
| SF36—social functioning | 145 | 64.8 | 24.1 | 46 | 57.5 | 26.4 | 7.3 | –0.9 to 15.6 | 0.080 | 4.3 | –3.4 to 11.9 | 0.273 |
| SF36—role limitations-emotional | 133 | 62.2 | 43.2 | 41 | 53.7 | 44.0 | 8.5 | –6.8 to 23.8 | 0.274 | 3.4 | –12.8 to 19.6 | 0.680 |
| SF36—mental health | 144 | 70.5 | 21.3 | 45 | 67.9 | 20.9 | 2.7 | –4.5 to 9.8 | 0.462 | –2.9 | –9.3 to 3.5 | 0.370 |
| EQ5—D single index | 143 | 72.8 | 25.5 | 46 | 66.2 | 24.9 | 6.6 | –1.8 to 15.1 | 0.124 | 2.1 | –5.6 to 9.9 | 0.585 |

## Key points

- Recovery in self perceived health after a heart attack is slow, and improvement after a year is small in some domains.
- Existing health inequalities relating to gender and social class are exacerbated by the experience of a heart attack.
- Social resources such as car access and educational qualifications are associated with better self perceived health after acute illness.

## Policy implications

- Health professionals caring for patients recovering from a heart attack need to be aware of vulnerable groups who are at risk of poor health status.
- Special consideration needs to be given to the needs of women, manual workers, and those with few resources in rehabilitation programmes.

## DISCUSSION

From the data presented here, consistent patterns of increasing disadvantage in self perceived health are evident over the year after AMI for women, those in SOC IIIM-V, those without educational qualifications, and those with no access to a car. The clearest differences are evident in the domains of physical functioning, role limitations related to physical problems, social functioning, and in problems with pain. This finding must be balanced, however, against other domains, such as mental health, where differences between social classes lessened slightly over the year, suggesting some "catching up" by the more disadvantaged groups. Some tentative explanations for these findings are suggested, using previous literature available and some insights from the qualitative interviews conducted as part of this research but reported in detail elsewhere (unpublished data).

Experiences of varying working conditions may be responsible for the differential ease of resumption of role for those respondents in paid work. Manual workers have less control over their working conditions[3 19] and are unlikely to be able to negotiate a change of role or working hours easily. This is reinforced by differences in the requirement for physical capacity in paid employment, creating delay in return to work or adding anxiety that work roles are not being adequately fulfilled. Qualitative interviews provided evidence of professional workers being able to reduce or change their workload without loss of income; this was not an option for manual workers. Car access is also likely to increase the ease of resumption of normal roles despite physical limitations, for those in and out of paid employment. Evidence from qualitative interviews suggests that hills became real barriers to many of the respondents who lacked car access.

Roles within a marriage or family are also disrupted by ill health. There is some evidence to suggest that conjugal and domestic roles are able to be less flexible in working class homes,[20] adding to problems of adaptation where one partner is limited in physical capacity. Women working at home in this study may have been particularly conscious of their inability to fulfil their domestic role, but were unable to take retirement in the way that some of those in paid employment did.

Inequalities of access to adequate medication and other therapies to control symptoms may help to explain the differences evident in perception of pain. There is evidence that women and people from more deprived backgrounds tend to be offered less interventions to control angina than men and those with more affluence.[5 21] The finding of this study that problems with pain were more evident in those without educational qualifications suggests this may be a key factor in facilitating confidence in dealing with health professionals on an equal footing. For those from deprived communities, both lower patient expectations and health professional attitudes have been found to contribute to lower levels of access to cardiac services.[4]

In conclusion, it is clear that existing inequalities in health status between women and men, and between socioeconomic groups, are exacerbated rather than ameliorated by the experience of an acute event such as a heart attack. While some of the gradient in health status may be attributable to differential access to health care, and particularly control of angina, it is suggested that much of it derives from structural factors. Action on a wide range of policies including transport, working conditions, poverty reduction, and unemployment is required to tackle these health issues. In the meantime, those responsible for medical management and cardiac rehabilitation programmes should be aware of the widening gap between the self perceived health status of women and men, and between affluent and deprived people recovering from a heart attack.

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