LIFE EVENTS IN PSYCHIATRICALLY SICK CHILDREN

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There are some studies to suggest that the effects of life stress on children and adolescents may be similar to those found in adults. Boyce et al. (1977) demonstrated a relationship between life stress and respiratory tract illness, Bedell et al. (1977) using chronically ill children as subjects, found life stress to be correlated with day to day changes in health status. Padilla et al. (1976) have found life stress to be related to accident frequency in children; Hudgens (1974) demonstrated a relationship between life stress and depression among adolescents. Similarly high number of stressful life events were found associated with enuresis (Douglas 1973) and psychiatric disorders in children (Heisel et al., 1973). More recent studies have been by Goodyer et al. (1985); and Kashani et al. (1981) reporting an association between emotional disorders in children and undesirable life events.

Coddington (1972) in America had developed children's Social Readjustment Rating Scale which was adapted by Monaghan et al. (1978) for use on children in UK called as British Life Events Inventory for Children. Life events are heavily influenced by culture and social norms with regard to their relevance, degree of stress related to them and subjective perception of various events. Although the British Inventory was found adequate for use in this study in terms of its concept and approach but it needed modification to make it culturally relevant to Indian population. Sanjam (1987) adapted the British Life Events Inventory to make it applicable to Indian children. The adaptation process involved pretesting and to try out to suitably modify the items. Finally the Life Events Scale for Indian Children (LESIC) comprising of 50 items, with adequate test-retest reliability and rank order correlation with British Life Events Inventory was evolved. Review of Indian literature on stress and psychiatric disorders in children revealed that there is virtual lack of studies in this area. Ranganwamy and Kamakshi (1983) studied the role of stress in 30 adolescent hysterics aged 13-17 years using the Social Readjustment Rating Scale of Coddington for 12-16 years olds. This study has been the only systematic study in the field of life events in children in India and reported that majority (85%) of hysterics had a significant life stress before the onset of symptoms.

AIMS

The aim of the study was to study the nature and extent of stress associated with psychiatric disorders in children as compared to normal children including both qualitative and quantitative assessments.

MATERIAL AND METHODS

The study sample comprised of children in the age range of 4-14 years, of both sexes, who attended the Child Guidance Clinics of the Department of Psychiatry, Post Graduate Institute of Medical Education and Research, Chandigarh. Children suffering from various psychiatric disorders of less than 12 month duration, other than organic brain disorders and mental retardation were included. A control group of normal children taken from the sibs of patients attending the Paediatrics Outpatients, Department of PGIMER for minor physical ailments was taken. These children

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were screened through Reporting Questionnaire for Children (RQC) developed by Giel et al. (1981). Parents of these children were asked whether the events listed in the Life Events Inventory for Indian Children occurred in the one year or prior to the last one year in the normal group, or one year before and prior to one year before the onset of symptoms in the sick group. It measured four aspects of stress i.e. number of life events and the stress score in the last one year, and the number of life events and stress score ever in life prior to last one year. In addition, information regarding the age, sex, education of the child, and clinical diagnosis as applicable was also recorded. Among the sick group there were 27 cases of hysteria and emotional disorders, 12 cases of hyperkinesis and conduct disorders, 21 cases were diagnosed as special symptoms predominantly enuresis, and 20 cases belonged to miscellaneous categories of diagnoses (e.g. MDP depression, glue sniffing, specific development delays, migraine etc.) according to ICD-9.

RESULTS

Number of the life events (LE) and stress scores (SS) in the last one year and prior to the last one year were analysed separately in the two groups and compared with regard to age, sex and diagnosis.

Table 1: Percentage frequency of number of events in the last one year and prior to last one year in the two groups

| No. of events marked positive | Normal group | Sick group |
|-----------------------------|--------------|------------|
|                            | N = 100      | N = 80     |
| 0-2                         | 10 (15)      | 3.75 (10)  |
| 3-10                        | 85 (80)      | 95 (86.25) |
| 11-15                       | 5 (5)        | 1.25 (3.75) |

(Figure in parenthesis pertain to the number of events prior to last one year)

Distribution of number of events was found similar in the two groups and it followed more or less a normal distribution pattern.

Comparison of mean number of life events and stress scores in the last one year and prior to the last one year in the two groups shown in table 2 revealed that the sick group score significantly higher on the stress score in the last one year as compared to the normal group. All other comparisons were not significant.

Table 2: Comparison of number of life events and stress score in the two groups

|                          | Sick group (N = 80) | Normal group (N = 100) | 't' Ratio |
|--------------------------|---------------------|------------------------|----------|
|                          | Mean | S.D. | Mean | S.D. |        |
| Last one year            |      |      |      |      |        |
| No. of events            | 6.1  | 2.14 | 5.43 | 2.51 | 1.91   |
| Stress score             | 258.41 | 98.10 | 216.52 | 112.22 | 2.67* |
| Prior to last one year   |      |      |      |      |        |
| No. of events            | 5.14 | 2.37 | 4.99 | 2.58 | 0.41   |
| Stress scores            | 248.18 | 114.43 | 245.7 | 133.67 | 0.13   |

*p < .01
Table 3: Age and Sex wise comparison of mean number of Life Events and Stress Scores in the last one year in the two groups

| Age         | Sick Groups N = 80 | Normals N = 100 | ‘t’ Ratio (inter groups) | Sick Groups N = 80 | Normals N = 100 | ‘t’ Ratio (inter groups) |
|-------------|--------------------|-----------------|--------------------------|--------------------|-----------------|--------------------------|
|             | Number of life events |                |                          | Stress Score       |                 |                          |
| 4-7 yrs.    | 25 6.44±2.47        | 38 5.45±2.36    | 2.66**                   | 283.4±109.39       | 217.24±107.11   | 16.24**                  |
| 8-11 yrs.   | 36 5.69±1.51        | 37 5.08±2.28    | 2.10*                    | 227.9±66.63        | 197.89±100.05    | 2.40*                    |
| 12-14 yrs.  | 19 6.42±2.65        | 25 5.76±3.09    | 1.53                     | 278.0±117.5        | 235.24±136.54    | 2.26*                    |
| F (ANOVA) (Within group) | 1.17               | 1.25            | 2.41*                    | 1.148              |                 |                          |

| Sex         | Male 47 6.13±2.08   | 48 5.98±2.88    | 0.41                     | 260.90±98.03       | 240.96±131.53    | 1.16                     |
|            | Female 33 6.09±2.20 | 52 4.92±1.97    | 3.77**                   | 254.69±98.10       | 193.96±84.77     | 4.38*                    |
| ‘t’ Ratio (Within group) | .083               | 2.14*           | 0.278                    | 2.11*              |                 |                          |

* P < .05, ** P < .01

This table shows the age and sex wise comparison of stress in the last one year in the two groups. Though the groups were comparable in the terms of age ($x^2 = 1.33$, d.f. = 2, N.S.) and sex ($x^2 = 2.06$, d.f. = 1, N.S.) distribution, there was significantly higher stress score in the sick group in all the age comparison. Within group comparisons in different age categories revealed differences in stress score in the last one year (using one way ANOVA) in the sick group. Regarding sex, females scored significantly higher on number of LE as well as SS in the sick group as compared to normal group. On the other hand within the normal group, number of life events and stress score increased significantly with increases in age (using one way ANOVA), younger age (4-7 years) children in the sick group scored significantly higher both on number of life events and stress score prior to last one year. There were no sex wise differences in the number of life events and stress scores in both within group and between group comparisons.

Similar analysis on age and stress experience prior to last one year revealed that relationship between age and stress was further analysed taking into account the total stress experience (sum of LE and SS in the last one year and prior to the last one year) of the child as shown in table 5.

It was seen that, as expected, there was gradual and steady increases in the number of LE
Table 4: Age and Sex wise comparison of mean number of Life Events and Stress Scores Prior to last one year in the two groups

| Age       | Sick Groups N = 80 | Normals N = 100 | t' Ratio (inter group) | Sick Groups N = 80 | Normals N = 100 | t' Ratio (inter group) |
|-----------|--------------------|-----------------|------------------------|--------------------|-----------------|------------------------|
|           | Number of life events |                |                        | Stress Score       |                 |                        |
| 4-7 yrs.  | 25                 | 38              | 4.36±2.63              | 3.66±1.90          | 217.0±130.81    | 166.79±85.80          |
| 8-11 yrs. | 36                 | 37              | 5.31±2.18              | 5.81±2.44          | 252.28±104.38   | 289.6±125.9           |
| 12-14 yrs.| 19                 | 25              | 5.84±2.57              | 5.76±2.86          | 281.42±123.19   | 292.44±137.4          |
| F (ANOVA) |                    |                 | 2.15                   | 11.03*             | 1.62            | 13.45**               |
| (Within group) |                  |                 |                        |                    |                 |                        |
| Sex       |                    |                 |                        |                    |                 |                        |
| Male      | 47                 | 48              | 5.0±2.48               | 4.92±2.21          | 242.79±117.50   | 243.08±117.11         |
| Female    | 33                 | 52              | 5.34±2.39              | 5.06±3.25          | 256.25±119.35   | 248.27±147.25         |
| t' Ratio  |                    |                 | 0.618                  | 0.253              | 0.501           | 0.196                  |
| (Within group) |                |                 |                        |                    |                 |                        |

* P < .05, ** P < .01

Table 5: Means of total number of life events and total stress scores compared in different age categories in the two groups

| Age       | Patients (N = 80) No. of events | Patients (N = 80) Stress score | Normals (N = 100) No. of events | Normals (N = 100) Stress score |
|-----------|----------------------------------|-------------------------------|---------------------------------|--------------------------------|
| 4-7 yrs.  | M 10.8                           | 498.28                        | M 9.02                          | 394.58                         |
| n = 25    | S.D. 3.57                        | 164.70                        | S.D. 3.04                       | 139.97                         |
| 8-11 yrs. | M 11.0                           | 490.81                        | M 10.97                         | 491                            |
| n = 36    | S.D. 2.42                        | 122.49                        | S.D. 2.95                       | 150.05                         |
| 12-14 yrs.| M 12.26                          | 559.47                        | M 11.72                         | 538.84                         |
| n = 19    | S.D. 3.57                        | 174.65                        | S.D. 3.00                       | 154.63                         |
| F (ANOVA) | ** P < .01                       | 1.34                          | 1.35                            | 7.45**                         | 8.28**               |
and SS in the normal population. Similar trend was not seen in the sick group where there was relatively higher number of LE and SS in the younger children (4-7 years) as compared to that in the normals.

Table 6: Stress and diagnosis in the sick group.

| Diagnosis                          | Stress in last one year | Stress prior to last one year |
|------------------------------------|-------------------------|------------------------------|
|                                    | No. of events | Stress score | No. of events | Stress score |
| Neurotic and emotional Dis. (27)   | M 5.74        | 237.56       | M 4.63        | 221.44       |
|                                    | S.D. 2.19     | 94.12        | S.D. 2.36     | 109.28       |
| Hyperkinetics and Conduct Dis. (12)| M 7.33        | 322.92       | M 5.17        | 249.33       |
|                                    | S.D. 2.09     | 95.86        | S.D. 2.94     | 144.67       |
| Special symptoms (21)              | M 6.05        | 255.57       | M 5.38        | 253.95       |
|                                    | S.D. 2.08     | 100.01       | S.D. 1.94     | 93.91        |
| Miscellaneous (20)                 | M 5.90        | 250.35       | M 5.55        | 274.25       |
|                                    | S.D. 1.87     | 85.44        | S.D. 2.64     | 127.67       |
| F (ANOVA)                          | 1.67          | 2.16         | 1.60          | 1.34         |
|                                    | NS           | NS           | NS            | NS           |

Stress and diagnosis in the sick groups is shown in this table. Although the hyperkinetic and conduct disordered children scored higher on number of LE and SS in the last one year as compared to all other diagnostic categories, the difference was not statistically significant. Also there was no difference in the stress prior to the last one year across various diagnoses. Attempt was made to further analyse the stress experience within each diagnostic categories according to age and sex. The numbers in each category were small for any statistical analysis, however, trends revealed that younger children (4-7 years) suffering from neurotic and emotional disorders experienced greater stress in the last one year (LE mean 6.8±3.32, SS mean 295.4±99.10) as compared to older age (12-14 years) children (LE mean 5.0±2.62, SS mean 217.0±120.32). This trend was reversed in the diagnostic category of special symptoms where older children (12-14 years) scored higher on stress in the last one year (LE mean 9.67±0.47, SS mean 422±34.19) as compared to that in the younger (4-7 years) children (LE mean 6.2±2.22, SS mean 275±89.98).

It was found that it is the stress in the last one year and not prior to last one year which had significant relationship with psychiatric illness in children. Further analysis of stress in the last one year in terms of qualitative assessment was done.

The events were divided objectively into desirable (n = 7) undesirable (n = 35) and neutral (n = 8) through consensus by a group of professionals. Percentage frequencies for each of the events were calculated and difference in the two groups were worked out, using Z test. There were greater number (6) of undesirable as well as desirable (2) events in the sick group than in the control group (4 and 0 respectively). On the whole significantly greater percentage of subjects in the sick group experienced, twice as many life events (8) as the normal group (4).
relatively higher number of LE and SS in the younger children (4-7 years) as compared to that in the normals.

Life events item were further classified, depending upon the content, into six categories and those appearing with significantly greater frequency in two group were marked out as shown in table 7.

Table 7: Nature of events found with significantly greater frequency in two groups

| Events                                      | No. of events more in the sick group | No. of events more in the normal group |
|---------------------------------------------|--------------------------------------|----------------------------------------|
| 1. Health                                   |                                      |                                        |
| (a) Serious Physical illness of self        | 2                                    | 1                                      |
| (b) Illness of sibs/parents                 | 1                                    | 3                                      |
| 2. Child abuse/physical punishment          | 3                                    | 1                                      |
| 3. Events related to death/divorce/parent’s absence from home | 11                                   | 3                                      |
| 4. Interpersonal difficulties               | 7                                    |                                        |
| 5. Problems related to school               | 7                                    | 1                                      |
| 6. Acquisitions'/achievements               | 5                                    | 2                                      |
| 7. Miscellaneous                            | 12                                   |                                        |

* Normal group included the healthy sibs of children attending pediatrics OPD for various physical illness

In the sick group events related to death, divorce or parent’s absence from home were more frequently encountered.

DISCUSSION

MEASUREMENT

Systematic studies related to measurement of life stress in children and adolescents (Coddington 1972, Monaghan and Dodge, 1978, Johnson 1982) have begun only recently.

Research on adults indicates that it is not merely the occurrence, it is the personal meaning of the events which is important in the assessment of its stressfulness (Brown and Harris, 1978; 1986). There are no comparable studies on children, however, one may think that relying on the child’s report of amount of subjective distress associated with an event would not be methodologically sound. Thus objective ratings of stress may be needed as reported in the LESIC used in the present study.

The data revealed that psychiatrically sick children experienced as many life events in the last one year as normal children but these were presumably of more serious nature because the corresponding stress score was significantly higher in the sick group (Table 2). This finding support the point that it is not simply the question of number of life events, it is the nature and seriousness of these quantified as stress scores in the present study, which is relevant to the occurrence of psychiatric disorders in children.

In the Life Events Inventory for Indian Children (LESIC) assessment of stress was made on two time frame parameters i.e. last one year and ever in life prior to last one year. There is evidence in literature that life events during one year prior to onset of illness contribute directly to the occurrence of psychiatric disorder of maladjustment (Brown and Harris, 1978; Paykel, 1978). On the other hand, keeping in
mind and the psychological approaches of Adolf Mayer and the importance of total life stress experienced by the individual (Rutter 1986), the assessment pertained to both time frames in the present study. However, findings revealed that the sick children did not differ from normal children in terms of their stress experience prior to last one year (Table 2). It is possible that more recent happenings are more relevant than the remote ones.

AGE AND STRESS

It was expected that there should be a linear relationship between age of the child and the number of life events encountered and the stress score.

It is interesting to note that the sick children in the last one year obtained significantly higher stress score at all ages and higher number of life events in 4-7 and 8-12 years old only as compared to normal children. Similar trend was though seen for stress prior to last one year but the difference were significant only for 4-7 years old (more number of LE and higher SS in the sick group) and 8-11 years olds (higher SS in the sick group). Within group comparisons of stress prior to last one year in different age groups revealed that with increasing age there was increase in number of LE as well as SS in both the groups, which approached statistical significance only in the normal group. This difference was mainly accounted for by significantly lower mean for LE and SS in 4-7 Years olds in normal group as compared to older children in the same group and same age children in the sick group. Similarly regarding stress in the last one year, it was found that 4-7 years olds in the sick group experienced relatively higher number of LE and SS as compared to older children in the same group and same age children in the normal group (Table 3). A clearer picture of relationship between age, stress and psychiatric disorder emerged upon combining the stress experienced in last one year and prior to last one year (Table 5). There was significant increase in total number of LE and SS with increasing age in the normal group. However, in the sick group there was significantly higher number of LE and total SS in 4-7 years olds as compared to normal children of same age and their scores were similar to those of older children in the sick group. These findings indicates that though stress score was higher for children of all age in the sick group but it was considerably higher for younger age children implying thereby that at younger age, stress has a greater role in the causation/precipitation of psychiatric illness which decreases as children grow older. In other words it can be said that psychiatric disorders in younger are more related to stress.

Few studies related to age of the child and impact of life stress have pointed towards age specific vulnerabilities e.g. hospital admission are most stressful to children between ages of 6 month and 4 years (Rutter, 1989a), and younger children are likely to react adversely to birth of a sib (Dunn et al., 1981; Moore, 1975) rather than general vulnerability as seen in this study.

SEX AND STRESS

There were no sex differences in the experience of stress prior to last year in either of the group. However, normal boys experienced more stress than normal girls in the last one year and girls in the sick group encountered were stress than boys in that group (Table 3). These sex differences though interesting more difficult to understand and interpret. Does it mean that psychiatric disorder in boys is not so much related to life stress experienced by them? Before this question can be answered, vulnerability to stress in children of different sex needs to be studied more extensively.
STRESS AND DIAGNOSIS

Number of life events and stress scores in the last one year and prior to one year were not found to be different across four diagnostic categories viz. neurotic/emotional disorders; hyperkinetic syndrome/behavior disorders, special symptoms, and miscellaneous. Children with hyperkinetic syndrome/behavior disorder encountered maximum stress in the last one year as compared to all other diagnoses. Within each diagnostic group further analysis of age and stress revealed that among the neurotic and emotionally disturbed children there was maximum stress in 4-7 years old. Among special symptoms group it was older children with hyperkinetic/behavior disorder experienced uniformly high stress in the last one year across all ages. Thus data though small for statistical analysis and reliable conclusions, throws light on the possibility of relationship between stress and diagnosis. It is likely that certain psychiatric disorders under certain conditions (e.g. age, sex, and temperament of the child) may have life stress as one of the significant contributors.

NATURE OF STRESS AND PSYCHIATRIC ILLNESS

Recent research on life events in adults has revealed that association of stress with psychiatric disorder is largely confined to unpleasant or undesirable events (Gerstein et al., 1974; Paykel, 1974, Andrews and Ten­nant, 1978). Similar analysis carried out in the present study (Table 7) revealed that a significantly larger proportion of children with psychiatric disorder experienced greater number of undesirable (6) as well as desirable (2) life events as compared to normal children. Among these, half of the undesirable events found in excess in the sick group related to death, divorce or parental absence from home (3 in number), others being serious physical illness of child (1), child abuse/physical punishment (1), and problems related to school (1).

On the other hand, undesirable events found in significantly larger proportion of normal children (4 in number) included illness of sibs/parents (3) and not being sent to school against child's wish (1). This finding is partly an artifact of sample selection where normal children were taken from the sibs of physically sick children attending pediatrics outpatients department. It was apparent that the psychiatric disorder in children was related more often to undesirable life events, in the last one year.

This finding assumes greater significance particularly when viewed from the perspective of equal number of LEs encountered by the two groups of children in the last one year and supports the conclusion of other workers (Rutter 1981) that the effects of potentially stressful events do not depend largely on the number of such stresses encountered. It is also suggested that it is important to classify life events according to the mediational process they involve in bringing about disorder rather than only focussing on their negative quality (Rutter and Sandberg, 1992).

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