Identity in Adolescent Survivors of Childhood Cancer

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Objective: To investigate identity formation among adolescent survivors of childhood cancer. Family functioning, perceived emotional support from family and peers, life stress, and anxiety produced by the cancer experience also were examined as they influenced identity development.

Method: Participants were 52 adolescent survivors and their mothers recruited from a medical center and 42 healthy adolescent counterparts and their mothers recruited from the community.

Results: A greater frequency of survivors than their healthy peers was found within the foreclosed identity status. Factors associated with the foreclosed identity status included the cancer diagnosis, symptoms of posttraumatic stress disorder (PTSD), and family functioning characterized by greater levels of conflict.

Conclusions: Data were interpreted to suggest that the foreclosed identity status may serve a protective function in assisting survivors to cope with the stressors of the cancer experience.

Key words: cancer; adolescent; identity formation; late effects.

Recent advances in the treatment of childhood cancer have resulted in significant increases in the survival rate of these youths; consequently, the late effects of the disease have garnered burgeoning interest. Medical and psychological late effects are defined as occurring after successful completion of medical therapy, usually 2 or more years from the time of diagnosis (Mulhern, 1994). The medical and psychological late effects are often at odds with the tasks of adolescence and influence survivors’ adaptation, impeding mastery of such typical developmental tasks as identity formation (Erikson, 1968) and independence and autonomy from the family. Adolescent identity formation requires an individuation process in which one differentiates self from parent without becoming totally disconnected from the family of origin (Grotevant & Cooper, 1985). This task is frequently fraught with difficulty and may be intensified as physical and cognitive changes are added to cancer survival sequelae (Madan-Swain & Brown, 1991).

Evidence suggests that a chronic illness may negatively influence identity formation (Hauser et al., 1992). Gavaghan and Roach (1987) found fewer
adolescents diagnosed with cancer in the identity achievement category, the highest status of identity development, than their nondiseased counterparts. However, many of these participants were in the active phase of treatment, so an understanding of identity formation in survivors is still needed. Those variables that influence identity formation, including adaptation to the disease, family functioning, and peer support, have not been examined in survivors of childhood cancer.

Related to the process of identity formation among adolescent cancer survivors is the literature examining adaptation to the disease process (Kazak, 1994). Kazak and colleagues (Kazak et al., 1997) conceptualized cancer as a traumatic event because survivors repeatedly re-experience certain psychological aspects of both the illness and its associated medical therapy. Core symptoms of posttraumatic stress disorder (PTSD) (American Psychiatric Association, 1994) may result, including avoidance of the illness experience (e.g., hospital, clinic), intrusion of the cancer experience during the course of daily activities and in response to minor illnesses (e.g., colds, aches, pain) (Kazak et al., 1997), and hyper-vigilance (e.g., extreme vigilance to any sounds within the environment). These symptoms may persist well after termination of treatment. This tendency to escape reminders of the cancer experience and vest emotional energy in avoidance behavior may cause survivors to harbor a sense of a foreshortened future (American Psychiatric Association, 1994). Thus, survivors may not consider and explore alternative choices. Moreover, some research has suggested that the anxiety and life stressors associated with PTSD symptoms negatively influence cognition (Tramontana & Hooper, 1997), and this is apt to restrict higher levels of identity formation.

During adolescence, most families reorganize boundaries that accommodate the teenagers’ flexible movement into and out of the family system (Grotevant & Cooper, 1985). In fact, some research suggests that maintenance of low levels of flexibility and autonomy among family members may thwart typical adolescent development. For example, as Hauser and colleagues (1992) noted, increasing restrictiveness in the family system in response to a chronic illness may impede successful identity formation. Some research shows increased rigidity in families coping with cancer (Madan-Swain et al., 1994), but other investigations have not observed this phenomenon (Rait et al., 1992).

The contribution of peers to identity development in typical adolescence has been well documented (Feldman & Elliott, 1990). Adolescents seeking support frequently vacillate between their families and their peers (LaGreca et al., 1995). For adolescents who have experienced a chronic illness, socialization experiences with peers, believed to be important in identity formation, may have been limited. However, the role of peers in the task of identity formation among youths coping with chronic illness has not been examined.

This study is one of the first late-effect investigations in the cancer literature examining issues pertaining to identity development. It addresses prior methodological limitations such as a narrow definition of identity (Stern, Norman, & Zevon, 1991) or a heterogeneous sample of youths both on and off therapy (Gavaghan & Roach, 1987) by broadening the focus of identity formation and including only survivors of childhood cancer in the sample. We predicted more cancer survivors within the foreclosed identity status group than healthy controls. We favored the idea that high social desirability may be associated with an enduring tendency to internalize the value system of significant adults in their lives, or prematurely foreclose, or decide on a career (Stern et al., 1991). Based upon the data provided by Gavaghan and Roach (1987), we posited that fewer survivors than healthy counterparts would reach the identity achievement status. Finally, an additional intention of our investigation was to examine the contribution of individual factors including life stress, anxiety regarding the cancer experience, family functioning, and perceived emotional support from family and friends to the foreclosed identity status.

**Method**

**Participants**

Childhood cancer survivors were 12- to 23-year-olds from a major university-affiliated medical center and had completed treatment at least 1 year prior to participating in this investigation. Survivors and their parents were consecutively recruited at routine follow-up appointments during a 9-month period. Because of the severe cognitive impairments of children with brain tumors, which may have impeded their ability to complete the assessment instru-
ments, this group of cancer survivors was excluded from this investigation.

Patients were sent a letter describing our plans to assess the goals and identity formation of adolescent and young adult survivors of childhood cancer. If they were interested in participating, parents were requested either to call or return a stamped self-addressed postcard enclosed with the letter. Of the 75 families who were consecutively referred to the late effects program, 52 (69%) agreed to participate. Results of $t$ tests for continuous variables and chisquares for frequency cross-tabulation data showed that the 23 nonparticipants did not differ from the participants on chronological age, number of months off treatment, type of cancer, severity of disease, or severity of medical late effects. The most common reasons for refusal to participate included not having enough time to complete the measures during the visit or questionnaires that were not currently relevant.

In addition to cancer survivors, a healthy comparison group was recruited from youth clubs and activity centers, technical schools, and private and public universities. The investigators administered a brief medical history interview to determine the existence of prior medical conditions. Four adolescents were excluded from participation because of a previously diagnosed medical condition in their immediate family (e.g., a congenital heart defect). Efforts were made to ensure that the healthy comparison group was similar to the cancer survivor group in age, gender, ethnicity, socioeconomic background, and economic dependence on the family. Table I describes the study participants.

**Cancer Survivors**

The sample consisted of 52 survivors and their mothers from a total of 52 families. The patients ranged in age from 12 to 23 years and had completed treatment on average 5 years prior to participation in this investigation ($M = 5$ years, $SD = 3.34$, range = 1 year to 14 years 4 months) (see Table I for survivor characteristics). The majority of subjects ($n = 27$, 51.9%) had survived leukemia
(ALL \( n = 20 \), AML \( n = 3 \), t-cell leukemia \( n = 3 \), infant leukemia \( n = 1 \)). The remainder of the group had survived various other types of cancer.\(^1\)\(^4\) A large percentage of the survivors \(( n = 36, 69.2\% )\) were from intact two-parent families, and 92.3\% \(( n = 48 )\) were supported by and financially dependent on their parents. Only 5.8\% \(( n = 3 )\) of the survivors were married. Of the survivors, 76.9\% \(( n = 40 )\) were residing with their families at the time of data collection, 17.3\% \(( n = 9 )\) were residing in dormitories while attending college, and 5.8\% \(( n = 3 )\) were living independently in apartments or single-family homes.

**Healthy Comparison Group**

This sample consisted of 42 adolescents or young adults (18 males, 24 females) and their mothers from a total of 42 families. The participants ranged in age from 12 to 23 years.

Most of the healthy comparison group \(( n = 32, 76.2\% )\) were from intact two-parent families, and 95.2\% \(( n = 40 )\) were financially dependent. Only 4.8\% \(( n = 2 )\) were married. Most \(( n = 32, 76.2\% )\) were residing with their families at the time of data collection, 11.9\% \(( n = 5 )\) were residing in dormitories while attending college, and 11.9\% \(( n = 5 )\) were living independently.

**Procedure**

Informed consent and study data were obtained from the adolescents and their parents at the time of their scheduled off-therapy clinic visit. The healthy comparison group was administered an assessment package identical to that administered to the pediatric cancer survivors and their parents. Participants were compensated $10.

\(^{1}\)11.9 \(( n = 27 )\) of this sample had survived acute lymphocytic leukemia (ALL). Among the adolescents who had survived leukemia, 11.5\% \(( n = 6 )\) also received cranial radiation as part of their medical therapy. Only 5.8\% \(( n = 3 )\) of the ALL survivors received a bone marrow transplant; 3.8\% \(( n = 2 )\) survived Ewing’s sarcoma, 5.8\% \(( n = 3 )\) Hodgkin’s, 5.8\% \(( n = 3 )\) Wilm’s tumor, 11.5\% \(( n = 6 )\) osteogenic sarcoma, 3.8\% \(( n = 2 )\) rhabdomyosarcoma, 1.9\% \(( n = 1 )\) histiocytosis, and 1.9\% \(( n = 1 )\) large cell lymphoma.

\(^{2}\)The mean age at diagnosis was 9 years 5 months \((SD = 4.88, \text{range 1 year 1 month to 18 years 6 months})\) and the mean age off therapy was 11 years 5 months \((SD = 4.56, \text{range 3 years 1 month to 19 years 6 months})\).

\(^{3}\)Of the survivors, 82.7\% \(( n = 43 )\) remained in complete and continuous remission after completion of their medical treatment, 11.5\% \(( n = 6 )\) experienced one relapse, and 5.8\% \(( n = 3 )\) experienced two relapses. When comparing the adolescents who relapsed with those who remained in complete and continuous remission across the four identity states, we found no differences.

**Measures**

**Disease Severity**

Additional data were obtained on all survivors from their medical records after their participation in the study. A disease severity index was computed based on information from medical records and independent ratings provided by both the survivor’s primary oncologist and another oncologist (initials R.V.) who reviewed each of the survivors’ medical records. Items selected for inclusion on the disease severity index were obtained from the literature (e.g., Kazak, 1994) and were delineated for review by two pediatric oncologists. Both oncologists reviewed all of the items, and those retained were based on consensus.

The disease severity index was based on three components including treatment history (i.e., whether the child was treated with chemotherapy, radiation, or both and/or transplantation), medical and psychological late effects (i.e., growth failure, cardiac impairment, sterility, second malignancy, skeletal malformations such as scoliosis, asymmetry, and demonstrated developmental late effects including learning disabilities and attention deficit hyperactivity disorder) and the physician’s subjective assessment of the survivors’ disease (i.e., histology, spread, and other biologic measures) and treatment variables (diagnosis, age at diagnosis, length of treatment, types of cytotoxic therapies, complications, time since completion of medical treatment, and number of relapses). Subjects were rated only on the subjective component, and the scores ranged from 4 (mild) to 12 (severe). The reliability of the two raters was .90 (Pearson correlation coefficient). When the frequency of late effects was calculated, a severity score was provided and employed in the analyses. Because of the high reliability, the rating provided by one oncologist (R.V.) was used to quantify each survivor’s disease severity.

**Extended Objective Measure of Ego Identity Status-2 (EOMEIS-2)**

This self-report scale (Adams, Bennion, & Huh, 1989) consists of 64 items reflecting the presence or absence of crisis and commitment in both ideological and interpersonal identity content domains. The EOMEIS-2 classifies individuals into one of four identity states: diffusion, foreclosure, moratorium, and achievement. Identity achievement refers to
those youths who have experienced a period of questioning and exploration and consequently have formed commitments to a personal set of values and beliefs (exploration, commitment). Youths classified as being in moratorium are not committed to personal goals, values, or beliefs, but are in a period of active exploration and reflection (exploration, no commitment). Youths classified in the foreclosure state are committed to goals, values, and beliefs without having experienced a period of questioning or reflection (commitment, no exploration). Finally, youths classified in the identity diffused state are not committed to goals, values, or beliefs and are unconcerned about their present state of indecision (no exploration, no commitment).

EOMEIS-2 raw-scale scores for the identity states are derived by summing responses to the appropriate items (1 = strongly disagree through 6 = strongly agree). Scoring guidelines are provided for treating identity scores both as a categorical and continuous variable. The EOMEIS-2 has demonstrated adequate reliability and concurrent validity (Bennion, 1988; Bennion & Adams, 1986). Internal consistency coefficients were computed for each status (ideological domain: diffused $\alpha = .50$, foreclosure $\alpha = .83$, moratorium $\alpha = .68$, and identity achievement $\alpha = .67$; interpersonal domain: diffused $\alpha = .68$, foreclosure $\alpha = .83$, moratorium $\alpha = .57$, and identity achievement $\alpha = .70$).

Correlates of Identity Formation
The variables were derived theoretically, and the measures selected had been used extensively in the literature and shown to have adequate reliability and validity data. Broad-band scores were employed for each measure.

Adolescent Reports
Marlowe-Crowne Social Desirability Scale. The Marlowe-Crowne (Crowne & Marlowe, 1960), a measure of social desirability, was included because self-report studies are plagued by response bias. The Marlowe-Crowne has been used successfully both with college students and with adolescent cancer survivors (Madan-Swain et al., 1994) and internal consistency coefficient for the present sample was .78.

Posttraumatic Stress Disorder Reaction Index (PTSD Reaction Index). The adolescent and young adult participants were asked to complete the PTSD Reaction Index (Pynoos, Frederick, Nader, & Arroyo, 1987), a self-report measure of 20 possible symptoms of PTSD. Internal consistency coefficient computed for this sample was .84.

Survivors were instructed to respond based on their cancer experience while the healthy comparison group was instructed to identify a significant life stressor, note the date, and refer to it when completing the measure. While it may have been more parsimonious to allow both groups to select any significant life stressor, it would have limited an examination of the cancer experience for survivors per se.

Adolescent Inventory of Life Events and Changes (A-FILE). The adolescent and young adult subjects were requested to complete the A-FILE (McCubbin, Patterson, Bauan, & Harris, 1996), a 50-item self-report measure designed to record normative and nonnormative life events. The measure yields two scores and internal consistency coefficients computed for the recent and past events scale were as follows: A-FILE Recent Events $\alpha = .67$, A-FILE Past Events $\alpha = .66$. Married participants did not complete this measure.

The Perceived Social Support-Family and Perceived Social Support-Friend (PSS-Fa & PSS-Fr). The PSS-Fa and PSS-Fr (Procidano & Heller, 1983) were used to assess adolescent and young adults’ perceived emotional support from family and friends. These measures have been used with adolescents (LaGreca et al., 1995). Internal consistency coefficients were .82 for the PSS-Fa and .73 for the PSS-Fr.

Maternal and Family Functioning
Posttraumatic Stress Reaction Index (PTSD Index). Mothers of all the participating subjects completed the 20-item PTSD Reaction Index (Pynoos et al., 1987), a measure similar to the adolescent and young-adult version. The mothers of childhood cancer survivors responded based on the child’s cancer treatment while comparison families responded to an identified significant life stressor. The internal consistency coefficient for the study sample was .71.

Family Inventory of Life Events and Change (FILE). Mothers of all subjects completed the FILE (McCubbin, Patterson, & Wilson, 1996), a 71-item self-report instrument designed to record both normative and nonnormative life events and changes experienced by a family in the past year. In our investigation the internal consistency coefficient for recent and past events was FILE Present Events $\alpha = .71$, FILE Past Events $\alpha = .69$. 
The Family Environment Scale (FES). All study participants and their mothers completed the FES based on their family of origin (Moos & Moos, 1981). Three higher-order FES factors have been delineated and replicated with families of children with chronic illnesses (Kronenberger & Thompson, 1990). These dimensions have been demonstrated to reflect supportive, conflicted, and controlling aspects of families. Internal consistency coefficients were computed and found to be acceptable for supportiveness ($\alpha = .61$) and conflicted ($\alpha = .65$), but not for the controlling factor ($\alpha = .33$). For this reason, we did not use the controlling factor in any further analyses.

Results
We compared the survivors and the healthy comparison group on all demographic variables. Continuous variables were analyzed with t tests and categorical variables were analyzed by chi-square tests of association. We found no significant demographic differences between the groups (see Table I). Results are organized in three sections. The first group of analyses focused on identity formation and examined differences in identity status between the survivors and the healthy comparison group. In accordance with the scoring criteria outlined by Adams et al., (1989), identity formation was examined both as a categorical variable (diffused, foreclosed, moratorium, or identity achievement) and as a continuous variable. We used a categorical analysis so that frequency data could be directly compared with the method used by Gavaghan and Roach (1987). We used log-linear analyses to examine identity as a categorical variable. Second, in order to take into account individual variability within each identity status and to explore the association between overall identity status and intraindividual and family variables, we also treated identity as a continuous variable. A multivariate analysis of covariance (MANCOVA) was used to examine the identity states as continuous variables. Finally, analyses were conducted to examine the associations of the foreclosed identity status with intraindividual factors, family functioning, and social support.

Identity Formation
We hypothesized that survivors would be less likely to reach the identity achievement status and more likely to fall into the foreclosed identity status than the healthy comparison group members. These predictions reflected differences in the interpersonal and ideological domains.

Categorical Examination of Identity Status
We used log-linear analyses to examine the association of group membership (survivor versus healthy comparison group), identity status, and chronological age (young adolescent group, 17 years 11 months, and younger versus older adolescent group, 18 years and older). Two separate hierarchical log-linear analyses were conducted to determine goodness of fit, one for the interpersonal and one for the ideological identity domain data. Table II shows observed and expected counts. The saturated models in both analyses were reduced using backward selection until all nonsignificant terms were eliminated. A dependency between identity status and age was selected for both the interpersonal, $\chi^2 (8) = 7.76, p = .46$, and the ideological, $\chi^2 (8) = 9.15, p = .33$, domains, and group membership did not enter the model. These statistically nonsignificant likelihood-ratio chi-square values indicated no significant deviation from the age by identity status model selected (i.e., this model of dependency fit the frequency data, and group membership did not make an overall contribution). The null hypothesis indicates that the data fit the hypothesized model, while the alternative hypothesis states that the data do not fit the hypothesized model. Thus, failing to reject the null hypothesis supports the model. For both the survivors and their healthy counterparts, a larger frequency of individuals within the diffused status was found during early and middle adolescence and a corresponding increase in the identity achievement status was found during late adolescence.

Consistent with stage theory recognizing a developmental continuum of identity stages and prior research with childhood cancer survivors (Stern et al., 1991), we hypothesized a priori that a higher frequency of survivors would attain the foreclosed status than their healthy counterparts. To examine any difference in the frequency of individuals within the foreclosed status relative to the other three identity statuses, we conducted a further analysis by collapsing diffusion, moratorium, and achievement into a single category and comparing it to the foreclosed status. The log-linear analyses for the interpersonal domain revealed that the data fit the model proposed between group membership
and the collapsed identity states, as well as a main effect for age, $\chi^2 (3) = .36, p = .95$. The results of the log-linear analyses computed for the ideological domain yielded a similar interaction between group membership and the collapsed identity states and a main effect for age, $\chi^2 (3) = 1.98, p = .58$. Again, both for survivors and healthy controls, there was an age-dependent progression of identity development. Because of the statistical nonsignificance obtained from the model, goodness of fit was demonstrated. The interaction accounted for the greater frequency of survivors ($n = 19$) in the foreclosed status relative to the healthy comparison group ($n = 7$).

Because we also hypothesized a priori that fewer survivors than healthy peers would attain the identity achieved status, we conducted a further analysis by collapsing the diffused, foreclosed, and moratorium states into a single category and comparing it to the identity achieved status. A dependency between identity status and age was selected for both the interpersonal, $\chi^2 (4) = 4.72, p = .32$, and ideological, $\chi^2 (4) = 1.85, p = .76$, domains and group membership did not enter the final model. Thus, the model failed to confirm our hypothesis that group membership was associated with identity.

**Table II.** Observed and Expected Frequencies: Identity Status by Group Membership and Age Using Log-Linear Models

<table>
<thead>
<tr>
<th>Interpersonal domain</th>
<th>Diffused</th>
<th>Expected</th>
<th>Foreclosed</th>
<th>Expected</th>
<th>Moratorium</th>
<th>Expected</th>
<th>Achieved</th>
<th>Expected</th>
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</thead>
<tbody>
<tr>
<td>Early/middle adol. groups</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Cancer</td>
<td>12</td>
<td>11.5</td>
<td>11</td>
<td>8.0</td>
<td>9.5</td>
<td>1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Healthy</td>
<td>11</td>
<td>11.5</td>
<td>5</td>
<td>8.0</td>
<td>11</td>
<td>9.5</td>
<td>1</td>
<td>1.0</td>
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<tr>
<td>Late adol. groups</td>
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<tr>
<td>Cancer</td>
<td>2</td>
<td>1.5</td>
<td>7</td>
<td>4.5</td>
<td>7</td>
<td>5.5</td>
<td>4</td>
<td>5.5</td>
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<tr>
<td>Healthy</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
<td>4.5</td>
<td>4</td>
<td>5.5</td>
<td>7</td>
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<td>Ideological domain</td>
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<tr>
<td>Cancer</td>
<td>14</td>
<td>14.0</td>
<td>11</td>
<td>8.5</td>
<td>6</td>
<td>6.0</td>
<td>1</td>
<td>1.5</td>
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<tr>
<td>Healthy</td>
<td>14</td>
<td>14.0</td>
<td>6</td>
<td>8.5</td>
<td>6</td>
<td>6.0</td>
<td>2</td>
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<tr>
<td>Cancer</td>
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<td>3.5</td>
<td>8</td>
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<tr>
<td>Healthy</td>
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</table>

Adol. = adolescence.

Finally, based on the notion that identity follows a hierarchical progression, we used the identity measures as continuous variables to examine overall group differences in the magnitude of the four identity states. Identity scores were obtained for each subject based on the scoring rules outlined by Adams et al. (1989). Scores from each of the four states (diffused, foreclosed, moratorium, achieved) were entered as dependent variables into a MANCOVA using the Marlowe-Crowne (Crown & Marlowe, 1960) as a covariate because of the potential influence of social desirability on the various dependent measures. This mitigated the potential impact of this response set on the measures employed. The results of this MANCOVA indicated a significant difference for group membership (survivors, healthy controls), $F(4, 88) = 3.5, p < .01$. Subsequent univariate analyses of covariance (ANCOVAs) revealed that the survivors and the healthy comparison groups differed only on the foreclosed status, $F(1, 91) = 12.8, p < .001$, with the survivors endorsing significantly greater levels of foreclosure ($M = 52.8, SD = 12.7$) than their healthy counterparts ($M = 42.8, SD = 11.0$). Finally, the analyses were repeated using diagnosis as an independent variable (leukemia, all other cancer diagnoses, and healthy controls). We obtained no significant results as a function of cancer type.

**Correlates of Identity Formation**

We hypothesized that individual factors, family functioning, and perceived emotional support from family and peers would influence the foreclosed identity status and contribute significantly to the variance within this status. A series of Pearson
product-moment correlation coefficients was performed among the continuous foreclosed identity type and each of the parent and child variables. Because of the numerous correlations performed, we performed a Bonferroni correction procedure when we examined associations. The α level applied to each comparison in order to maintain a family-wise α of .05 was .002. Results of the correlation coefficients performed between the foreclosed identity status and the adolescent dependent measures revealed significant associations between the foreclosure status and the FES conflict ($r = .33, p < .001$), indicating that family ratings of more conflict were associated with higher foreclosure scores. After Bonferroni corrections were employed to maintain a family-wise significance level of .05, for the survivors, .01 was used for each comparison. Significant associations also were found between age off therapy ($r = .29, p < .01$), disease severity index ($r = .32, p < .01$), number of years off therapy ($r = .29, p < .01$), length of treatment ($r = .33, p < .01$), and foreclosure, indicating that greater foreclosure scores were positively associated with the aforementioned disease variables (i.e., longer length of time off therapy, greater severity of disease, length of treatment). No other significant associations were obtained.

Results of the correlation coefficients computed for the dependent measures and the identity types for maternal variables revealed a significant association between FES conflict ($r = .29, p < .002$) and the foreclosed status. Consistent with the adolescent family data, mothers who rated their families as more conflicted had adolescents who endorsed greater foreclosure. We obtained no other significant associations for the mother data.

Based on the correlation coefficients obtained and current empirical findings in the cancer literature (e.g., PTSD findings by Kazak et al., 1997), we constructed a regression equation for the foreclosed identity raw scores as the dependent variable. The variables selected in the regression equation included chronological age, group membership (cancer vs. no disease), adolescent PTSD symptoms, and maternal FES conflict. Although the bivariate association between the PTSD measure and the foreclosure status was not significant, the adolescent PTSD measure was entered into the equation due to theoretical assumptions. Because both the strength and the direction of the relationships between maternal and adolescent ratings on the FES conflict factor ($r = .33, mother; r = .33, adolescent; both ps < .002$) was similar, only the maternal FES conflict factor was used in the regression model.

The results of a hierarchical regression model yielded a significant overall model, $R^2 = .31, F(4, 89) = 10.2, p < .01$. This model allowed for an examination of the uniform effects of group membership, PTSD symptoms, and family functioning, once age was controlled. The order of entry was controlled, and chronological age was entered first into the model and accounted for 7% of the variance in the foreclosure status, $R^2 = .07, F(1, 92) = 7.12, p < .01$. Subsequently, when group membership was entered, it accounted for an additional 16% of the variance, $R^2$ change = .16, $F(2, 91) = 18.50, p < .001$. In addition, when adolescent and young adult PTSD symptoms were entered, they accounted for an additional 5% of the variance, $R^2$ change = .05, $F(3, 90) = 6.25, p < .02$. Finally, the FES Parent Conflict factor was entered on the fourth step and accounted for an additional 3% of the variance, $R^2$ change = .03, $F(4, 89) = 4.63, p < .04$.

**Discussion**

We sought to examine identity formation in survivors of childhood cancer. We hypothesized that a greater number of survivors would be found in the foreclosed identity status. This is consistent with the data provided by Stern and associates (1991), who found that these youths prematurely foreclose on career decisions. Individuals in the foreclosed status have not yet actively questioned alternative points of view but have made a strong commitment to one position, which they will defend. This commitment is typically an extension of the values and expectations of significant adults in their lives and suggests that survivors may be more reluctant to risk exploration of alternative value systems. Because of the cancer experience, survivors may have had to foreclose on their options for a variety of reasons, including limited cognitive and physical functioning or because of the specific realities of their treatment outcome.

In further support of our findings, recent research by Phipps and Srivastava (1997) has provided data to suggest a tendency for patients diagnosed with cancer to exhibit a “repressive style of adaptation” (or, more specifically, an avoidant coping style), a tendency to minimize distress, and repres-
sion of dysphoric affect. They suggested that the etiology of such a style may originate in the stressors of the illness and its associated therapies. Their data and our results suggest that adopting the views of significant others (i.e., foreclosed status) might serve a protective function in assisting these adolescents to cope with the stress of the cancer experience and the sequelae of medical and psychological late effects. It is noteworthy that the disease variables were significantly correlated with the foreclosed status, suggesting that the cancer experience is strongly associated with survivors’ membership within this category. By committing and internalizing the belief system of significant adults, the survivor does not have to deal with the uncertainty and ambiguity of exploring future alternatives. This speculation warrants future investigation.

We found no difference between survivors and their healthy counterparts in the attainment of the identity achievement status. This result is in contrast to the data provided by Gavaghan and Roach, who studied children who were still undergoing treatment for cancer, while our participants were all off-therapy. Methodologically, Gavaghan and Roach used an interview format focusing on specific identity domains (career, marriage, religion, and social relationships), whereas our investigation used an objective self-report measure of identity that yielded global scores.

After controlling for the expected contribution of chronological age in the regression equation, the hypothesized processes underlying the finding of survivors within the foreclosed status, and the association among stressful events, we confirmed PTSD symptoms related to the cancer experience and family functioning. These findings provide additional information regarding the association between adolescent PTSD symptoms and family functioning and the foreclosed identity status. One possible explanation is that PTSD symptoms may increase the structured, restrictive style of the families. The restrictiveness of these family patterns may limit the change that is central to the adolescents’ development of identity. In essence, families with childhood cancer likely are more rule-bound and role-governed and thus less able to accommodate to the developmental tasks of adolescence.

We found no significant associations for the contribution of peer emotional support to the process of identity formation. Moreover, each group endorsed peer support that was within the normative range, suggesting that survivors believe that their needs for support, information, and feedback are fulfilled by their social network. Whether peer networks or social supports are essential factors in the identity formation of adolescent survivors to the cancer experience is an area destined for future research.

The contribution of our investigation must be considered within its limitations. First, the study used a cross-sectional design, which does not permit evaluation of patterns of development over time. Future studies will need to incorporate longitudinal designs. Further, our design controlled only for the effect of a chronic disease on identity rather than allowing for specific control of the cancer experience. To examine specifically for the cancer experience, future research will need to include both a healthy and chronically ill comparison group. Second, the association of family functioning within the foreclosed status, though intriguing, cannot be considered causal because of the correlational nature of the investigation. Third, the use of the objective measurement strategy did not allow exploration of identity within specific content domains. Future studies will need to incorporate additional measurement strategies, such as interviews that allow for an examination of specific content domains. Fourth, inherent in this investigation is the notion of a bipolar stage theory in which the adolescent is thought to move from one clear descriptive level (i.e., identity status) to another. Such a stage theory does not allow for an explanation of adolescents’ behavior as they move within stages, a pattern accounted for by Piaget’s notion of decolage. Within identity formation, it is possible for individuals to exhibit both horizontal and vertical decolage. Thus, individuals might be classified into different identity states depending on the specific identity content domain. Unfortunately, our assessment instrument precluded an examination of identity across content domains. Also, characteristic of many clinical studies, the sample size might have limited power and obscured significant effects that otherwise may have been revealed with a larger sample. Sixth, the heterogeneity in the age range of the participants, time off treatment, and type of cancer may have obscured possible associations among the variables. However, age effects were controlled statistically and no differences were obtained for cancer diagnoses.

How does the experience of having survived
cancer alter the trajectory of identity formation? Further study is required to determine whether survivors will remain foreclosed, or whether they will follow the same developmental path of identity, progressing, later in life, to the higher states of moratorium and identity achievement. Such research would have clinical implications for medical treatment teams working with adolescents and young adults undergoing cancer treatment, as well as with survivors of childhood cancer.

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