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ABSTRACT

This study compared the social reputation of: (1) children with a cancer which did not involve the central nervous system (N=26); (2) children with a primary malignancy involving the central nervous system (N=15); and (3) children with sickle cell disease (N=33) to matched, same classroom peers using a measure of social reputation, the Revised Class Play (RCP). All children were ages 8 to 15. Each child's classroom teacher completed the RCP, which assesses sociability-leadership, aggressive-disruptive, and sensitive-isolated interpersonal qualities. Analysis showed children with cancer were nominated more often for roles on the sociability-leadership dimension and less often for roles on the aggressive-disruptive factor. Brain tumor survivors were nominated more often for sensitive-isolated roles. Children with sickle cell disease were not significantly different from peers. Results suggest that chronic illness per se does not have a negative impact on children's social reputation. The data demonstrated that the stressful life events associated with cancer or sickle cell disease did not have a significant negative impact on school adjustment for school-aged children with these diseases. Includes 29 references. (DB)

Social Interactions between Children with Cancer or Sickle Cell Disease and their Peers: Teacher Ratings

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Running head: PEER RELATIONSHIPS OF CHILDREN WITH CHRONIC ILLNESS

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Abstract

Compared the social reputation of children with cancer where the primary malignancy did not involve the central nervous system (N = 26); children with a primary malignancy involving the central nervous system (N = 15); and children with sickle cell disease (N = 33); to matched (age, gender, race) same classroom peers using a measure of social reputation, the Revised Class Play (RCP). Each child's classroom teacher completed the RCP, an instrument designed to assess sociability-leadership, aggressive-disruptive, and sensitive-isolated interpersonal qualities. Analyses using matched pairs repeated measures comparisons showed children with cancer were nominated more often for roles on the sociability-leadership dimension and less often for roles on the aggressive-disruptive factor. Brain tumor survivors were nominated more often for sensitive-isolated roles. Children with sickle cell disease were not significantly different from peers. Results suggest that chronic illness per se does not have a negative impact on children's social reputation. Data demonstrate that the stressful life events associated with cancer or sickle cell disease did not have a significant negative impact on school adjustment for school-aged children with these diseases. Better understanding of the processes of resilience for these children who are routinely exposed to heightened stress provides an opportunity to improve the competence of other high risk youth.

Social Interactions between Children with Cancer or Sickle Cell Disease and their Peers: Teacher Ratings

Although the prognosis of children with different types of severe chronic illness such as sickle cell disease (SCD) or cancer has improved during the past two decades (Charache, Lubin, & Reid, 1985; Young, Ries, Silverberg, Horm, & Miller, 1986), many studies have suggested that psychosocial morbidity is a significant problem (Briscoe, 1987; Chesler & Barbarin, 1987; Mulhern, Wasserman, Friedman, & Fairclough, 1989; Van Dongen-Melman & Sanders-Woudstra, 1986). Difficulties for children with these severe chronic illnesses reportedly include excessive anxiety, depression, distress about social competence, and undue passivity. Unfortunately, most investigations of these children are severely constrained by several methodological problems. Specifically, studies of the psychosocial adjustment of children with chronic illnesses use ad-hoc, or poorly standardized measures, study one type of chronic illness, rarely focus on competence or normative developmental issues, and fail to use appropriate control groups.

The latter problem is especially vexing, since an appropriate control child might be conceptualized as one living in the same neighborhood as the child with severe chronic illness. Families typically travel great distances to receive treatment at large tertiary hospitals, and these settings are the only ones where adequate numbers of patients are seen for research. Control children who are the same age, gender, and race as the child with chronic illness and attends the same school might be presumed to be similar across a number of relevant social, cultural, and psychological dimensions. Since there is no evidence linking the occurrence (causes) of many severe chronic

illnesses of childhood with any psychosocial characteristics (their occurrence is essentially random along psychosocial variables), comparing characteristics of matched classroom children to those of a child who has severe chronic illness permits a systematic determination of psychological functioning for these children using a matched pairs design without the flaws often cited with this methodological approach (Meehl, 1970). We suggest that one solution for appropriate controls is to contrast the child with chronic illness to a same classroom peer matched on race and gender, closest date of birth to the child with chronic illness.

Numerous investigators have suggested that stressful life events in general (Cowen & Hightower, 1986), and in particular those associated with severe chronic illness and its treatments (Chesler & Barbarin, 1987; Conyard, Krishnamurthy, & Dosik, 1980; Deasy-Spinetta, Spinetta, & Oxman, 1988; Hurtig, Koepke, & Park, 1989; Katz, Rubinstein, Hubert, & Blew, 1988; Lansky, List, Ritter-Sterr, Klopovich, & Chang, 1985; Morgan & Johnson, 1986; Sawyer, Crettenden, & Toogood, 1986, adversely affects the ability of children to develop satisfactory relations with peers. Having problematic relations with peers during childhood and adolescence is of considerable concern given the importance of these relations for healthy emotional adjustment. In several theoretical works (Erikson, 1963; Piaget, 1932; Sullivan, 1953), peer relations have been identified as playing a central role in children's social and emotional development, fundamental for the development of adequate social skills and for the emergence of a healthy self-concept (Bukowski & Hoza, 1989; Hartup, 1989). Consistent with these theoretical positions, a growing body of empirical evidence has shown that indices of peer relations during childhood

are predictive both of current adjustment (Masten, Morison, & Pellegrini, 1985) and of future adaptations during adolescence (Kupersmidt & Coie, 1990) and through adulthood (Parker & Asher, 1987). The examination of the peer relations of children with chronic illnesses is an essential component in understanding the current emotional and social functioning of these children. In spite of the importance of peer relations for social and emotional development, and although children with severe chronic illness are exposed to numerous stressful life events that increase their risk for maladaptive patterns of relations with peers, minimal research has been conducted that has directly examined the peer relations between children with severe chronic illness and their age mates.

Recent work examined the social reputation of children with cancer from the perspective of teachers (Noll, Bukowski, Rogosch, LeRoy, & Kulkarni, 1990) using a standardized measure, the Revised Class Play (RCP) (Masten et al., 1985) and matched classroom controls. Findings showed that children with cancer had a reputation as being more socially isolated. Unfortunately this work was completed with a small sample of children with some of the cancer patients still on chemotherapy while others were no longer receiving chemotherapy. The current investigation represents a cross-site replication of earlier work with cancer patients (non-primary central nervous system malignancy) and an extension examining peer relationships for two additional groups of patients, children with SCD and those with primary malignancies of the central nervous system.

These two additional groups of children with chronic illness were included as a method of determining whether distinct diseases with varying ages of

onset, prognosis for cure, potential for death, and impact on the child's central nervous system would demonstrate unique effects on the social and emotional functioning of the child. Thus cancer has a later onset with a intense treatment course lasting one to three years that has many predictable side effects, a high potential for death, and slight impact on the child's central nervous system. For SCD, the onset is at birth with no prognosis for cure, low potential for death during childhood, treatments that have few side effects during childhood, episodic bouts of severe pain and other disease symptoms that are disruptive, and slight impact on the child's central nervous system. The children with brain tumors experience similar encounters to the children with cancer, but the impact of disease and treatment is typically moderate to severe on the child's central nervous system. The purpose of this investigation was to explore the repercussions of three distinct severe chronic illnesses on the social reputation of children from the perspective of teachers using a standardized measure and matched classroom peers as controls.

Method

Subjects

Three groups of children were recruited for this investigation: GROUP 1 (Cancer): Children ages 8-15 who are currently receiving chemotherapy for a primary malignancy that does not involve the central nervous system (CNS), and the medical record contains no history of cerebral neurological complications (N = 26); GROUP 2 (Brain Tumors): Children ages 8-18 treated for primary malignancies involving the CNS above the level of the cervical spine who were no longer receiving active treatment. Four patients in the sample (27%) have had tumor recurrence. Approximately 50% of these patients were treated with

surgery only; the remainder also received radiation and/or chemotherapy (N = 15); and GROUP 3 (Sickle Cell Disease): Children ages 8-15 with SCD, no other hemoglobin abnormality, and the medical record contains no history of cerebral neurological complications. Selection was completed so that approximately 50% of these children have severe disease, hemoglobin SS (N = 17) and the remainder have milder forms of SCD (N = 16).

All children were attending school full time, at least 75% attendance during the month prior to data collection. The school attendance criterion was used to insure that data gathering did not occur during an acute crisis related to diagnosis or relapse for the children with malignancies, or a severe long term medical predicament for the children with SCD, since this research is specifically attempting to evaluate more chronic effects. We excluded children who are receiving full time special education programming (severe learning disabilities or mental retardation) and those children only receiving home bound teaching. Patients with conspicuous sensory or motor impairments that resulted from their disease or treatment (i.e., blindness or hemiplegia), were not enrolled in the study. The age range for GROUP 1 and 3 children was chosen because considerable evidence has demonstrated that children's friendships become increasingly stable and pivotal by age eight; the upper age limit was used so that a planned two year longitudinal investigation could be completed in the public schools.

For the GROUP 2 children, we broadened the age range because the size of the available population of long term survivors was small. From an original pool of 45 children diagnosed with a brain tumor who were at least one year post diagnosis, 15 children were deceased and an additional 15 were excluded

for neurological impairments, special education placements, etc.

Table 1 provides information about the children with chronic conditions. The average time since diagnosis for GROUP 1 children with cancer was 15.1 months (S.D. = 9.23); for children in GROUP 2, brain tumors, the average time since diagnosis was 41.3 months (S.D. = 10.9).

Since Children's Hospital Medical Center is the only hospital in Cincinnati with a pediatric unit, the population of available patients represents nearly every case in the catchment region. We initially approached 75 families and data were collected from the teachers of 74 children with severe chronic illness. No families refused permission to contact their child's school, but one school elected not to participate.

Insert Table 1 about here

Controls

When teachers completed the RCP, they were asked to provide the date of birth, gender, and race for each child in their classroom. Every child with a severe chronic illness was paired with a matched classroom control who was the same race and gender, closest date of birth to the child in that classroom with chronic illness. Since SCD and childhood cancer are not caused by psychosocial characteristics in the child or their family, this matching procedure was used to control for sociocultural effects. Previous work with this classroom matching procedure has shown that controls come from similar communities and the families of controls are of comparable socioeconomic status, religion, family size, and age of parents (Noll, LeRoy, Bukowski,

Rogosch, & Kulkarni, in press). Children with chronic illness attended neighborhood schools or if they were enrolled in a special magnet or private school, so was the control child, suggesting similar family values and resources. Thus each child with chronic illness was paired with a matched peer from the same classroom.

Inspection of the age data for the children showed that the average age of children with cancer (GROUP 1) was 12.5 years, matched controls 12.5 years; for brain tumors (GROUP 2) it was 12.1 years, matched controls 12.0 years; and for children with SCD (GROUP 3) it was 10.2 years, controls 10.1 years. Age differences between the chronically ill children and matched controls were all non-significant.

Materials

The RCP (Masten et al., 1985) is designed to measure a child's social reputation. Respondents are asked to "cast" classmates/students into different roles in an imaginary play. Factor analyses of these roles has revealed three underlying constructs: (a) Sociability-Leadership; (b) Aggressive-Disruptive; and (c) Sensitive-Isolated (Masten et al., 1985; Morison & Masten, 1987; Rubin & Cohen, 1986). These dimensions have been shown to be both internally consistent for both peer (α's range from .81 to .95) (Masten et al., 1985; Noll et al., in press) and teacher nominations (α's range from .58 to .76) (Noll et al., 1990), and stable; correlations across a 17 month interval ranged from .63 to .65 (Masten et al., 1985, Rubin & Cohen, 1986). Moreover, in a seven year follow-up, the Sociability-Leadership score in childhood was shown to be predictive of indices of competence in adolescence whereas the Aggressive-Disruptive and Sensitive-Isolated scores

were shown to be predictive of psychopathology and behavioral problems (Morison & Masten, 1987). The RCP has been shown to be sensitive to the presence of chronic illness in a child (Noll et al., 1990, Noll et al., in press), and teacher nominations on the RCP correlate moderately well with peer nominations (Noll et al., in press).

Because this study was focusing on children with chronic illness, three supplementary roles were added to the RCP that dealt with illness issues (sick a lot, misses a lot of school, and tired a lot).

Procedures

After obtaining permission from the study group's parents, we contacted each child's schools. The children's principals were informed of our interest in childhood friendships in general, and specifically, of our concern about friendships of children with chronic illness. After obtaining the permission of principals, teachers were contacted. If the child attended elementary school we worked with the primary classroom teacher. If the child was in middle school, data were collected from the child's English teacher. The teachers were told that this was a study on children's friendships. After obtaining informed consent, teachers were asked to nominate one student from a roster of either all boys or all girls in their class who best fit each of the RCP roles. The gender of all children listed on the roster matched the gender of the ill child. This was done to avoid sex role stereotyping and to maximize the likelihood that the child with chronic illness would receive nominations.

The RCP was scored according to previously developed procedures (Masten et al., 1985). Raw summary scores, for both the study and control groups, were

standardized by z-scores transformation to adjust for unequal class sizes. The scores on the RCP for the children with chronic illness were compared to those of matched same classroom control children.

Analyses

The children with chronic illness and the control subjects comprising the matched pairs were compared using a repeated measures within subjects design. This design was chosen for two reasons. First, it is likely that a same-gender, similar-age, same-race peer in the identical classroom as the child with chronic illness would be a better comparison point than either the group mean or a randomly chosen peer since the matching procedure eliminates the potentially confounding factors of age, gender, and race. Second, the use of matched pairs would permit the use of a within subjects design that would maximize our statistical power given our modest sample size. In our analyses, the multivariate analysis of variance (MANOVA) was used initially to compare the chronically ill and control children across the three dimensions of the RCP. Since it was our expectation that each of our chronic illnesses could have a unique effect on the child's social functioning, a separate MANOVA was completed for each of the three chronic illness groups versus controls. Whenever a significant multivariate effect was observed, univariate analyses were subsequently performed. This procedure was used to protect against Type 1 errors since the multivariate procedure significantly reduced the number of initial comparisons. Due to our sample size and the unusual nature of the subjects in this sample, marginally significant effects (i.e., p's between .01 and .10) are given some attention so that potentially interesting trends are not overlooked.

Results

Children with Cancer versus Controls

A significant multivariate effect was found F (3, 22) = 3.10, $p < .046$. Univariate analyses of variance were completed for the three RCP dimensions. The data showed the children with cancer were significantly higher on the sociability-leadership dimension and lower on the aggressive-disruptive dimension (Table 2). No significant differences were found on the sensitive-isolated dimension.

Children with Primary Brain Tumors versus Controls

The MANOVA showed a trend towards significance F (3, 11) = 2.68, $p < .094$, so univariate analyses of variance were completed because no information is available on the long term social competence of these children. No significant differences were found on the sociability-leadership or aggressive-disruptive dimensions, but the children who were long term survivors of brain tumors were significantly higher on the sensitive-isolated dimension (Table 2).

Insert Table 2 about here

Children with Sickle Cell Disease versus Controls

The MANOVA was non-significant F (3, 30) = 1.48, $p < .241$. Results of subsequent univariate analyses of variance showed no significant differences although a trend was noted for children with SCD to be lower on the sociability-leadership dimension of the RCP (Table 2). Further analyses were conducted to ascertain whether children with severe forms of SCD had more

difficulties with peers than those with mild forms of SCD. No significant differences were found.

Supplementary Roles

To ascertain whether the RCP was sensitive to the presence of severe chronic illness in a child, three supplemental roles had been added to the original RCP. Results of separate analyses of variance, using raw scores rather than z-scores, for each of the roles for each type of illness showed that the teacher version of the RCP was highly sensitive to the presence of chronic illness in the child, only if the child's disease was still requiring treatment (Table 3). Thus for the children who were long term survivors of brain tumors, their teachers did not perceive them as being sick, tired, or missing more school than healthy matched peers. It is interesting to note that the children with cancer still receiving therapy, but in long term remission were not nominated significantly more often as being tired a lot, despite continued chemotherapy, while the children with SCD were perceived this way by teachers.

Insert Table 3 about here

Discussion

Findings failed to replicate earlier work that used the RCP with a more heterogeneous population of children with ca .er. hus while the previous investigation with the teacher RCP (Noll et a" 990) showed children with cancer to be higher on the sensitivity-isolation dimension, these results failed to replicate. In sharp contrast to earlier findings, this study showed

that children with cancer were elevated on leadership-sociability, lower on aggressive-disruptive, and similar on sensitive-isolated. The previous work was completed at a center that routinely provided extensive psychosocial services for all children and families, while the current project was completed at a larger center that provided more conventional psychosocial services. In addition, the prior findings were obtained for a group of children with cancer that included some who were on chemotherapy (71%), while others were no longer receiving treatment; all of the children with cancer (GROUP 1) in the current inquiry were on chemotherapy. The prior investigation did include a large cohort of patients who had relapsed off chemotherapy (33%), thus requiring additional treatment resulting in therapies that lasted a minimum of five years. Only two of the children in the present study had relapsed (8%) and required repetition of therapy. Thus the children in the current investigation were in more acute phases of therapy, and fewer of the children had experienced years of chronic treatment. It is important to note that contemporary therapeutic regimens for childhood cancers are in general more intense today, with multiple drugs given in higher doses, but fewer children relapse and require a second course of chemotherapy. Both studies were completed on nearly every eligible child receiving treatment at the medical centers, and data collection was completed in an identical fashion. While the above factors may have attributed to the current findings, the failure to replicate and the strikingly different pattern of results would suggest that the experience of childhood cancer and its treatment does not have a significant main effect on the social reputation of children who are afflicted and other non-disease related factors such as individual differences

in the child or family variables may play a more significant role (Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Larsen, 1988).

The children with brain tumors represented a small group of long term survivors from a large cohort of patients initially presenting with these diseases. The small sample of long term survivors reflects the continued poor prognosis for children afflicted with these malignancies. Of the original pool of subjects, 50% who were eligible were excluded because they were in comprehensive special education programs. The final sample evaluated represented a broad range of tumor types and locations, treated with a diverse range of therapies, varying from surgery alone, to high doses of radiation therapy and intense chemotherapy. The data suggest that children who manage to survive these strains and can sustain themselves in regular classrooms are perceived as being more sensitive and isolated. This finding should be considered with extreme caution given the small sample size, the substantial age range we evaluated, and the heterogeneity of tumors and treatments. Clearly more work is needed to determine how these children function socially after they have survived their ordeal. It is very interesting that these long term survivors were not perceived by teachers as having characteristics of sick children. Thus while children receiving therapy for cancer and children with sickle cell disease are perceived by teachers as being sick, missing school, and being tired, these long term survivors of brain tumors are not perceived by teachers as having these characteristics.

The findings for children with SCD are rather surprising, given the number of papers that suggest these children have problematic peer relationships. Although numerous papers suggest interpersonal problems for these children,

only two investigations have obtained data from teachers about the social competence of children with SCD (Conyard et al., 1980; Hurtig et al., 1989). Unfortunately, neither of these innovative studies used controls and both used a non-standardized questionnaire, so it is difficult to interpret their results. While investigators are able to draw some global conclusions about the adaptive functioning of children with SCD without controls, it may be that results reflect base rate occurrences of psychological dysfunction in the community, rather than the effects of SCD. Clearly more work is needed with this population of children, given the severity of symptoms, the chronic nature of this disease, and the large number of children with SCD who live in poverty and single parent households (Hurtig et al., 1989). While the current findings suggest no simple main effects, it seems probable that sub-groups of children with SCD are at risk. Further work is needed with larger samples so that more fine grained analyses can be conducted to determine whether specific sub-groups of children with SCD are at increased risk for social problems based upon gender, disease severity, social class, etc.

Since previous work examining the linkages between stressful life events and children's interpersonal relationships at school had shown that the occurrence of stressful life events in a child's life are associated with school adjustment problems and less interpersonal competence (Cowen & Hightower, 1986; Luthar & Zigler, 1991; Masten et al., 1988), we anticipated that children with severe chronic illness would demonstrate difficulties. The data from the current investigation as well as previous work that focused on interpersonal competence of children with cancer (Noll et al., 1990; Noll et al., in press) suggests that the specific nature of the stressful life events

may be critical in terms of whether social competence is adversely affected. As a group, neither children with cancer nor children with SCD appear to have impaired social relationships as compared with classmates. Thus the impact of stressful life events as measured by life events questionnaires or daily hassles and uplifts scales, may each result in a different impact on the interpersonal competence of the child. Chronic illnesses such as cancer or sickle cell disease cause episodic burdens for the child that ebb and flow across the course of disease and treatment. Commonly these children do not endure severe medical predicaments on a daily basis. Under these circumstances, perhaps children with these diseases have an opportunity to strengthen themselves during these less stressful times. In addition, since children with chronic illness are consistently informed by parents and professionals that their illness is not their fault while being given sympathy and support, it seems feasible that these efforts to attenuate the impact of the child's distress may be worthwhile. In addition to the need for greater specificity regarding the types of stressful life events, the work of Masten et al. (1988) strongly suggests that family qualities and individual differences in the child may play a key role the processes of social adaptation when stress exposure is heightened.

Alternatively, perhaps parents who chronically experience numerous stressful life events or hassles may have vulnerabilities related to their own temperament, physiological reactivity, or psychiatric disabilities that are linked with the occurrence of these events along with a paucity of coping mechanisms accessible to change life circumstances. Their children may be biologically vulnerable along similar lines, thus demonstrating an analogous

pattern of high life stress and adjustment problems. Children with chronic illness may not manifest similar frailties and therefore when confronted with high demands are able to adapt without demonstrating signs of dysfunction. They may be more hardy.

The present study could be improved by using a larger sample of children for our groups. The current findings are limited considerably because the teacher data from the RCP only provides information about the social reputation of a child from the perspective of the teacher. This work would be strengthened considerably by collecting data from another perspective, the peer group. These two sources would provide a more complete picture of the peer relationships of children with different types of chronic illness.

Children afflicted with chronic illness are clearly exposed to numerous stressful life events across the span of their development. Understanding the processes of their adjustment in the face of extremely difficult situations holds the potential for a better understanding of competence and resilience along with the possibility of identifying specific intervention strategies that are applicable for other cohorts of high risk children who appear to fare less optimally than these resilient children with chronic illness.

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Table 1

Disease Status of Children with Chronic Illness

GROUP 1 -- Cancer	
(18 males; 8 females)	
acute lymphocytic leukemia	14
lymphomas	7
solid tumors	5
GROUP 2 -- Brain tumors	
(9 males; 6 females)	
astrocytoma	
supratentorial	3
infratentorial	2
primitive neuroectodermal tumors	
supratentorial	0
infratentorial	4
other	
supratentorial	5
infratentorial	1
GROUP 3 -- Sickle cell disease	
(14 males; 19 females)	
severe forms	
hemoglobin SS	17
mild forms	
hemoglobin SC	10
sickle beta^{+} thalassemia	6

Table 2

Standardized Reputation Scores from the Revised Class Play for Children with Three Types of Chronic Illness: Teacher Nominations

Revised Class Play Scores	Children with Chronic Illness		Control Children			
	Mean	S.D.	Mean	S.D.	F*	p**
GROUP 1: Cancer (N = 26)						
Sociability-Leadership	.49	1.05	-.15	.87	4.76	.04
Aggressive-Disruptive	-.48	.36	-.04	.89	5.53	.03
Sensitive-Isolated	-.18	.83	-.14	.77	.03	.86
GROUP 2: Brain Tumors (N = 15)						
Sociability-Leadership	-.14	.77	.19	1.05	.73	.41
Aggressive-Disruptive	-.38	.61	-.15	.59	.92	.35
Sensitive-Isolated	.88	1.20	-.12	.90	5.28	.04
GROUP 3: Sickle Cell Disease (N = 33)						
Sociability-Leadership	-.25	.68	.16	1.03	3.49	.07
Aggressive-Disruptive	-.05	.85	-.11	.90	.00	.80
Sensitive-Isolated	.30	1.05	.26	1.17	.02	.90

*Degrees of freedom GROUP 1 (1, 24), GROUP 2 (1, 13), GROUP 3 (1, 31).

**Two-tailed probability.

Table 3
Reputation Scores from the Revised Class Play for Children with Three Types of Chronic Illness: Supplementary Roles

Revised Class Play Scores	Children with Chronic Illness Mean	S.D.	Control Children Mean	S.D.	F*	p**
GROUP 1: Cancer (N = 26)						
Sick a lot	.69	.47	.00	.00	56.25	.001
Misses a lot of school	.58	.50	.00	.00	34.09	.001
Tired a lot	.19	.40	.04	.20	2.86	.103
GROUP 2: Brain Tumors (N = 15)						
Sick a lot	.13	.35	.00	.00	2.15	.164
Misses a lot of school	.00	.00	.00	.00	--	--
Tired a lot	.20	.41	.07	.26	1.00	.334
GROUP 3: Sickle Cell Disease (N = 33)						
Sick a lot	.42	.50	.03	.17	16.59	.001
Misses a lot of school	.36	.49	.09	.29	6.26	.018
Tired a lot	.36	.49	.06	.24	8.84	.006

*Degrees of freedom GROUP 1 (1, 24), GROUP 2 (1, 13), GROUP 3 (1, 31).

**Two-tailed probability.