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# In the Shadow of Adversity: The Evolution and Resolution of Anxiety and Depressive Disorder

P. G. SURTEES

**Background.** It was proposed to explore the longitudinal relationship between adverse experience and mental health; in particular, whether particular adverse experiences influence the form of subsequent expression of morbidity.
**Method.** Three groups of women were selected: 64 whose marital partner had recently died, 143 whose husbands had recently experienced a myocardial infarction and a third group of 32 women who had sought protection in a Women's Aid refuge. An initial interview assessed psychiatric status according to the RDC for the six months before the event and up to the time of interview, and a second interview was completed four months after the event had occurred. The course was assessed using the Longitudinal Interval Follow-up Evaluation.
**Results.** For the coronary group, the prevalence of psychiatric disorder doubled following the experience of the event, and was most pronounced for anxiety disorder. For the bereaved, rates increased over eight times for major depressive disorder and more than twice for anxiety disorder, following the loss; for the refuge group, prevalence rates were lower after entering the refuge than those before. Analyses that took account of the timing of the onset of disorders showed that in almost half of those experienced by the coronary group, and about 40% of the bereaved group, onset pre-dated the timing of the event.
**Conclusions.** The results further advance knowledge of the evolution and form of psychiatric conditions following the experience of severe adversity.

During the past two decades, life stress research has benefited from a progressive increase in methodological rigour brought about by changes in the definition and rating of adverse experience and through the increasing application of research diagnostic schemes in psychiatry. Histories of individuals' exposure to events have been more precisely documented and novel rating schemes have been developed to encompass the diverse range of experience reported. Changes in diagnostic practice have ensured a greater consensus in the meaning attached to the labelling of particular conditions, even if the advised schemes in use continue to evolve at a pace that exceeds the opportunity of researchers to evaluate fully the implications of one scheme before being overtaken by a revision. One feature of the widespread use of the diagnostic schemes has been that greater reliance can now be placed upon epidemiological estimates of the prevalence of psychiatric disorder in a variety of settings, and resulting public health policy decisions are thereby better informed. One recent example is the decision by the Department of Health in England, the Scottish Home and Health Department and the Community Care Department of the Welsh Office to commission the Office of Population Censuses and Surveys (OPCS) to undertake the first national survey of psychiatric morbidity in Great Britain (Meltzer, 1993), the results of which could be used to inform the provision of mental health resources.

However, while increasing consensus has been achieved in the criteria for classification of psychiatric disorder, Frank *et al* (1991) have pointed out that there is little consensus on the criteria, measures and methods for the assessment of the *course* of disorder. Studies spanning extended time periods have to cope with documenting the changing clinical course of conditions, and in consequence they are often forced to adopt their own criteria for recovery, relapse and recurrence. In addition, the assessment of comorbid states also presents special problems. Until some general consensus is reached on criteria for documenting episode status, then terms commonly used to signify changes in that status will continue to be employed in very different ways, which undermines their usefulness for understanding what influences the prognosis of psychiatric disorders.

This study developed from a background of population-based life stress research, designed, for example, to establish the extent of the association between exposure to adversity and affective disorder according to different analytic procedures (Surtees *et al*, 1986; Surtees & Duffy, 1989; Surtees, 1989), to test the hypothesis that specific adverse experiences were related to specific outcomes (e.g. Finlay-Jones

& Brown, 1981; Brown *et al*, 1992) and to assess the role of other factors, in association with life stress, in psychiatric outcomes (e.g. Brown *et al*, 1990; Goldberg *et al*, 1990; Miller *et al*, 1987). However, the limitations of study design have hindered the pursuit of these objectives in unravelling particularly interesting but elusive relationships. For example, attempts to establish whether certain characteristics of adverse experience were more likely to be associated with specific forms of expression of morbidity have been pursued in the context of designs for studying the general population (e.g., Miller *et al*, 1986). Such investigations depend on the creation of imaginative rating typologies, but the inevitable rarity of combinations of events with particular characteristics means it is difficult to evaluate their significance fully. Arising from this, some have expressed the view that the study of groups exposed to a uniform threat would significantly enhance understanding of the social aetiology of psychiatric disorder (e.g. Osterweis *et al*, 1985; Goldberg & Huxley, 1992).

This paper reports a short-term follow-up study of three groups of married women, each group having had a specific adverse experience in common, namely: recent bereavement, a husband's recent life-threatening illness (myocardial infarction, MI), and marital problems leading to entry to a Woman's Aid refuge. The aims of this study were to identify the psychiatric morbidity patterns experienced by the three groups of women both before and after their exposures to these very different events, and to estimate the prevalence and inception of anxiety and depressive disorder according to the Research Diagnostic Criteria (RDC; Spitzer *et al*, 1978). While it was hypothesised that depression would be the most common feature following bereavement, and anxiety following a husband's MI, it was anticipated that entry to a Women's Aid refuge would be associated with a progressive resolution of pre-existing morbid conditions. A particular aim of the study was to examine the expression of concurrent and comorbid conditions both before and after the events in the study. A further aim was to establish the extent to which health services were used before and after the events. The methodological strategies employed were aimed at providing as firm a foundation as possible for revealing relationships.

## Method

### Sample recruitment

Full details of the research design have been provided elsewhere (Surtees & Miller, 1993). In brief, 13 general (GP) practices within Lothian Region were regularly contacted to ascertain whether any married men of working age had died during the preceding fortnight. Shortly after each death, the GP was asked to approach the widow to obtain her agreement for a research interview to be undertaken.

The coronary sample was recruited by approaching all married men who had been admitted as patients either to the Royal Infirmary or to the Western General Hospital in Edinburgh following a myocardial infarction (MI). Suitable patients were married, of working age and living within the areas served by the two hospitals. Each week the new patients were approached on the ward by a member of the research team, who explained the study and sought permission to approach their wives. Following permission, the wife's GP was informed that we wished to include their patient in the study. A research interview was then sought about one month after the husband had suffered his MI. (Those few wives who would have been interviewed because of their husband's MI, but whose husbands had died before leaving hospital, were included within the bereavement group.)

The sample from the four local Women's Aid refuges was recruited with the cooperation of these groups. Where possible, interviews were completed about four weeks after entry to the refuge, but recruitment of this group proved difficult, mainly because of the nature of the problems that had been associated with departure from the marital home and the requirement that women had to be married.

### Measures and the selection and training of interviewers

A team of 12 experienced interviewers was initially recruited for this study. Several had been trained on the Present State Examination (PSE; Wing *et al*, 1974) and its Edinburgh development, the Psychiatric Assessment Schedule (PAS; Dean *et al*, 1983) during the early 1980s. Further psychiatric research experience had been gained over several years through their continuing involvement with other research groups associated with the Royal Edinburgh Hospital.

An interviewer-training programme was designed for the study. This covered the collection of routine demographic information, social support (including that associated with event occurrence), coping styles, the assessment of life stress and psychiatric status. Training in the assessment of life stress was provided following the principles underlying the Life Events and Difficulties Schedule (LEDS) developed by Brown and colleagues (e.g. Brown & Harris, 1989).

Full details of the life stress methods and ratings completed are provided in Miller & Surtees (1993).

Interviewers were trained on a psychiatric assessment instrument based upon the Longitudinal Interval Follow-up Evaluation (LIFE; Keller *et al*, 1987), developed for a multi-centre study of depressive illness (The [US] National Institute of Mental Health (NIMH) Clinical Research Branch Program on the Psychobiology of Depression). The schedules, as initially used in this study, were designed to assess the variation over time of the psychiatric status of respondents in accord with the RDC. The author completed a short training period in Boston on those components of the LIFE to be used in the present study and in other longitudinal work (see Surtees & Barkley, 1994). Subsequently, new schedules were designed in Edinburgh to cover the following range of diagnoses for this project: major and minor depressive disorders, intermittent depressive disorder (and features), panic disorder, generalised anxiety disorder (with and without depression) and phobic disorder. This deliberately narrow range of conditions was chosen both to limit training requirements and to include those thought most likely to be found among the subjects in this study.

The training course for interviewers was undertaken by two tutors (a clinical psychologist and a psychiatrist). It took 20 days and involved lectures, observation of psychiatric patients in Edinburgh being interviewed using the new measures, and the use of case vignettes and video-tapes of patients who had completed the LIFE as part of the multi-centre NIMH study of depressive illness. Interviewers completed a number of supervised interviews with patients. A number of interviewers undertook additional 'pilot interviews' before proceeding to the study.

The RDC was the principal diagnostic scheme applied, not only to enable a direct comparison with earlier studies of life event stress, but also because of the nature of the specific changes that had been incorporated in the development of the third revised edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM–III–R; American Psychiatric Association, 1987). Given the relatively short duration of this study, such differences as do exist between the RDC and DSM–III–R for identically labelled conditions (for instance, concerning duration criteria), would have limited opportunity to occur.

Completing the LIFE assessment included obtaining a narrative account of the course of any psychiatric conditions rated, and provided an opportunity to document those aspects of clinical presentations that would not otherwise have been noted. On the conclusion of this study, the developers of the LIFE were again visited so that we could jointly review the charts, as regards the particular application of the technique in this research.

### Course assessments

The adoption of the LIFE approach enabled the documentation of all changes in the status of psychiatric episodes over the study period. This was in terms of Psychiatric Status Ratings (PSRs), which were operationally linked to the RDC associated with the particular conditions assessed, and therefore reflected gradations in the extent to which the criteria for particular conditions were satisfied. An attempt was made to chart such changes at a 'weekly resolution level' (in keeping with the practice adopted in the NIMH collaborative depression study), providing an opportunity to examine development of psychiatric disorder, and recovery from it, in relation to the stressful experiences of the three samples. Contemporaneous ratings of any major changes in alcohol use and of the (physical and psychiatric) treatment status of all respondents were also charted.

For the analysis of chart data, operational rules concerning the course status of episodes were imposed; the general principles applied were those of the RDC. Conditions were classified broadly into affective and anxiety states, including an indicator of the confidence with which diagnostic status had been assigned, and further according to a measure of their chronicity. Episode data were coded, taking account or not (as appropriate) of the hierarchical rules that operate within the very narrow range of disorders assessed. To achieve this, ratings were made (1) of the 'primary' condition, with all other co-occurring conditions also allowed for, and (2) without imposing those rules concerning co-occurrence of episodes. In addition to these ratings, codes were assigned to indicate the status of the episodes (onset or offset) at the time of the follow-up interview. The 'episode rules', though developed specifically for this project, largely overlap with the strategies proposed by Frank *et al* (1991) which were designed to bring some consistency to this research area. The rules applied to these data reflect that same perceived need as expressed by Frank *et al*, but have also had to accommodate the problems associated with rating the co-occurrence of conditions. This paper will present results based upon this approach to summarising the course data, as well as on an analysis of the 'raw' PSRs, thereby providing a more

comprehensive insight into the morbidity experienced by the samples over the period of the study.

An initial interview was designed to be completed about four weeks after each 'target event' had occurred (in practice this was undertaken, on average, about 6–7 weeks after). This initial interview included assessments of the life stress and psychiatric status of each respondent over the period from six months before the event occurred, up to the time of interview. A follow-up assessment was completed between 3 and 4 months after the first, and covered the period between interviews. The principal parts of the initial assessment were repeated at follow-up.

## Results

Full details concerning numbers of subjects approached, refusal rates at first interview and at follow-up, and the demographic characteristics of the three groups of women, are given elsewhere (Surtees & Miller, 1993). In brief, at first interview, 174 'coronary wives' were approached and 143 (82.2%) successfully interviewed. A sample of 85 widows was chosen, of whom 64 took part (76.2%); and 46 refuge seekers entered the study, of whom 32 (69.6%) participated. At the follow-up interview, these numbers fell to 126, 58 and 19 respectively. The refuge group proved particularly difficult both to recruit and to follow up. At follow-up, many of these women had either returned to their husbands, who were often violent and uncooperative, or had moved away from Edinburgh leaving no contact address.

An analysis of demographic characteristics showed that the refuge group were, on average, about 20 years younger than the other two groups (mean ages: coronary group 51.1, bereaved group 51.2, refuge group 31.2), and were significantly more likely to be working class and less likely to be in paid employment (see Surtees & Miller, 1993, for more details).

### Morbidity according to PSR status

Initial analyses focused upon the changing PSR status of the three samples over the study period. For present purposes, the prevalence of definite RDC conditions was then determined, based upon the presence of PSRs for one or more weeks within specific time periods. This enabled the analytic strategy to be based upon an assessment unit that represented the finest indicator of syndromal change available in the study. These periods were the six months and the four weeks immediately preceding the event, four weeks immediately following it and the total period after the event (weighted to six months). Estimates of prevalence were then determined for (any) depressive disorder, for MDD only and for (any) anxiety disorder. The analyses were undertaken for each of the three groups and the results are shown in Table 1.

The table shows, for example, that 16.8% of the coronary wives satisfied definite RDC for one or more conditions, for at least one week of the six months before the event, while 33.4% did so for the (weighted) 6-month period after the event, i.e. the rates had almost doubled. Note that while the unit of measurement for this analysis was one week, whenever subjects satisfied the RDC for a condition, then they would have always met the required duration criteria specified for that condition. The table shows that for the coronary wives the change in rates was most pronounced for anxiety disorders, with no change in MDD rates between the 4-week periods before and after the event. These results were in some contrast to those obtained for the recent widows, where rates from before to after the event increased by over 4½ times for (any) depressive disorder, 8.7 times for MDD and over twice for any anxiety disorder, all based upon equivalent 6-month assessment periods. For the refuge group, prevalence rates can be seen to be lower after the event than those for equivalent times before the event. Given the considerable loss to follow-up of this group, perhaps greater reliance should be placed on the contrast between the 4-week periods before and after the event.

Table 1 shows, on the basis of McNemar tests, the significance of changes in proportions of each sample meeting the RDC from the four weeks before, to the four weeks after the event. For the coronary wives, the changes in anxiety disorder rates were significant, while for the bereaved, increases in the rate of anxiety and of depressive disorders were significant. Among the refuge sample, only the change in MDD rates (a decrease) approached significance. Further indications of the changes in morbidity can be gained by examining the average time periods for which (definite) RDC conditions were sustained for each group, both before and after the event. For the coronary wives sample, this was about 11.6% of the 6-month period before each event (on average about three weeks), in contrast to about 16.4% of the equivalent (weighted) follow-up period, an increase of 40.7%. For the bereaved, equivalent values were 13.2% and 28.5% respectively, giving an increase of 215%. On average, each member of the refuge group had fulfilled the RDC for one or more disorders for about 10.5 weeks before entry to the refuge (40.5% of the pre-event study period) in contrast to only about 3 weeks (11.7%) of the equivalent weighted period after the event.

Table 1
RDC prevalence rates before and after the study events (%)

| At least 1 week at or above threshold level for the condition | Pre-event | | Post-event | | |
|---|---|---|---|---|---|
| | Weeks 1–26 % | Weeks 23–26 % | Weeks 27–30 % | (P)[1] | Based upon total post-event period[2] % |
| 'Coronary' wives ($n=143$) | | | | | |
| any condition | 16.8 | 12.6 | 21.7 | (0.001) | 33.4 |
| any depressive disorder | 11.9 | 9.8 | 11.2 | (NS) | 19.9 |
| major depressive disorder | 6.3 | 5.6 | 5.6 | (NS) | 8.1 |
| any anxiety disorder | 12.6 | 8.4 | 18.2 | (0.0001) | 27.1 |
| Bereaved women ($n=64$) | | | | | |
| any condition | 20.3 | 18.8 | 39.1 | (0.001) | 52.2 |
| any depressive disorder | 9.4 | 9.4 | 28.1 | (0.0018) | 42.6 |
| major depressive disorder | 3.1 | 3.1 | 17.2 | (0.0039) | 27.1 |
| any anxiety disorder | 17.2 | 15.6 | 28.1 | (0.0078) | 36.8 |
| Refuge dwellers ($n=32$) | | | | | |
| any condition | 53.1 | 46.9 | 28.1 | (NS) | 46.2 |
| any depressive disorder | 40.6 | 34.4 | 18.8 | (NS) | 32.3 |
| major depressive disorder | 28.1 | 18.8 | 3.1 | (0.06) | 9.2 |
| any anxiety disorder | 43.8 | 37.5 | 25.0 | (NS) | 36.9 |

1. McNemar test for the significance of change in proportion meeting RDC during four weeks before and four weeks following event (two-tailed exact *P* values).
2. Weighted to a 26-week period based upon an average follow-up of 20.1 weeks (coronary wives sample), 21.0 weeks (widows sample) and 17.6 weeks (refuge sample).

## Coexistence of 'PSR' morbidity

The coding of episode status in terms of PSRs provided a basis for examining the changes in conditions over time, and in particular the extent to which they co-occurred during the study period. As a precursor to a fuller investigation, and using the same unit of analysis for morbidity as in Table 1, RDC prevalence rates, comorbid for depressive and anxiety conditions, were determined for the (critical) 4-week periods before and after the event. The results are shown in Table 2.

For the coronary wives, while there was a moderate increase in the prevalence of states comorbid for depression and anxiety, the most marked change was in terms of an increase in 'pure' anxiety disorders. During the four weeks immediately following the event, 11 women met the RDC for (new) 'pure' anxiety disorders, a further one for a 'pure' depressive condition and two others for comorbid depression and anxiety states. Similar analyses for the bereaved women showed both an increase in 'pure' depressive disorders, and in those conditions comorbid for depression and anxiety. A total of 14 women in this sample met the morbidity criteria during the four weeks following the event who had not done so during the equivalent time period before the event. Of these, six developed comorbid states, a further six developed 'pure' depressive disorders and two women 'pure' anxiety disorders. For the refuge group, Table 2 shows that there was a decline in the prevalence of disorders following entry to the refuge. For eight of these women, disorders present during the four weeks before the event were no longer rated (at the 'definite' level) after the event.

Table 2
RDC comorbid prevalence rates (as a %) during the four weeks preceding and following the study events

| At least 1 week at RDC definite level | Pre-event Weeks 23–26 % | Post-event Weeks 27–30 % |
|---|---|---|
| 'Coronary' wives ($n=143$) | | |
| depressive disorder alone | 4.2 | 3.5 |
| anxiety disorder alone | 2.8 | 10.5 |
| depression & anxiety disorder | 5.6 | 7.7 |
| Bereaved women ($n=64$) | | |
| depressive disorder alone | 3.1 | 10.9 |
| anxiety disorder alone | 9.4 | 10.9 |
| depression & anxiety disorder | 6.3 | 17.2 |
| Refuge dwellers ($n=32$) | | |
| depressive disorder alone | 9.4 | 3.1 |
| anxiety disorder alone | 12.5 | 9.4 |
| depression & anxiety disorder | 25.0 | 15.6 |

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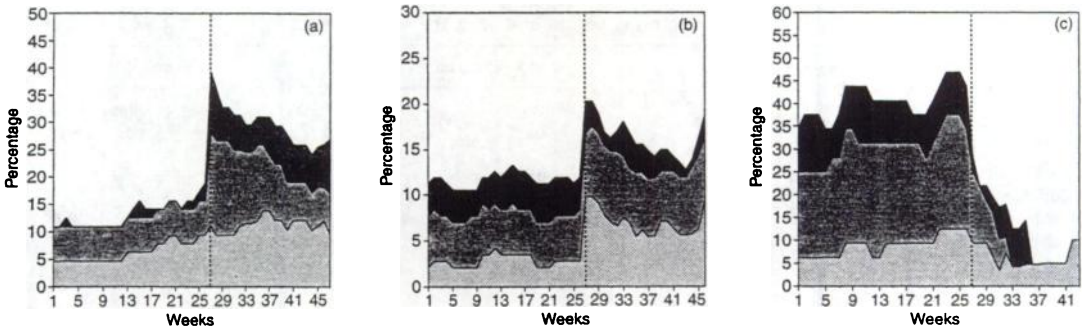


Fig. 1 Mean weekly prevalence rates of RDC depression and anxiety disorders for (a) the bereaved group, (b) the 'coronary wives' group and (c) the refuge group. □, Anxiety disorder only; ■, Concurrent depression and anxiety, ■, Depressive disorder only.

To gain a more complete understanding of the changing comorbidity status of the samples both before and after exposure to the event, analyses were undertaken that focused upon the weekly PSR status of the samples throughout their respective study periods. For these analyses, the unit of measurement was once again the PSRs and taken to indicate that a definite RDC condition was present. As there were losses to follow-up and some slight variation in the follow-up periods covered for each sample, a study period criterion needed to be applied, to set limits to the determination of the weekly sequence of estimates of cross-sectional prevalence. For these purposes, prevalence rates were only calculated if data from at least 60% of the sample were available. The application of this criterion restricted the available study time for analysis for these purposes, to weeks 1–46 for the coronary wives, weeks 1–47 for the bereaved, and weeks 1–43 for the refuge group (where the greatest losses to follow-up had occurred). A particular objective of these analyses was to establish the extent to which morbidity expression was either concurrent for both depression and anxiety disorders, or specific to 'pure' states only. Of further interest was the extent of adaptation after the event, represented by a reduction in PSR prevalence levels with time.

Average weekly prevalence estimates of RDC disorders, based upon the PSRs, were determined for each of the 26 weeks preceding, and for the available weeks following, event occurrence up to the time when at least 60% of each sample was still able to contribute data. Weekly prevalence rates were determined for 'pure' depressive and 'pure' anxiety disorders and for those states concurrent for both RDC depressive and anxiety disorders (i.e. within any one of the study weeks the PSRs were required to indicate that both depressive and anxiety disorders were present, with each meeting definite RDC criteria). The results for the three groups are shown in Fig. 1. This reveals the changes in the percentage of each sample satisfying the applied diagnostic criteria.

These results show (for the first time at this level of detail) the impact in mental health terms of three very different adverse experiences. For the bereaved (Fig. 1a), 'pure' depressive conditions were relatively rare during the six months before the husband's death. Following the bereavement, changes in prevalence rates were most marked for concurrent states, which over the period of the follow-up appeared to be those that started to resolve first and within four months of the event. During the same period, however, little change was evident in the weekly prevalence estimate of either 'pure' anxiety or 'pure' depressive disorders. Some four months after bereavement, about 25% of the sample still fulfilled the applied diagnostic criteria (in these PSR terms).

The results for the 'coronary wives' (Fig. 1b) present a rather different profile of changing morbidity. During the six months before these MI events, the average total weekly prevalence of disorder was very similar to that among the bereaved group; however, the expression of morbidity among the two samples differed in the prevalence of 'pure' depressive disorder before the event. Approximately 25% of the average weekly pre-event morbidity for the coronary wives involved 'pure' depressive conditions, whereas such presentations (in these measurement terms) were almost totally absent among the bereaved. For the coronary wives, following the event, there was an increase in rates, most marked for anxiety disorders, which (as a percentage of total weekly morbidity) was maintained until the follow-up interview. Clearly evident, however, was the reduction in overall weekly

Table 3
Anatomy of RDC episodes for the study groups

| Time of onset | Episode outcome and timing of recovery | | | | | | Totals | |
|---|---|---|---|---|---|---|---|---|
| | Recovered prior to event | | Recovered during period following event | | Episode still continuing at the time of last interview | | | |
| | *n* | % | *n* | % | *n* | % | *n* | % |
| Coronary group | | | | | | | | |
| >6 months prior to MI | 5 | 7.9 | 5 | 7.9 | 11 | 17.5 | 21 | 33.3 |
| Within the study period & preceding the timing of MI | 3 | 4.8 | 4 | 6.4 | 3 | 4.8 | 10 | 15.9 |
| Within the study period & following the timing of MI | | | 17 | 27.0 | 15 | 23.8 | 32 | 50.8 |
| Totals | 8 | 12.7 | 26 | 41.3 | 29 | 46.0 | 63 | 100.0 |
| Bereaved group | | | | | | | | |
| >6 months prior to bereavement | | | 1 | 2.9 | 5 | 14.3 | 6 | 17.1 |
| Within the study period & preceding the timing of bereavement | 1 | 2.9 | 4 | 11.4 | 4 | 11.4 | 9 | 25.7 |
| Within the study period & following the timing of bereavement | | | 3 | 8.6 | 17 | 48.6 | 20 | 57.1 |
| Totals | 1 | 2.9 | 8 | 22.9 | 26 | 74.3 | 35 | 100.0 |
| Refuge group | | | | | | | | |
| >6 months prior to refuge entry | 1 | 4.8 | 5 | 23.8 | 8 | 38.1 | 14 | 66.7 |
| Within the study period & preceding the timing of refuge entry | | | 3 | 14.3 | 1 | 4.8 | 4 | 19.0 |
| Within the study period & following the timing of refuge entry | | | 2 | 9.5 | 1 | 4.8 | 3 | 14.3 |
| Totals | 1 | 4.8 | 10 | 47.6 | 10 | 47.6 | 21 | 100.0 |

prevalence rates, to approximately the level before the event, suggesting the time frame for adaptation to the consequence of the experience, although the prevalence estimate of 'pure' depressive disorders had not returned within this time period to the levels assessed before the event occurrence. There was also a suggestion of an overall rise in rates just before follow-up, but this is likely to be an artefact associated with the drop-off in the sample size and the monitoring of relatively rare changes in episode status.

Figure 1c shows the equivalent results for the refuge group, and illustrates the very high prevalence rates of RDC disorder present throughout the six months before entry to the refuge, and the rapid reduction in rates once the women felt protected. Particularly notable were the changes in the form of the expression of morbidity during the study period. Approximately 50% of the rated morbidity involved concurrent states of anxiety and depression during the six months before the event, while within two months of entry to the refuge the only residual morbidity was 'pure' anxiety disorders.

## Episode status

The PSRs provided a basis for a macro-level analysis of the change in morbidity over time. However, the application of formal episode status criteria to these data had to take account of the coexistence of different conditions, of specifying when remission and residual symptom criteria were met, estimating when episodes began and ended, and of the imposition of a minimum criterion interval between episodes. For these purposes, the criteria applied took account of the charted PSRs but also embodied the detailed episode status rules described earlier. Of special interest is the timing of the episodes relative to the time period studied, and in particular to the adverse experiences that had recruited the women to the study. To illustrate these relationships, all episodes were characterised (including those where some uncertainty was attached to syndromal status, mostly arising from their remoteness from interview) according to the time of their onset (whether they had occurred outside the study period, or within; and if within, whether before or after the event) and according to the history of the episodes within the study period; in particular, whether (and when) there had been recovery. The results are shown in Table 3 and are sub-divided according to group.

The importance of assessing episode status is immediately apparent; the table reveals the relatively large extent to which the onset of episodes, in both the coronary and bereaved groups, pre-dated

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Table 4
RDC six month inception rates (as %) preceding and following the coronary and bereavement events

| RDC primary diagnosis | 6 months before event | | Post-event period[1] | |
|---|---|---|---|---|
| | *n* | % | *n* | % |
| Coronary group ($n=143$) | | | | |
| all conditions | 10 | 8.2 | 28 | 33.6 |
| anxiety disorders only | 5 | 4.1 | 17 | 20.4 |
| depressive disorders only | 5 | 4.1 | 11 | 13.2 |
| Bereaved group ($n=64$) | | | | |
| all conditions | 8 | 13.8 | 20 | 50.6 |
| anxiety disorders only | 3 | 5.2 | 1 | 2.5 |
| depressive disorders only | 5 | 8.6 | 19 | 48.1 |

1. Rates weighted to a six-month post event period based upon a group of 112 wives of MI spouses followed up for an average of 19.35 weeks and for 50 recently bereaved women followed up for an average of 20.54 weeks.

the timing of the study events. (This issue has little relevance for the refuge group, where marital relationships were characterised by major long-term difficulties, frequently involving violence. It was expected therefore that the assessments would reveal episodes pre-dating refuge entry.)

A total of 63 episodes were rated among the coronary wives, with four women experiencing two discrete episodes. Of the episodes, 21 were rated with a reduced confidence concerning aspects of their assessment. However, of the total number of episodes, almost half ($n=31$, 49.2%) were assessed as having an onset before the occurrence of the event. Of the 32 episodes, where onset post-dated the occurrence of the MI, about half recovered within the remaining study time, and about half had episodes that were still continuing at the time of their last study interview.

The pattern of morbidity for the bereaved group differed markedly from that for the coronary wives. A total of 35 discrete episodes was rated, one woman having two episodes; 11 episodes were rated with reduced confidence. However, almost 60% (20/35) of the episodes had an onset within the study period and after the time of bereavement. Perhaps not surprisingly, most (85%) of these had not remitted by the end of the assessment period. This illustrates the difference between the event experiences of the coronary and bereaved groups, in terms of their impact, and the resulting period of adaptation required to start to come to terms with their consequences. It should also be noted that just over 40% of the episodes assessed for the bereaved group had onsets that pre-dated the loss events.

For the refuge sample, about 85% of episodes had an onset before entry to the refuge, but although the post-event period studied for this group was limited by losses to follow-up, almost 50% of episodes remitted during this time. Of those episodes that were still continuing at the end of the study period, most were of a chronic nature, with onsets assessed as occurring more than six months before entry to the refuge (see Table 3).

## Inception

The results of the episode-based analyses summarised in Table 3 revealed the degree to which new episodes of RDC disorder developed both before and after the events occurred. However, of additional interest was the determination of person-based inception rates, by diagnostic class, for the three groups; these were based upon the 6-month period before the event and the available periods after the events (which were weighted to a 6-month period). The results are shown in Table 4 for the coronary and bereaved groups only; too few of the refuge sample had episodes developing within the study period to justify analysis.

Among the coronary wives, 21 women were in an episode of RDC disorder during the first week of the study period. Of the 122 remaining women who were well, ten developed episodes within the first six months of the study and before the event occurred. During the available post-event period, 28 of the 112 women who had been well at the beginning of this period developed new primary episodes of RDC disorders. Table 4 shows an increase in inception rates for anxiety disorders by about five times over the pre- to post-event period, and in depressive disorder rates, over three times.

For the bereaved group, six women fulfilled RDC criteria during the first week of the study, with eight developing disorders during the first 6-month period before the event. Of the 50 women who remained well, in RDC terms, up to and including week 26, 20 developed RDC disorders during the period following their loss events (i.e. an increase of 5.6 times in the inception rates of primary depressive disorder). The development of new episodes of anxiety disorder during the post-event period was rare.

## Periods of professional care

As indicated above, details were charted of all periods of professional care during the study, by the nature of that care. Initial analyses of these data provided an indication of the change in demand for services following the events. The analyses

Table 5
Rates (as %) of periods of professional care per six months preceding and following the coronary, bereavement and refuge entry events

| Group and health care | Pre-event | | Post-event | |
|---|---|---|---|---|
| | Prevalence | Inception | Prevalence[1] | Inception[2] |
| Coronary wives | | | | |
| At least 1 psychiatric health care period with: | | | | |
| GP | 12.6 | 3.1 | 19.0 | 8.3 |
| Hospital services | 1.4 | 0.7 | 0.9 | 0.0 |
| At least 1 physical health care period with: | | | | |
| GP | 43.4 | 23.2 | 67.8 | 39.1 |
| Hospital services | 12.6 | 8.1 | 24.4 | 21.5 |
| Bereaved women | | | | |
| At least 1 psychiatric health care period with: | | | | |
| GP | 29.7 | 21.1 | 54.2 | 39.6 |
| Hospital services | 0.0 | 0.0 | 0.0 | 0.0 |
| At least 1 physical health care period with: | | | | |
| GP | 42.2 | 28.0 | 67.7 | 43.3 |
| Hospital services | 9.4 | 7.9 | 19.4 | 15.1 |
| Refuge sample | | | | |
| At least 1 psychiatric health care period with: | | | | |
| GP | 31.3 | 18.5 | 32.3 | 31.5 |
| Hospital services | 9.4 | 9.4 | 0.0 | 0.0 |
| At least 1 physical health care period with: | | | | |
| GP | 28.1 | 14.8 | 46.2 | 28.3 |
| Hospital services | 25.0 | 25.0 | 23.1 | 24.6 |

1. Rates weighted to a 6-month post-event period based upon an average follow-up of 20.1 weeks (for the coronary wives), 21.0 weeks (widows) and 17.6 weeks (refuge sample).
2. Rates weighted to a 6-month post-event period based upon the average follow-up time in weeks available for each sample subgroup who had received no care in each category during the six months before the event.

determined estimates of the rate at which periods of care had been provided to the women in the three groups. Such care was classified according to whether it was directed towards alleviating a physical condition or a problem of psychogenic origin, and according to the nature of the care offered (in-patient, GP patient etc). Care period prevalence rates were determined for the six months before the event and for an equivalent (weighted) period after the event. In addition, estimates of the rate of coming into care were determined for both the pre- and post-event periods. The results are shown in Table 5.

These data should be interpreted with some caution, given the inexact specification of what constitutes a period of professional care, but they do offer some insight into the use of professional services both before and after adverse experiences. They suggest that the burden of care of psychiatric health needs was shouldered almost entirely by GPs. No women entered a new period of psychiatric care provided by hospital-based services during the post-event period.

Given the very different nature of the events defining each of the three groups, it is perhaps not unexpected that their use of services should differ. While the bereaved and coronary wives differed little in terms of their use of GP services for physical complaints, the table shows that they differed markedly in their use of care arising from psychiatric needs. The prevalence and inception rates of GP care periods (for psychiatric complaints) increased for both groups following their experiences. However, while the change in rates was greatest for the coronary wives, substantially more of the bereaved group than of the coronary wives were consulting their GPs, both before and after their respective experiences. During the period before the events the inception rate for the bereaved was 6.8 times that of the coronary wives; 4.8 times based upon the equivalent comparison following the events. During the period after the event, 54.2% of the bereaved group consulted their GP for reasons attributed to psychological causes, in contrast to 19% of the coronary wives, a ratio of prevalence rates of 2.85 : 1; the equivalent ratio of inception rates for the two groups from this same source of care was 4.8 : 1. The results of analyses based upon the refuge group were of uncertain value because of the small number

of women followed up. However, they do suggest that use of psychiatric hospital services only occurred during the period before the event, with greater use of GP services for psychiatric complaints occurring during the follow-up.

## Discussion

This study has brought together two established approaches to measurement within an event-specific research design. These enabled us to obtain both a detailed history of the changes in psychiatric morbidity of the women, and measures of the adversity experienced over the study period. This paper has, however, been concerned only with establishing the nature and extent of psychiatric morbidity in the three groups, as if no other adverse experiences had occurred apart from those for which the women were recruited into the study. Attempts to seek factors that distinguish the patterns of outcome described (e.g. in terms of psychosocial factors, individual attributes, characteristics of the main study events or of other events that were experienced) will be addressed in further work.

Two analytic approaches to the morbidity experienced by the women were adopted. The first focused upon changes in the prevalence of particular PSR levels, while the second was based upon the episode status of the samples. The methods complemented each other and, perhaps for the first time, it was possible to provide evidence of the psychiatric consequence of major change events in considerable detail. However, it should also be acknowledged that the imposition of operational diagnostic rules for depression and anxiety disorder provides no key for gaining a greater understanding of, for instance, the distinction between normal and abnormal grief. The application of formal diagnostic rules (e.g. DSM–III–R) remain unhelpful to research in this area (for a discussion of these issues see Jacobs, 1993, Ch. 9).

The illustrations of the sequential change in 'pure' and comorbid states, apart from indicating the absolute levels of disorder, may also be representative of an underlying process of ideational adaptation necessary to start to come to terms with the meaning of each event. For the bereaved group, the follow-up period was clearly inadequate to return to levels of morbidity prevailing before the event. However, it appeared to have been long enough to show a considerable change in those conditions comorbid for depression and anxiety, suggesting that such changes may be among the first signs of adaptation to the loss.

The results show that for the coronary group, overall prevalence of disorder doubled following the MI, and that this increase was largely accounted for by anxiety disorder. The analyses of inception indicate that the anxiety rate during the period after the event was almost five times that before the event, but that there was also an increase of more than three times in rates of depressive disorder. The equivalent findings for the bereaved group illustrate the psychiatric consequences of a severe loss event: namely, an increase of more than eight times in the prevalence rates of MDD and of more than twice in anxiety disorder. The inception analysis showed that rates of depressive disorder had increased over five times following the loss.

The time available for follow-up limited the opportunity to observe episodes to their complete resolution. However, differences in the course of those episodes whose onset had post-dated the event should perhaps be seen as reflecting individual variation in the wives' capacity to deal with adversity, and also the very different circumstances of the marital relationships concerned. For 58.7% of the coronary wives, no episode of RDC anxiety or of depression was rated at any time during the study. Of the 32 onsets post-dating the occurrence of the MI, about half recovered within the remaining study time. These subgroups, differentiated by their pattern of post-event diagnostic morbidity (none recorded, episodes resolved, episodes continuing) may provide one basis for identifying those individuals and contextual factors associated with resilience to this adverse experience. For the bereaved group, faced as they were by actual (rather than threatened) loss, the psychiatric consequences were demonstrably greater than those experienced by the (similarly aged) coronary group. However, for 46.9% of the bereaved, no RDC episodes were rated within the (entire) study time. It is possible that for a small subgroup, the onset of episodes may have been delayed beyond the follow-up time available. These percentages reveal the extent to which so many women were able to deal with their grief without developing severe and sustained symptoms sufficient to meet the RDC criteria. A further variation from the results based upon the coronary wives concerns the percentage of post-event inception episodes where offset was also recorded. For the bereaved group, this was only 15%, providing further evidence of the difference in the consequences of these two events.

Comparison of these findings with the work of others is difficult for a number of reasons. In particular, no other published results based upon an event-specific design would appear to have reported

findings at this level of psychiatric detail. A further significant problem concerns the generally low participation rates obtained in studies of the recently bereaved (e.g. about 58% in the studies of both Clayton (1974) and Jacobs *et al* (1990), adding to the difficulty of comparing findings. One early study of particular interest was that undertaken by Parkes (1970, 1986) of a small group of London widows. The results are relevant now as "an attempt was made to assess, from self-reports and from observations, the severity of emotional upset during the early months (following bereavement)" (Parkes, 1986, p 158). Based upon two interviews completed during the first 3 months following the loss, Parkes produced a figure illustrating the variation in overall disturbance (due to the symptoms of anxiety and depression rated on a 5-point scale) during this time. This strategy, designed to document the course of emotional disturbance, enabled Parkes to classify the widows into groups according to the immediacy and severity of their emotional disturbance. While no formal diagnostic criteria were applied and the concern was with post-bereavement status, the methodological approach embodies the objectives addressed in some detail in the present study.

Large-sample probabilistic studies, such as the Americans' Changing Lives (ACL) study (Wortman *et al*, 1993), represent an alternative approach to that of measurement-intensive small-scale studies investigating the precursors and sequelae to loss. Wortman *et al* describe how in 1986, a total of 3617 personal interviews were undertaken with a probability sample of adults aged 25 years or older. The design included the over-sampling of certain groups (e.g. the over-60s) to maximise the number of widowed respondents. During 1989, 2867 of the original sample were re-interviewed. A total of 616 respondents were re-interviewed who had been widowed for between three months and over 60 years. The family of sub-studies that were undertaken (for instance, on groups bereaved within the interval between initial and follow-up interviews), enabling pre-bereavement measures to be obtained, together with the use of control groups, should enable a detailed study to be made of factors related to outcome. However, while measures of depression were assessed before the loss, it is unclear whether any attempt was made to evaluate mental health throughout the study period.

One issue raised by the present study concerned the longitudinal assessment and analysis of states comorbid for anxiety and depressive disorder. This is a general concern, not unique to studies of adversity investigating the 'specificity hypothesis'. Feinstein (1970) appears to have been the first to use the term 'comorbidity' in the context of an 'additional clinical entity' occurring during the course of another (non-psychiatric) disorder under study. However, the term has been used in psychiatry (and psychiatric epidemiology in particular) with different meanings (see Maser & Cloninger, 1990). Of particular note is the distinction between lifetime comorbidity (where discrete episodes of disorders with different diagnoses have occurred) and intra-episode (or current) comorbidity, where diagnostic criteria are satisfied for more than one psychiatric condition at the same time. It is clear that to start to disentangle the evolution of 'pure' from comorbid states will depend upon the application of measures of psychiatric morbidity of the highest resolution, together with a common definition of the term 'comorbidity'. It is also likely that the determinants of lifetime (as opposed to intra-episode) comorbidity will be found to differ. The recently completed National Comorbidity Survey (NCS) of 8098 respondents from the US population aged 15–54 years, was designed to study issues associated with the comorbidity of psychiatric disorders (Kessler *et al*, 1994). For instance, the objectives include identifying factors associated with the progressive evolution of different (multiple) diagnostic states and the examination of the consequence of allowing plasticity in diagnostic criteria. The achievement of these NCS objectives will depend upon the level of measurement resolution of the data and the extent to which multiple episodes experienced by the same individual can be distinguished.

This paper has shown how far psychiatric morbidity both preceded and followed the experience of three very different forms of adversity. However, while the women were grouped on the basis of their specific adverse experiences, and while these experiences will have limited the amount of variation in overall exposure to adversity among members of each group, substantial differences will still have remained. Any explanation for differences in psychiatric outcome between groups will have to take into consideration the meaning which each member attributed to her experience, the occurrence of other (perhaps equally stressful and unrelated) experiences, and the personal and material resources of members to deal with the consequences of their particular adversity. Variations in the prior experience of threatened (or actual) loss and inhibitions in the expression of reactions to adverse experience (Parkes *et al*, 1993) may also provide a basis for a fuller understanding of the short-term outcome of the women in this study. Such issues will form the basis for the future analysis of these data.

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**P. G. Surtees**, PhD, MRC Biostatistics Unit, Institute of Public Health, University Forvie Site, Robinson Way, Cambridge CB2 2SR.



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