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ORIGINAL PAPER

Measuring Spirituality, Hope, and Thriving Among Salvadoran Youth: Initial Findings from the Compassion International Study of Positive Youth Development

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Abstract
Background The more than one billion children living in poverty worldwide are often marginalized from the resources needed for health and well-being, a situation that may create feelings of hopelessness and diminish chances for thriving. Compassion International

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(CI), a faith-based child-sponsorship organization committed to alleviating child poverty and promoting thriving, uses a strengths-based, positive youth development (PYD) perspective that emphasizes the importance of religious faith as an asset in the lives of youth.
Objective In an initial assessment of CI's approach to promoting PYD, we tested measures aimed at comparing youth enrolled in CI to youth not enrolled in CI.
Method We collected survey data from 888 Salvadoran youth (50% female), ages 9–15 years ($M = 11.60$ years, $SD = 1.7$), half (49.9%) of whom were enrolled in CI programs. Examining the relations among spirituality, hope, and PYD, we refined the measurement model for parsimony and robustness across groups and established measurement invariance.
Results This measure development work allowed us to make meaningful comparisons of latent means and correlation patterns. CI-supported youth were found to report higher levels of Transcendence (spirituality) and Character (one of the Five Cs of PYD) than non-CI-supported youth, and CI-supported youth demonstrated a significant relation between Character and Connection that was not present in non-CI-supported youth.
Conclusions We discuss implications of these findings for further tests of the CI approach to PYD and, more generally, for applications aimed at enhancing the life chances of poor children around the globe.

Keywords Positive youth development · Spirituality · Hope · Thriving · Poverty · Compassion International · El Salvador

Across the world there are more than one billion children living in poverty, with about 400 million children living in extreme poverty (Shah 2013; UNICEF 2005). The World Bank (2000) describes poverty as a "pronounced deprivation in well-being" (see also Haughton and Khandker 2009; Ravallion et al. 2009; Todd 2010). Such marginalization from the resources needed for health and well-being may diminish chances of youth to grow into healthy, fulfilled, and responsible adults. As Sim and Peters (2014) described, "Children are the most vulnerable and marginalized people group as a result of poverty, yet they represent the hope and the future for their families, communities and countries" (p. 163). How could such hope for the future be realized, then, for children living in such economic and social insecurity? The effects of poverty may create feelings of hopelessness, alienation, and may even foster radicalization among youth, thus preventing thriving and threatening civil society (e.g., Lerner 2004; Lerner et al. 2017). Indeed, this waste of human capital may have pronounced and burgeoning dire effects on geopolitics, the world's economic system, and global peace.

As such, scientists and society have a vested interest in promoting the chances of thriving among the majority world's youth living in poverty (see Lerner et al. 2018). In response to the challenges of poverty, donors and development organizations increasingly prioritize programs and interventions focused on youth and the micro-ecological niches in which they are embedded, including their families, schools, faith institutions, and organized out-of-school-time activities (e.g., Vandell et al. 2015; Silbereisen and Lerner 2007). These programs capitalize on the strengths of youth, viewing young people as having assets and skills to be developed—rather than risks and problems to be managed—by aligning those strengths with contextual resources (see Lerner et al. 2015; Patton et al. 2016; World Bank 2007; YouthPower Learning 2017). Such programs reflect a positive youth development (PYD) approach to fostering and promoting thriving among youth (Lerner et al. 2015).

Models of PYD—as well as contemporary developmental science more broadly—are derived from a relational developmental systems (RDS) metatheory of human development (Overton 2015). RDS-based theories specify the process of human development as involving mutually influential relations between individuals and their contexts, represented as individual ⟺ context relations (Lerner et al. 2015; Overton 2015). When individual ⟺ context relations are mutually beneficial, they are termed adaptive developmental regulations (Brandtstädter 1998) and "reflect the idiographic character of an individual's thriving trajectory" (Lerner et al. 2018, p. 71). Therefore, PYD occurs through adaptive developmental regulations in which the strengths of youth and the resources of their context are systematically integrated in mutually supportive and beneficial ways.

PYD approaches derived from RDS metatheory capitalize on the developmental plasticity of youth. Indeed, the virtually infinite array of mutually influential individual ⟺ context relations highlight the optimism that such RDS approaches to PYD entail (Lerner et al. 2015, 2018). As expressed by Sim and Peters (2014), "The inherent plasticity and enormous potential of children offers remarkable opportunities for lasting societal change, but, conversely, failure to directly address both the effects and root causes of poverty in childhood, where cognitive, emotional and physiological effects can become irreversible, limits many poverty alleviation strategies" (p. 163). Although nations across the world have increasingly adopted the use of RDS-based models of PYD (e.g., see Koller et al. 2017; USAID 2013a), most studies on the implementation and effectiveness of PYD approaches have been conducted in the United States (e.g., Lerner 2015; YouthPower Learning 2017).

In 2017, the United States Agency for International Development (USAID) commissioned a systematic review documenting the application and impact of PYD approaches in low- and middle-income countries. The research, conducted by YouthPower Learning (2017), found that programs promoting PYD were doing so "without a theoretical underpinning or understanding of PYD" (p. 5) and, furthermore, described "a lack of robust and consistent measurement of PYD outcomes" and "few instances of longitudinal studies or evaluations of PYD programs" (YouthPower Learning, p. 40). Indeed, in their conclusions, the research group emphasized "a tremendous need to invest in advancing the field, piloting new strategies, and rigorously evaluating and documenting programs that are being implemented" (pp. 5–6).

The study we report in this article may be an example of the research to which YouthPower Learning (2017) is pointing. As we explain, we have undertaken a developmental (longitudinal) initiative framed on the basis of prior RDS theory-predicated and evidence-based research about the nature and bases of PYD. The research involves the study of the youth development programs of Compassion International (CI) (Sim 2014a; see also Wydick et al. 2013). CI is a faith-based child-sponsorship organization committed to alleviating child poverty and promoting thriving through a holistic and comprehensive approach to youth development. Serving more than 1.8 million children across 25 countries in Central and South America, the Caribbean, Africa, and Asia, CI partners with over 7000 local churches and projects with a strategy that seeks to capitalize on: (a) a strengths-based approach to youth development as reflected in the Lerner and Lerner PYD perspective (Lerner 2018; Lerner et al. 2015); and, (b) the importance of religious faith and spirituality as a key asset in the lives of youth (King and Boyatzis 2015; King et al. 2011).

Activities organized for youth at CI's programs include sports, youth interest groups, religious education, worship ministry, music and choir, arts and crafts, computer classes, English classes, homework clubs, and volunteer work. In addition, there are workshops intended to foster trade skills such as baking, sewing, farming, shoe-making, carpentry, cosmetology, and auto mechanics. These activities reflect what has been termed the "Big

Three" of effective positive youth development programs: (1) positive and sustained adult-youth relationships; (2) life skill-building activities; and (3) opportunities for youth participation in, and leadership of, valued family, school, and community activities (Lerner 2004, 2018). Indeed, CI's programs seek to capitalize on these important aspects of PYD programs by providing a safe space and context for providing the Big Three through such activities.

To frame its approach to PYD, CI published an internal report (Sim 2014b) focused on identifying and evaluating the "Five Cs of PYD"—Competence, Confidence, Character, Caring, and Connection used in the Lerner and Lerner model (Lerner 2018)—among youth sponsored by CI as compared to youth not enrolled in CI programs. Researchers at CI adopted the Lerner and Lerner Five Cs model of PYD (e.g., Lerner et al. 2015, 2017) as it has received the most empirical support (Heck and Subramaniam 2009), albeit mostly in U.S.-based samples, and has received the most attention from globally diverse settings (Petersen et al. 2017; see also Lerner et al. 2018). In the Lerner and Lerner model, when youth developmental assets or strengths (e.g., intentional self-regulation, hope for the future, and spirituality) coact with ecological assets (e.g., youth programs providing mentoring, life skill development curricula, and opportunities for participation in and leadership of valued family, school, or community activities), youth thrive (as marked by the Five Cs). However, it should be noted that, whether testing the use of the Lerner and Lerner PYD model within nations outside of the U.S. or, as well, testing other PYD models—for example, the Search Institute developmental assets model (e.g., Benson et al. 2011) or the Damon (2008) model of positive or noble purpose—considerable work needs to be done to establish the reliability, validity, and invariance of measures. At this writing, there have been no developmental studies using measures with these psychometric properties within rigorously designed longitudinal research, for example, involving comparative counterfactual cohort sequential methods and analyses (Dimitrova 2017; Petersen et al. 2017; USAID 2013a; YouthPower Learning 2017).

Accordingly, we used the Lerner and Lerner model (Lerner et al. 2015) as a frame for launching international PYD research having these methodological features. As such, the Sim (2014b) CI report was an impetus to conduct a longitudinal, multi-nation study using the Lerner and Lerner model to study thriving among youth living in nations served by CI programs. This study has become the Compassion International Study of Positive Youth Development, a collaboration among developmental scientists from CI, Tufts University, Boston College, and Fuller Theological Seminary.

In the present study, our major aim was to test a measurement model derived from CI's theory of change and begin to explore the relations among constructs related to spirituality, hope, and thriving. Our intent was to address the criticisms about measurement found in the above-noted YouthPower Learning (2017) report, by seeking to establish that our measurement model reflected the three key components of developmental assessments, that is, reliability, validity, and invariance (Card 2017). We sought also to use these measures in the context of a hypothesis-searching (as compared to a hypothesis-testing; Cattell 1966) assessment of the dimensions of similarity and difference between CI-supported youth and youth from a comparison group matched in regard to family resources and other poverty indicators, as noted in the "Procedure" section (below). The CI-supported and the non-CI-supported youth were compared in order to establish baseline data for future waves of longitudinal assessment of the diverse youth studied by CI and to generate ideas for future, longitudinal comparisons. In short, we therefore explored the relations among constructs related to spirituality, hope, and thriving among youth living in poverty in El Salvador.

Data were derived from the first wave of data collection in El Salvador. The intent of the CI longitudinal project—the CI Study of PYD—is to study youth development in at least three nations served by CI, ones in Africa, Asia, or Central/South America. We began data collection in El Salvador, as the nation within the latter geographic area. This choice was predicated on the significant challenges faced by Salvadoran youth, involving both high levels of poverty and of gang and community violence (see Rojas-Flores et al. 2013). We tested the measurement model and tested for measurement invariance in order to make meaningful comparisons of the latent means and correlations between youth enrolled in CI programs and youth not enrolled in CI.

Country Context: El Salvador as a Setting to Assess the Impact of PYD Programming on Youth Problems

El Salvador is the third largest economy in Central America and the most densely populated, with 6.3 million people, most of whom live in urban centers. According to the World Bank (2015, 2017), 32.7% of people in El Salvador lived below the poverty line in 2016 (down from 41% in 2012) and 1.9% lived below the extreme poverty line in 2015 (based on $1.90 per day per capita).

In regard to religion, 50.6% of the population identifies as Roman Catholic, 32.9% as Evangelical Protestant, 14.4% have no religious affiliation, and 2.1% state "other" (U.S. Embassy in El Salvador 2016). The latter category includes Jehovah's Witnesses, the International Society of Krishna Consciousness, Muslims, Jews, Buddhists, and members of The Church of Latter Day Saints (Mormons) and, as well, individuals who adhere to indigenous religious beliefs, with some mixing of these beliefs with other religions such as Catholicism (U.S. Embassy in El Salvador 2016).

Since the end of the civil war in 1992, five consecutive democratic presidential elections have taken place with peaceful transitions of power. With a successful democratic transition, accompanied by policies which have expanded access to public services, El Salvador has made significant progress on human development indicators. For example, from the 1990s to 2016, immunization rates increased from 76 to 93%; access to improved water sources increased from 79 to 89%; and, access to improved sanitation expanded from 56 to over 95%. El Salvador was able to achieve Millennium Development Goal 4, reducing its under-five mortality rate from 59 deaths per 1000 live births in 1990, to 17 deaths per 1000 live births in 2015. In 2014, the net primary school enrollment rate was 93% (USAID 2013b).

Despite this progress, crime and violence threaten social development and economic growth and negatively affect the lives of many youth. In 2015, El Salvador had the highest homicide rate in the world and one of the highest homicide rates among adolescents in the world (see Centeno 2017). According to UNICEF (2017), El Salvador is one of the deadliest places in the world for boys (behind only the Syrian Arab Republic, Iraq, Venezuela and Colombia) and for girls (behind only the Syrian Arab Republic, Iraq, Afghanistan, Honduras, Somalia, and South Sudan). In those countries mentioned that are outside of Latin America, the majority of adolescent deaths are due to armed conflict and war (or collective violence) but in Venezuela, Colombia, Honduras, and El Salvador, the majority of deaths are due to homicide (UNICEF 2017).

There is a growing interest in assessing if the PYD perspective, and community-based programs derived from this perspective, can either prevent or reduce the incidence of youth violence, particularly in settings wherein there is considerable youth gang activity (Lerner

et al. 2018; Melendez-Torres et al. 2016; Taylor et al. 2002, 2005). As such, given the above-noted statistics about youth gang violence in El Salvador, this nation is an obviously relevant one within which to study programs that might promote PYD.

One rationale for integrating through research in El Salvador youth/gang violence reduction or prevention efforts with programs predicated on the PYD perspective is the hypothesis that the promotion of desirable attributes of adolescent development will actually have a preventive function (e.g., Benson et al. 2004). Simply, this idea is that promoting PYD attributes will prevent or ameliorate problematic or risk behaviors, that is, promotion is also prevention. However, Lerner et al. (2015) noted that data from longitudinal assessments of the relations between attributes of risk/problem behaviors (e.g., bullying, drug use/abuse, delinquency, and depression) and indicators of PYD (e.g., the Five Cs of PYD studied within the Lerner and Lerner model of PYD, i.e., Competence, Confidence, Connection, Character, and Caring) indicate an inverse but far from perfect negative correlation between these sets of attributes (e.g., negative correlations account for only about 25% of the variance in these relations). Empirically, then, promoting attributes of PYD is not in and of itself an antidote to eliminate or reduce youth violence. Simply, promotion is not prevention. PYD does not constitute a "silver bullet" in regard to preventing or reducing youth violence. In sum, then, studying the impact of PYD programs, such as the ones delivered by CI, within El Salvador, provides an ideal sample case, one potentially illuminating what can, or cannot, be gained in regard to redressing youth problems through such programs.

Method

The major aim of the current study was to test a measurement model of spirituality, hope, and thriving among Salvadoran youth and to compare latent means and correlations between two groups: youth participating in Compassion International (CI)-supported programs and comparison youth not enrolled in CI. We therefore tested and compared factor structure and model fit across the two groups and refined the measurement model for parsimony and robustness. We then tested for between-group measurement invariance. With invariance established, we were then able to compare latent means and latent correlation patterns between the CI-supported and non-CI-supported groups.

Participants

Participants included 888 Salvadoran youth (50% female), sampled from 20 local CI-supported project sites in urban and rural (70.4% urban) contexts. Ages ranged from 9 to 15 years ($M = 11.60$ years, $SD = 1.70$). Participants reported family religious affiliation as 72.2% Protestant Christian (Evangelical, Presbyterian, Lutheran, Anglican); 16.3% Catholic; 1.1% Adventist; and 10.4% reported no family religion. Non-CI-supported youth comprised 50.1% of the sample. Youth enrolled in CI-supported programs were deemed eligible based on multiple criteria including age, household monthly income in relation to number of dependents, lack of any other outside sponsorship, and proximity to a CI-supported project site. Youth comprising the non-CI-supported group were selected based on meeting CI's eligibility criteria, and thus appropriateness for sponsorship if space were available (see "Procedure" section, below).

CI-Supported Youth

Of the 888 youth in this sample, 443 youth (50.6% female) were enrolled in CI-supported programs. Ages ranged from 9 to 15 years ($M = 11.68$ years, $SD = 1.67$). Participants reported family religion as 75.8% Protestant Christian (Evangelical, Presbyterian, Lutheran, Anglican); 13.8% Catholic; 1.6% Adventist; and 8.8% reported no family religion.

Non-CI-Supported Youth

In turn, 445 youth (49.4% female) served as comparison youth, not enrolled in CI-supported programs. Ages ranged from 9 to 15 years ($M = 11.52$ years, $SD = 1.67$). Participants reported family religion as 68.5% Protestant Christian (Evangelical, Presbyterian, Lutheran, Anglican); 18.9% Catholic; .7% Adventist; and 11.9% reported no family religion.

Ethics Review Process

The research team that was not based in El Salvador was given de-identified data that were collected by CI. As such, the Institutional Review Board (IRB) of the research team's institution granted the project exempt status for secondary data analysis. The research team based in El Salvador is composed of CI staff, who follow the CI policy of adhering to a specific country's governmental IRB requirements, if any. If, as is the case in El Salvador, no such governmental requirements exist, CI requires that, before youth are assessed, signed parental consent forms and, as well, youth assent (if below the age of consent), be obtained. All youth are told that there are no penalties if they elect not to participate and, as well, that they can decide not to answer any question and may end their participation at any time, again without any penalties.

Measures

Measures of three constructs were used in these analyses: spirituality, hopeful future expectations (HFE), and positive youth development (PYD). The measures were translated from English to Spanish and, to check for accuracy, the Spanish versions were then back-translated to English. The measures used in this study relied on youth's self-reported perceptions and assessments of how much they relate to or identify with the items. All participating youth were given the scales in the same order. For all measures, higher scores reflected higher self-ratings on the construct. Table 1 presents items for all measures used.

Spirituality

To assess spirituality, we used 11 items related to a factor of Transcendence from King and colleagues' (2016) Measure of Diverse Adolescent Spirituality (MDAS). Although these items were generated to assess constructs of transcendence and fidelity (see King et al. 2014), in a sample of Mexican youth, they were found to be related to a single factor, Transcendence (King et al. 2016). Youth indicated how true each statement was in their life

Table 1 Items and stems for the constructs measured in the current investigation

Construct	Item (stem)	Subscale (and related items)
Spirituality	*How true are the following statements in your life?*	
	1.	I believe all humans have a common spiritual part
	2.	I believe in some way that my life is connected with humanity
	3.	I find meaning in life when I feel connected with God
	4.	I marvel in front of nature and God's creation
	5.	I feel God's presence in my life
	6.	I feel that there is someone bigger than me (God) that is concerned for me
	7.	I try to incorporate my religion or spirituality in every aspect of my life
	8.	My spiritual beliefs define the way I see the world
	9.	I try to follow my spiritual leader's teachings (like Jesus or Mother Teresa)
	10.	I face the obstacles and problems in life when I think that my life is part of God's plan
	11.	Religion or spirituality is a big part of who I am
Hopeful future expectations	*Think about how you see your future. What are your chances for the following?*	
	1.	Graduating from high school
	2.	Going to college
	3.	Having a job that pays well
	4.	Having a job that you like
	5.	Having a happy family life
	6.	To live wherever you want
	7.	To buy the things you need
	8.	To do the things you would like to do

Table 1 (continued)

Construct	Item (stem)		Subscale (and related items)
	9.	Be respected in your community	
	10.	Have trustworthy friendships	
	11.	Be healthy	
	12.	Be safe	
Positive youth development	*How much do you agree or disagree with the following statements?*		
	1.	I am as smart as other children my age	Competence (academic)
	2.	I do a good job at school	Competence (academic)
	3.	I can do good in almost any athletic activity	Competence (physical)
	4.	I am better than my peers at sports	Competence (physical)
	5.	I have a lot of friends	Competence (social)
	6.	I am popular with other children my age	Competence (social)
	7.	I am happy with who I am most of the time	Confidence (self-worth)
	8.	In general, I am glad to be me	Confidence (self-worth)
	9.	I like the way I look	Confidence (appearance)
	10.	I think I am good looking	Confidence (appearance)
	11.	I am happy the way I am	Confidence (positive identity)
	12.	I am sure that as an adult I will live a good life	Confidence (positive identity)
	13.	Sometimes I do things I know I shouldn't do	Character (conduct behavior)
	14.	Usually I act the way I am supposed to act	Character (conduct behavior)
	How important are the following statements in your life?		
	15.	To help the world become a better place to live	Character (social conscience)
	16.	Donate time and money to help people	Character (social conscience)
	17.	Do what I think is right even if my friends make fun of me	Character (personal values)
	18.	To take responsibility for my actions when I make a mistake	Character (personal values)

Table 1 (continued)

Construct	Item (stem)		Subscale (and related items)
	What do you think people will say about you with the following statements?		
	19.	You know about other cultures	Character (values diversity)
	20.	You enjoy being with people from other cultures	Character (values diversity)
	How well do the following statements describe you?		
	21.	I want to help when I see someone taking advantage of someone else	Caring
	22.	It bothers me when bad things happen to people	Caring
	23.	I feel sorry for those who don't have what I have	Caring
	24.	I feel sorry for people that are being picked on by someone else	Caring
	25.	I feel sad when I see someone that doesn't have friends	Caring
	26.	I feel bad for people that are hurt or are upset	Caring
	How much do you agree or disagree with the following statements?		
	27.	I received support from my school	Connection (school)
	28.	Teachers at my school motivate me to be the best that I can be	Connection (school)
	29.	I have a lot of good conversations with my parents	Connection (family)
	30.	I feel useful in my family	Connection (family)
	31.	The adults of my community make me feel important	Connection (community)
	32.	The adults of my community listen to what I have to say	Connection (community)
	How true are the following statements for you?		
	33.	I think I have good friends	Connection (peers)
	34.	I matter to my friends	Connection (peers)

All items were translated from English to Spanish and then back-translated from Spanish to English to check for accuracy. Positive Youth Development (PYD) items were derived from the PYD Short Form drawn from the 4-H Study of Positive Youth Development (Geldhof et al. 2014; Lerner et al. 2005). Hopeful Future Expectations (HFE) items were derived from the 4-H Study of Positive Youth Development (Lerner et al. 2005; Schmid et al. 2011). Spirituality items were derived from the Measure of Diverse Adolescent Spirituality (King et al. 2016)

(see Table 1). Response options ranged from 1 (“Not true in my life”) to 5 (“Almost always true in my life”).

Hopeful Future Expectations

To assess hopeful future expectations (HFE), we used 12 items derived from the 4-H Study of Positive Youth Development (see Schmid et al. 2011). Youth indicated the likelihood their future would include or reflect each of the items (see Table 1). Response options ranged from 1 (“Very low”) to 5 (“Very high”).

Positive Youth Development

To assess positive youth development (PYD), we used the 34-item Short Form measure of the Five Cs of PYD (Geldhof et al. 2014), derived from the 4-H Study of Positive Youth Development (Lerner et al. 2005). The 34 items reflected five factors, referred to as the Five Cs: Competence, Confidence, Character, Caring, and Connection (see Table 1).

Competence We used six items to assess competence across three domains: academic, social, and physical. Youth indicated how much they agreed or disagreed with each statement (see Table 1). Response options ranged from 1 (“Totally disagree”) to 5 (“Totally agree”).

Confidence We assessed confidence using six items, reflecting three domains: self-worth, appearance, and positive identity. Youth indicated how much they agreed or disagreed with each statement (see Table 1). Response options ranged from 1 (“Totally disagree”) to 5 (“Totally agree”).

Character We used eight items to assess character across four domains: conduct behavior, social conscience, personal values, and values diversity. For the conduct behavior items, youth indicated how much they agreed or disagreed with the statements (see Table 1). Response options ranged from 1 (“Totally disagree”) to 5 (“Totally agree”). For social conscience and personal values, youth indicated how important each statement was in their life (see Table 1). Response options ranged from 1 (“Not important”) to 5 (“Extremely important”). For values diversity, youth responded to what they thought other people would say about them regarding each of the statements (see Table 1). Response options ranged from 1 (“Nothing like you”) to 5 (“Very similar to you”).

Caring We used six items to assess caring. Youth indicated how well the statements described them (see Table 1). Response options ranged from 1 (“Not well”) to 5 (“Very well”).

Connection We assessed connection using eight items, reflecting four domains: connections with school, with family, with community, and with peers. For school, family, and community items, youth indicated how much they agreed or disagreed with the statements (see Table 1). Response options ranged from 1 (“Totally disagree”) to 5 (“Totally agree”). For peer items, youth indicated how true each statement was for them (see Table 1). Response options ranged from 1 (“Hardly ever true”) to 5 (“Always true”).

Procedure

The current study involved recruitment and data collection with two groups: youth participating in CI-supported programs and comparison youth not supported by CI. For CI-supported youth, the CI country office selected 20 CI project sites from, as noted, urban

and rural locations, from which to collect data. CI staff made these selections based on their judgments of sites that represented the best program outcomes (for instance, in regard to graduation rates and extra-program activities). CI country staff held three informational meetings for partnership facilitators at the selected project sites. The informational meetings involved information about the study, including describing the methodology and answering questions about the survey or broader research program.

A comparison sample of non-CI-supported youth was drawn from elementary and primary schools located in the same communities as the CI project sites. A series of regional meetings were conducted with project leaders and leadership from schools. The broader research project was described, and school leaders were given an invitation for youth and consent forms to participate to share with parents. Selection criteria were based on specific indicators of poverty—including housing quality, monthly income in relation to number of dependents in the home, and access to resources including water sources and toilet types—that reflected a child's eligibility for sponsorship through CI's programs, if space were available at a specific CI site. Participating schools were given a $50 thank-you gift.

Independent data collectors were recruited from a local university and/or recruited based on previous experience with children and technology (as the surveys were web-based). Data collectors had no previous involvement in CI and went through three days of training prior to data collection. The first day was dedicated to educating them about CI (e.g., history, mission, impact) and informing them about the purpose of the study. They were then introduced to the survey questions and answer options and trained in the methodology. On the second and third days, data collectors tested the survey with CI-supported project youth. Based on concerns and questions that came up at these training sessions, edits were made and documented.

Data collection took place in December 2016. From each CI project site, two boys and two girls of each age category (i.e., ages 9–14 years) were randomly selected. Comparison youth were drawn from nearby elementary and primary schools, wherein members of school leadership were asked to identify two boys and two girls from each age category whose families lived in poverty (i.e., those most similar to the poverty levels of the CI-supported youth and thus would be eligible for CI enrollment had sufficient places been available). Members of the local research team administered one-on-one interviews by reading the survey questions and entering youth response into an online survey. The survey took about 30–45 min to complete. Participating sites were given thank-you gifts as determined by the project staff, including gift baskets, shoes, and/or clothing. Gifts were not given on an individual basis but, rather, were provided to the project sites to benefit all youth and staff involved in that site, regardless of individual-level survey participation.

Data Analysis

The present research addressed two overarching goals. First, we sought to test a measurement model of spirituality, hope, and thriving among Salvadoran youth. Second, we aimed to compare youth participating in CI-supported programs to youth not participating in CI on those constructs in regard to latent means and latent correlations. Accordingly, data analysis involved multiple steps.

As documented in the "Appendix", we first analyzed each construct (spirituality, HFE, and PYD) independently using confirmatory factor analysis (CFA) to test its purported factor structure. We then attempted to replicate the analyses across subgroups (i.e., CI-supported youth and non-CI-supported youth) to test for robustness (see Duncan et al. 2014)

and to refine the models for parsimony. With satisfactory models defined for each construct, we then tested a CFA of the full measurement model including all three constructs (spirituality, HFE, and PYD). After this preliminary work, we tested the final model for between-group measurement invariance to determine whether it was appropriate and meaningful to compare groups present within the data set on these measures (see Little 1997, 2013). Our primary interest was to compare youth enrolled in CI programs with youth not supported by CI in regard to latent means and correlations. Before testing for invariance across CI status, we first tested demographic subgroups present within the data set, namely, age and gender. With invariance established across demographic subgroups, we could then determine whether it was appropriate to include all groups in the analysis and to make meaningful comparisons among them.

Results

In this sample, between .0 and .9% of the item-level data were missing. Due to the low level of missing data, we assumed all data were missing at random (MAR). The MAR mechanism renders the missingness functionally random (Little 2013) and is thus termed ignorable (Rubin 1976). To account for the participants nested in project sites, we used maximum likelihood estimation with robust standard errors (MLR) methods in these analyses—as all items were on a five-point Likert scale (see Rhemtulla et al. 2012)—and a sandwich estimator (TYPE = COMPLEX in Mplus).

Analyses were conducted using Mplus Version 8 (Muthén and Muthén 1998–2017). We used multiple goodness of fit indices as recommended by Brown (2006). Absolute fit was tested by checking for χ^2 significance and the standardized root mean square residual (SRMR), with values closer to 0 indicating better fit (Brown 2006). Parsimony-corrected fit was assessed by evaluating the root mean square error of approximation (RMSEA) and its confidence interval, with values closer to 0 indicating better model fit (Brown 2006). The suggested upper bounds, or cut-off values, of acceptable fit for the SRMR and RMSEA are .08, and ideally less than .05 (Brown and Cudeck 1993; Hu and Bentler 1999; Steiger 1990). Comparative fit, the evaluation of the specified solution in comparison to a null model in which no items are correlated, was tested with the comparative fit index (CFI) and the Tucker-Lewis index (TLI), with values closer to 1 indicating better model fit (Brown 2006). The suggested lower bounds, or cut-off values, of acceptable fit for the CFI and TLI are .90, and ideally above .95 (Bentler 1990).

Testing the Final Model

As noted in the "Appendix", we attained parsimonious and robust models for spirituality, HFE, and PYD, respectively. Accordingly, we next tested the measurement model including all constructs based on the above-noted findings. We conducted a CFA of the above-noted constructs in one model and, then, we tested for multiple-group measurement invariance by fitting a series of models with added constraints. The final model included two factors of spirituality: Transcendence (four items), and Fidelity (four items); one factor of HFE (six items); and five factors of PYD: Competence (four items), Confidence (four items), Character (six items), Caring (six items), and Connection (eight items). Nesting

Table 2 Model fit statistics for between-group invariance tests—by age (9–11 and 12–15 years), by gender (boys and girls), and by Compassion International (CI) registration status, respectively—of the final measurement model involving spirituality, hopeful future expectations, and positive youth development

Model	χ^2 (*df*)	*p*	RMSEA (90% CI)	SRMR	CFI	TLI	Pass? (ΔCFI ≤ .01)
Between-group invariance tests by age (9- to 11-year-old youth and 12- to 15-year-old youth)							
1. Configural	1940.93 (1560)	< .001	.023 (.020–.027)	.046	.940	.934	
2. Weak/loading	1966.49 (1594)	< .001	.023 (.019–.026)	.048	.942	.937	Yes (ΔCFI = .002)
3. Strong/intercept	2050.82 (1628)	< .001	.024 (.021–.027)	.049	.934	.930	Yes (ΔCFI = .008)
Between-group invariance tests by gender (boys and girls)							
1. Configural	1955.83 (1560)	< .001	.024 (.020–.027)	.045	.938	.931	
2. Weak/loading	1986.05 (1594)	< .001	.024 (.020–.027)	.048	.938	.933	Yes (ΔCFI = .000)
3. Strong/intercept	2037.76 (1628)	< .001	.024 (.020–.027)	.049	.936	.932	Yes (ΔCFI = .002)
Between-group invariance tests by CI registration status (CI-supported youth and non-CI-supported youth)							
1. Configural	1966.45 (1567)	< .001	.024 (.020–.027)	.046	.938	.932	
2. Weak/loading	1984.90 (1601)	< .001	.023 (.020–.027)	.047	.941	.936	Yes (ΔCFI = .003)
3. Strong/intercept	2015.21 (1635)	< .001	.023 (.019–.026)	.048	.941	.938	Yes (ΔCFI = .000)

χ^2, Chi square value; *df*, degrees of freedom; *p*, *p*-value; RMSEA, root mean square error of approximation; CI, confidence interval; SRMR, standardized root mean square residual; CFI, comparative fit index; TLI, Tucker-Lewis index; ΔCFI, change in CFI value

within project sites was accommodated using a sandwich estimator (TYPE = COMPLEX in Mplus).

We first tested for invariance across age (by comparing 9- to 11-year-old youth with 12- to 15-year-old youth), across gender (by comparing boys and girls) and, then, tested for invariance across groups (by comparing CI-supported youth with non-CI-supported youth). Table 2 presents the results of all invariance tests in the present study. Invariance tests involved three steps. First, we tested for configural invariance involving the measurement structure. Second, we tested for weak invariance by equating the factor loadings and allowing the latent variances in one group (the 12- to 15-year age group, the girl group, and the CI-supported group, respectively) to be freely estimated. Third, we tested for strong invariance by equating the intercepts and allowing the latent means in one group (the 12- to 15-year age group, the girl group, and the CI-supported group, respectively) to be freely estimated (see Little 1997, 2013). We used the Cheung and Rensvold (2002) suggested criterion for establishing invariance if the change in the CFI is less than .01.

In testing whether it was reasonable to include youth across age ranges, we established invariance between younger (9- to 11-year-old) and older (12- to 15-year-old) youth (see Table 2). An error message occurred for the older age group, indicating a collinearity issue between Competence and Confidence (as indicated by a latent correlation > 1.00). However, when we compared this parameter across the age groups (using MODEL TEST in Mplus), there was no significant difference (Wald test value = 1.91, $p = .17$), suggesting both age groups demonstrated possible collinearity between Competence and Confidence. The older youth demonstrated a significantly higher latent mean of Fidelity (by .216, $p = .006$). No other significant differences were found and modification indices suggested no points of poor fit. We thus deemed it reasonable to include all age groups when comparing the CI-supported and non-CI-supported youth.

In testing whether it was reasonable to include youth across genders, we established invariance between boys and girls (see Table 2). An error message occurred for the boy group, indicating a problem with the latent variable Connection. The warning may have been due to high correlations between the latent variables of Connection and Competence ($r = .93$). However, when we compared this parameter across the gender groups (using MODEL TEST in Mplus), there was no significant difference (Wald test value = .345, $p = .56$), suggesting both gender groups demonstrated possible collinearity between Connection and Competence. An error message also occurred for the girl group, indicating a problem with the latent variable Confidence. The warning may have been due to high correlations between the latent variables of Confidence and Competence ($r = .96$). However, when we compared this parameter across the gender groups (using MODEL TEST in Mplus), there was no significant difference (Wald test value = .596, $p = .44$), suggesting both gender groups demonstrated possible collinearity between Confidence and Competence. There were no significant differences between boys and girls in regard to latent means, and modification indices suggested no points of poor fit. We thus deemed it reasonable to include all boys and girls when comparing the CI-supported and non-CI-supported youth.

Last, we tested for invariance between CI-supported and non-CI-supported youth in order to make comparisons between their latent means and latent correlations (e.g., Little 1997, 2013; see also Card 2017). In the CI-supported group only, we fixed the latent correlation between Competence and Confidence to 1.00 and equated the relevant factor correlations (using the MODEL CONSTRAINT command in Mplus) to address the above-noted apparent collinearity between these two factors in this group (see the "Appendix"). The resulting factor structure for the 42 items displayed good fit: χ^2 (1567) = 1966.45, $p = .000$; RMSEA = .024 (90% CI .020–.027); CFI = .938; TLI = .932; SRMR = .046. Standardized factor loadings ranged from .26 to .81 in the CI-supported group, and from .25 to .74 in the non-CI-supported group. Modification indices did not suggest any points of poor fit in the solution.

With a satisfactory measurement model defined, we next fit a series of models to test the invariance of the measurement model between CI-supported and non-CI-supported youth. The invariance tests indicated that the model fit well (establishing configural invariance), and that it was reasonable to constrain the factor loadings (establishing weak invariance) and the intercepts (establishing strong invariance) across groups (see Table 2). We therefore determined it was reasonable to compare the CI-supported and non-CI-supported groups in regard to latent means and correlations.

Comparing the CI-Supported and Non-CI-Supported Groups

The invariance analyses provided "the mathematical and theoretical basis by which quantitative cross-group comparisons can be conducted" (Little 1997, p. 73), indicating that it was reasonable to compare latent parameter estimates across groups.

Regarding latent means, the models indicated significant differences between CI-supported youth and non-CI-supported youth on two constructs: Transcendence, from the spirituality measure; and Character, from the PYD measure. Youth participating in CI-supported programs, on average, reflected significantly higher means for both latent constructs, by .186 for Transcendence ($p = .007$), and by .174 for Character ($p = .046$). There were no latent mean differences between CI-supported and non-CI-supported youth for Fidelity ($p = .104$), HFE ($p = .527$), Competence ($p = .863$), Confidence ($p = .552$), Caring ($p = .393$), or Connection ($p = .744$).

Differences were also found in regard to correlations among the latent constructs. Table 3 presents the latent correlations for both groups. In the CI-supported group, there were significant relations between Fidelity and Caring ($r = .20$, $p < .01$), which were not found in the non-CI-supported group ($r = .13$, $p = .06$); between Competence and Caring ($r = .24$, $p < .001$), which were not found in the non-CI-supported group ($r = .09$, $p = .288$); and between Character and Connection ($r = .25$, $p < .001$), which were not found in the non-CI-supported group ($r = .04$, $p = .573$). In the non-CI-supported group, there were significant relations between Transcendence and Confidence ($r = .24$, $p < .01$), which were not found in the CI-supported group ($r = .12$, $p = .09$); and between Transcendence and Caring ($r = .17$, $p < .01$), which were not found in the CI-supported group ($r = .08$, $p = .20$).

To test whether these correlation patterns significantly differed between the CI-supported and non-CI-supported groups, we used the Wald test of parameter estimates (MODEL TEST in Mplus) to test each discrepant correlation pattern, respectively. The correlation between Character and Connection was the only pattern that differed significantly (Wald test value = 6.62, $p = .010$), indicating that the relation between Character and Connection was significantly stronger in the CI-supported group as compared to the non-CI-supported group (wherein no significant relation existed). The remaining discrepant relations (Fidelity with Caring; Competence with Caring; Transcendence with Confidence; and Transcendence with Caring) did not differ significantly between CI-supported and non-CI-supported youth.

The remaining patterns of latent correlations were consistent between the CI-supported and non-CI-supported groups. No significant correlations existed in either group between Transcendence and Competence, between Transcendence and Connection, between HFE and Character, or between HFE and Caring. The remaining 18 patterns of correlations were significant in both groups (see Table 3).

Discussion

There are numerous initiatives being pursued to address the complex personal and economic issues besetting poor youth developing in the majority world. These initiatives include those of organizations such as USAID, World Bank, UNICEF, and the International

Table 3 Correlations among the latent factors in the CI-supported group and non-CI-supported group, respectively

	1. Tran	2. Fid	3. HFE	4. Comp	5. Conf	6. Char	7. Care	8. Conn
1. Transcendence	–	.581***	.189*	.116	.116	.272***	.081	.076
2. Fidelity	.652***	–	.297***	.215*	.215*	.359***	.204**	.320***
3. HFE	.325***	.373***	–	.487***	.487***	.057	.013	.512***
4. Competence	.057	.249*	.551***	–	1.000†	.275***	.236**	.685***
5. Confidence	.241**	.165*	.489***	.755***	–	.275***	.236**	.685***
6. Character	.272***	.273**	.079	.189	.174*	–	.431***	.252***
7. Caring	.174**	.125	.053	.088	.289***	.421***	–	.211**
8. Connection	.029	.209*	.485***	.876***	.603***	.039	.210**	–

Correlations for the CI group are list above the diagonal; non-CI group, below

*$p < .05$; **$p < .01$; ***$p < .001$. †Correlation between Competence and Confidence was constrained to 1.00 and relevant elements equated to account for apparent multicollinearity in the CI group

Youth Foundation. Compassion International (CI) is contributing as well to these initiatives, offering, in particular, programs that are theory-based and informed by rigorous developmental science research findings. CI is a child-sponsorship organization that has used the developmental literature to formulate ideas about how to promote youth thriving through integrating individuals and contexts within one RDS, dynamic approach to human development (e.g., Lerner et al. 2015; Overton 2015).

Specifically, as discussed by Sim (2014a, b), CI has drawn ideas from the RDS-based Lerner and Lerner model of PYD (e.g., Lerner 2018; Lerner et al. 2018) to assess the links among: (a) ecological assets represented by CI-supported programs (which involve mentoring, Christian values, life skills training, and opportunities to use these skills in valuable family and community contexts); (b) youth strengths as developmental assets (in particular here, spirituality and hope for the future); and, (c) thriving, indexed by the Five Cs of PYD. We (collaborators from Tufts University, Boston College, Fuller Theological Seminary, and CI) have launched a project that will involve longitudinal studies of youth in their programs in at least one nation in each of the three major sectors they serve (Africa, Asia, and Central/South America)—the CI Study of PYD.

Given the extraordinary challenges facing youth in El Salvador (e.g., see Rojas-Flores et al. 2013), the project started in that country and, in the present report, we assessed the structure of relations among spirituality, hope, and thriving among CI-supported and non-CI-supported youth. A necessary first step, then, was to establish a measurement model assessing constructs pertinent to CI's theory of change and to test for invariance across groups present in the data set. We therefore tested and refined each construct for parsimony and robustness, and established between-group measurement invariance. These analyses enabled us to make meaningful comparisons of latent means and correlations between CI-supported youth and non-CI-supported youth. As such, our measures possess psychometric qualities, and, in particular, invariance, not typically found in measures or tools used to study youth in low- and middle-income countries (see YouthPower Learning 2017).

Our results indicated that youth enrolled in CI-supported programs reported higher levels of Transcendence (an aspect of spirituality) and of Character (one of the Five Cs of PYD). CI-supported youth also demonstrated a significant relation between Connection and Character (two of the Five Cs of PYD) that did not exist among non-CI-supported youth. These findings are cross-sectional and it will be important to construct developmental trajectories of these constructs in subsequent waves of testing. As such, we have a baseline for assessing subsequent PYD trajectories among CI-supported and counterfactual youth and, as a consequence, for exploring across longitudinal waves the possible individual $\Longleftrightarrow$ context relations that shape these pathways. These findings therefore represent a promising first step in understanding the potential role of strengths-based youth development programs in promoting the thriving of youth living in poor ecological settings.

Limitations and Future Directions for Research

Although these findings are interesting and indicate some preliminary evidence showing that CI-supported youth report higher levels of specific attributes related to thriving, these results are preliminary and limited. Indeed, the *primary* purpose of the research reported in the present article was to present the psychometric features of the measurement model used in this research. In turn, the study is limited because the data we present are cross-sectional. Relations at one point in time have no necessary relation to the form of trajectories

of change. Therefore, longitudinal data are needed to understand what might moderate these relations. Future studies, including those derived from the CI Study of PYD, will include longitudinal data to further elucidate these relations.

Limitations also existed in regard to sampling. The data set involved youth enrolled in CI-supported programs and comparison youth from nearby schools from one Central American nation, that is, El Salvador. Although youth were chosen based on meeting eligibility criteria for sponsorship, the diversity of life experiences contributing to their development was not assessed. Future studies, then, might include youth from more diverse backgrounds and different geographic locations. Such samples might better afford demographic and individual differences to be examined and results to be generalized across broader contexts. Indeed, future data collections from the CI Study of PYD are planned to include youth from African and Asian contexts, and these data might begin to address these limitations.

Other limitations pertain to measurement and to the specific measures used in this investigation. Although these measures have been used in past PYD research (e.g., Lerner et al. 2005) and have been shown to have good psychometric properties, the measures have not been previously tested for youth living in poverty in Central/South America. The initial findings of this study support the presence of a parsimonious and robust model for measuring the constructs of interest; however, the data were derived from self-report surveys that are limited in several ways. The results were likely skewed (e.g., common-method variance; response-style bias) and represented the thoughts of youth (at least as they wish to present them, e.g., social desirability bias) but do not examine behaviors or emotions. In addition, the sensitivity to change of these measures also needs to be assessed as we extend the present research longitudinally. Additional measurements, for instance, derived from qualitative interviews and reports from parents and program staff, should be included in future analyses. These additional measures will allow for triangulation across measures and constructs and provide richer data for analysis.

Another limitation of the present study pertains to the preliminary nature of the measure validation work reported in this study. Future work is needed to test the generalizability of the measures on additional samples within and across contexts, including contexts both within El Salvador and across other nations. Indeed, this goal represents a major strength of the CI Study of PYD, as we are continuing to collect data from diverse nations for the purposes of validating, and testing invariance of, the proposed measurement model across contexts.

Accordingly, future research, both with the Salvadoran sample in the CI Study of PYD and with samples from the other countries from which we collect data, will investigate within-country longitudinal changes and compare such change trajectories across other countries. We expect that these results will allow us to understand what specific aspects, of what specific youth, at what specific points in development, and living in what specific contexts, promote thriving among diverse and marginalized youth (see Bornstein 2017; Lerner et al. 2018).

Implications for Policy and Practice

The challenges of poverty besetting global youth are enormous (Lerner et al. 2018; UNICEF 2005). The opportunity to understand the thriving of diverse youth affected by the challenges of poverty and associated phenomena—such as gang and community violence (e.g., Rojas-Flores et al. 2013; Sampson 2016)—is therefore timely and important.

Indeed, developmental scientists and youth development organizations and programs have a vested interest in understanding and enhancing the dignity and human capital represented by these youth.

Most international development efforts refer to economic development and youth indicators are often limited to physical health and education outcomes. Although these assessments are important and necessary for survival, they are not sufficient for understanding youth thriving. Our findings are a beginning step in answering questions regarding the integrated and comprehensive measurement of thriving for global youth living in poverty.

Conclusions

This preliminary study indicates that the youth development programs of CI provide a context that may serve to promote the thriving of youth living in poverty. Given the need to rigorously evaluate and document PYD programs being implemented, particularly programs with a theoretical basis and robust measurement of PYD outcomes (see YouthPower Learning 2017), these findings are timely and important. Scientists and society have the opportunity and the means to nurture youth growing into engaged, responsible adults who lead meaningful and fulfilled lives of purpose and character. Such research and applications of research have implications for geopolitics, the world's economy, and global peace. This study represents an initial and crucial step to contribute to these scientific aims.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Appendix

Full Results for Refining the Constructs Tested in the Measurement Model

In this sample, between .0 and .9% of the item-level data were missing. Due to the low level of missing data, we assumed all data were missing at random (MAR). The MAR mechanism renders the missingness functionally random (Little 2013) and is thus termed ignorable (Rubin 1976). To account for the participants nested in project sites, we used maximum likelihood estimation with robust standard errors (MLR) methods in these analyses—as all items were on a five-point Likert scale (see Rhemtulla et al. 2012)—and a sandwich estimator (TYPE = COMPLEX in Mplus).

Analyses were conducted using Mplus Version 8 (Muthén and Muthén 1998–2017). We used multiple goodness of fit indices as recommended by Brown (2006). Absolute fit was tested by checking for χ^2 significance and the standardized root mean square residual (SRMR), with values closer to 0 indicating better fit (Brown 2006). Parsimony-corrected fit

was assessed by evaluating the root mean square error of approximation (RMSEA) and its confidence interval, with values closer to 0 indicating better model fit (Brown 2006). The suggested upper bounds, or cut-off values, of acceptable fit for the SRMR and RMSEA are .08, and ideally less than .05 (Brown and Cudeck 1993; Hu and Bentler 1999; Steiger 1990). Comparative fit, the evaluation of the specified solution in comparison to a null model in which no items are correlated, was tested with the comparative fit index (CFI) and the Tucker-Lewis index (TLI), with values closer to 1 indicating better model fit (Brown 2006). The suggested lower bounds, or cut-off values, of acceptable fit for the CFI and TLI are .90, and ideally above .95 (Bentler 1990). We next present the results for each respective construct.

Exploring the Factor Structures by Construct

As noted in the main body of this article, we took several preliminary steps in order to enable testing of the final model for between-group measurement invariance in order to compare the latent means and latent correlations between CI-supported youth and non-CI-supported youth (see Little 1997, 2013).

Spirituality

To explore spirituality, we tested 11 items pertaining to a factor of Transcendence from the Measurement of Diverse Adolescent Spirituality (MDAS; King et al. 2016) using a CFA. The model tested on the full sample indicated poor fit to the data: χ^2 (44) = 165.8460, p = .000; RMSEA = .056 (90% CI .047–.065); CFI = .871; TLI = .838; SRMR = .049. The poor fit persisted across the subgroups present within the data set (see Table 4 for model fit

Table 4 Model fit statistics for the initial confirmatory factor analyses of the purported constructs of spirituality, hopeful future expectations, and the five Cs of positive youth development, respectively

Model	χ^2 (*df*)	*p*	RMSEA (90% CI)	SRMR	CFI	TLI
Spirituality (one factor, 11 items)						
1. Spirituality—full sample	165.46 (44)	< .001	.056 (.047–.065)	.049	.871	.838
2. Spirituality—CI-supported youth only	127.17 (44)	< .001	.065 (.052–.079)	.060	.824	.781
3. Spirituality—non-CI-supported youth only	98.37 (44)	< .001	.053 (.039–.067)	.051	.888	.860
Hopeful future expectations (one factor, 12 items)						
1. HFE—full sample	158.03 (54)	< .001	.047 (.038–.055)	.042	.926	.910
2. HFE—CI-supported youth only	125.50 (54)	< .001	.055 (.042–.067)	.053	.905	.884
3. HFE—non-CI-supported youth only	94.96 (54)	< .001	.041 (.027–.055)	.044	.939	.925
Five Cs of PYD (five factors, 34 items)						
1. PYD—full sample	951.27 (503)	< .001	.032 (.029–.035)	.048	.909	.899
2. PYD—CI-supported youth only	835.69 (503)	< .001	.039 (.034–.043)	.059	.880	.866
3. PYD—non-CI-supported youth only	708.36 (503)	< .001	.030 (.025–.035)	.053	.913	.903

HFE, hopeful future expectations; PYD, positive youth development; CI, Compassion International; χ^2, Chi square value; *df*, degrees of freedom; *p*, *p*-value; RMSEA, root mean square error of approximation; 90% CI, 90% confidence interval; SRMR, standardized root mean square residual; CFI, comparative fit index; TLI, Tucker-Lewis index; ΔCFI, change in CFI value

statistics for the full sample, the CI-supported group, and the non-CI-supported group, for each purported construct, respectively).

Accordingly, we conducted a series of exploratory factor analyses (EFAs) to determine the best model for the data. For the EFAs, Geomin rotation (Mplus default) was used for a parsimonious factor pattern matrix. A combination of criteria was used to determine the adequate number of factors to retain, including a scree plot (Cattell 1966), parallel analysis (Horn 1965), and the above-noted multiple goodness of fit indices as recommended by Brown (2006). Out of necessity for fitting the EFA models, we had to ignore nesting.

Tested on the full sample, the scree plot and parallel analysis suggested a two-factor solution. We fit an initial series of EFA models ranging between one and four factors, and the suggested two-factor solution provided good fit: χ^2 (34) = 95.07, p = .000; RMSEA = .045 (90% CI .034–.056); CFI = .958; TLI = .931; SRMR = .028. MDAS Items 1 and 2 did not load strongly on either factor. The remaining nine items formed two factors related to transcendent experiences or awe of God (MDAS Items 3, 4, 5, and 6), and to adherence or fidelity to spiritual or religious beliefs (MDAS Items 7, 8, 9, 10, and 11). Accordingly, we refer to these factors as Transcendence and Fidelity.

To test the robustness of these findings, we then attempted to replicate the analyses across pertinent subgroups present within the sample, namely, CI-supported youth and non-CI-supported youth (see Duncan et al. 2014). For CI-supported youth, the scree plot and parallel analysis eigenvalues suggested a two-factor solution, which provided the best fit to the data: χ^2 (34) = 77.54, p = .000; RMSEA = .054 (90% CI .038–.070); CFI = .945; TLI = .910; SRMR = .035. The factor loading patterns were consistent with the findings from the EFA tested on the full sample. Again, MDAS Items 1 and 2 did not load strongly on either factor.

For non-CI-supported youth, the screen plot and parallel analysis suggested a one-factor solution; however, the two-factor solution remained the better fit to the data: χ^2 (34) = 74.57, p = .000; RMSEA = .052 (90% CI .036–.068); CFI = .941; TLI = .904; SRMR = .035. The factor loading patterns were not consistent with the patterns found in the CI-supported group. Whereas MDAS Items 1 and 2 did not load strongly on either factor, in the non-CI-supported sample, neither did MDAS Items 3, 8, 9, 10, or 11. One factor consisted of MDAS Items 4, 5, and 6; and the other factor only included MDAS Item 7.

After examining these initial results, we first removed two items (MDAS Items 1 and 2) that did not load strongly on any factor in any group. We then attempted to replicate the above analyses, first on the full sample, and then on the CI-supported and non-CI-supported groups. The EFA of the remaining nine items tested on the full sample suggested a two-factor solution based on the scree plot and parallel analysis eigenvalues. The two-factor solution provided excellent fit: χ^2 (19) = 35.94, p = .011; RMSEA = .032 (90% CI .015–.047); CFI = .986; TLI = .974; SRMR = .018. The two factors remained the same as previous findings: four items related to Transcendence; and five items related to Fidelity.

For the CI-supported group, the EFA with the nine items also suggested a two-factor solution based on the scree plot and parallel analysis eigenvalues. The two-factor solution demonstrated good fit: χ^2 (19) = 43.63, p = .001; RMSEA = .054 (90% CI .033–.075); CFI = .965; TLI = .934; SRMR = .029. For the non-CI-supported group, the scree plot suggested a two-factor solution; but the parallel analysis suggested one factor. The two-factor solution provided the best fit to the data: χ^2 (19) = 38.03, p = .006; RMSEA = .047 (90% CI .025–.069); CFI = .966; TLI = .936; SRMR = .028. However, MDAS Item 9 did not load on the Transcendence factor as it did within the full sample and the CI-supported group; instead, it loaded significantly on the Fidelity factor. In addition, MDAS Item 11 loaded strongly on both factors.

Based on these findings, we then removed MDAS Item 9 from the solution, as it loaded discrepantly across groups, and tested a CFA of the two-factor solution. Tested on the full sample, the scree plot of the remaining eight items (MDAS Items 3, 4, 5, 6, 7, 8, 10, and 11) and the parallel analysis suggested a two-factor solution. The EFA two-factor solution indicated excellent fit to the data: χ^2 (13) = 21.02, p = .073; RMSEA = .026 (90% CI .000–.046); CFI = .993; TLI = .984; SRMR = .015. Geomin rotated factor loadings ranged from .43 to .62 across the two factors. The latent factors were significantly correlated, r = .58, indicating the two factors were related but distinct constructs.

We then replicated the analyses across the CI-supported and non-CI-supported groups to test for robustness and found consistently good fit with the two-factor solution. Table 5 presents the model fit statistics for the full sample, the CI-supported group, and the non-CI-supported group, for each refined construct, respectively. For the CI-supported group: χ^2 (13) = 23.39, p = .037; RMSEA = .023 (90% CI .010–.070); CFI = .983; TLI = .964; SRMR = .023. Geomin rotated factor loadings ranged from .44 to .75 across the two factors. The latent factors were significantly correlated, r = .50, indicating the two factors were related but distinct constructs. For the non-CI-supported group: χ^2 (13) = 24.53, p = .027; RMSEA = .045 (90% CI .015–.071); CFI = .977; TLI = .950; SRMR = .025. Geomin rotated factor loadings ranged from .32 to .74 across the two factors. The latent factors were significantly correlated, r = .28, indicating the two factors were related but distinct constructs.

We thus decided to retain these eight items related to spirituality as a robust and parsimonious two-factor solution. One factor included MDAS Items 3, 4, 5, and 6: "I find meaning in life when I feel connected with God;" "I marvel in front of nature and God's creation; "I feel God's presence in my life;" and "I feel that there is someone bigger

Table 5 Model fit statistics for the refined constructs of spirituality, hopeful future expectations, and the five Cs of positive youth development, respectively

Model	χ^2 (*df*)	*p*	RMSEA (90% CI)	SRMR	CFI	TLI
Spirituality (two factors, 8 items)						
1. Spirituality—full sample	21.02 (13)	.073	.026 (.000–.046)	.015	.993	.984
2. Spirituality—CI-supported youth only	23.39 (13)	.037	.042 (.010–.070)	.023	.983	.964
3. Spirituality—non-CI-supported youth only	24.53 (13)	.027	.045 (.015–.071)	.025	.977	.950
Hopeful future expectations (one factor, 6 items)						
1. HFE—full sample	4.80 (9)	.852	.000 (.000–.021)	.010	1.000	1.009
2. HFE—CI-supported youth only	10.84 (9)	.287	.022 (.000–.060)	.019	.996	.993
3. HFE—non-CI-supported youth only	9.75 (9)	.371	.014 (.000–.056)	.021	.998	.996
Five Cs of PYD (five factors, 28 items)						
1. PYD—full sample	505.38 (329)	< .001	.025 (.020–.029)	.035	.958	.952
2. PYD—CI-supported youth only	480.73 (329)	< .001	.032 (.026–.038)	.048	.936	.926
3. PYD—non-CI-supported youth only	393.32 (329)	.009	.021 (.011–.028)	.041	.968	.964

HFE, hopeful future expectations; PYD, positive youth development; CI, Compassion International; χ^2, Chi square value; *df*, degrees of freedom; *p*, *p*-value; RMSEA, root mean square error of approximation; 90% CI, 90% confidence interval; SRMR, standardized root mean square residual; CFI, comparative fit index; TLI, Tucker-Lewis index; ΔCFI, change in CFI value

than me (God) that is concerned for me". We thus termed this factor "Transcendence". The second factor included MDAS Items 7, 8, 10, 11: "I try to incorporate my religion or spirituality in every aspect of my life;" "My spiritual beliefs define the way I see the world;" "I face the obstacles and problems in life when I think that my life is part of God's plan;" and "Religion or spirituality is a big part of who I am". We thus termed this factor "Fidelity". In subsequent analyses we therefore specify Transcendence and Fidelity as two distinct aspects of spirituality in this sample (see also King et al. 2014).

Hopeful Future Expectations (HFE)

To explore the construct of HFE, we tested 12 items derived from the 4-H Study of Positive Youth Development (see Schmid et al. 2011) using a CFA. The model tested on the full sample indicated moderate to poor fit to the data: χ^2 (54) = 158.03, p = .000; RMSEA = .047 (90% CI .038–.055); CFI = .926; TLI = .910; SRMR = .042. The poor fit persisted across the subgroups present within the data set (see Table 4 for model fit statistics for the full sample, the CI-supported group, and the non-CI-supported group, for each purported construct, respectively).

Accordingly, we then tested a series of EFA models on the 12 items related to HFE. The initial set of EFAs with 12 items tested on the full sample suggested a two-factor solution based on the scree plot and parallel analysis eigenvalues; however, a three-factor solution provided the best fit: χ^2 (33) = 59.59, p = .003; RMSEA = .030 (90% CI .017–.042); CFI = .987; TLI = .974; SRMR = .018. The three factors were related to education (HFE Items 1 and 2), to financial success (HFE Items 3, 4, 6, and 7), and to happy life (HFE Items 5, 9, 10, 11, and 12). HFE Item 8 ("Do the things you would like to do") did not load strongly on any factor.

For CI-supported youth, scree plot and parallel analysis suggested a possible two-factor solution; however, a three-factor solution appeared to provide the best fit to the data: χ^2 (33) = 64.11, p = .001; RMSEA = .046 (90% CI .026–.063); CFI = .973; TLI = .947; SRMR = .026. The factor structure differed as compared to the full sample: whereas HFE Items 1 and 2 remained a factor related to education, the remaining items factored differently. HFE Items 3, 4, 5, 9, 10, 11, and 12 formed one factor, including items related to financial success and happy life; and HFE Items 6, 7, and 8 formed a factor related to financial or lifestyle independence.

For non-CI-supported youth, the scree plot suggested a two-factor solution; but the parallel analysis suggested one factor. The two-factor solution appeared to provide the best fit: χ^2 (26) = 75.61, p = .002; RMSEA = .041 (90% CI .025–.056); CFI = .987; TLI = .974; SRMR = .018. The factors appeared to be related to education and financial success (HFE Items 1, 2, 3, 4, 7, and 8) and to happy life (HFE Items 5, 6, 9, 10, 11, and 12).

To refine the model for parsimony and robustness, we first removed three items: HFE Items 3, 4, and 8. HFE Item 8 did not load strongly on any factor when tested in the full sample and, as well, did not consistently load on any one factor in the by-group analyses. HFE Items 3 and 4 also did not load consistently on one factor across groups. Tested on the full sample, the scree plot and parallel analysis suggested a two-factor solution. The full-sample EFA of the nine items indicated a two-factor solution with good fit: χ^2 (19) = 31.26, p = .038; RMSEA = .027 (90% CI .006–.043); CFI = .990; TLI = .981; SRMR = .018. The two factors were related to education (HFE Items 1 and 2) and happy life (HFE Items 5, 6, 7, 9, 10, 11, and 12).

When we tested for robustness across the CI-supported and non-CI-supported groups, the factor structure remained consistent, except for HFE Item 7 ("Buy the things you need") which had a strong factor loading (> .30) on both factors in the non-CI group. We thus decided to remove HFE Item 7 from the final model. In addition, although the education items (HFE Items 1 and 2) consistently formed a strong factor in prior analyses, we decided to also remove those two items, in order to have a parsimonious and robust one-factor model to represent HFE.

An EFA of the remaining six items (HFE Items 5, 6, 9, 10, 11, and 12) suggested a one-factor solution based on the scree plot and parallel analysis eigenvalues. The one-factor solution in the full sample indicated excellent fit to the data: χ^2 (9) = 4.80, p = .852; RMSEA = .000 (90% CI .000–.021); CFI = 1.000; TLI = 1.009; SRMR = .010. Geomin rotated factor loadings ranged from .47 to .65.

To test the robustness of these findings, we replicated the analyses across the CI-supported and non-CI-supported groups and found consistently good fit with the one-factor solution (see Table 5). For the CI group: χ^2 (9) = 10.84, p = .287; RMSEA = .022 (90% CI .000–.060); CFI = .996; TLI = .993; SRMR = .019. Geomin rotated factor loadings ranged from .48 to .65. For the non-CI group: χ^2 (9) = 9.75, p = .371; RMSEA = .014 (90% CI .000–.056); CFI = .998; TLI = .996; SRMR = .021. Geomin rotated factor loadings ranged from .45 to .64. We thus decided to retain these six items related to HFE as a robust and parsimonious one-factor solution.

Positive Youth Development (PYD)

We first conducted a CFA of the Five Cs (Competence, Confidence, Character, Caring, and Connection) of PYD. Within each factor, errors were allowed to correlate for related items (e.g., within the Connection factor, the two items that pertained to peers were allowed to correlate). A total of 14 pairs of same-facet items were allowed to correlate a priori. The model tested on the full sample indicated moderate to poor fit to the data: χ^2 (503) = 951.27, p = .000; RMSEA = .032 (90% CI .029–.035); CFI = .909; TLI = .899; SRMR = .048. The poor fit persisted across the subgroups present within the data set (see Table 4 for model fit statistics for the full sample, the CI-supported group, and the non-CI-supported group, for each purported construct, respectively).

After examining initial results, six items related to three factors were removed—the two items related to physical competence within the Competence subscale; the two items related to physical appearance within the Confidence subscale; and the two items related to conduct behavior within the Character subscale. We removed these items based on modification indices (e.g., PYD Item 22 indicated cross-loadings with Chi square reduction values ranging from 78.62 to 106.67) and based on previous findings from Geldhof and colleagues (2014) in which physical competence items, physical appearance items, and conduct behavior items were found to be problematic in the PYD model.

A CFA of the remaining 28 items tested on the full sample demonstrated good fit: χ^2 (329) = 505.38, p = .000; RMSEA = .025 (90% CI .020–.029); CFI = .958; TLI = .952; SRMR = .035. However, the latent variable covariance matrix (psi) was not positive definite, and the warning message indicated a program with the latent variable Connection. The warning may have been due to high correlations between the latent variables of Connection and Competence (r = .87) as well as between Competence and Confidence (r = .92).

To address the psi matrix problem and to test for robustness, we then attempted to replicate the CFA of the 28 items on the two groups (see Table 5). For the CI-supported group, the model provided good fit: χ^2 (329) = 480.73, p = .000; RMSEA = .032 (90% CI

.026–.038); CFI = .936; TLI = .926; SRMR = .048. However, the latent variable covariance matrix (psi) was not positive definite, and the warning message indicated a problem with the latent variable Confidence. There were high correlations between the latent variables of Confidence and Competence ($r = 1.22$) as well as between Connection and Competence ($r = .93$). For the non-CI-supported group, the model provided good fit and had no warning message regarding the psi matrix: χ^2 (329) = 393.32, $p = .009$; RMSEA = .021 (90% CI .011–.028); CFI = .968; TLI = .964; SRMR = .041.

The by-group analyses revealed that psi matrix problems were present in the CI-supported group and not in the non-CI-supported group. We used the Wald test of parameter estimates (MODEL TEST in Mplus) to compare the correlation between Confidence and Competence across groups, which indicated that the relation did indeed significantly differ across groups (Wald test value = 5.58, $p = .018$). Therefore, to accommodate the apparent collinearity between Confidence and Competence in the CI-supported group (as demonstrated by the correlation greater than 1.00), we combined the factors in that group by fixing the latent correlation to 1.00 and equating the relevant elements in psi. The resulting multiple-group CFA provided good fit: χ^2 (662) = 880.87, $p = .000$; RMSEA = .027 (90% CI .022–.032); CFI = .950; TLI = .943; SRMR = .045.

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