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Persistent depressive disorders and social stress in people of Pakistani origin and white Europeans in UK

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Abstract *Introduction* We compared depression, social stress and treatment in people of Pakistani origin and white Europeans living in an UK city. *Method* In a population-based two-phase sample of 1,856 adults we interviewed 651 (77%) of eligible participants, using the schedule for clinical assessment in neuropsychiatry and life events and difficulties schedule. We identified 216 people with depressive and 208 with subthreshold disorder; after 6-months we re-interviewed 398 (94% response). *Results* Depressive disorder was more common in Pakistani women only (31.1% [24.1–38.0] vs. 19.3% [14.1–24.5]) and persisted more often in Pakistanis over 50 years of age (90 vs. 66%, $P = 0.023$). New episodes of depressive disorder occurred in 17% of participants who had subthreshold disorder at baseline in each ethnic group. Persistent depression in the Pakistani group was associated with continuing problems of disabling physical illness and close relationships. Treatment was limited and not associated with persistent depression. *Conclusions* Persistent depressive disorder in older people of Pakistani origin is associated with potentially remediable factors.

Key words depression – ethnic minority – epidemiology – stress – prospective design

Introduction

Population surveys have yielded conflicting results concerning the prevalence of depressive disorders in ethnic minority groups in Western countries [15, 23, 40, 41], but most European studies indicate a higher prevalence of depression in ethnic minority groups compared to White Europeans [2, 6, 37, 40, 41, 44]. The existing studies provide a wide variety of correlates of depression in ethnic minority groups but more detailed information about the prevalence and causes of depression in ethnic minorities is essential if we are to improve treatment.

In the nation-wide UK EMPIRIC study a higher prevalence of common mental disorders, but not ICD-10 depressive disorders, was found in middle aged men and older women of Pakistani origin compared to white Europeans but the reasons for this were unclear [41]. Adjusting for differences in socio-economic status, housing tenure and employment did not alter this result. Among British South Asians living in Scotland higher levels of distress than the general population have been associated with low work satisfaction, poor social support, the experience of being mugged and limited use of English [44]. Among primary care attenders in London higher rates of depression among Punjabi women compared to English women were associated with physical disability but not duration of time spent in UK [6]. Racism might be a factor but it is not clear why this does not affect all ethnic groups in a similar fashion [22].

Increased rates of suicide and self-harm in women of South Asian origin living in UK appear to be closely associated with life events concerning problems in close relationships [4, 5, 28, 29, 36].

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Nearly all the research to date has been cross-sectional and longitudinal studies are required to assess causality [34]. The two relevant prospective studies in USA found that depressive disorder was more likely to persist in people of ethnic minority status compared to the indigenous white population [8, 42], suggesting that perpetuation of depression in this group might be due to social or other environmental factors that could, potentially, be overcome by improved treatment [8]. No previous study has tested this idea in an ethnic minority group in UK.

We used a cross-sectional, two-phase screening survey to test whether depressive disorder is more prevalent in people of Pakistani family origin living in an UK city compared with white Europeans. We then used a six-month prospective cohort design to assess whether, compared to white Europeans, depressive disorder is more likely to persist and new episodes of depression are more likely to develop in people of Pakistani origin. We then compared the relationship between depression and social stress, social support and the extent of treatment experienced by depressed people of the two ethnic groups.

Methods

■ Design issues

We performed this study in an inner city area in order to gain sufficient people with persistent depressive disorder. Our Pakistani participants were interviewed by researchers of their own culture in either English or Urdu so we could be sure that all participants understood fully the questions regarding psychiatric symptoms. Since depression rates have been shown to differ between ethnic groups when a low threshold of disorder is used [41, 44], we followed-up people who had subthreshold disorders as well as those with depressive disorders. As treatment for depressive disorder is less satisfactory in people of ethnic minorities [13, 27, 32, 35], we assessed treatment at primary care for the depressed participants of our study.

■ Study sample

We included people aged 18 to 65 years, registered with four general practices (GP) in an inner city area where many people of Pakistani family origin live. We identified from the practice registers people with recognisable Pakistani or European names, and selected at random one person from each household address. Between August 2001 and September 2003, an explanatory letter and screening questionnaire in English and Urdu were sent to each potential participant. Those who did not respond within three weeks were visited at home up to five times, at different times on different days, or until it was confirmed that they had moved to another residence. In order to increase awareness of the study and, hopefully recruitment, we publicised the study in general practice surgeries, shops, community centres and at Mosques and on local Pakistani radio. We excluded people with learning disability, psychotic illness, dementia or alcohol dependence if this became apparent either at the outset or during the SCAN interview.

■ Study assessments

In order to screen for potential depressive disorder we administered the 20-item self-reporting questionnaire (SRQ), which has satisfactory psychometric properties in the relevant populations [17, 20].

We also collected socio-demographic data (age, sex and marital status, years of education, employment status and socio-economic status) at this stage. All participants who scored ≥ 7 on the questionnaire and one-in-four randomly selected participants who scored less than 7 were approached for a second-phase interview.

During the second-phase interview we established ethnicity (at least three grandparents born in Pakistan or Europe), and administered the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) [45]. A depressive disorder was diagnosed if the participant's symptoms met criteria for ICD-10 depressive episode or DSM-IV current major depressive disorder. Those with an SRQ score of 7 or more who did not meet these criteria were classified as sub-threshold disorder. Eighty-seven per cent of the participants diagnosed with depressive disorder reached criteria for an ICD-10 depressive episode (37% mild; 39% moderate; 11% severe); the remaining 13% had DSM-IV major depressive disorder, which was recorded in 85% of our sample. Only 3% (6/210) of people with low scores (< 7) had depressive disorder.

At this interview we also assessed social difficulties using the life events and difficulties schedule (LEDS) [11], which we had used previously in this population [19, 20]. We quote both the proportion of each group who had experienced a marked social difficulty in each domain and a total difficulties score with sub-scores for (1) physical health of the respondent and their close relatives, (2) marital or other close relationship difficulties, and (3) environmental problems—mostly housing and financial difficulties [9].

All those with depressive or sub-threshold disorder at baseline interview, were invited for a further interview six months later, at which we repeated the same measures.

We identified from the general practitioners' case-notes all consultations in primary care for one year before follow-up. These data were available for all but 4 participants who were followed up.

All instruments were translated into Urdu and these were reviewed by a bilingual focus group of mental health specialists and lay people according to a standard procedure [30]. Our interviewers spoke Urdu, Punjabi and English, and there were no exclusions on grounds of language. We arranged standard training in the SCAN and LEDS, and had regular reliability and consensus meetings throughout the study.

After full explanation of the study to potential subjects, including permission to access medical notes at primary care, all participants signed consent for inclusion in the study, which had ethical permission from Central Manchester Ethical committee (CEN/00/122).

■ Statistical analysis

Analyses were carried out using Stata version 9, with svy commands to set the appropriate sampling weights for the second-phase cross-sectional data. Unadjusted prevalence rates are presented, and odds ratios between ethnic groups with confidence intervals, after adjusting for age, marital and socio-economic status and other relevant socio-economic variables. Unadjusted rates of marked difficulties are presented and compared for the two ethnic groups.

For depressed participants re-interviewed at 6 months, logistic regression with forced entry of all demographic and social variables was used to determine factors relating to depression at follow up. In a second model we added baseline SRQ score and in a third model four additional variables were included as independent variables. The latter were the increase in chronic social difficulty scores from baseline to follow up for subject's own health, others' health, relationships and environment difficulties. Odds ratios and 95% confidence intervals were calculated for all risk factors, after adjusting for all other variables in the model. The same procedure was followed in a separate set of logistic regression analyses including those participants who had subthreshold disorder at baseline to determine the variables associated with onset of depressive disorder in this group.

For subjects who were depressed at baseline, the number of GP visits (5 or more), symptoms discussed (5 or more) and whether antidepressants were prescribed were compared for the two ethnic groups using the chi-squared test.

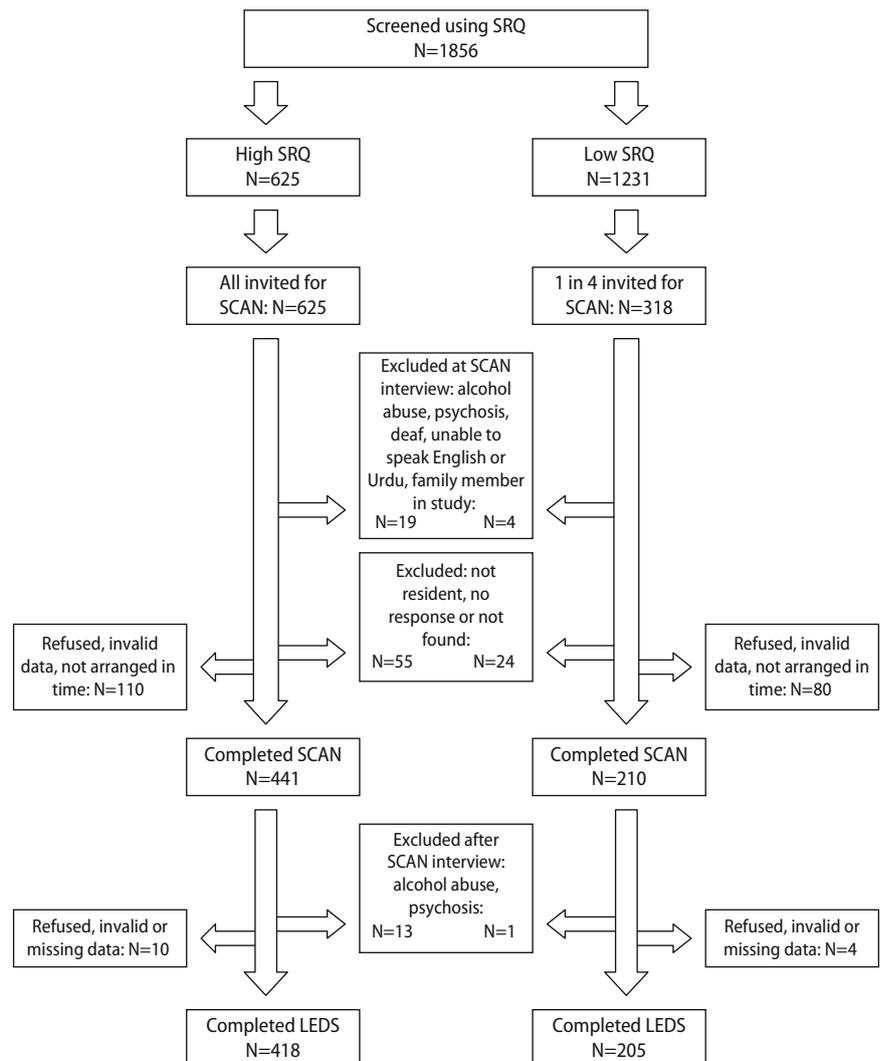
For the prevalence study we calculated that 850 people of each ethnic group would be needed to show a 5% difference in prevalence of depressive disorder between groups. The prospective study was powered on the basis of 25% and 45% resolution in the two ethnic groups with a 2-sided 5% significance level; this required 100 participants of each ethnic group to have 80% power.

Results

■ Sample

We identified 3,011 potential participants from the registers but 201 were later excluded as they did not belong to the relevant ethnic group. Of the remainder, 1856 (66%) completed an SRQ questionnaire: 932 white Europeans and 924 people of Pakistani origin. SRQ completion rates were 66% in white European men, 74% in white European women, 59% in Pakistani men and 66% in Pakistani women. The majority (72%) of the participants of Pakistani origin were first generation immigrants (median duration of years in UK of those interviewed was 16 years).

Fig. 1 Flow chart to demonstrate derivation of sample showing numbers of refusals and exclusions by high and low SRQ scores



Of the 943 participants invited to interview, 102 were subsequently excluded (reasons in Fig. 1) and, of the remainder, 651 (77%) completed the SCAN interview. There were no socio-demographic differences between those who did, and did not complete this interview but subjects with a high SRQ score were more likely to complete it than the remainder.

The two ethnic groups differed on socio-economic variables. Compared with the white Europeans, participants of Pakistani origin were significantly younger and more likely to be married, unemployed and of low socio-economic status; they were less likely to have received formal education or report a past psychiatric history (Table 1). They were less likely to have experienced a health difficulty but the women were more likely to have experienced a relationship difficulty (Table 1).

■ Prevalence of depressive disorder

The unadjusted prevalence of depressive disorder was not significantly different between white European

Table 1 Comparison of people of Pakistani family origin and white Europeans: socio-demographic factors presented for males and females (odds ratios with 95% confidence intervals [CI] adjusted for covariates as described below)

	Male (European group: N = 415 Pakistani group: N = 437)			Female (European group: N = 517 Pakistani group: N = 487)		
	Odds ratio	95% CI	P value ^a	Odds ratio	95% CI	P value ^a
Age 50 or more	0.23	0.17–0.33	<0.0005	0.24	0.18–0.34	<0.0005
Single	0.48	0.35–0.66	<0.0005	0.23	0.16–0.32	<0.0005
Widowed, separated or divorced	0.29	0.15–0.56	<0.0005	0.71	0.48–1.03	0.074
Married or cohabiting	1.0	–	–	1.0	–	–
No formal education	9.40	3.1–28.8	<0.0005	11.5	5.0–26.5	<0.0005
Educated for 1–11 years	1.0	–	–	1.0	–	–
Educated for 12 years or more	1.2	0.9–1.7	0.17	0.86	0.65–1.15	0.32
Employed, retired or student	1.0	–	–	1.0	–	–
Housewife				28	17.7–44.4	<0.0005
Off work long term sick	0.8	0.5–1.3	0.36	1.3	0.8–2.4	0.31
Unemployed	2.3	1.4–3.8	0.002	4.2	2.1–8.4	<0.0005
Middle class	1.0	–	–	1.0	–	–
Lower class	5.7	3.8–8.6	<0.0005	3.2	2.2–4.7	<0.0005
Variables weighted by SCAN weights						
Social isolation	0.69	0.27–1.78	0.45	1.63	0.86–3.10	0.13
Lack of social support	0.07	0.02–0.21	<0.0005	1.44	0.71–2.92	0.31
Dissatisfied with level of social support	3.81	0.87–16.6	0.075	16.1	5.3–49.1	<0.0005
Past psychiatric history	0.23	0.11–0.50	0.001	0.44	0.24–0.81	0.009
Case depression	0.55	0.23–1.29	0.17	1.71	0.97–3.00	0.062
Social difficulties						
Participant's own health	0.44	0.29–0.68	<0.0005	0.92	0.63–1.33	0.64
Others' health	0.38	0.19–0.78	0.008	0.71	0.57–0.89	0.003
Environment difficulties	0.84	0.59–1.18	0.31	1	0.80–1.24	0.98
Marital, partner or other relationship	0.79	0.49–1.28	0.35	1.27	1.03–1.57	0.028

95% CI = 95% confidence interval for odds ratio

^aCovariates: age for marital status; age and marital status for education; age, marital status and education for employment status and social class; age, marital status, education and social class for remaining variables

men and men of Pakistani origin (12.3% [95% CI 7.2–17.3] vs. 9.0% [95% CI 5.0–13.0], respectively; $P = 0.31$) but was higher in women of Pakistani origin (31.1% [95% CI 24.1–38.0] vs. 19.3% [95% CI 14.1–24.5]; $P = 0.0070$). The difference was greatest in women over 50 years (65.4% [41.4–89.4] vs. 21.5% [12.7–30.2]).

There was no significant difference in the rate of depression among the Pakistani women who spoke in Urdu at interview compared with those who used only English (OR = 1.6, 95%CI 0.78–3.35, $P = 0.19$).

After adjustment for age, marital status and socio-economic status the findings for men did not alter. For women, the odds ratio for depressive disorder (Pakistani origin / white European) remained significant (OR = 2.1, 95% CI 1.2–3.7, $P = 0.008$). When we adjusted for lack of formal education, dissatisfaction with social support or social difficulties score the difference became non-significant; adjusting for all three led to no difference (OR = 1.0, 95% CI 0.51–1.96, $P = 1.0$).

Since there was a difference between the two ethnic groups in terms of average household size, we adjusted also for this variable. The prevalence of depressive disorder was still significantly higher for Pakistani women than for white women after adjusting for age, marital status, socio-economic status and the number of people living in the household (OR = 1.97, 95% CI 1.09–3.54, $P = 0.024$).

The unadjusted prevalence for both depressive disorder and subthreshold disorder (i.e. SRQ score of 7 or more) is shown in Fig. 2. This followed a similar pattern to the results for depressive disorder, with women of Pakistani origin having higher rates than white European women but there was also a higher rate among young white European men under 50 years than those of Pakistani origin (Fig. 2).

■ Social difficulties

In both ethnic groups, mean total social difficulties scores were significantly higher for the depressed than the non-depressed participants. (Pakistanis: 4.22 vs. 1.04, respectively, $P < 0.001$; white Europeans: 5.02 vs. 1.55, respectively, $P < 0.001$). Marked difficulties related to physical health were common in depressed people of each ethnic group but serious difficulties in a close relationship were nearly twice as common among depressed people of Pakistani origin than white Europeans (Table 2). Marked difficulties with a clear racist element were reported by 3% of depressed people of Pakistani origin and none of the white Europeans.

■ Persistence of depressive disorder

At follow-up we were able to interview 208 of 216 depressed participants (95% response rate). Among

Fig. 2 Proportion of men and women by age and by ethnic group with a high SRQ scores (>6) representing depressive and sub-threshold disorders

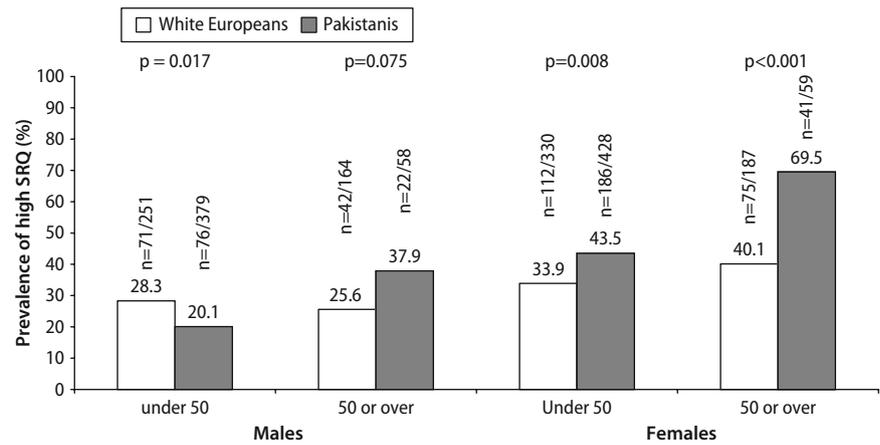


Table 2 Percentage of subjects with marked difficulties

Marked difficulty concerning	Depressive disorder			No depressive disorder		
	White European N = 97 (%)	Pakistani origin N = 119 (%)	P value	White European N = 199 (%)	Pakistani origin N = 208 (%)	P value
Physical health of participant	23.2	17.6	0.31	8.1	2.2	0.0005
Health of close relative / household member	19.8	14.0	0.36	10.9	2.6	0.0027
Close relationships	20.6	38.1	0.020	3.1	6.8	0.12
Financial	13.5	9.7	0.46	2.0	0	0.046
Housing	3.9	6.8	0.33	0	1.4	0.094

the 208 participants who were depressed at baseline, 73/114 (64%) of Pakistani origin, and 54/94 (57%) of White Europeans still had depressive disorder at follow-up (Fisher's exact test, $P = 0.39$). The proportions were similar in those under 50 years: 46/84 (55%) and 29/56 (52%), respectively, (Fisher's exact test, $P = 0.73$), but for those aged 50 or more the proportions were 27/30 (90%) for people of Pakistani origin and 25/38 (66%) for white Europeans (Fisher's exact test, $P = 0.023$; OR = 4.7, 95% CI 1.2–18.5).

After adjustment for all other variables, including severity of depression at baseline (baseline SRQ score), persistence of depression was associated with older age, lack of social support and increase (between baseline and six months follow-up) in the difficulties scores for physical health problems and serious problems in close relationship (Table 3). Adding an age by ethnic group interaction term did not change these results.

Repeating the analysis shown in Table 3 by each ethnic groups separately showed that in white Europeans, the significant correlates of persistent depression were fewer than 12 years of education (OR = 4.76, 95% CI 1.39–16.4) and baseline SRQ score (OR = 1.23, 95% CI 1.03–1.46). In people of Pakistani origin the significant correlates of persistent depression were: lack of education (OR = 9.71, 95% CI 1.06–88.93), baseline SRQ score (OR = 1.26, 95% CI 1.05–1.52), age 50 or more (OR = 9.04, 95% CI 1.64–49.98) and increased difficulties scores at follow

up for the individual's physical health problems (OR = 2.03 95%CI 1.01–4.09) and for difficulties in close relationships (OR = 1.73, 95% CI 1.04–2.88).

■ Treatment of depression

GP notes were examined for 204 out of the 208 (98%) of the participants with depression at baseline. During the 6 months prior to baseline the participants with depressive disorder of Pakistani origin consulted their GP more often than depressed white Europeans: 40/113 (35.4%) Pakistani people made 5 or more visits compared to 14/91 (15.4%) of white Europeans ($P = 0.001$). These consultations were primarily for bodily symptoms in 48/113 (42.5%) of Pakistani people compared to 21/91 (23.1%) of white Europeans ($P = 0.005$). There was no difference for consultations for anxiety or depression (33/113 [29.2%] vs. 25/91 [27.5%], respectively). The same pattern was evident during the 6 months following baseline.

White European women were more likely to receive antidepressant medication than women of Pakistani origin (31/62 [50%] vs. 20/89 [22.5%], respectively, $P = 0.001$); there was no difference among men. The same was true for psychological therapy (23/94 [24.5%] and 7/114 [6.1%] $P < 0.0005$). In response to our specific questions regarding use of alternative sources of help, 19 participants had sought such help, including from a hakim/homeopath, with

Table 3 Odds ratios and 95% confidence intervals for possible predictors of persistent depression (for 208 subjects who were depressed at baseline)

Possible correlate of depression	Model 1		Model 2		Model 3	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Female	0.90	0.43–1.89	0.95	0.44–2.05	1.09	0.49–2.44
Pakistani origin	1.83	0.89–3.74	1.68	0.80–3.52	1.75	0.82–3.76
Age 50 or more	2.65	1.27–5.54	2.32	1.08–4.96	2.89	1.27–6.58
Single	0.81	0.34–1.94	0.71	0.29–1.75	0.73	0.29–1.84
Widowed, separated or divorced	1.09	0.48–2.48	0.87	0.37–2.05	0.63	0.25–1.58
Lack of formal education	2.77	0.69–11.08	2.86	0.66–12.43	2.75	0.62–12.14
Educated for 12 years or more	0.62	0.32–1.20	0.56	0.28–1.11	0.53	0.26–1.11
Low socio-economic status	1.31	0.61–2.82	1.35	0.61–3.01	1.36	0.59–3.14
Off work long-term sick	3.17	1.41–7.12	2.13	0.91–5.00	2.24	0.92–5.45
Unemployed	0.92	0.28–3.04	0.86	0.25–2.95	0.88	0.23–3.26
Lack of social support	2.80	1.26–6.22	2.60	1.12–6.00	2.52	1.04–6.10
Lack of a close confidant	1.25	0.62–2.49	1.07	0.53–2.20	1.12	0.53–2.40
Past psychiatric history	1.21	0.53–2.79	1.01	0.42–2.39	1.24	0.48–3.18
SRQ total score			1.20	1.08–1.33	1.20	1.08–1.34
Increase in LEDS scores between baseline and follow-up interviews						
GB score for self-health difficulties	–			–	1.63	1.04–2.55
GB score for others' health difficulties	–			–	0.92	0.60–1.40
GB score for relationship difficulties	–			–	1.38	1.05–1.80
GB score for environment difficulties	–			–	1.50	0.98–2.30

95% CI = 95% confidence interval for odds ratio. Model 1 includes socio-demographic variables only as independent variables

Model 2 includes baseline SRQ in addition. Model 3 includes socio-demographic variables, baseline SRQ score and changes in LEDS difficulties scores as independent variables

no significant difference between the two ethnic groups. Treatment with an antidepressant or psychological therapy was not associated with persistence of depression so was not added to the model shown in Table 3.

■ New episode of depressive disorder

At the 6-month follow up, we re-interviewed 190 of 208 participants with subthreshold disorder (91.3% response rate). Sixteen of 93 (17.2%) white Europeans had become depressed compared to 16/97 (16.5%) people of Pakistani origin (Fisher's exact test $P = 1.0$). The factors correlating significantly with onset of depressive disorder at follow up were low socio-economic status, education for 12 years or more, previous psychiatric history and increased score of marked difficulties relating to close relationships (Table 4). In people of Pakistani origin there were no significant correlates of new episodes of depression but in White Europeans the following were significantly associated with new episodes of depressive disorder: low socio-economic status (OR = 8.17, 95%CI 1.03–65.14) increase in difficulty score relating to problems in close relationships (OR = 3.34, 95%CI 1.16–9.62).

Discussion

Our cross-sectional study confirmed that depressive disorder is more prevalent in women of Pakistani origin living in an inner city area of UK compared to white European women in the same area, but there was no difference in men. This higher prevalence

among Pakistani women was true also when we considered both subthreshold and depressive disorders together. We have shown also that depressive disorder tends to be more persistent in older people of Pakistani origin than white Europeans. By contrast, there was no difference between the two ethnic groups in the proportion with persistent depressive disorder in those under 50 years or the rate of new episodes among people with subthreshold depressive disorder.

Other cross-sectional studies have reported high levels of depression among ethnic minority groups in Europe or USA but some of these differ from the present study as they were concerned with immigrants who had recently left areas of conflict often under conditions of severe stress [2, 18, 26, 37]. Most other studies differed also in the respect that they measured depressive symptoms rather than depressive disorder [3, 37, 38, 40, 44]. In the comparable UK EMPIRIC study the prevalence of common mental disorder was significantly higher in Pakistani women than white women (26% vs.19%) but this was not so for ICD-10 depressive disorder (6.3 vs.3.3%). The prevalence of depressive disorder in our sample of Pakistani women (31%) was much greater than that reported in EMPIRIC as ours was an inner city sample whereas EMPIRIC used a nationally representative sample.

Like the EMPIRIC study we found that the greater prevalence of depression in women of Pakistani origin compared to white European women remained after adjustment for socio-demographic differences, until we adjusted for years of education or social support or social difficulties score, suggesting that these factors might explain the difference in prevalence.

Table 4 Odds ratios and 95% confidence intervals for possible predictors of new depression (for 190 subjects who were sub-threshold at baseline)

Possible correlate of depression	Model 1		Model 2		Model 3	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Female	1.02	0.39–2.68	0.98	0.37–2.59	0.66	0.22–1.93
Pakistani origin	1.29	0.51–3.26	1.30	0.51–3.29	1.36	0.51–3.65
Age 50 or more	1.28	0.44–3.75	1.21	0.41–3.54	1.35	0.44–4.16
Single	0.98	0.32–3.03	1.01	0.32–3.15	1.21	0.36–4.14
Widowed, separated or divorced	1.43	0.46–4.40	1.46	0.47–4.50	2.23	0.64–7.79
Lack of formal education	0 ^a	0–∞	0	0–∞	0	0–∞
Educated for 12 years or more	1.63	0.69–3.83	1.60	0.68–3.76	2.66	1.01–7.04
Low socio-economic status	2.80	1.05–7.46	2.64	0.97–7.13	4.71	1.46–15.21
Off work long-term sick	0.84	0.27–2.55	0.78	0.25–2.43	0.80	0.24–2.65
Unemployed	0.93	0.18–4.81	0.85	0.16–4.63	1.14	0.19–6.88
Lack of social support	1.03	0.29–3.60	1.03	0.29–3.65	1.29	0.31–5.41
Lack of a close confidant	1.20	0.46–3.12	1.27	0.48–3.36	1.44	0.52–4.02
Past psychiatric history	2.67	1.03–6.91	2.58	0.99–6.75	2.81	1.01–7.79
SRQ total score			1.07	0.92–1.25	1.09	0.92–1.28
Increase in LEDS scores between baseline and follow-up interviews						
GB score for self-health difficulties	–			–	1.04	0.55–1.98
GB score for others' health difficulties	–			–	1.66	0.88–3.14
GB score for relationship difficulties	–			–	2.58	1.35–4.93
GB score for environment difficulties	–			–	0.97	0.52–1.82

95% CI = 95% confidence interval for odds ratio. Model 1 includes socio-demographic variables only as independent variables. Model 2 includes baseline SRQ in addition. Model 3 includes socio-demographic variables, baseline SRQ score and changes in LEDS difficulties scores as independent variables

^aEleven Pakistani subjects had no formal education at all. None of these were depressed at follow up and therefore the odds ratio is calculated as zero. Excluding this variable from all 3 models makes negligible changes to the odds ratios and confidence intervals

The prevalence of depressive disorder in immigrant groups may vary considerably according to the circumstances of their migration and their situation in the host country [23, 38, 43]. Further study is warranted when the prevalence of depression is higher in ethnic minority groups than the local indigenous population. Our study arose out of the clinical need to understand more completely the factors underlying the high prevalence of depressive disorder in the South Asian population in UK with a view to improving treatment [14, 19, 41]. In this context white Europeans living in the same inner city area was regarded as an appropriate comparison group as they also face high levels of social stress.

Data from the US National Comorbidity study indicated that persistent depression in ethnic minorities was associated not with greater vulnerability to depression (expressed as lifetime prevalence) but with greater exposure to social or other environmental factors that could, potentially, be overcome by improved treatment [8]. In a more recent US survey depressive disorders were more persistent in blacks than whites (56 vs.38.6%) [42]; the reasons for this were not clear but the authors noted less satisfactory treatment for Blacks than Whites. In our sample depressive disorder persisted over 6 months in two-thirds or more, which is much greater than the one fifth to one third quoted for less socially deprived populations [1, 39]. Unlike the US studies we were able to assess the relationship of persistent depression with social stress.

In each of the ethnic groups we found that persistent depressive disorder was associated with more

severe depression at baseline and few years of education; these findings are in line with previous studies [1, 7, 34]. In addition, though, in the Pakistani group older age, increasing severity of problems with physical illness and close relationships were associated with persistent depression. Serious problems in close relationships, mostly marital or ex-marital partners, were very common in depressed people of Pakistani origin (38%) and this was one of the main differences between the depressed people of Pakistani origin and White Europeans. Thus our study provides evidence, more clearly than previously, that the greater prevalence of depressive disorder in women of Pakistani origin in UK is associated with more persistent depressive disorder in older people, which, in turn, is associated with difficulties involving close relationships and physical health problems. These findings have implications for treatment.

In our study depressive disorder was common in women of both ethnic groups; very high rates have been reported previously in women living socially deprived areas of inner cities [11, 21, 23, 25]. Such studies (of predominantly white) women have demonstrated that such a high rate of depression can be attributed to social and environmental factors including stressful life situation, domestic violence and lack of social support [9, 11, 16, 25, 33].

Perhaps surprisingly we did not find that racism or treatment were associated with depressive disorder or outcome. The former seems discordant with some previous research [22] but the highest rates of depressive disorder were seen in those least likely to be exposed to racial discrimination (i.e. women, many

of whom rarely left their home). It is possible that verbal racial abuse may not have reached threshold for inclusion as a marked social difficulty in our study but others have also found racism to be unrelated to depression in a prospective study [24]. Treatment may not have been associated with outcome because the majority of our depressed participants did not receive treatment. For those who did receive a prescription for antidepressants, this may or may not have led to the person taking the drug [12, 31] and such treatment alone may be inadequate in the chronic depressive disorder we documented.

The strengths of our study include the use of standardised instruments administered by experienced and trained interviewers of the same ethnic group as the respondents, who could use the participant's language of choice (English or Urdu). Unlike some previous studies we did not find a difference in prevalence according to language of interview. We included a broad range of risk factors for persistent depression, including detailed measures of social stress and objective measures of treatment, and we achieved a high follow-up rate at 6 months. In our analyses we adjusted for baseline depressive symptom severity (SRQ score) as recommended for this kind of analysis [34].

Our study was limited, however, by an initial response rate that was only just acceptable, though comparable to other studies [2, 37, 38, 40, 41]. The low response rate reflects, in part, the mobile nature of inner city inhabitants but we experienced particular difficulty locating some potential participants who were temporarily in Pakistan at the time of our study. The prospective part of our study was limited by a small number aged 50 years or older, reflecting the age profile of the local population. The proportion of participants with subthreshold disorder who developed new episodes of depressive disorder was small (17%) though it was similar to that recorded previously in women with subthreshold depression followed up for a year (20%) [10]. We studied a single ethnic group so that we could include higher numbers than many previous studies but our findings may not be generalisable to other ethnic minority groups.

The prominence of marked difficulties in close relationship associated with persistent depressive disorder in the people of Pakistani origin is a challenge to treatment. The picture that emerged from our study was one where chronically depressed women of Pakistani origin were trapped in a difficult home situation with little chance of getting support from others outside of the home. It is unlikely that antidepressants alone will have an impact on such problems and marital therapy is rarely used in this context. General measures to increase social support may be more acceptable to this population and it is likely that this should be combined with educational facilities to empower women of this ethnic group and attract more help with physical as well as mental health problems.

As a result of this study we have recently developed socially supportive groups for chronically depressed women of Pakistani origin. These had to start with obtaining permission from the family for the women to attend the local community centre. These groups are extremely popular with the participants and we are evaluating their effectiveness when combined with antidepressant treatment. Such a combined social and medical approach may be necessary to tackle persistent depressive disorder in this high-risk group. In addition the training of family doctors may be helpful in overcoming communication difficulties, negative attitudes towards medical help for mental illness and antipathy to psychotropic medication [27, 32, 35].

Summary of work

Depression is more common in people of South Asian origin in the UK but the reason is unclear. In a population-based study we found that women, but not men, of Pakistani origin living in UK were found to have an increased prevalence of depressive disorder compared to white Europeans. In older Pakistani people the depression was more persistent over 6 months. Persistent depression was associated with persistent physical health and relationship problems. Treatment for depression in primary care was less satisfactory in women of Pakistani origin living in UK than white European women but this was not associated with outcome.

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References

1. Barkow K, Maier W, Ustun TB, Gansicke M, Wittchen HU, Heun R (2003) Risk factors for depression at 12-month follow-up in adult primary health care patients with major depression: an international prospective study. *J Affect Disord* 76:157–169
2. Bayard-Burfield L, Sundquist J, Johansson SE, Bayard-Burfield L, Sundquist J, Johansson SE (2001) Ethnicity, self reported psychiatric illness, and intake of psychotropic drugs in five ethnic groups in Sweden. *J Epidemiol Community Health* 55:657–664
3. Bengi-Arslan L, Verhulst FC, Crijnen AA, Bengi-Arslan L, Verhulst FC, Crijnen AAM (2002) Prevalence and determinants of minor psychiatric disorder in Turkish immigrants living in The Netherlands. *Soc Psychiatry Psychiatr Epidemiol* 37:118–124
4. Bhugra D, Baldwin DS, Desai M, Jacob KS (1999) Attempted suicide in west London, II. Inter-group comparisons. *Psychol Med* 29:1131–1139

5. Bhugra D, Desai M, Baldwin DS (1999) Attempted suicide in west London, I. Rates across ethnic communities. *Psychol Med* 29:1125–1130
6. Bhui K, Bhugra D, Goldberg D, Sauer J, Tylee A, Bhui K, Bhugra D, Goldberg D, Sauer J, Tylee A (2004) Assessing the prevalence of depression in Punjabi and English primary care attenders: the role of culture, physical illness and somatic symptoms. *Transcult Psychiatry* 41:307–322
7. Bjerkeset O, Nordahl HM, Larsson S, Dahl AA, Linaker O (2008) A 4-year follow-up study of syndromal and sub-syndromal anxiety and depression symptoms in the general population: the HUNT study. *Soc Psychiatry Psychiatr Epidemiol* 43:192–199
8. Breslau J, Kendler KS, Su M, Gaxiola-Aguilar S, Kessler RC (2005) Lifetime risk and persistence of psychiatric disorders across ethnic groups in the United States. *Psychol Med* 35:317–327
9. Brown GW, Adler Z, Bifulco A (1988) Life events, difficulties and recovery from chronic depression. *Br J Psychiatry* 152:487–498
10. Brown GW, Bifulco A, Harris T, Bridge L, Brown GW, Bifulco A, Harris T, Bridge L (1986) Life stress, chronic subclinical symptoms and vulnerability to clinical depression. *J Affect Disord* 11:1–19
11. Brown GW, Harris T (1978) *Social origins of depression*. Tavistock, London
12. Commander MJ, Odell SM, Surtees PG, Sashidharan SP (2004) Care pathways for south Asian and white people with depressive and anxiety disorders in the community. *Soc Psychiatry Psychiatr Epidemiol* 39:259–264
13. Cornwell J, Hull S (1998) Do GPs prescribe antidepressants differently for South Asian patients? [erratum appears in *Fam Pract* 1998 Jun;15(3):288]. *Fam Pract* 15(Suppl 1):S16–S18
14. Creed F, Winterbottom M, Tomenson B, Britt R, Anand IS, Wander GS, Chandrashekar Y (1999) Preliminary study of non-psychotic disorders in people from the Indian subcontinent living in the UK and India. *Acta Psychiatr Scand* 99:257–260
15. Cwikel J, Zilber N, Feinson M, Lerner Y, Cwikel J, Zilber N, Feinson M, Lerner Y (2008) Prevalence and risk factors of threshold and sub-threshold psychiatric disorders in primary care. *Soc Psychiatry Psychiatr Epidemiol* 43:184–191
16. Dalgard OS, Dowrick C, Lehtinen V, Vazquez-Barquero JL, Casey P, Wilkinson G, Ayuso-Mateos JL, Page H, Dunn G, ODIN Group, Dalgard OS, Dowrick C, Lehtinen V, Vazquez-Barquero JL, Casey P, Wilkinson G, Ayuso-Mateos JL, Page H, Dunn G, ODIN Group (2006) Negative life events, social support and gender difference in depression: a multinational community survey with data from the ODIN study. *Soc Psychiatry Psychiatr Epidemiol* 41:444–451
17. Harding TW, de Arango MV, Baltazar J, Climent CE, Ibrahim HH, Ladrado-Ignacio L, Murthy RS, Wig NN (1980) Mental disorders in primary health care: a study of their frequency and diagnosis in four developing countries. *Psychol Med* 10:231–241
18. Hauff E, Vaglum P, Hauff E, Vaglum P (1995) Organised violence and the stress of exile. Predictors of mental health in a community cohort of Vietnamese refugees three years after resettlement. *Br J Psychiatry* 166:360–367
19. Husain N, Creed F, Tomenson B (1997) Adverse social circumstances and depression in people of Pakistani origin in the UK. *Br J Psychiatry* 171:434–438
20. Husain N, Creed F, Tomenson B (2000) Depression and social stress in Pakistan. *Psychol Med* 30:395–402
21. Jenkins R, Lewis G, Bebbington P, Brugha T, Farrell M, Gill B, Meltzer H (1997) The National Psychiatric Morbidity surveys of Great Britain—initial findings from the household survey. *Psychol Med* 27:775–789
22. Karlsen S, Nazroo JY, McKenzie K, Bhui K, Weich S (2005) Racism, psychosis and common mental disorders among ethnic minority groups in England. *Psychol Med* 35:1795–1804
23. Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, Rush AJ, Walters EE, Wang PS, National Comorbidity SR (2003) The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *JAMA* 289:3095–3105
24. Kessler RC, Mickelson KD, Williams DR (1999) The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *J Health Soc Behav* 40:208–230
25. Lehtinen V, Michalak E, Wilkinson C, Dowrick C, Ayuso-Mateos JL, Dalgard OS, Casey P, Vazquez-Barquero JL, Wilkinson G, ODIN Group (2003) Urban-rural differences in the occurrence of female depressive disorder in Europe—evidence from the ODIN study. *Soc Psychiatry Psychiatr Epidemiol* 38:283–289
26. Marshall GN, Schell TL, Elliott MN, Berthold SM, Chun CA (2005) Mental health of Cambodian refugees 2 decades after resettlement in the United States. *JAMA* 294:571–579
27. Miranda J, Cooper LA (2004) Disparities in care for depression among primary care patients. *J Gen Intern Med* 19:120–126
28. Neeleman J, Jones P, Van Os J, Murray RM (1996) Parasuicide in Camberwell-ethnic differences. *Soc Psychiatry Psychiatr Epidemiol* 31:284–287
29. Neeleman J, Mak V, Wessely S (1997) Suicide by age, ethnic group, coroners' verdicts and country of birth. A three-year survey in inner London. *Br J Psychiatry* 171:463–467
30. Rahman A, Iqbal Z, Waheed W, Hussain N, Rahman A, Iqbal Z, Waheed W, Hussain N (2003) Translation and cultural adaptation of health questionnaires. *J Pak Med Assoc (JPMA)* 53:142–147
31. Rollman BL, Hanusa BH, Belnap BH, Gardner W, Cooper LA, Schulberg HC (2002) Race, quality of depression care, and recovery from major depression in a primary care setting. *Gen Hosp Psychiatry* 24:381–390
32. Shaw CM, Creed F, Tomenson B, Riste L, Cruickshank JK (1999) Prevalence of anxiety and depressive illness and help seeking behaviour in African Caribbeans and white Europeans: two phase general population survey. *BMJ* 318:302–305
33. Siefert K, Bowman PJ, Heflin CM, Danziger S, Williams DR (2000) Social and environmental predictors of maternal depression in current and recent welfare recipients. *Am J Orthopsychiatry* 70:510–522
34. Skapinakis P, Weich S, Lewis G, Singleton N, Araya R (2006) Socio-economic position and common mental disorders. Longitudinal study in the general population in the UK. *Br J Psychiatry* 189:109–117
35. Smedley BD, Stith AY, Nelson AR (2003) *Unequal treatment, confronting racial and ethnic disparities in health care*. Institute of Medicine The National Academies Press, Washington, DC; Ref Type: Report
36. Soni R, V, Balarajan R (1992) Suicide and self-burning among Indians and West Indians in England and Wales. *Br J Psychiatry* 161:365–368
37. Thapa SB, Hauff E, Thapa SB, Hauff E (2005) Gender differences in factors associated with psychological distress among immigrants from low- and middle-income countries—findings from the Oslo Health Study. *Soc Psychiatry Psychiatr Epidemiol* 40:78–84
38. Tinghog P, Hemmingsson T, Lundberg I, Tinghog P, Hemmingsson T, Lundberg I (2007) To what extent may the association between immigrant status and mental illness be explained by socioeconomic factors? *Soc Psychiatry Psychiatr Epidemiol* 42:990–996
39. Ustun TB, Kessler RC (2002) Global burden of depressive disorders: the issue of duration. *Br J Psychiatry* 181:181–183
40. van der Wurff FB, Beekman AT, Dijkshoorn H, Spijker JA, Smits CH, Stek ML, Verhoeff A (2004) Prevalence and risk-factors for depression in elderly Turkish and Moroccan migrants in the Netherlands. *J Affect Disord* 83:33–41
41. Weich S, Nazroo J, Sproston K, McManus S, Blanchard M, Erens B, Karlsen S, King M, Lloyd K, Stansfeld S, Tyrer P (2004) Common mental disorders and ethnicity in England: the EMPIRIC study. *Psychol Med* 34:1543–1551

42. Williams DR, Gonzalez HM, Neighbors H, Nesse R, Abelson JM, Sweetman J, Jackson JS (2007) Prevalence and distribution of major depressive disorder in African Americans, Caribbean blacks, and non-Hispanic whites: results from the National Survey of American Life. *Arch Gen Psychiatry* 64:305-315
43. Williams DR, Haile R, Gonzalez HM, Neighbors H, Baser R, Jackson JS (2007) The mental health of Black Caribbean immigrants: results from the National Survey of American Life. *Am J Public Health* 97:52-59
44. Williams R, Hunt K (1997) Psychological distress among British South Asians: the contribution of stressful situations and subcultural differences in the West of Scotland Twenty-07 Study. *Psychol Med* 27:1173-1181
45. World Health Organisation (1994) Schedules for clinical assessment in neuropsychiatry. Ref Type: Report