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## Recent Undesirable Life Events and Psychiatric Disorder in Childhood and Adolescence

I. GOODYER, I. KOLVIN and S. GATZANIS

A sample of children and adolescents ( $n = 157$ ) attending a child psychiatry out-patient clinic with conduct or emotional disturbance were compared with community controls ( $n = 76$ ) for the number and type of recent life events. A Life Events Schedule for children and adolescents was developed and used as a semi-structured interview. Four clinical groups were identified according to their predominant presenting symptoms (conduct, mild mood, severe mood, or somatic). An excess of events carrying a severe degree of negative impact was found for all four groups, compared with matched controls. Eleven classes of events were examined: there is a suggestion that two classes (marital/family, accident/illness) may be more important for conduct and mild mood disorders, and that a further class (permanent separations, termed exits) may be more important for somatic and severe mood disorders.

In recent years, considerable attention has been paid to the role of psycho-social factors in the psychiatric disorders of childhood and adolescence. An increased incidence of psychiatric disorder in children exposed to markedly adverse circumstances of family life, including difficult socio-economic conditions, has led to the concept of the 'child at risk' for psychiatric disorders (Anthony & Koupernick, 1974; Madge, 1982). However, research has concentrated on relatively chronic ongoing stresses in a child's life, and the relationship between acute stress and the onset of psychiatric disorder is less well understood (Rutter, 1981).

A few studies have examined whether or not acute stressful life events provoked or precipitated illness in children. Meyer & Haggerty (1962) found an excess of stressful events in a quarter of cases with proven streptococcal throat infection; they suggested that for some children, external stressors significantly increased the risk of upper respiratory tract infection. Douglas (1975) examined longitudinally the relationship between certain stressful life events and subsequent enuresis, finding that a child who had experienced four or more stressful events between the ages of three and four was twice as likely to be enuretic as a child who had experienced none. This suggests that the normal learning of bladder control can be disrupted by stressful experiences. Both Heisel *et al* (1973) and Kashani *et al* (1981) showed that children hospitalised for either psychiatric or paediatric illness had a significantly greater number of stressful life events than matched controls.

The latter authors concluded that there was no causal relationship between life events and onset of illness, but acknowledged that improved methodology for studying life events was required before any firm conclusions could be reached. Vincent & Rosenstock's (1979) study of in-patient adolescents showed that prior to hospitalisation, those with psychiatric disorders had suffered more stressful events than those with physical disorders, while Hudgens (1974) noted a relationship between a group of personal stressors and depression in adolescents with medical disorders. Finally, Cohen-Sandler *et al* (1982) retrospectively examined from medical records the amount of stress in suicidal depressed and non-depressed children respectively, finding significantly more stress in the suicidal group.

Although these studies suggest an association between acute stress and psychiatric disorder, most of them are subject to the criticism of Brown & Harris (1978) for the method of collecting and recording life events. Thus, none considered the independence of recent life events from illness or the severity of life events in terms of threat or impact on the child. Therefore, recent life events may be a consequence as much as a cause of illness or of illness-determined behaviour.

A number of studies have examined the effects of particular stressors on the development of psychiatric disorder. Three events—parental divorce, birth of a sibling, and hospitalisation of a child—have been shown to be associated with subsequent disturbed behaviour in some children

(Wallerstein & Kelly, 1980; Dunn *et al.*, 1981; Douglas, 1975; Quinton & Rutter, 1976).

Studies on adult populations have looked for specific relationships between types of events and psychiatric disorder and in general, suggest that events categorised as strongly undesirable, i.e. carrying a degree of threat and involving permanent loss or separation, are related to the onset of depression (Brown & Harris, 1978; Paykel *et al.*, 1969; 1980).

In this paper, we report the findings of a study examining the relationship between life events and the onset of psychiatric disorder in childhood and adolescence. The hypothesis being tested is that independent life events carrying a severe negative impact are more common in psychiatric cases than in community controls. A second hypothesis tested is that specific relationships exist between classes of events and types of psychiatric disorder.

### Method

The study utilised a case-control design. The patient sample was drawn from children referred to the routine outpatient clinic of the Nuffield Child Psychiatry Department in the city of Newcastle upon Tyne in the 12-month period between August 1981–1982. The community controls were drawn from the same geographical area.

**Admission criteria to the study were:** 1) A child of school age; 2) onset of disorder no earlier than 12 months prior to referral; 3) a mother (or mother surrogate) who has had charge of the child for a continuous period of 12 months prior to referral.

**Defining onset of illness for psychiatric cases:** Onset of illness was defined as: 1) the presence of signs and symptoms previously not present, or, 2) a marked change in the frequency, duration, and quality of signs and symptoms which resulted in referral.

For those cases whose onset of illness was established by the second method, dating of onset was arrived at by careful interviewing of the mother by a member of the research team (IG or SG). Date of onset corresponded to mother's earliest perceived appraisal of change suggesting that her child might be emotionally or behaviourally disturbed.

No child in the study had a duration of illness longer than 12 months, and the mean duration of symptoms for all psychiatric disorders was four months. Therefore, the time-period over which mothers had to recall life events was no more than 24 months, with the mean duration of recall time being 16 months.

**Diagnostic criteria for psychiatric cases:** The psychiatrist clinically responsible for each case was asked to provide a diagnosis according to operational criteria based on a modification of a clinical classification devised for use in a

routine child psychiatric clinic (Wrate & Kolvin, 1979). Four categories of psychiatric disorder were devised for analysis, which are mutually exclusive with respect to the predominant presenting symptoms: 1) *Conduct disorder* ( $n=44$ ): children presenting predominantly with symptoms of anti-social behaviour such as stealing, cruelty, destructiveness, and bullying; 2) *mild emotional disorder* ( $n=55$ ): children presenting predominantly with symptoms of mild anxiety, including transient states of anxiety, fearfulness and misery, adolescent rebellion, and parasuicide attempts in the absence of other psychiatric disturbance; 3) *severe emotional disorder* ( $n=32$ ): children presenting predominantly with symptoms of depression or with serious neurotic symptoms. This group includes depression, phobic and obsessional states, school refusal, and suicide attempts in the presence of affective disorder; and 4) *somatic disorder* ( $n=26$ ): children presenting predominantly with physical signs and symptoms of psychological origin. Such symptoms include vague aches and pains, monosymptomatic hysteria, complex medical problems (e.g. diabetes, asthma), and secondary encopresis and enuresis, occurring in the absence of any other predominant clinical features.

**Selection of community controls:** The name, sex, date of birth, and school was recorded for each case and a table of random numbers used to select 50% of this sample. The different schools were then noted; 36 were identified from three educational areas (city of Newcastle upon Tyne, North Tyneside, and Northumberland). Following the agreement of each of the Directors of Education concerned, a pool of controls was obtained by asking the head teachers to provide the names and addresses of three children on the school register who were of the same age and sex as the child referred to the unit and attending the same school. The intention was to collect sufficient controls to allow comparisons to be made with the clinical sub-groups described below. A letter requesting an interview was then sent to all the subjects first listed by their schools, then the second, and then the third. The procedure was halted when interviews on 76 controls had been completed.

**Comparison of cases and controls:** The four clinical groups were analysed independently of each other. In order to make comparisons, the controls were treated as a pool of subjects, and equal numbers were matched for age, sex, and social class with the four clinical groups. Two-tailed t-tests confirmed that there were no significant differences in age between clinical groups and their matched controls. Thus, some community subjects may be involved in more than one control group.

A *Children's Life Event Schedule (CLES)* was developed to collect information on recent life events, and was derived from Kolvin's (1984) adaptation of Coddington's (1972) life event scale for children and adolescents. Some modifications expanded the numbers of events and included guidelines for the collection of contextual information of positive events. The schedule was administered by a trained interviewer; it was designed for

use with a school-aged population of children, and was conducted with the mother (or mother surrogate) as a semi-structured interview. The schedule contains 66 clearly worded events, with operational definitions, categorised into nine classes of events (see below). The interviewer enquires, by means of a general paragraph, about each class of events, and then specifically about each event in that class. Detailed questioning determined the exact timing, nature, and circumstance of each event that had occurred, in the 12 months prior to onset of the disorder.

The schedule was administered to mothers of psychiatric cases in the clinic and to mothers of community controls in their homes. The setting did not influence the course of the interview or the information collected. All interviews were carried out by two of the authors. Following preliminary piloting of both the instrument and the interview method, a reliability study established that interviewers were able to collect life event information in a systematic manner and accurately to date the onset of illness. Twenty consecutive clinic attenders were interviewed alternately by each interviewer, with the other present and concurrently recording information. Agreement of greater than 90% was obtained for the presence or absence of events and for dating the onset of illness.

Two ratings of events were made, based on the work of Paykel *et al* (1980; 1983). The first, *objective negative impact* used a five-point scale to rate the degree of negative impact the event would be expected to have on a child, when its full nature and circumstances were taken into account. This rating ignored the mother's subjective reports of the event and was made by a social worker, child psychiatrist, and clinical child psychologist who did not know whether or not the events came from a case or control. They were presented with a vignette of each event, containing contextual information including the child's age, sex, and the presence of any permanent disabilities which might have altered the impact of an event. This information is important, as the impact of events may change with development. Raters recorded the degree of impact independently, and then compared their ratings; where differences occurred, discussion brought about a consensus rating. For 233 subjects, 1116 events were rated; agreement between pairs of raters prior to discussion was 86% (complete agreement 65% and one-point difference 21%), but this figure may over-estimate agreement, because consensual ratings may influence raters into a convergent view of impact. Paykel (1983) conducted an inter-rater reliability study on impact ratings in adults where agreement between pairs of raters (complete and one-point difference) was 76%.

The second measure, *independence*, was also rated on a five-point scale, and considered the likelihood that an event was not a consequence or potential consequence of illness or illness-determined behaviour. This rating was made by the first author on all subjects and for all events. Some events (e.g. bereavements, illnesses) are almost always independent of the subject, but many events depend on particular circumstances. A conservative view of independence was taken so that any error would under-

estimate the number of independent events. Paykel (1983) has reported an inter-rater agreement of 87% (complete and one-point difference) between pairs of raters for the measure of independence of events in adult psychiatric disorder.

*Classifying life events.* Only events that were rated as independent of illness were classified and analysed. These independent events were then grouped in three ways: 1) by their *degree of negative impact*, divided into two groups—moderate to severe impact and mild or no impact; 2) *general characteristics*, which resulted in nine types of events: family and marriage, accident and illness, school, bereavement, migration, employment, social relations, legal, disasters; 3) classified as *recent permanent separations or additions to the child's social network*, referred to as *exit or entrance events* respectively (Paykel *et al*, 1969).

## Results

### *Characteristics of the clinic sample*

Forty-four (28%) of the clinic sample were classified as predominantly conduct-disordered; their age range was 4.7–15.4 years (mean = 11.19, s.d. = 2.89), with 30 boys (68%) and 14 girls (32%). Fifty-five (35%) were classified as predominantly mild mood-disordered and their age-range was 4.7–16.1 years (mean = 11.28, s.d. = 2.92) with 33 (60%) boys and 22 (40%) girls. Thirty-two (20%) were classified as predominantly severely mood-disordered, with an age-range 9.25–15.75 years (mean = 12.78, s.d. = 1.88), and 14 (44%) were boys and 18 (56%) girls. Twenty-six (17%) were classified as predominantly somatic disordered, with an age-range 4.83–16.25 years (mean = 10.1, s.d. = 3.37), and 12 (46%) were boys and 14 (54%) girls.

### *Severe vs mild events*

The means for mild and severe events were calculated for each diagnostic group, and their controls matched for age, sex, and social class. T-tests were used to test for significant differences between each clinical group and their matched controls. The results are shown in Tables I and II. For mild events, only the conduct disorders have significantly more events than controls ( $P < 0.05$ ). For severe events, all four diagnostic groups had significantly more events than controls, these differences being highly significant (conduct, mild mood somatic all  $P < 0.001$ , severe mood  $P < 0.01$ ).

The proportion of subjects experiencing one or more severe events was examined for each diagnostic group and matched controls. For conduct disorders, 27 (61%) cases experienced one or more severe events, compared with 13 (29%) controls ( $\chi^2 = 7.745$ , d.f. = 1,  $P < 0.01$ ). For mild emotional disorders, 35 (64%) cases against 16 (29%) controls ( $\chi^2 = 11.844$ , d.f. = 1,  $P < 0.001$ ). For severe emotional disorders, 17 (53%) cases against 5 (16%) controls ( $\chi^2 = 8.380$ , d.f. = 1,  $P < 0.01$ ), and for somatic disorders 17 (65%) cases against 4 (15%) controls ( $\chi^2 = 11.502$ , d.f. = 1,  $P < 0.001$ ).

TABLE I

A comparison between the clinical groups and their matched community controls for the mean number of independent life events carrying a mild or no degree of negative impact in the 12 months prior to onset of illness in cases or prior to the day of interview for controls

Diagnostic group		Number of cases	Mean number of events	t	Degrees of freedom	Two-tailed probability
Conduct	Cases	44	3.39	2.08	86	0.05
	Controls	44	2.66			
Mild mood	Cases	55	2.96	1.30	108	NS
	Controls	55	2.61			
Severe mood	Cases	32	2.19	-0.27	62	NS
	Controls	32	2.25			
Somatic	Cases	26	3.03	0.67	50	NS
	Controls	26	2.73			

TABLE II

A comparison between the clinical groups and their matched community controls for the mean number of independent life events carrying a moderate to severe degree of negative impact in the 12 months prior to onset of illness in cases or prior to the day of interview for controls

Diagnostic group		Number of cases	Mean number of events	t	Degrees of freedom	Two-tailed probability
Conduct	Cases	44	1.18	3.96	86	0.001
	Controls	44	0.36			
Mild mood	Cases	55	1.13	4.14	108	0.001
	Controls	55	0.36			
Severe mood	Cases	32	0.84	2.64	62	0.01
	Controls	32	0.22			
Somatic	Cases	26	1.04	3.65	50	0.001
	Controls	26	0.19			

#### Categories of events

Significant differences existed between cases and controls for every clinical group only for moderate to severe events, and only these events were considered when examining categories. It was hoped that this analysis would improve the specificity of the relationship between class of event and type of disorder. However, the number of events in each class was small for clinical groups and their matched controls, and the results must be interpreted with caution. The proportion of cases experiencing one or more moderate to severe events in each class was examined; only three classes of event produced any significant results.

From Table III, it can be seen that *marriage and family* events showed a significant association with mild mood disorder ( $\chi^2 = 13.24$ , d.f. = 1,  $P < 0.01$ ), conduct disorder ( $\chi^2 = 7.638$ , d.f. = 1,  $P < 0.05$ ), and somatic disorder ( $\chi^2 = 5.318$ , d.f. = 1,  $P < 0.05$ ).

From Table IV, it can be seen that *accident/illness events* showed a significant association with conduct disorder ( $\chi^2 = 4.42$ , d.f. = 1,  $P < 0.05$ ) but with no other clinical group, although there is a trend towards significance for mild mood disorders.

From Table V, it can be seen that *exit events* showed a significant association with somatic disorder ( $\chi^2 = 10.88$ ,

d.f. = 1,  $P < 0.01$ ) and a trend towards significance for severe mood disorder.

#### Discussion

The characteristics of this clinic sample indicate that the clinical groups used in the study are in general representative of conduct and emotional disorders seen in most departments of child and adolescent psychiatry. Severe emotional disorders were not diagnosed before nine years of age, whereas the other clinical groups contain children across the age-range of the study.

The results confirm that significant associations exist between recent life events and each of the four clinical groups used. Furthermore, these associations may be causal, as only events preceding the onset of illness have been used in the analysis. However, a firm statement on causality is not possible for a number of reasons. Firstly, the onset of illness in some cases referred to a perceived change in signs or symptoms, and for these cases, we cannot be sure that all events antedate all symptoms.

Secondly, the case-control study, although

TABLE III

*The proportion of subjects experiencing one or more independent marital/family events carrying a moderate to severe degree of negative impact comparing clinical groups with matched controls for the 12 months prior to onset of illness for cases and day of interview for controls*

	Cases	Controls	$\chi^2$	Probability
Conduct	13/44 (30%)	3/44 (7%)	7.638	0.01
Mild mood	18/55 (33%)	3/55 (5%)	13.240	0.001
Severe mood	5/32 (16%)	1/32 (3%)	2.940	NS
Somatic	7/26 (27%)	1/26 (4%)	5.318	0.05

TABLE IV

*The proportion of subjects experiencing one or more independent accident/illness events carrying a moderate to severe degree of negative impact comparing clinical groups with matched controls for the 12 months prior to onset of illness for cases and day of interview for controls*

	Cases	Controls	$\chi^2$	Probability
Conduct	10/44 (23%)	3/44 (7%)	4.422	0.05
Mild mood	12/55 (22%)	5/55 (9%)	3.409	NS
Severe mood	6/32 (19%)	2/32 (6%)	2.285	NS
Somatic	4/26 (15%)	2/26 (7%)	0.754	NS

TABLE V

*The proportion of subjects experiencing one or more independent exit events carrying a moderate to severe degree of negative impact comparing clinical groups with matched controls for the 12 months prior to onset of illness for cases and day of interview for controls*

	Cases	Controls	$\chi^2$	Probability
Conduct	12/44 (27%)	6/44 (13%)	2.514	NS
Mild mood	13/55 (24%)	7/55 (13%)	2.200	NS
Severe mood	9/32 (28%)	3/32 (9%)	3.692	NS
Somatic	9/26 (34%)	0/26	10.884	0.01

prospective, records events retrospectively in subjects with established disorders. A prospective community-based study, conducted longitudinally, is required to examine the effects of events on children who are initially free of psychiatric disturbance. Such a study allows for the precise enumeration of both the numbers of events and disorders and would allow firmer statements to be made about causality.

Thirdly, although we have satisfied two main criteria for inferring a causal relationship between types of events and different forms of symptoms, i.e. (i) establishing that events occur before the onset of disorder, and (ii) establishing statistically significant results, we cannot be sure that other factors not examined in this study may not be confounding or influencing these findings.

A further consideration we have examined is the possible under-reporting of events in the community controls. Clearly, if this has occurred for severe

events, we may overestimate their importance. We have examined the fall-off in the mean number of events per month for all controls and found it to be less than 1% per month; this is an acceptable fall-off, and compares favourably with adult studies (Paykel, 1983). We conclude that under-reporting of severe events is unlikely.

In addition, the results confirm the importance of a contextual rating of life events in children and adolescents, as it is events carrying a severe impact that are most significantly associated with symptom onset. However, the excess of mild events in conduct disorders suggests that the mechanism by which recent stress affects these children may be different; the implication is that these children have a lower threshold of response to external stressors. What factors determine this threshold cannot be established from this study, but many conduct-disordered children are known to experience marked psychological and social disadvantage, and these

longstanding adversities may affect the response to recent events in a number of ways.

Social disadvantage may expose these children to a greater rate of events (and there is some indication of this from our data, as conduct disorders have the highest mean number of independent events of the four clinical groups). Furthermore, longstanding adversity may act as a complex vulnerability factor and may effectively restrict coping mechanisms which are normally available for mild stressors. In addition, these children may have characteristics, independent of social factors (such as temperament), which result in abnormalities of appraising and coping with mild stressors.

The association between severe impact events and all four clinical groups suggests a rather non-specific relationship between serious external stress and the form of psychiatric disorder. An attempt to improve the specificity of the relationship between classes of events and types of symptoms was only partially successful, probably because of the low rates of events in each class. Nevertheless, the results do suggest that marital and family events may be less important for severe mood disorders than for other clinical groups; accident/illness events may be more important in producing conduct and possibly mild mood symptoms, while exit events appear to be significantly associated with somatic symptoms and perhaps severe mood disorders. Future research should consider classifying events according to the important psychological factors underlying the way in which children perceive and respond to stress.

For example, Miller & Ingham (1983) categorised events on six dimensions (loss, threat, anti-social action, hopeless situation, uncertain outcome, choice of action) and found that the number and pattern of these characteristics within a single event were the most important factors in predicting adult depression. Finlay-Jones & Brown (1981) reported that in adults, recent events construed as severe danger were associated with anxiety, those as severe loss with depression, while those cases with mixed anxiety and depression had an excess of both types of events. It may be that categorising recent life events in children in this way would improve the specificity between events and form of disorder and allow a better consideration of any particular mechanisms involved.

The collection of life events requires some comment. In adult studies, such interviews are generally carried out with the identified patient or with a control subject. However, in younger populations, this may present difficulties with recording certain types of events, e.g. marital disharmony

may be inaccurately reported by a child. Similarly, there may be other types of events (e.g. peer group difficulties, change of friends, etc.) which may be more accurately reported by the children or (particularly) adolescents themselves. In some cases, even teachers may be better placed to identify certain types of events occurring in a school setting. Future research should consider whether different types of events should be recorded from different sources.

A second issue concerns the measurement of life events. This study has used two well proven methods: (i) classifying events according to some general characteristic (e.g. illness); (ii) using contextual information to make an objective rating of negative impact, free of the subject's individual judgments. In adult studies, subjective ratings have generally been avoided, as subjects who are ill may retrospectively misperceive events as stressful (Brown & Harris, 1978; Paykel, 1983). However, some recent studies in adults have reported a moderately high association between subjective and objective measures of stress (Ndeti & Vadhver, 1981; Paykel, 1983). The potential flexibility of subjective measures may have a place in life events research in a younger population. For example, mothers may provide a sensitive measure of stress and may be less subject to retrospective falsification. The matter warrants further study.

The rating of severe negative impact required the raters to consider the child's age and sex at the time the event occurred, but these variables have not been included in the analysis here. Age and sex of the child may modify the relationship between events and the form of disorder.

Finally, some understanding of the magnitude of the association between events and psychiatric disorder is required so that the relative contribution which recent stressful events make to the aetiology of emotional and behavioural disturbance can be established, as well as whether or not such events may be sufficient aetiological agents in themselves. Thus, approximately 30% of all psychiatric cases in this study and nearly 50% of patients with severe mood disorders did not experience a severe event in the 12 months prior to the onset of symptoms, so that such events do not appear necessary in all cases for the onset of symptoms.

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