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An empirical evaluation of two theoretically-based hypotheses on the directional association between self-worth and hope

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ABSTRACT

Fostering self-worth and hope are important goals of positive youth development (PYD) efforts, yet intervention design is complicated by contrasting theoretical hypotheses regarding the directional association between these constructs. Therefore, within a longitudinal design we tested: (1) that self-worth predicts changes in hope (self theory; Harter, 1999), and (2) that hope predicts changes in self-worth (hope theory; Snyder, 2002) over time. Youth ($N = 321$; $M_{\text{age}} = 10.33$ years) in a physical activity-based PYD program completed surveys 37–45 days prior to and on the second day and third-to-last day of the program. A latent variable panel model that included autoregressive and cross-lagged paths indicated that self-worth was a significant predictor of change in hope, but hope did not predict change in self-worth. Therefore, the directional association between self-worth and hope is better explained by self-theory and PYD programs should aim to enhance perceptions of self-worth to build perceptions of hope.

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As adolescents mature, newly developed cognitive abilities enable them to formulate more complex perceptions about who they are, and ideas about their future goals (Côté, 2009; Harter, 1999; Snyder, 2002). During this time, participation in programs that foster positive self-identities and adaptive goals provide youth with opportunities to build psychological, emotional, and behavioral resources. In turn, youth can utilize these resources to pursue healthy and promising paths toward successful adulthood. Positive youth development (PYD) programs strive to build such developmental resources, often called assets, in youth (Damon, 2004; Lerner, von Eye, Lerner, & Lewin-Bizan, 2009). Coupled with the need to facilitate healthy physical growth and development, well-designed physical activity based PYD programs take advantage of the social interactions inherent in sports and active games to design activities that foster social, emotional, and intellectual development as well (Fraser-Thomas, Côté, & Deakin, 2005; Hellison, Martinek, Walsh, & Holt, 2008).

Due to the salience of developing positive self-identities and goals during adolescence, two relevant aims of PYD programs are to foster young people's perceptions of self-worth and hope. Self-worth is a global perception of an individual's evaluation of themselves as a person (Harter, 1999). Hope is an individual's future related thinking, which includes perceptions of their capacity to set clear goals and plan routes to achieve goals, and their motivation to use those routes to achieve goals (Snyder,

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2002). Empirical evidence demonstrates that perceptions of self-worth and hope predict indicators of positive development in young people. Specifically, self-worth is associated with lower levels of depression, and higher levels of cheerfulness, motivation (Harter & Whitesell, 2003), peer acceptance (Weiss, 2008) and physical activity (Guinn, Vincent, Semper, & Jorgensen, 2000). Hope is positively correlated with personal adjustment, academic achievement, participation in structured extra-curricular activities (Gilman, Dooley, & Florell, 2006), school involvement, social support (Dubow, Arnett, Smith, & Ippolito, 2001), optimism, and problem-solving skills (Snyder et al., 1991). Additional evidence shows a positive correlation between self-worth and hope (Harter & Whitesell, 2003; Snyder et al., 1991). Beyond these empirical observations relative to PYD, both constructs anchor well-developed theoretical frameworks explaining mechanisms of growth in youth. In Harter's (1999) self theory, self-worth serves a central role, while in Snyder's (2002) hope theory, hope serves a central role.

Self theory (Harter, 1999) suggests that adaptive functioning is supported by positive self-worth. Within this framework, self-worth has broad implications for emotional, cognitive, and behavioral outcomes. Low perceptions of self-worth predict suicidal ideation, depression, and hopelessness, and high perceptions of self-worth predict cheerfulness, hopefulness, and positive adjustment (Harter, 1999). In physical activity-based PYD programs, empirical evidence demonstrates that youth report increased self-worth over time and that social relationships with peers and adult staff predict positive change in self-worth (Ullrich-French, McDonough, & Smith, 2012), and self-worth predicts long term program participation (Ullrich-French & McDonough, 2013). Overall, the literature supports self theory in that greater perceptions of self-worth are associated with desirable behavioral, social, and psychological outcomes in youth.

According to hope theory (Snyder, 2002), hope is an outcome of goal-related experiences, such as motivation to pursue goals, expending effort toward goal attainment, attempting to navigate barriers, and resultant emotional experiences (Snyder et al., 1991). Consequently, those with higher levels of hope are expected to focus on success when working toward future goals, and experience less stress, negative affect, and depression. Those with lower levels of hope report more negative affect, and less optimism, and lower perceptions of ability to circumvent barriers to success (e.g., Snyder et al., 1991). In the PYD setting, hope is associated with self-regulatory behavior, competence, confidence, connection, character, and caring (Schmid, Phelps, & Lerner, 2011), and social relationships in PYD programs predict positive change in hope (Ullrich-French et al., 2012).

Self and hope theories posit conflicting ideas regarding the directional association between self-worth and hope. Self theory suggests that self-worth predicts hope, as positive perceptions of the self cultivate the self-regulation and motivation required to pursue goals via set plans (Harter & Whitesell, 2003). While this perspective recognizes that the associations could be bidirectional, the paths are primarily posited and tested as self-worth predicting hope (Harter, 1999). In contrast, hope theory suggests that hope predicts self-worth, as goal pursuit experiences elicit self-evaluations related to future goal pursuits (Snyder, 2002). Hope and self-worth are positively correlated in health, academic, and athletic contexts (Barnum, Snyder, Rapoff, Mani, & Thompson, 1998; Curry, Snyder, Cook, Ruby, & Rehm, 1997; Marques, Lopez, & Pais-Ribeiro, 2011; Merkaš & Brajša-Zganec, 2011), yet the directionality of this association requires further examination in light of the alternate theoretical conceptions and associated practical implications. This knowledge is vital for the implementation of an empirically- and theoretically-based model in PYD programs that either focuses on building perceptions of self-worth through experiences of success and positive feedback, or hope by identifying and making plans to achieve goals.

The purpose of this study was to test these alternate conceptions of the directional association between self-worth and hope among youth enrolled in a physical activity-based PYD program. Specifically, examining these constructs prior to and while participating in the PYD program, we tested the hypotheses that: (1) self-worth predicts changes in hope, and (2) hope predicts change in self-worth.

Methods

PYD program and participants

Youth ($N = 321$) who were enrolled in a free summer physical activity-based PYD program in the Midwestern United States were recruited to participate in this study. To be eligible for this PYD program, youth had to qualify for the United States Department of Agriculture free and reduced lunch program. That is, family household before-tax income could not exceed 1.85 times the federal income poverty guidelines based on household size (e.g., income cannot exceed \$40,793 US for a family of four). The program met for six and a half hours on 20 weekdays. Apart from mealtimes, 71% of the day was spent engaged in physical activities. All sessions were guided by an integrated curriculum emphasizing character development, social relationships, life skills, health, and hope. The participants (48% girls, 52% boys) were from diverse backgrounds (38% White, 35% Latino/Latina, 11% African American, 11% Multiracial, 3% Asian, 2% unreported) and were 7–14 years old ($M = 10.33$, $SD = 1.76$).

Procedures

The study was part of a program evaluation categorized as exempt status by the university's institutional review board. Data were collected at three time points. Time one (T1) occurred at one of three program registration sessions 37–45 days prior to the program. Dates of these sessions were determined by the program administrators. Time two (T2) occurred on the second day of the program, which was as close as possible to the beginning of the program, given that the first day was not feasible due to program orientation. Time three (T3) occurred 26 days later, on the third-to-last day of the program. This date was chosen to ensure data were collected as close to the end of the program as possible, given that the final day was not

feasible due to a program-wide field trip. Youth who were absent at the T2 or T3 data collections were able to complete the measures the following day. Youth who registered for but did not attend the program ($n = 45$), did not attend the program on days data were collected ($n = 166$), or had cognitive or behavioral impairments ($n = 8$) that prevented them from completing the survey were excluded. There were no significant differences in age, ethnicity, or gender between youth who were included in the final analytical sample and youth who were excluded from the final analytical sample based on the aforementioned criteria (*Wilk's* $\lambda(3, 513) = 1.53, p = .21$). At each data collection, a researcher explained to the participants the purpose of the study, that their responses would be kept confidential, and that they could choose not to complete the questionnaire or stop at any time without penalty. The researcher also read instructions, completed an example structured-alternative format item, and, if necessary, read items aloud. Youth took approximately 15–35 min to complete the survey, which included measures of self-worth and hope used in this study, as well as perceived competence, empathy, and moral disengagement items, which are not reported here.

Measures

Self-worth was assessed using the six-item global self-worth subscale from Harter's Self-Perception Profile for Children (1985). The items used a four-point, structured-alternative format. For example, one item read "Some kids are often unhappy with themselves BUT Other kids are pretty pleased with themselves". For each item, participants first chose which groups of kids was more like them, and then indicated whether that statement was *really true* or *sort of true* for them. Response values ranged from 1 to 4 with 1 indicating lower self-worth and 4 indicating higher self-worth. Internal consistencies (Cronbach's alpha: $\alpha_{T1} = .71$; $\alpha_{T2} = .76$; $\alpha_{T3} = .79$) were comparable to previous research with this population (Ullrich-French et al., 2012; Ullrich-French & McDonough, 2013).

Hope was assessed using the six item Children's Hope Scale (Snyder et al., 1997). An example item read, "I can think of many ways to get the things in life that are most important to me." Response values ranged from 1 (*none of the time*) to 6 (*all of the time*). Internal consistencies were similar at each time point (Cronbach's alpha: $\alpha_{T1} = .77$; $\alpha_{T2} = .80$; $\alpha_{T3} = .82$) and were comparable to values reported in previous research with adolescent PYD program participants (Ullrich-French & McDonough, 2013).

Demographic information including the participant's age, gender, and race was obtained from the PYD program's records.

Data analysis

Data were screened, and descriptive statistics and scale reliabilities calculated using SPSS v21. Missing data (.06% of items) were estimated using expectation maximization within LISREL v8.8. Latent variable longitudinal structural equation panel modeling was used for main analyses. In all models, error covariances were allowed to correlate for the same item measured at each time point. Root Mean-Square Error of Approximation (RMSEA) $< .08$, Comparative Fit Index (CFI) $> .90$, and Non-Normed Fit Index (NNFI) $> .90$ were interpreted as indicating acceptable model fit (Little, 2013). Factorial invariance was tested for the self-worth and hope latent variables (Little, 2013). First, configural invariance models tested if the pattern of loadings was similar across each time point. Second, loading invariance models tested if items loaded onto the latent variables similarly over time by constraining the corresponding loadings of each item over time to be equal. To meet the assumption of invariance, change in the CFI between configural and loading invariance models needed to be no more than .01 (Little, 2013).

Directional associations between self-worth and hope were tested using a panel model (Little, 2013). First, a model containing only autoregressive paths between self-worth at T1 and T2, and T2 and T3, and hope at T1 and T2, and T2 and T3 was tested to examine stability of the variables over time, and obtain a baseline for evaluating additional variance explained in the full panel model. Next, a cross-lagged longitudinal model was tested, which included both the autoregressive paths described in the previous model, and cross-lagged paths specifying self-worth at T1 and T2 as a predictor of change in hope at T2 and T3 respectively, and hope at T1 and T2 as a predictor of change in self-worth at T2 and T3 respectively. Gender and race were included as covariates in the model. Model fit, path coefficients, and percentage of variance explained were examined to evaluate the model and test the hypotheses.

Results

The data were approximately normally distributed, linear, and showed no univariate or multivariate outliers. Descriptive statistics for self-worth and hope are reported in Table 1. Mean perceptions of self-worth and hope were at the middle to upper of each scale range. Self-worth and hope were significantly and positively correlated at each time point.

The measurement models for self-worth and hope demonstrated adequate fit (see Table 2). After imposing constraints on the measurement models for both constructs, CFI and NNFI indices showed that the configural and loading invariance models also provided an adequate fit to the data (see Table 2). RMSEA indices for the constrained self-worth and hope models were marginal. Change in CFI indices was less than .01 between the configural and loading invariance models for self-worth and hope (see Table 2). Therefore, both measures met the assumption for temporal invariance.

The model specifying only autoregressive paths demonstrated adequate fit (see Fig. 1). All autoregressive paths were significant, and indicated considerable stability of both variables across time. Indeed, a model that included only the

Table 1
Descriptive statistics and correlations.

Variable	1	2	3	4	5	6
1. Self-worth T1	–					
2. Self-worth T2	.60*	–				
3. Self-worth T3	.54*	.66*	–			
4. Hope T1	.31*	.30*	.22*	–		
5. Hope T2	.38*	.48*	.32*	.60*	–	
6. Hope T3	.32*	.44*	.45*	.55*	.67*	–
Mean	3.15	3.22	3.18	4.31	4.21	4.11
Standard deviation	.65	.65	.68	.96	1.02	1.07

Note: T1 = time one, T2 = time two, T3 = time three.
* $p < .01$.

Table 2
Fit indices for measurement, configural, and loading models, and results of invariance tests.

Model	RMSEA	CFI	NNFI	Δ CFI
Self-worth				
Measurement	.08	.95	.93	–
Configural invariance	.11	.93	.92	–
Loading invariance	.11	.93	.92	< .01
Hope				
Measurement	.06	.98	.97	–
Configural invariance	.10	.94	.94	–
Loading invariance	.10	.94	.94	< .01

Note: RMSEA = root mean square error of approximation, CFI = comparative fit index, NNFI = non-normed fit index, Δ CFI = difference in the CFI between the configural and loading invariance models.

autoregressive paths indicated that prior self-worth scores predicted 58% and 38% of the variance in self-worth at T2 and T3 respectively. Similarly, prior hope scores predicted 54% and 32% of the variance in hope at T2 and T3 respectively.

Results for the panel model are depicted in Fig. 2. The model demonstrated adequate fit. Gender and race did not have significant associations with self-worth or hope, and their inclusion as covariates did not alter the interpretation of the results. Therefore, they were not included in the final model. Despite the considerable stability over time in self-worth and hope, in the model including both autoregressive and cross-lagged paths, self-worth significantly predicted changes in hope over time ($p < .01$). The cross-lagged paths explained an additional 2% of the variance in hope at T2, and 7% of the variance in hope at T3. However, hope did not predict changes in self-worth over time ($p_{T1} = .17$; $p_{T2} = .57$). The cross-lagged paths explained an additional 3% of the variance in self-worth at T2, and 2% of the variance in self-worth at T3.

Discussion

The results of this study support the hypothesis that self-worth predicts changes in hope among youth enrolled in a physical activity-based PYD program. The findings did not, however, support the alternate directional hypothesis that hope

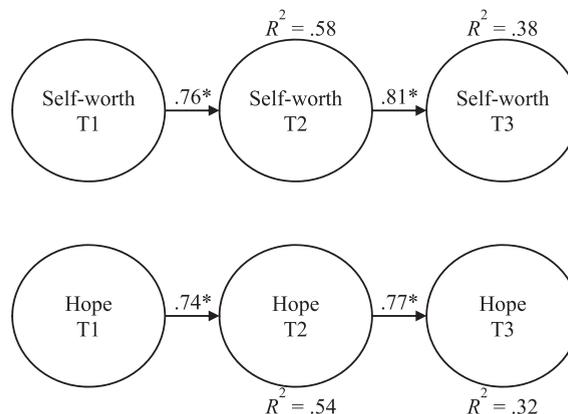


Fig. 1. Autoregressive model results. Standardized path coefficients are reported. RMSEA = .06, NNFI = .95, CFI = .96. * $p < .01$.

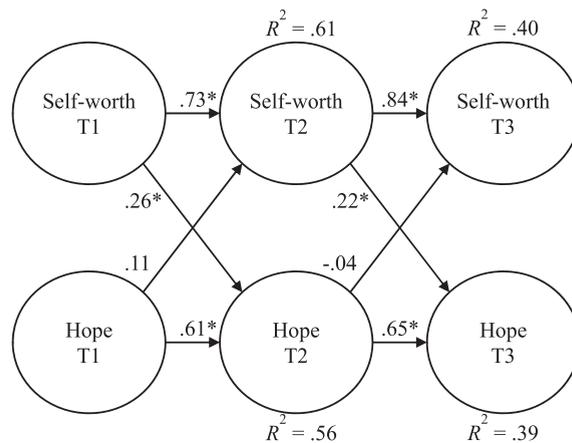


Fig. 2. Panel model results. Standardized path coefficients are reported. RMSEA = .06, NNFI = .95, CFI = .96. * $p < .01$.

would predict changes in self-worth. Although autoregressive effects were the strongest predictors of self-worth and hope, self-worth predicted additional change in hope. This significant, unidirectional link supports the proposed directional association in self theory. The results also provide support for the longitudinal invariance of both the self-worth (Harter, 1985) and hope (Snyder et al., 1997) measures, supporting their validity for use in future longitudinal studies in this population.

Findings are consistent with prior literature on the importance of self-worth in predicting positive outcomes in young people (Harter, 1999), and extend previous research to show that self-referenced evaluations predict changes in perceptions of ability to make goal related plans and pursue goals over time. This evidence is counter to the hypothesized predictive role of hope (Snyder, 2002), where goal pursuit experiences were posited to predict how individuals feel about themselves. Instead, the current evidence shows that it is individuals' evaluation of their value as a person that may serve as the impetus for their feelings of effectiveness in setting and pursuing goals. Therefore, self-worth is not only a marker of development, but may also help foster psychological, emotional, and behavioral outcomes, such as hope, over time.

PYD programs aim to build resources to help young people tap their positive potential; however, evidence that supports this goal is often anecdotal and unsubstantiated by rigorous research designs (Larson, 2000). Importantly, future work in this area must be conducted with an eye toward sustainability. The current study provides longitudinal evidence of the directional association between self-worth and hope. Future experimental and program evaluation research is needed to test the causality of these associations, effectiveness of interventions based on this framework, and the mechanisms and persistence of effects. According to self theory (Harter, 1999) competence perceptions in specific contexts, and feedback and support from the social environment, lead to perceptions of self-worth. Within physical activity-based PYD programs social and physical competence, and positive connections between peers and adult staff, predict change in self-worth (Ullrich-French et al., 2012). Therefore, to enhance self-worth in young people, PYD programs can emphasize teamwork, positive connections with adults and peers, skill building, physical development, and health (Fraser-Thomas et al., 2005). In doing so, hope can be fostered which, as hope represents future-oriented thinking, may contribute to the sustainability of program effects (Snyder, 2002).

The findings need to be considered in light of study limitations. Beyond the need for pursuing causal research designs, the measurement time lag must be considered. The design was framed by the time span of the particular PYD program that was evaluated. The time lag between measurement points was shorter than some extant longitudinal investigations of self-perception variables (e.g., Crocker, Sabiston, Kowalski, McDonough, & Kowalski, 2006). The optimal time lag for examining such changes is unclear, and requires research attention both in the interest of successful experimental work and the design of PYD programs. Also, the effect sizes found in this study were small. However, this is within the context of a longitudinal model that predicted change while accounting for autoregressive effects of relatively stable variables. Differences in the stability of the autoregressive paths may affect the cross-lagged path coefficients such that more stable constructs may be more likely to predict less stable constructs than vice-versa. However, more stable constructs are often theoretically expected to cause less stable constructs than vice-versa, so the effect of differential stability is often considered a substantive contributor to the interpretation rather than purely a statistical artifact (Lorenz, Conger, Simons, & Whitbeck, 1995). Additionally, it is noteworthy that the strongest effect was observed for predicting change in hope from the beginning to the end of the PYD program (i.e., T2 to T3). This suggests that, even over a relatively short time frame, PYD programs have potential to effect meaningful change. Future work that assesses how to best magnify and sustain such change will meaningfully enhance the research and practice literature.

The findings of this study provide a stronger empirical test, compared to previous studies that used cross-sectional designs, of the pathways proposed in self and hope theory. This study supported a small but significant unidirectional link between self-worth and hope that supported the directional hypotheses of self theory. This finding has important theoretical implications and supports the use of this theoretical framework in PYD programs to design interventions that foster hope by

leveraging self-worth. Although such applications need to be experimentally tested, the current evidence represents an important step toward the goal of understanding salient intervention mechanisms and fostering positive change in young people.

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