

DO AGE AND SEX INFLUENCE THE ASSOCIATION BETWEEN RECENT LIFE EVENTS AND PSYCHIATRIC DISORDERS IN CHILDREN AND ADOLESCENTS?—A CONTROLLED ENQUIRY

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Abstract—In a consecutive sample of school-aged children attending a routine child psychiatry clinic, four clinical groups were classified based on presenting signs and symptoms, conduct ($N=44$), mild emotional ($N=55$), severe emotional ($N=32$) and somatic ($N=26$). The groups were divided by age and sex and comparisons made between the groups and community subjects ($N=76$) for the number of children experiencing one or more recent stressful life events. The results indicated that with the possible exception of severe emotional disorders, neither age nor sex substantially influenced the association between events and psychiatric disorder.

Keywords: Life events, age, sex.

INTRODUCTION

IN COMPARISON with adult psychiatric disorder, relatively little research has been carried out on the effects of recent stress in childhood and adolescence. The advances in life events research described by Brown and Harris (1978) and Paykel (1983) prompted us to carry out a study of recent stressful life events on a group of children attending a routine child psychiatry clinic in Newcastle upon Tyne. We established that events independent of illness rated as moderately to severely undesirable and those occurring 12 months prior to onset of psychiatric symptoms were significantly associated with both conduct and emotional disorders (Goodyer, Kolvin & Gatzanis, 1985).

These findings confirmed the importance of recent stress as a potential contributory cause of psychiatric disorder in children and adolescents. However, in reporting these findings we did not examine the question of whether the age and sex of the children influence the association between events and symptoms. The literature points to age as an important factor for some psychiatric conditions. Thus hospital admission is likely to exert the greatest risk for emotional or behavioural symptoms between the ages of 6 months and 4 years (Schaffer & Callender, 1959; Ferguson, 1979; Rutter, 1981).

Similarly children of different ages have been found to react in different ways to such diverse events as the birth of a sibling, parental divorce and bereavements (Dunn, Kendrick & MacNamee, 1981; Wallerstein & Kelly, 1980; Bowlby, 1980). Rutter (1981) has pointed out, however, that exactly how age is important is unclear and

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one possible explanation is that the meaning and impact of events may alter as children get older.

In general, boys appear more vulnerable to stress, and, in the presence of any of the adverse circumstances mentioned above, boys show a greater tendency to develop symptoms (Rutter, 1970, 1981). The literature is unclear as to why this general sex difference prevails and whether or not it reflects (i) *intrinsic* differences between boys and girls such as temperament or developmental factors, or (ii) *extrinsic* differences such as how parents and/or social networks influence distress in boys and girls. Since there is evidence to support the contribution of both intrinsic and extrinsic factors, the question "under what conditions and for which type of symptoms are these differences important?" merits examination (Eme, 1979; Rutter, 1970).

In this paper we report the effects of age and sex on the association between recent life events that are independent of illness (i.e. events that occur before onset of the presenting symptoms) and carry a moderate to severe amount of negative impact (undesirability) and psychiatric disorder in children and adolescents.

METHOD

Selection of sample

The study was a case-control comparison between school-aged clinic attenders and community subjects. The clinical group consisted of 157 children consecutively referred to a routine child psychiatry clinic who were suffering from conduct or emotional disorders of recent origin (in the last 12 months) with a definable onset of symptoms. The name, sex, date of birth and school were recorded for each case. A table of random numbers was used to select 50% of this sample and 78 psychiatric cases were identified and used as a basis for selecting community subjects. The 78 children were drawn from 36 schools in three educational areas (City of Newcastle, North Tyneside and Northumberland).

Following agreement with each of the Directors of Education, 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. A letter was sent to all the first names requesting an interview. Second and third names were only used when first name controls refused or were unavailable. Thus 78 first names were approached and 72 (92%) agreed to interview. Four "reserves" were obtained for the original refusals; thus the community sample consisted of 76 children.

Diagnostic criteria

The clinical cases were based on a descriptive classification previously used in this department (Wrate & Kolvin, 1978). A diagnosis was assigned by the treating psychiatrist according to operational criteria and four mutually exclusive clinical groups based on predominant presenting signs and symptoms were identified and used in this study:

- (1) *conduct disorders*: presenting with predominant symptoms of antisocial behaviour such as stealing, cruelty, destructiveness or bullying ($N=44$);
- (2) *mild emotional disorders*: presenting with predominant symptoms of mild anxiety. This group included transient states of anxiety, fearfulness and misery, adolescent rebellion and parasuicide attempts in the absence of other psychiatric disturbance ($N=55$);
- (3) *severe emotional disorders*: presenting with predominant symptoms of depression and serious neurotic symptoms. This group included depression, phobic and obsessional states, school refusal and suicide attempts in the absence of affective disorder;
- (4) *somatic disorders*: presenting with predominant symptoms. This group included 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 ($N=26$).

Collection and rating of life events

A children's life event schedule was developed, derived from Kolvin's (1984) adaptation of Coddington's (1971) life event scales. Following piloting and a number of revisions, the final schedule consisted of 66 clearly-worded items administered as a semi-structured interview to mothers or mother surrogates.

Events were enquired about for the 12 months prior to the onset of symptoms. Mothers of community subjects were asked to recall events in the 12 months prior to the day of interview. Events received two ratings according to the criteria described by Paykel (1983) and derived from the work of Brown & Harris (1978):

(i) *the independence* of an event from illness or illness-determined behaviour. This was rated on a five-point scale ranging from "almost certainly independent" to "almost certainly dependent". Ratings of independence were carried out by the principal researcher (I.G.) and only events considered almost and probably independent of illness were used in the analysis. This rating minimizes the inclusion of events that have arisen as a consequence of illness;

(ii) *the objective negative impact* (undesirability) of an event would bring to bear on a child if its full nature and circumstances were taken into account. This was rated on a five-point scale ranging from "severe" to "no negative impact". In order for impact to be objective the rating was made by a consensus of three child mental health professionals based on contextual information about the event. Contextual information consisted of a full description of circumstances of the event, who was involved, where it took place, its duration and outcome, but was free of subjective judgments (mothers' of children's) concerning its potential impact on the child. The raters did not know if the event had occurred in a case or control subject. This latter procedure helped to prevent raters biasing impact in favour of events in patients.

No child in the study had an illness longer than 12 months and the mean duration of symptoms for all psychiatric disorders was 4 months. Therefore, the time period over which mothers had to recall life events was no more than 24 months with a mean duration of recall time 16 months. The monthly distribution of events carrying a moderate to severe impact shows that events cluster in the 16-week period prior to onset of illness for the psychiatric cases as a whole but not for the comparison group. The implications of this and other findings in relation to the timing and number of events are the subject of another paper (Goodyer, Gatzanis & Kolvin, in press).

RESULTS

Results are expressed as a proportion of subjects experiencing one or more events that are independent of illness and carry a moderate to severe negative impact in the 12 months prior to onset of illness. Differences between cases and community subjects and within cases according to clinical group were examined using the chi-square statistic.

Age and sex characteristics of the clinic sample

Of the 157 cases, 68 (43%) were girls and 89 (57%) were boys. 71 (45%) were over 12 years of age and 86 (55%) were under 12 years of age. The age of 12 was chosen to simply represent a division between childhood and adolescence. The cases were not subject to a pubertal assessment and are unlikely to accurately reflect pre- and post-pubertal groups. However, a division of the sample at this age allows for an examination of the potential influence development may have on the association between events and symptoms.

Comparisons of cases and community subjects

The proportion of community subjects experiencing one or more events was the same for each comparison, thus reducing the possibility of spurious findings as a result of differences in controls rather than cases.

The clinical groups and community subjects were examined for differences in social class. Contingency tables showed approximately equal proportions of middle class and working class children between clinical group and controls and within clinical groups (overall, 58% middle and 42% working class cases and 60% middle and 40% working class controls).

The effects of sex on the proportion of subjects experiencing one or more events

Table 1 shows the proportions of boys and girls experiencing one or more undesirable events. Comparisons between clinical groups and community subjects show a significant association for all types of clinical presentation and recent events across both sexes with the exception of boys with severe emotional disorders ($\chi^2 = 0.61$, d.f. = 1, N.S.).

TABLE 1. THE PROPORTION OF GIRLS AND BOYS EXPERIENCING ONE OR MORE MODERATE TO SEVERE EVENTS IN THE 12 MONTHS PRIOR TO ONSET OF ILLNESS FOR PATIENTS OR DAY OF INTERVIEW FOR CONTROLS

	Conduct	Mild emotional	Clinical groups Severe emotional	Somatic	Controls
Girls	$\frac{9}{14}$ (64%)	$\frac{13}{22}$ (59%)	$\frac{12}{18}$ (66%)	$\frac{10}{14}$ (71%)	$\frac{6}{32}$ (19%)
	$(\chi^2 = 9.189, \text{d.f.} = 1, P = 0.01)^*$	$(\chi^2 = 9.30, \text{d.f.} = 1, P = 0.01)^*$	$(\chi^2 = 11.48, \text{d.f.} = 1, P = 0.001)^*$	$(\chi^2 = 11.90, \text{d.f.} = 1, P = 0.001)^*$	
Boys	$\frac{18}{30}$ (60%)	$\frac{22}{33}$ (67%)	$\frac{5}{14}$ (36%)	$\frac{7}{12}$ (58%)	$\frac{11}{44}$ (25%)
	$(\chi^2 = 7.50, \text{d.f.} = 1, P = 0.01)^*$	$(\chi^2 = 13.368, \text{d.f.} = 1, P = 0.001)^*$	$(\chi^2 = 0.610, \text{d.f.} = 1, \text{N.S.})^*$	$(\chi^2 = 4.803, \text{d.f.} = 1, P = 0.05)^*$	
			$(\chi^2 = 1.515, \text{d.f.} = 1, \text{N.S.})^\dagger$		

*Comparisons between clinical groups and controls for each sex.

†Comparisons between girls and boys with severe emotional disorder.

Comparisons between boy and girl cases show that the proportions of subjects experiencing one or more severe events are markedly similar for conduct, mild emotional and somatic disorder. Although almost twice as many girls (66%) with severe emotional disorder experience events compared with boys the difference is not significant ($\chi^2 = 1.51$, d.f. = 1, N.S.). Thus, with the possible exception of boys with severe emotional disorder, the association between events and psychiatric disorder is uninfluenced by sex.

The effects of age on the proportion of subjects experiencing one or more events

Table 2 shows the proportions of children under and over 12 experiencing one or more undesirable events. Comparison between clinical groups and community subjects shows significant associations between events and all clinical groups for both ages with the exception of children under 12 with severe emotional disorder ($\chi^2 = 2.429$, d.f. = 1, N.S.).

TABLE 2. THE PROPORTION OF CHILDREN UNDER 12 YEARS OF AGE AND OVER 12 YEARS OF AGE EXPERIENCING ONE OR MORE MODERATE TO SEVERE EVENTS IN THE 12 MONTHS PRIOR TO ONSET OF ILLNESS IN CASES OR DAY OF INTERVIEW IN CONTROLS

	Conduct	Clinical groups			Controls
		Mild emotional	Severe emotional	Somatic	
Under 12	$\frac{17}{24}$ (71%)	$\frac{22}{34}$ (65%)	$\frac{5}{11}$ (45%)	$\frac{11}{17}$ (65%)	$\frac{11}{43}$ (26%)
	$(\chi^2 = 12.966, \text{d.f.} = 1, P = 0.001)^*$	$(\chi^2 = 11.867, \text{d.f.} = 1, P = 0.001)^*$	$(\chi^2 = 2.429, \text{d.f.} = 1, \text{N.S.})^*$	$(\chi^2 = 7.315, \text{d.f.} = 1, P = 0.01)^*$	
Over 12	$\frac{10}{20}$ (50%)	$\frac{13}{21}$ (62%)	$\frac{12}{21}$ (57%)	$\frac{6}{9}$ (67%)	$\frac{6}{33}$ (18%)
	$(\chi^2 = 5.982, \text{d.f.} = 1, P = 0.02)^*$	$(\chi^2 = 10.75, \text{d.f.} = 1, P = 0.01)^*$	$(\chi^2 = 8.766, \text{d.f.} = 1, P = 0.01)^*$	$(\chi^2 = 8.145, \text{d.f.} = 1, P = 0.01)^*$	

*Comparisons between clinical group and controls.

Comparisons between subjects under and over 12 for each clinical group show that the proportions of subjects experiencing one or more events are markedly similar for all clinical groups including severe emotional disorders. The lack of difference between severe emotional disorder and comparison groups may be explained by small sample size. Overall these results suggest that the association between events and disorder is uninfluenced by age.

DISCUSSION

A previous paper has indicated that recent stressful events are associated with emotional and behavioural disorders (Goodyer *et al.*, 1985) and it is of interest to examine the possibility that the association may be influenced by age and sex.

The comparison of cases between sexes indicates that with the exception of severe emotional disorders, similar proportions of boys and girls have experienced recent life events independent of illness and carrying a moderate to severe degree of negative impact in the 12 months prior to the onset of illness. For the severe emotional disorder group a comparison between boy cases and controls suggest no association between events and disorder. However, a comparison between boy and girl cases shows that although there are twice as many girls who experience events as boys these differences are not significant.

Thus the only suggestion of a sex effect on the basis of these findings is the possibility that girls may be more likely to develop a severe emotional response to recent events. There is some evidence in the literature to support this possibility. Thus Burke & Weir (1978) have suggested that girls perceive more stress in their lives than boys and Dweck and colleagues (Dweck & Bush, 1976; Dweck, Davidson, Nelson & Enna, 1978) had reported from observational data in the classroom setting that boys respond with greater efforts following criticism of performance from adults

whereas girls tend to give up and blame their own lack of ability. Perhaps girls are more likely to attribute external stressors to personal shortcomings insurmountable through personal effort alone. Adverse social experiences that adults bring to bear on children may be important in this regard; for example, the popular view that girls are emotionally more labile or more suggestible is not supported by research findings (Maccoby & Jacklin, 1978).

Overall, however, what is important is the lack of difference between sexes. Since girls and boys were subject to the same types of events it may be that the mechanisms of appraisal of stress are relatively uninfluenced by sex. Maccoby & Jacklin (1978) have previously suggested that psychological differences between sexes are not great on a number of dimensions and perhaps this is also true for the appraisal of recent stressors.

When considering the effects of age there is a similar picture. Thus proportions of cases experiencing events are between a half and two thirds for all the clinical groups in both age groups. Although severe emotional disorders appear to have no significant association with events in the under 12s compared with controls, the finding is weak, particularly as there is little difference between the proportions of cases at either age with severe emotional disorder. Thus there is no age effect on the association between events and psychiatric disorder. This finding is somewhat surprising, as the literature points to differential effects of different types of stress at different ages (Rutter, 1981)

However, this study was concerned with school-aged children and perhaps the influence of developmental factors on the appraisal of stress is less important than at a younger age. Furthermore, the methodology of the study required adults to rate the degree of stress as well as collect events from mothers. Future studies should consider collecting events from, and having them evaluated by, children and adolescents.

Such studies may provide a more valid assessment of the effects of age on the association between events and disorder. In addition, dividing children simply by chronological age may underestimate the effects of puberty. In view of the small sample size and the methodological limitations described, the results require confirmation. The findings presented here suggest that with the possible exception of severe emotional disorder, age and sex exert no substantial influence on the association between recent stressful life events and psychiatric disorder of school-aged children and adolescents. Further studies are required utilizing children as well as adults to improve our present understanding of the influence of recent stressful events on the genesis of psychiatric disorder in this age group.

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