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Optimism and Pessimism in Children with Cancer and Healthy Children: Confirmatory Factor Analysis of the Youth Life Orientation Test and Relations with Health-Related Quality of Life

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Abstract

Objective To test the measurement equivalence of the Youth Life Orientation Test (YLOT) in children with cancer (*N* = 199) and healthy controls (*N* = 108), and to examine optimism and pessimism as predictors of children's health-related quality of life (HRQL). **Methods** Confirmatory factor analysis (CFA)

was conducted to establish the two factor structure of the YLOT and to test for metric invariance. **Results** A two-factor structure for the YLOT was confirmed and found to be stable across our study groups. There were no differences in mean levels of optimism and pessimism between cancer patients and controls after controlling for race/ethnicity. Higher optimism was associated with lower self-reports of pain and better emotional/behavioral functioning, whereas pessimism was related to poorer mental health and general behavior, and greater impact on the family. **Conclusions** Optimism and pessimism appear to be differentially related to certain aspects of children's HRQL, and should be investigated separately in relation to these outcomes.

Optimism and pessimism have become the focus of considerable theoretical and empirical research in recent decades, particularly in regards to health outcomes (Carver & Scheier, 2002). These constructs are most often defined as the dispositional tendency to have either positive or negative expectations for the future (Scheier & Carver, 1985). Pessimism, or having negative generalized outcome expectancies, is characterized by the belief that bad outcomes are inevitable and things are not likely to go well most of the time. Pessimism has been associated with negative affect, neuroticism, passivity, poor performance, social isolation, and mortality (Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992). Conversely, individuals who exhibit high levels of dispositional optimism report positive global expectancies, and when faced with problems in important life domains believe that good outcomes will be attained. Optimism is predictive of diverse behaviors and characteristics including positive mood, perseverance, achievement, extraversion, and longevity (Peterson, 2000). An optimistic life orientation has also been found to promote psychological resiliency and

positive health outcomes in individuals with chronic diseases. For example, adult cancer patients with higher levels of dispositional optimism report less anxiety and depression (Bjorck, Hopp, & Jones, 1999) and have higher overall well-being and lower levels of distress (Miller et al., 1996). Additionally, in one study, optimism was associated with higher cancer survival rates (Allison, Guichard, Fung, & Gilain, 2003).

Few studies have investigated optimism and pessimism in relation to psychological adjustment or health outcomes during childhood. This was historically due to the lack of a well-validated measure of these characteristics for use with children. Early studies examining the nature of children's expectancies relied on adult questionnaires that assessed related constructs. Illustratively, one of the first studies in this area to examine both positive and negative expectations in children used the Generalized Expectancy for Success Scale (Fibel & Hale, 1978; Fischer & Leitenberg, 1986). The development of the Life Orientation Test (LOT, and subsequently the LOT-R; Carver & Scheier, 2002; Scheier & Carver, 1985) in the mid-80s represented a significant advancement in the study of optimism and pessimism in adults, but research with children continued to lag behind until Ey and colleagues (Ey et al., 2005) developed the Youth Life Orientation Test (YLOT) to serve as a child analogue of the LOT-R. This new measure shares some overlap with other child self-report measures such as the Children's Hope Scale (Snyder et al., 1997), the Self-Perception Profile Scale for Children (SPPC; Harter, 1985), and the Children's Attributional Style Questionnaire (CASQ; Kaslow, Tanenbaum, & Seligman, 1978). However, the YLOT more specifically assesses the constructs of optimism and pessimism as they have been described in the literature.

There is a lack of consensus in the literature regarding whether optimism and pessimism are best construed as two separate constructs or as opposite ends of a single continuum. Multiple studies conducted with the LOT-R (Herzberg, Glaesmer, & Hoyer, 2006; Mroczek, Spiro, Aldwin, Ozer, & Bosse, 1993) have yet to resolve this issue, thus, it is not surprising that the same conceptual uncertainty exists with the YLOT. Factor analysis of the YLOT using initial validation samples suggested a two-factor model, with a moderate inverse correlation between the factors of optimism and pessimism ($r = -.48$, Ey et al., 2005). However, several studies using the YLOT have summed children's scores to create a single "global optimism" variable (i.e., with a high score suggestive of high optimism/low pessimism) (Klesges et al., 2004). In one exception, Taylor et al. (2004) used separate optimism and pessimism scores from the YLOT and found they were differentially associated with girls' health behaviors. These findings highlight the need for further confirmation of the underlying measurement structure of the YLOT.

Investigation of the correlates of optimism and pessimism in children with chronic illness is an important direction for research using the YLOT. Studies in this area are not only needed to further establish the predictive validity of this measure, but also have the potential to advance our current understanding of psychosocial risk and resiliency in children with health problems. One population in which the benefits of an optimistic disposition might be particularly relevant is children with cancer. In this population, health-related quality of life (HRQL) has emerged as major outcome of interest, and includes assessment of the impact of childhood cancer on children's physical symptoms or health status, psychological adjustment and emotional well-being, social functioning (e.g., peer and family relationships), and academic functioning (Palermo et al., 2007; Varni,

Limbers, & Burwinkle, 2007). Although pediatric cancer patients undergoing active therapy tend to report overall lower HRQL, their functioning improves over time and surprisingly, most survivors report as good, or superior, long-term HRQL compared to healthy controls (Banks, Barrowman, & Klaassen, 2008; Maurice-Stam et al., 2008; Shankar et al., 2005).

Comparatively fewer studies have examined dispositional characteristics in relation to HRQL in children with cancer. Existing data in this area suggest that a cognitive coping style characterized by positive expectations about treatment efficacy, hopefulness, and a low anxious or repressive adaptive style, are associated with resilient outcomes (Jurbergs, Russell, Long, & Phipps, 2007; Stam, Grootenhuis, Caron, & Last, 2006). These findings, along with evidence that optimism is related to positive outcomes in adult cancer patients, suggest that dispositional optimism and/or pessimism may be one pathway to resilient HRQL outcomes in children with cancer/cancer survivors.

The present study was designed to add to the literature exploring optimism and pessimism in children and had two specific objectives. Our first objective was to further develop the construct validity of the YLOT and provide evidence that optimism and pessimism are conceptually distinct constructs. To this end, we conducted a confirmatory factor analysis (CFA) of this instrument and tested it for metric invariance in children with cancer and healthy controls. We expected that items on the YLOT would be better explained by a two-factor structure relative to a single latent variable model, demonstrating that optimism and pessimism are separate, albeit related, constructs. Moreover, given that optimism and pessimism are theoretically stable dispositional traits, we expected that that the factor structure of the

YLOT would be invariant across our study groups. Our second objective was to extend these findings by testing for group differences in optimism and pessimism and to examine whether child optimism and pessimism were related to child and parent perceptions of children's HRQL. Regarding the latter, we tested whether children's YLOT scores predicted parent and child-reported HRQL outcomes after accounting for other factors that have been found to influence these outcomes. We anticipated that optimism and pessimism would (a) not differ with respect to mean levels between the study groups, (b) account for significant variance in outcomes beyond that related to child age, race, gender, SES, and treatment status, and (c) be more strongly related to perceptions of functioning in the mental health versus physical HRQL domains. In addition, because of the anticipated moderate inverse association between optimism and pessimism, we expected that these characteristics would demonstrate a distinct pattern of inverse relationships with HRQL outcomes. Specifically, we expected a general pattern of optimism being more strongly related to better functioning and pessimism exhibiting a stronger negative relation with poorer functioning across HRQL outcomes. Finally, we conducted exploratory moderation analyses to examine whether the relations of optimism and pessimism to HRQL outcomes varied as a function on group membership (i.e., cancer vs. control). Given the trait-like nature of these dispositional characteristics, we expected to find an absence of group × optimism and group × pessimism interaction effects. Because of evidence that parents tend to underestimate the HRQL of their children compared with child report, we examined the above hypotheses in relation to both child self-report and parent-report of children's HRQL.

Methods

Participants

Children with cancer and cancer survivors were recruited from the outpatient clinics of a major pediatric oncology institution following protocols approved by the hospital Institutional Review Board. Eligible patients were between 7 and 18 years of age, English-speaking, and without known cognitive impairments. Eligibility criteria specified that patients were at least 1 month from diagnosis; however, there was no upper limit on time elapsed since diagnosis. Out of the 339 patients targeted for enrollment, 249 (73%) agreed to participate and their parents signed informed consent. Thirty-five enrolled participants returned incomplete data and 15 withdrew from the study. The primary reason for withdraw was that the parent and/or child changed his/her mind about participating. In addition, three participants gave no reason for withdrawing, one participant cited worsening health status, and one participant was deceased prior to completing the questionnaires. Our final sample included 199 children with cancer, including 71 patients who were actively receiving treatment and 128 patients who had completed treatment. Information regarding the illness characteristics (e.g., diagnostic category, time since diagnosis) for these participants have been reported elsewhere (Russell, Hudson, Long, & Phipps, 2006). An "acquaintance control" method was used to recruit healthy children in an attempt to obtain a demographically similar comparison group. Because our institution serves patients from a wide geographical area, this sampling technique was chosen in an attempt to match participants on urban, suburban, and rural residency in addition to basic demographic characteristics. This methodology yielded a total of 367 referrals, of which 5 proved ineligible, 8 refused participation, and 57 could not be contacted. Informed consent was obtained from 297 referred children and their parents via telephone calls or postal mail, and eligible families

who agreed to participate were subsequently mailed survey packets. Of the 297 distributed packets, 108 (36%) were returned complete.

Sample characteristics for the three study groups are presented in Table I. Although the groups were similar in gender composition, significant group differences were found with respect to age, race, and SES. Children actively receiving treatment were younger than children in both the off-treatment and control groups [$F(2, 304) = 7.00$, $p < .001$], and control participants reported higher SES than both cancer groups [$F(2, 304) = 10.17$, $p < .001$]. Additionally, children with cancer and cancer survivors were more likely to be racial/ethnic minorities compared with children in the control group [$\chi^2(2) = 11.70$, $p < .01$].

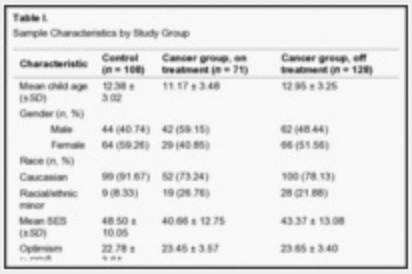

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Table I. Sample Characteristics by Study Group

Measures

Optimism and Pessimism

The Youth Life Orientation Test (YLOT) (Ey et al., 2005) is a child analogue of the Life Orientation Test (Scheier & Carver, 1985), a well-established measure of dispositional optimism in adults. The YLOT includes seven optimism items (e.g., “I usually expect to have a good day”), seven pessimism items (e.g., “If something nice happens, chances are it won’t be to me”), and two filler items (e.g., “I like to be active”). Respondents rate their agreement with these 16 statements using a 4-point

Likert scale, where 1 = “true for me”, 2 = “sort of true for me”, 3 = “sort of not true for me”, and 4 = “not true for me.” The total score (i.e., global optimism) ranges from 14 to 56, and subscale scores (i.e., optimism and pessimism) range from 6 to 28. One month test–retest reliabilities were .68 for both optimism and pessimism, and 7 month test–retest reliabilities were .46 and .45 for optimism and pessimism, respectively (Ey et al., 2005).

Health-Related Quality of Life

The Children's Health Questionnaire was used to assess parent and child perceptions of children's HRQL (CHQ; Landgraf, Abetz, & Ware, 1999). For the present study, we used the 50-item intermediate length parent report version of the CHQ, which asks respondents to report on their child's functioning across seven domains, including physical functioning, body pain, general health perceptions, mental health, self-esteem, general behavior, and impact on the family. The child-report version of the CHQ contains identical items to most of those in the parent-report version, and contains an additional 43 items not found in the parent form. Because equivalent parent and child-report versions of the CHQ have not yet been developed, to maintain consistency across outcomes in the current study, only the 44 overlapping items on the child-report CHQ were used to evaluate the same seven domains as the parent-report version (see also Levi & Drotar, 1999). Subscales are scored on a 0–100 metric, with higher numbers reflecting better HRQL. In the current study, internal consistency estimates for the CHQ subscales were acceptable for both parent-report (α = .68 to .93, with a mean of .82) and child-report (α = .68 to .88, with a mean of .79) versions. Associations between parent- and child-report on the CHQ subscales in this sample, along with group means and standard deviations, have been recently reported elsewhere (Russell et al., 2004).

Procedures

Eligible cancer patients were identified from clinic schedules, and patients and their parents identified for recruitment were approached in person. Interested participants signed consents, completed study questionnaires, and were asked to identify three friends who might be willing to complete a similar packet of questionnaires. Eligibility criteria specified that these should be acquaintances of the same gender who were within ± 2 years of the target child's own age and had no history of major illnesses. Potential acquaintance controls were sent a letter describing the study, a copy of the consent form, and a return postcard to indicate whether or not they were interested. Those who returned the postcard indicating interest were contacted by telephone to obtain informed consent and a packet of questionnaires was sent to the home along with instructions and a stamped return envelope. A reminder postcard was sent if completed surveys were not returned after 3 weeks, and participants were contacted by telephone if the survey packet had still not been received 2 weeks after mailing the postcard. After this telephone call, no further attempts were made to contact with the participant, regardless of whether surveys have been returned or not. If the initial postcard was not returned, we attempted to contact the acquaintance by telephone to determine whether or not they were interested in participating in the study.

Statistical Methods

Confirmatory factor analysis (CFA) and multigroup CFA were conducted using Mplus 3.0 statistical software (Muthen & Muthen, 2004). CFA was used to examine the comparative fit of a one- versus two-factor model for the YLOT. Missing values were not imputed and were handled with the maximum likelihood procedure available in Mplus. Following the

recommendations of Hu and Bentler (1999), the adequacy of model fit was evaluated based on the following statistics: chi square (χ^2), Tucker Lewis Index (TLI; >.95 excellent), Comparative Fit Index (CFI; >.90 acceptable, >.95 excellent), and root mean square error of approximation (RMSEA; <.08 acceptable, <.05 excellent). Because the χ^2-statistic is sensitive to sample size and can be unreliable (Klein, 2005), we focused on the TLI, CFI, and RMSEA values. A two-factor model was examined first, followed a single factor model. Fit indices were examined for both models independently, and the change in χ^2 between the two models was calculated to determine whether the two-factor model provided a significantly better fit for the data than the one-factor model. Multigroup CFAs were conducted to test for configural invariance and strong invariance (Vandenberg & Lance, 2000). For the present study, configural invariance (i.e., whether the factor structure of the YLOT is stable across children with cancer and healthy controls) was tested by examining differences in the pattern of factor loadings between a model in which individual parameters were constrained to be equal for the cancer and control groups (constrained model) and models in which factor loadings were allowed to be freely estimated (unconstrained models) across groups. This process began by allowing the factor loadings for one item to be freely estimated across groups, while imposing equality constraints on factor loadings for the remaining items. A χ^2 difference test was then conducted to determine whether this unconstrained model fit better than the constrained model. These analyses were repeated for each individual item on the YLOT in an additive process following guidelines outlined by Klein (2005). Specifically, if no difference in model fit is observed between the constrained and unconstrained models, factor loadings for the unconstrained item are set to be equal across groups

in all subsequent analyses. However, if the χ^2-test indicates a significant difference in model fit, the unconstrained item continues to be freely estimated in successive models, and the resulting χ^2-value is used as the basis for comparison for the next CFA. The process described above was also used to conduct the tests for strong invariance, but instead of testing factor loadings we examined whether the residual variances of the items, the variances of the factors, the covariance between the factors, and the factor means were similar across groups.

One-way analysis of covariance (ANCOVA) was used to test for possible differences in optimism and pessimism between the three study groups, controlling for race/ethnicity. Hierarchical multiple regression analyses were then conducted to investigate the predictive validity of the optimism and pessimism in relation to children's HRQL. All regression analyses included the following covariates: child age, gender, race, and SES (entered in Step 2). In addition, the two cancer groups were collapsed for these analyses to create a two-level (cancer vs. control) variable that was included as a covariate in the models. YLOT optimism and pessimism were then entered as predictors in Step 3, followed by group × optimism and group × pessimism interaction terms in Step 4. Parent- and child-reported HRQL served as the criterion variables in separate regressions.

Results

Confirmatory Factor Analyses

Two CFA models were analyzed using our combined sample of children with cancer and healthy controls with complete data on this instrument (N = 301). The first CFA was conducted to test the original theory driven two-

factor model of the YLOT. Results and fit indices for this model are presented in Figure 1. Results indicated adequate fit for the specified two-factor ($\chi^2 = 298.621$, df = 195, p = .000, TLI = .908, CFI = .902, RMSEA = .059). For comparison purposes, a second CFA specifying a one-factor solution for the YLOT was examined. Findings suggested poor fit for this alternative model ($\chi^2 = 422.621$, df = 196, p = .000, TLI = .800, CFI = .785, RMSEA = .088). Further, the two models were determined to be significantly different from one another as indicated by statistically significant change in χ^2.

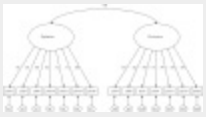

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Fig. 1. CFA of the YLOT (*n* = 301). $\chi^2 = 298.621$, *df* = 195, *p* =.000, TLI =.908, CFI =.902, RMSEA = .059.

After determining that that a two-factor model provided a better fit for the data compared with a single factor model, multigroup CFA was conducted to examine whether the two-factor model demonstrated metric stability for both children with cancer and healthy acquaintance controls. Individual parameters were freed one at a time between groups, and the resulting chi-square value for each unconstrained model was compared with the chi-squared value from the base model in which all factors loadings were set to be equal. Results of the multigroup CFA indicated no statistically significant change in χ^2 for any of the factor loadings between groups.

After establishing configural invariance, tests for strong invariance were conducted to determine whether the constructs in the model can be meaningfully compared across groups. First, we tested whether the residual

variances for the manifest variables varied across groups by individually allowing the residual variance for one item to be freely estimated across groups, while imposing equality constraints on residual variances for the remaining items. A χ^2 difference test was then conducted to determine whether this unconstrained model fit better than the constrained model. Results of these analyses indicated a significant change in χ^2 for one of the residual variances (item 4 on the YLOT). Thus, this item continued to be freely estimated in successive models, and the resulting χ^2 value was used as the basis for comparison for the next CFA. No statistically significant change in χ^2 for the remaining residual variances was found between groups. Second, we examined whether (a) the variances of the factors, and (b) the covariance between the factors, were equal across groups. These analyses followed the same procedure as used to differences in factor loadings and residual variances. Results of a χ^2 difference test indicated no difference between the constrained and unconstrained models, indicating that the variances of the factors and the covariance between the factors were stable across groups. Finally, we tested for invariance across factor means between the groups. No difference was found in the mean of Factor 2, but a significant difference between the groups was found with respect to the mean for Factor 1. Specifically, the mean for Factor 1 (optimism) was significantly lower in the control group compared with the cancer group. This result may be due to differences in race/ethnicity between the cancer and control groups and is discussed later. Overall, our multigroup CFA results suggest that YLOT items measure the constructs of optimism and pessimism similarly in pediatric cancer patients and their healthy acquaintances of similar age.

Optimism, Pessimism, and HRQL

Consistent with previous research, a moderate inverse association was found between optimism and pessimism ($r = -.50$, $p < .001$). Group means and standard deviations for children's optimism scores are reported in Table I. As hypothesized, findings from one-way ANCOVAs of YLOT scores yielded no significant group differences in mean levels of optimism [$F(3, 294) = .88$, ns] or pessimism [$F(3, 291) = 1.62$, ns] after controlling for the effects of race/ethnicity.

Results of hierarchical multiple regression analyses predicting children's HRQL from YLOT scores are presented in Table II (child-reported HRQL) and Table III (parent-reported HRQL). The pattern of correlation between optimism and CHQ subscales was similar for both child- and parent-reported HRQL. Likewise, pessimism demonstrated a similar pattern of association with HRQL across respondents. As hypothesized, few associations were found between children's dispositional characteristics and their physical HRQL outcomes. The one exception was with Body Pain, which was found to be related by both child- and parent-report to optimism ($\beta = .19$ and .16, $p < .05$) but not pessimism ($\beta = -.11$ and $-.02$, ns) such that children who were more optimistic had lower ratings of Body Pain. YLOT scores were more predictive of children's emotional/behavioral outcomes. A differential pattern of association was observed depending on the HRQL outcome, but there was consistency across reporters. Across both child and parent report, child Mental Health functioning was related to optimism and pessimism. Optimism, but not pessimism, predicted Self-Esteem by both child ($\beta = .37$, $p < .001$) and parent-report ($\beta = .28$, $p < .001$). In contrast, pessimism was more strongly associated with children's scores on the General Behavior scale ($\beta = -.26$ and $-.26$, $p < .001$) than was optimism ($\beta = .17$ and .09, $p < .05$ and ns, respectively). A difference emerged between parent and child reports with respect to Impact on Family.

In this instance, pessimism predicted Impact on Family scores by child ($\beta = -.26$, $p < .001$) but not parent ($\beta = -.08$, ns) report.

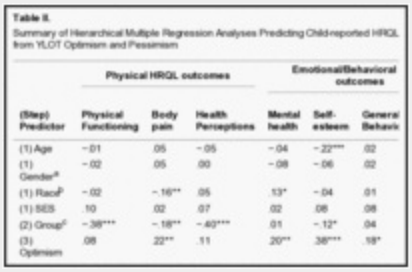

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Table II. Summary of Hierarchical Multiple Regression Analyses Predicting Child-reported HRQL Outcomes from YLOT Optimism and Pessimism

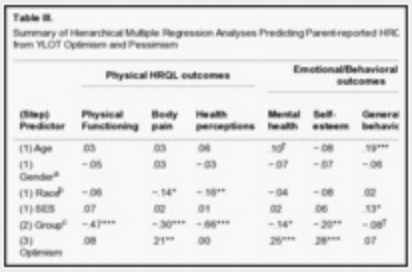

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Table III. Summary of Hierarchical Multiple Regression Analyses Predicting Parent-reported HRQL Outcomes from YLOT Optimism and Pessimism

Findings from exploratory moderation analyses indicated the presence of three small but significant interaction effects (Aiken & West, 1991). We found that pessimism significantly interacted with group membership to predict parent-reported Health Perceptions ($\beta = .18$, $p < .05$), such that such that higher pessimism was related to lower functioning with respect to parent perceptions of children's health for children in the control group but not children in the cancer group. A significant interaction was also found between pessimism and group membership in relation to parent-reported Body Pain ($\beta = .24$, $p < .05$). In this case, higher pessimism was related to more body pain in the control group but less body pain in the cancer group. Finally, optimism interacted with group membership to predict parent-reported Mental Health ($\beta = .22$, $p < .05$), such that higher optimism was

related to better mental health for children in the cancer group but in the control group.

Discussion

Major goals of the current study included providing further justification for use of the YLOT in both healthy children and those with chronic diseases, and investigating if the YLOT measures a single dimension (optimism) or two dimensions (optimism and pessimism). Our CFA results confirmed the original two-factor structure of the YLOT hypothesized by Ey and colleagues (2005). A one-factor model provided a poor fit for the data, suggesting that optimism and pessimism are constructs that share nonspecific common components but can be differentiated on the basis of unique features. Because these constructs appear to be at least partly independent, they may provide unique explanatory value. Thus, whenever feasible, we recommend that researchers using the YLOT examine optimism and pessimism separately in relation to their criterion variables.

Given that the YLOT was developed with and has been used primarily in healthy children, we tested for configural invariance at the item level to establish the validity of the YLOT for use in our sample of children with cancer. In general, findings from multigroup CFA indicated that the YLOT similarly measures the constructs of optimism and pessimism across these groups. Although one of the tests performed to establish strong invariance indicated that the factor means were significantly different across the groups, this finding may have been influenced by the greater proportion of racial/ethnic minorities in the cancer versus control group. Previous research has reported that African-Americans endorse higher levels of optimism compared with Caucasians (Ey et al., 2004), and our CFA finding

indicated that the mean for optimism was lower in the control group than in the cancer group. However, after controlling for race/ethnicity, children with cancer and cancer survivors did not differ from each other or their healthy counterparts with respect to mean levels of optimism and pessimism. Together, these findings suggest that these characteristics may not be influenced by cancer treatment, but longitudinal studies following the same individuals from diagnosis to completion of treatment and beyond are needed to determine whether optimism and pessimism are stable characteristics that are not significantly altered within the context of childhood cancer.

Findings from the adult literature suggest that optimism and pessimism play a role in psychological adjustment and physical health in the general population, and may be particularly influential in determining individuals' outcomes in the context of serious medical illness. However, our results suggest that optimism and pessimism are generally not related to children's physical functioning or health perceptions, indicating that factors other than dispositional characteristics (e.g., health status) are better predictors of physical HRQL outcomes. Our finding that children who were more optimistic had better functioning with respect to body pain ratings (i.e., had less pain) was unexpected, but an association between higher optimism and lower reports of pain have been reported in the adult cancer literature (Kurtz, Kurtz, Given, & Given, 2008). One explanation for this finding is that children who are more optimistic have greater self-efficacy regarding their ability to handle physical challenges, and consequently they are more likely to engage in behaviors that effectively reduce pain. Highly optimistic children may also expect that they will experience less disease- and treatment-related pain, and pain expectancies have been found to be predictive of actual reported pain (Logan & Rose, 2005). Alternatively,

optimism is associated with positive affect, which has been found to be inversely related to pain through changing the individual's perceptions of pain. Indeed, behavioral strategies to maintain positive affect are key aspects of psychological approaches to pain management. Closer examination of the association between optimism and children's experience of pain is needed to explore these hypotheses.

Optimism and pessimism exhibited different patterns of association in relation to the emotional/behavioral HRQL outcomes examined, providing further justification for examining optimism and pessimism as independent constructs. Moreover, we found that pessimism made an independent contribution to children's mental health and general behavioral functioning beyond that explained by optimism. Optimism, but not pessimism, predicted children's self-esteem. This finding is seemingly at odds with results of one previous study, which suggested that negative expectancies are more strongly related to children's self-esteem scores than are positive expectancies (Fischer & Leitenberg, 1986). However, it is noteworthy that this study specifically assessed children's expectancies for success in the distant future rather than general dispositional optimism per se. Because few studies have considered optimism and pessimism as separate constructs in children, further research is needed to determine how these dispositional characteristics relate to children's self-esteem and other outcomes. Given the remarkable consistency across reporters for the majority of outcomes we examined, our finding that pessimism predicted child but not parent perceptions of the impact the child's illness has on the family is striking. Items on this CHQ child-report scale focus on the children's beliefs regarding the extent to which their illness has disrupted typical family activities or caused conflict among family members (e.g., “During the past 4 weeks, how often has your health or behavior caused your family to cancel

or change plans at the last minute?"). It is possible that children who are more pessimistic have a tendency to overestimate the negative impact of their illness on family members. Consequently, although child self-report is typically viewed as the gold standard in HRQL measurement, it may be beneficial to also gather parent report data for this outcome.

In the current study, the significant effects of optimism and pessimism on children's HRQL outcomes were observed to be small to moderate in size (i.e., β's ranged from .17 to .37). These effects are similar in magnitude to those reported in the most previous research with adults using the LOT and LOT-R, particularly in studies examining how optimism and pessimism relate to indices of quality of life in medical populations. Illustratively, in a recent study of the long-term outcomes of breast cancer patients, optimism significantly predicted women's distress-related emotions, depression, and general quality of life ratings 5–13 years after surgery, with these effects between .30 and .33 in magnitude (Carver et al., 2005). Similarly, significant and moderate size effects were observed for both optimism and pessimism in relation to the emotional well-being of newly diagnosed breast cancer patients (β's = .24 and −.31, respectively; Pinquart, Frohlich, & Silbereisen, 2007). Slightly larger effects have been reported in studies examining these characteristics as predictors of physical health and psychological adjustment in healthy individuals. For example, in a study of older adults coping with normative stressors, optimism was found to predict sleep problems, depression, and hostility (β = −.36, −.59) while pessimism predicted hypertension (β = .43) (Conway, Magai, Springer, & Jones, 2008). Additional research using the YLOT in both healthy children and those with chronic illnesses is needed to determine whether the magnitude of effects reported for optimism and pessimism in the current study are typical for child populations.

Several methodological limitations should be noted. Most prominent among these are possible selection bias issues related to the use of an acquaintance control strategy. Our intention in using this sampling technique was to recruit a comparison group that was similar to the cancer groups, but it should be noted that our results may have been different if we had sampled at random. The use of an acquaintance control sampling method that required a mail-in strategy to obtain data from control group participants may also explain the differential rate of participation in the cancer and control groups. Illustratively, we had considerably fewer racial/ethnic minority participants in the control group compared with both cancer groups. Future studies should attempt to obtain greater numbers of minority participants. This would allow for examination of the factorial invariance of the YLOT as a function of race, as it is possible that this measure assesses the constructs of optimism and pessimism differently in racial/ethnic minorities compared with Caucasians. Previous research has also suggested that more highly distressed individuals are less likely to participate in research (Lerman et al., 1999; Weinberger, Tublin, Ford, & Feldman, 1990). Since optimism has been consistently associated with lower levels of distress, it is possible that non-participants would be lower in optimism (and higher in pessimism) than participants. Therefore, the lower participation rate in controls may have produced a bias towards overrepresentation of optimistic children in the control group, which in turn would have reduced our ability to detect cancer-control differences in optimism. Similarly, a possible source of bias related to our sampling methodology is our decision to exclude participants in the cancer group with severe cognitive impairments, as these children and their parents may be more likely to report lower HRQL than those who have not experienced severe cognitive late effects. Another limitation is the lack of a complete demographic match

between cancer and control groups, despite an acquaintance control design expected to produce comparable samples. This may be due to the fact that participants were able to recruit more than one acquaintance control participant. Statistically controlling for demographic differences reduces this concern somewhat. In addition, of note is that the current study focused on optimism/pessimism, but did not address other dispositional characteristics that may impact children's outcomes. Relatedly, although our measure of HRQL allowed for numerous aspects of children's functioning to be examined, this study did not explore the relation between optimism and pessimism and observable measures of children's health (e.g., pain medication usage). Future research should consider examining the differential relationship of dispositional optimism and pessimism to such outcomes. Finally, the cross-sectional design of the current study does not allow for examination of the possible differential role of optimism and pessimism in children's HRQL outcomes over time. Investigation of the relations among these variables using a longitudinal design would be informative in this regard. Despite these limitations, our results demonstrate that the YLOT is a valid and useful measure for assessing the constructs of optimism and pessimism in both healthy children and those with cancer.

This study contributes to the small but growing literature examining optimism and pessimism in children and has a few notable implications. Foremost among these is that optimism and pessimism should be examined as separate constructs in relation to children's outcomes in research using the YLOT whenever possible. While these constructs clearly overlap, they can be differentiated and appear to provide unique explanatory value in relation to children's HRQL outcomes. Replication of the current findings regarding the differential predictive utility of optimism and pessimism for children's HRQL is needed. Moreover, examination of the role of these

characteristics in determining other critical indices of children's adjustment (e.g., social competence or self-efficacy) would extend these findings and should be investigated in future research. The associations of optimism and/or pessimism to children's experience of body pain and various aspects of emotional and behavioral functioning (e.g., self-esteem) suggest that the present findings may also have potential clinical utility. Although additional research on this topic is certainly needed, consideration of the possible influence of these dispositional characteristics on children's adjustment may help to promote positive outcomes for at-risk children. For example, children facing challenges such a serious illness may be at increased risk for adverse outcomes due to low optimism and/or high pessimism. Early identification and referral to intervention services designed to modify their negative expectations and/or increase their positive expectations (e.g., such as cognitive–behavioral therapy) may place these children on a trajectory towards more positive adjustment.

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References

1. Allison PJ, Guichard C, Fung K, Gilain L, authors. Dispositional optimism predicts survival status 1 year after diagnosis in head and neck cancer patients. Journal of Clinical Oncology. 2003;21:543–548. [PubMed]
2. Banks B, Barrowman NJ, Klaasen R, authors. Health-related quality of life: Changes in children undergoing chemotherapy. Journal of Pediatric Hematology and Oncology. 2008;30:292–297
3. Carver CS, Scheier MF, authors; Snyder CR, Lopez SJ, editors. Optimism. Handbook of positive psychology. 2002. New York: Oxford University Press; p. 231–243
4. Carver CS, Smith RG, Antoni MH, Petronis VM, Weiss S, Derhagopian RP, authors. Optimistic personality and psychosocial well-being during treatment predict psychosocial well-being among long-term survivors of breast cancer. Health Psychology. 2005;24:508–516. [PubMed]
5. Conway F, Magai C, Springer C, Jones SC, authors. Optimism and pessimism as predictors of physical and psychological health among grandmothers raising their grandchildren. Journal of Research in Personality. 2008;42:1352–1357
6. Ey S, Hadley W, Allen DN, Palmer S, Klosky J, Deptula D, et al., authors. A new measure of children's optimism and pessimism: The youth life orientation test. Journal of Child Psychology and Psychiatry. 2004;46:548–558. [PubMed]
7. Fischer M, Leitenberg H, authors. Optimism and pessimism in elementary school-aged

children. Child Development. 1986;57:241–248

8. Harter S, author. Self-perception profile for children. 1985. Denver, CO: University of Denver;
9. Hu L, Bentler PM, authors. Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling. 1999;6:1–55
10. Jurbergs N, Russell KM, Long A, Phipps S, authors. Adaptive style and differences in parent and child report of health-related quality of life in children with cancer. Psychooncology. 2008;17:83–90. [PubMed]
11. Kaslow NJ, Tanenbaum RL, Seligman MP, authors. The KASTAN-R: A children's attributional style questionnaire. 1978. . Unpublished manuscript, University of Pennsylvania.
12. Klein RB, author. Principles and practices of structural equation modeling, 2nd edition. 2005. New York: Guilford Press;
13. Klesges LM, Baranowski T, Beech B, Cullen K, Murray DM, Rochon J, et al., authors. Social desirability bias in self-reported dietary, physical activity and weight concerns measures in 8- to 10-year old African-American girls: Results from the Girls Health Enrichment Multisite Studies (GEMS). Preventive Medicine. 2004;38(Suppl):S78–S87. [PubMed]
14. Kurtz ME, Kurtz JC, Given CW, Given BA, authors. Patient optimism and mastery- do they plan a role in cancer patients' management of pain and fatigue? Journal of Pain and Symptom Management. 2008;36:1–10. [PubMed]
15. Landgraf JM, Abetz L, Ware JE, authors. The Child Health Questionnaire (CHQ): A users manual. 1999. Boston: HealthAct;
16. Lerman C, Hughes C, Benkendorf JL, Biesecker B, Kerner J, Willison J, et al., authors. Racial differences in testing motivation and psychological distress following pretest education for BRCA1 gene testing. Cancer Epidemiology Biomarkers & Prevention. 1999;8:361–367
17. Levi RB, Drotar D, authors. Health-related quality of life in childhood cancer. Discrepancy in parent-child report. International Journal of Cancer: Supplement. 1999;12:58–64
18. Logan DE, Rose JB, authors. Is postoperative pain a self-fulfilling prophecy? Expectancy effects on postoperative pain and patient-controlled analgesia use among adolescent surgical patients. Journal of Pediatric Psychology. 2005;30:187–196. [PubMed]
19. Maurice-Stam H, Oort FJ, Last BF, Brons PPT, Caron HN, Grootenhuis MA, authors. Longitudinal assessment of health-related quality of life in preschool children with non-CNS cancer after the end of successful treatment. Pediatric Blood and Cancer. 2008;50:1047–

1051. [PubMed]

20. Muthen LK, Muthen BO, authors. Mplus statistical analysis with latent variables: User's guide. 2004. Los Angeles: Authors;
21. Palermo TM, Long AC, Lewandowski AS, Drotar D, Quitter AL, Walker LS, authors. Evidence-based assessment of health-related quality of life and functional impairment in pediatric psychology. Journal of Pediatric Psychology. 2008;33:983–996. [PubMed]
22. Peterson C, author. The future of optimism. American Psychologist. 2000;55:44–55. [PubMed]
23. Pinquart M, Frohlich C, Silbereisen RK, authors. Optimism, pessimism, and change of psychological well-being in cancer patients. Psychology, Helath, & Medicine. 2007;12:421–432
24. Scheier MF, Carver CS, authors. Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. Health Psychology. 1985;4:219–247. [PubMed]
25. Shankar S, Robison L, Jenney M, Rockwood TH, Wu E, Feusner J, et al., authors. Health-related quality of life in young survivors of childhood cancer using the Minneapolis-Manchester Quality of Life-Youth Form. Pediatrics. 2005;115:435–442. [PubMed]
26. Snyder CR, Hoza B, Pelham WE, Rapoff M, Ware L, Danovsky M, et al., authors. The development and validation of the Children's Hope Scale. Journal of Pediatric Psychology. 1997;22:399–421. [PubMed]
27. Stam H, Grootenhuis MA, Caron HN, Last BF, authors. Quality of life and current coping in young adult survivors of childhood cancer: Positive expectations about the further course of the disease were correlated with better quality of life. Psycho-Oncology. 2006;15:31–43. [PubMed]
28. Taylor W, Baranowski T, Klesges L, Ey S, Pratt C, Rochon J, et al., authors. Psychometric properties of optimism and pessimism: Results from the Girls' Health Enrichment Multisite Studies. Preventive Medicine. 2004;38:S69–S77. [PubMed]
29. Vandenberg RJ, Lance E, authors. A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. Organizational Research Methods. 2000;3:4–69
30. Varni JW, Limbers C, Burwinkle TM, authors. Health-related quality of life measurement in pediatric oncology: Hearing the voices of the children. Journal of Pediatric Psychology. 2007;32:1151–1163. [PubMed]

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Table I.

Sample Characteristics by Study Group

Characteristic	Control (n = 108)	Cancer group, on treatment (n = 71)	Cancer group, off treatment (n = 128)
Mean child age (±SD)	12.38 ± 3.02	11.17 ± 3.48	12.95 ± 3.25
Gender (n, %)			
Male	44 (40.74)	42 (59.15)	62 (48.44)
Female	64 (59.26)	29 (40.85)	66 (51.56)
Race (n, %)			
Caucasian	99 (91.67)	52 (73.24)	100 (78.13)
Racial/ethnic minor	9 (8.33)	19 (26.76)	28 (21.88)
Mean SES (±SD)	48.50 ± 10.05	40.66 ± 12.75	43.37 ± 13.08
Optimism	22.78 ±	23.45 ± 3.57	23.65 ± 3.40

Pessimism (±SD)[a]	13.84 ± 4.33	13.10 ± 4.06	14.29 ± 4.69

[a]Higher scores indicate higher levels of optimism and pessimism, respectively.

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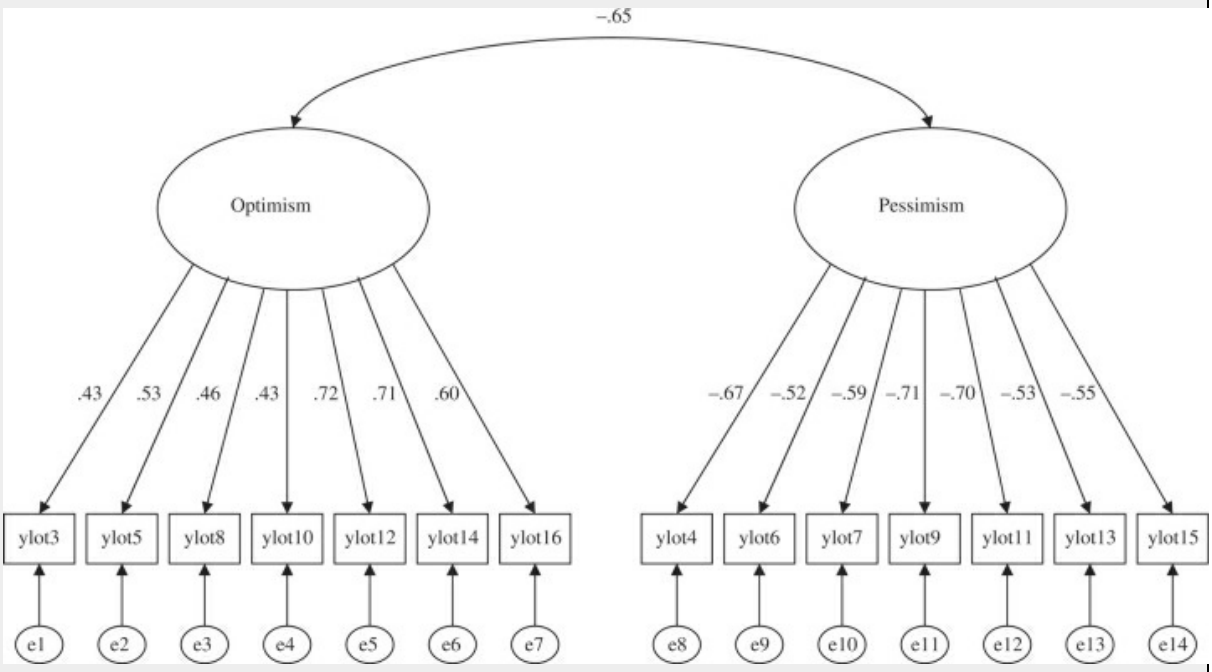

Fig. 1.

CFA of the YLOT (n = 301). χ^2 = 298.621, df = 195, p =.000, TLI =.908, CFI =.902, RMSEA = .059.

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Table II.

Summary of Hierarchical Multiple Regression Analyses Predicting Child-reported HRQL Outcomes from YLOT Optimism and Pessimism

	Physical HRQL outcomes			Emotional/Behavioral HI		
(Step) Predictor	Physical Functioning	Body pain	Health Perceptions	Mental health	Self-esteem	Gene Beha
(1) Age	−.01	.05	−.05	−.04	−.22***	.02
(1) Gender[a]	−.02	.05	.00	−.08	−.06	.02
(1) Race[b]	−.02	−.16**	.05	.13*	−.04	.01
(1) SES	.10	.02	.07	.02	.08	.08
(2) Group[c]	−.38***	−.18**	−.40***	.01	−.12*	.04
(3) Optimism	.08	.22**	.11	.20**	.38***	.18*
(3) Pessimism	−.03	−.07	−.03	−.22***	−.05	−.2(
(4) Group x Optimism	.10	.14	.13	−.05	.08	−.0(
(4) Group x Pessimism	.08	.20†	.20†	.04	.13	.02

F	6.82***	4.85***	9.27***	5.58***	8.97***	4.9(
R^2	.18	.14	.23	.15	.23	.14

N = 295–301. Standardized regression coefficients reported.

[a]1 = Male and 2 = Female.

[b]0 = Racial/ethnic minority and 1 = Caucasian.

[c]0 = Control and 1 = Cancer.

*p < .05; **p < .01; ***p < .001; [†]< .10.

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Table III.

Summary of Hierarchical Multiple Regression Analyses Predicting Parent-reported HRQL Outcomes from YLOT Optimism and Pessimism

	Physical HRQL outcomes			Emotional/Behavioral H		
(Step) Predictor	Physical Functioning	Body pain	Health perceptions	Mental health	Self-esteem	Gener behav
(1) Age	.03	.03	.06	.10†	−.08	.19*
(1) Gender[a]	−.05	.03	−.03	−.07	−.07	−.06
(1) Race[b]	−.06	−.14*	−.16**	−.04	−.08	.02
(1) SES	.07	.02	.01	.02	.06	.13*
(2) Group[c]	−.47***	−.30***	−.66***	−.14*	−.20**	−.08
(3) Optimism	.08	.21**	.00	.25***	.28***	.07
(3) Pessimism	.04	−.02	−.06	−.12†	−.08	−.28
(4) Group × Optimism	.13	.19†	.13	.22*	.18†	.04
(4) Group × Pessimism	.09	.24*	.18*	.18	.19†	.03

F	10.37***	5.76***	25.39***	5.52***	5.54***	5.67
R^2	.26	.16	.46	.14	.16	.16

N = 295–298. Standardized regression coefficients reported.

1 = Male and 2 = Female.

0 = Racial/ethnic minority and 1 = Caucasian.

0 = Control and 1 = Cancer.

*p < .05; **p < .01; ***p < .001; †< .10.

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