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New measures to assess the social ecology of youth: A mixed-methods study

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Abstract

Objective: This project used mixed methods to expand the understanding of social ecological constructs important to youth and develop measures to assess these constructs.

Methods: Eight focus groups and 24 cognitive interviews were conducted with adolescents and caregivers. These were followed by a survey completed by 440 youth ages 10–21 (average age: 16.38, standard deviation[SD] = 3.04).

Results: Qualitative data revealed social ecological constructs that have received little prior research attention. These include three psychosocial strengths: relational motivation (inspiration from key adults), group connectedness (bonded to others in teams or organizations), and mattering (knowing your importance to significant others). One outcome was also identified: family well-being (subjective psychological functioning of the family). Psychometric analyses indicated that the new quantitative measures have good to excellent reliability and validity.

Implications: The social ecology is complex and extends beyond commonly studied constructs such as social support and collective efficacy. More comprehensive assessments can further research.

KEYWORDS
adolescence, connectedness, resilience, social ecology, strengths

1 | INTRODUCTION

Ecological models (Bronfenbrenner, 1979; Kelly, 1968; Trickett, Kelly, & Vincent, 1983) have been widely applied in psychology to understand the context of human development and the ways that individuals cope with victimization and other adversity. Evidence supports the importance of families, peers, communities, and societies to the functioning of any given individual (e.g., Huston & Bentley, 2010). However, existing research on the social ecology, or the relationships between people and their environments, remains limited. For example, much of this research has focused on relatively static characteristics that are often outside the control of children, families, or providers, such as immigration status, family structure, or ethnic group (Huston & Bentley, 2010). Although these "social address" factors warrant consideration, they do not make ready targets for prevention or intervention (Grych, Hamby, & Banyard, 2015). Further, the operationalization of more malleable elements of the social ecology has remained surprisingly limited. Although a few constructs, such as social support (Chu, Saucier, & Hafner, 2010), collective efficacy (Sampson, Raudenbush, & Earls, 1997), sense of community (Stewart & Townley, 2019), and empowerment (Lardier, Garcia-Reed, & Reed, 2018), have received considerable study, others are more limited. For example, a recent review of modifiable protective factors found 25 individual factors, but only 12 family factors and only 5 factors that referred to nonfamilial elements of the social ecology (Fritz, de Graaff, Caisley, Van Harmelen, & Wilkinson, 2018). Further, in that review, only six of the family factors and one of the nonfamilial factors showed a significant association with child mental health. This persistent focus on individual factors has led to several calls to expand the tools available for studying the broader social ecology (Hamby, Banyard, & Grych, 2016; Schultz et al., 2016; Shaw, McLean, Taylor, Swartout, & Querna, 2016). The purpose of this study is to use qualitative and quantitative approaches to identify other social ecological factors that are potentially salient to the well-being of youth.

1.1 | Existing research on the social ecology of youth

Despite the breadth implied by the term "social ecology" and the various social relationships that are routinely identified in the model, in practice a narrow set of constructs dominates the operationalization of the social ecology. Social support has probably received the most attention of any social ecological variable and can include support from family members, peers, or the broader community (Chu et al., 2010; Fritz et al., 2018). Most research on social support operationalizes this construct with global measures of ratings of the degree of support that individuals perceive, or their access to resources in their environment (Clara, Cox, Enns, Murray, & Torgrudc, 2003; Frison & Eggermont, 2015; Sherbourne & Stewart, 1991; Zimet, Dahlem, Zimet, & Farley, 1988). Better social support is generally associated with greater well-being and psychological adjustment, although the findings have been somewhat more mixed than the social ecological model would suggest (Chu et al., 2010; Fritz et al., 2018), indicating possible underexplored complexities. Although this research has been useful for identifying the importance of social support in the social ecology, global measures leave many unanswered questions about the relational and social contexts in which any supportive interactions occur.

Variations on the construct of social support also account for some of the range in the existing literature on the social ecology. For example, support from family, support from peers, and support from school are often treated as separate variables (Fritz et al., 2018). Even maternal support is sometimes handled differently than parental or extended family support. Beyond that, many previously studied constructs refer to the family ecology, such as family cohesion and parental involvement (Fritz et al., 2018; Hamby, Roberts, Taylor, Hagler, & Kaczkowski, 2017).

Beyond the family level, the range of constructs shrinks further, with collective efficacy and school climate among the modifiable community factors that have received substantial study (e.g., Brookmeyer, Fanti, & Henrich, 2006; Klika, Herrenkohl, & Lee, 2013; O'Donnell, Schwab-Stone, & Muyeed, 2002; Prati, Cicognani, & Albanesi, 2018; Sampson et al., 1997). School connectedness, or a general feeling of belongingness to one's school, has been shown to be protective against poor outcomes in several studies (e.g., McNeely, Nonnemaker, & Blum, 2002; Prati, Cicognani, & Albanesi, 2018; Resnick et al., 1997). Collective efficacy (belief in the capacity to accomplish goals with other people in a group) or

community cohesiveness (close-knit communities with helpful, involved, and trustworthy neighbors) have also been shown to protect youths from the adverse effects of violence and promote well-being (e.g., Capone, Donizzetti, & Petrillo, 2018; Li, Nussbaum, & Richards, 2007; Sampson et al., 1997). Still, as also noted in the recent review by Fritz and colleagues (Fritz et al., 2018), the factors that have been studied, despite intending to capture many different elements of the social ecology, are relatively limited in comparison to measures of individual factors. The range of measures, and with them, research questions, need to be expanded (Hamby et al., 2016).

1.2 | The social ecology and the resilience portfolio model

Another limitation of existing research is that, despite the strengths-based focus of most social ecological frameworks, much of this study continues to have a deficit lens. For example, outcomes still often focus on psychopathology, as has been noted by several researchers (Fritz et al., 2018; Howell et al., 2016). This study relies on the Resilience Portfolio Model (Grych, Hamby, & Banyard, 2015) as a framework for understanding how elements of the social ecology support can help youth achieve resilient outcomes. In this model, resilience is defined as achieving well-being after adversity by applying strengths (external resources or internal assets). Thus, to inform prevention and intervention (i.e., to identify key strengths to target), it is necessary to measure adversities, strengths, and outcomes separately, rather than relying on global self-report perceptions of resilience. There are three domains of strengths in the Resilience Portfolio Model: regulatory (managing emotions and behaviors), meaning making (connecting with something larger than oneself), and interpersonal. The interpersonal domain, which represents the social ecology in the model, is the largest and most complex of these, and most in need of further study. The Resilience Portfolio Model calls for studying multiple factors together to better understand their interrelationships. Given that prior research has largely emphasized individual factors and a relatively limited set of social ecological variables (Fritz et al., 2018), there is a need for more work that explores the dimensions of the social ecology and the aspects of interpersonal relationships that might be key to promoting well-being after adversity.

1.3 | Current study

The current study adopts a mixed methods approach, with multiple qualitative methods (focus groups and individual interviews) and a quantitative survey, to explore under-recognized aspects in the social ecology of youth as they navigate adversities and other challenges of adolescence in communities in the southern United States. There have been calls for more focus on content validity in the development of measures (Rossiter, 2018), and mixed methods approaches are best suited for that. Our primary research goal was to identify additional aspects of the social ecology and to develop reliable and valid measures of these factors. We predicted that elements of the social ecology would be related to each other. We also predicted social ecological measures would be positively correlated with indicators of psychological and physical well-being and inversely correlated with victimization history.

2 | Method

2.1 | Participants

2.1.1 | Focus group participants

Seventy participants (65.7% female) who were recruited from youth-serving organizations in Tennessee, Georgia, and Mississippi participated in eight focus groups in May and June 2016. There were four focus groups with adolescents ages 12–17 years (n = 18), and four with caregivers (n = 52). Most participants identified as European American/White (81.4%), followed by African American/Black (14.3%), Latino (1.4%), Asian (1.4%), and multiracial (1.4%).

2.1.2 | Cognitive interview participants

Twenty-four participants, 79.2% female, completed in-depth semistructured interviews that involved reviewing and commenting on constructs generated from the focus groups, including draft questionnaire items. Interviews were conducted in November and December 2016 in Tennessee and Georgia. Of the cognitive interview participants, 12.5% were ages 10–12, 37.5% were ages 13–15, 4.2% were ages 16–17, 8.3% were ages 25–29, 20.8% were ages 30–39, 8.3% were ages 40–49, 4.2% were ages 50–59%, and 4.2% were ages 60–69. The racial identities of the participants were 62.5% African American/Black, 33% European American/ White, 4.1% Latino and 4.1% American Indian.

2.1.3 | Survey participants

Participants were 440 youth from four states in the southern United States (AL, GA, MS, TN) who participated in 2017 and 2018. The sample ranged from 10 to 21 years of age ($M = 16.38$, $SD = 3.04$) and was 61.1% female. Regarding race and ethnic identity, participants identified as 69.9% White or European American (non-Latino), 17.1% Black or African American (non-Latino), 5.6% multiracial, 3.9% Latino, 1.9% American Indian or Alaska Native (non-Latino), and 1.6% Asian (non-Latino). More than half of the sample (61%) lived in a rural area (27.4%) or small town (33.6%), with populations under 20,000. The remaining participants reported living in larger towns (14.1% in towns 20,000–100,000), smaller cities (15% in cities up to 300,000 people), and larger cities or suburbs (9.9%).

2.2 | Procedure

Participants were recruited through youth-serving organizations. Informed consent, including parental consent for minors, was obtained for all participants. For all phases, organizations received a stipend of $20 per participant. All procedures were IRB approved. Focus group participants were given the following prompts about the social ecology: "We are trying to learn more about how people thrive and do well in life, even after bad experiences. We are planning a large survey to ask people about their strengths and the help they get from family, friends, neighbors and communities when they are coping with problems. However, we first want to make sure that we are asking about all of the important strengths that people (and those who help them) have. We are conducting focus groups with teens and parents to help us learn more about all the abilities that people have to deal with problems. We are interested in what you think has been most helpful to you when you deal with problems. Sooner or later, everyone has to deal with some kind of problem, often a serious problem. What helps you when times are tough? Families, of course, are also very important. In what ways can families help people overcome problems? We are also interested in how friends, neighbors, teachers, coaches, ministers or others in your community have helped. What is most helpful about other people in your lives?

Cognitive interview participants were given similar prompts and also asked to review draft questionnaire items. For the focus groups and cognitive interviews, sessions were audiotaped and transcribed. The survey was administered as a computer-assisted self-interview, using the SNAP11 software platform on computer tablets. On average, the survey took approximately 22 min to complete. The overall completion rate was 92%, which is an excellent result by current survey standards, with some survey completion rates often under 70% and sometimes under 50% (Abt SRBI, 2012; Galesic & Bosnjak, 2009).

2.3 | Quantitative measures used in survey validation

The scales that were developed out of the qualitative research are described in more detail in Section 3 below. Several additional quantitative scales were included in the survey as validation measures. Unless specified,

response categories were on a 4-point Likert scale with 1 denoting *Not true about me* and 4 denoting *Mostly true about me*. Missing data (range: 1–3.2%, average: 1.1%) were imputed based on responses to other items on same scale. In all cases, higher scores represent higher levels of strengths, psychological functioning, and adversity. Further details on each measure are below. Three indicators of more commonly assessed elements of the social ecology were included. *Social Support Seeking* scale (6 items, $\alpha = .89$) assesses youth's efforts to attain help and attitudes toward asking for help (Hamby, Taylor, Smith, & Blount, 2018). A sample item is "I talk to someone to help me solve problems." The *Social Support Received* scale (5 items, $\alpha = .80$) assesses help or encouragement provided by others in times of distress. A sample item is "Someone was there for me when I was having a hard time." *School Climate* (6 items, $\alpha = .78$) measures characteristics of healthy school environments, such as "My school building is in good condition."

The *Juvenile Victimization Questionnaire (JVQ)—Key Domains Short Form* includes 10 items assessing lifetime history of a range of interpersonal victimizations adapted from the full JVQ (Hamby, Grych, & Banyard, 2018). A sample item is "During your childhood, did one of your parents threaten to hurt another parent and it seemed they might really get hurt?" Dichotomous items ("yes" or "no") were summed to create a total victimization score. α is .73 in this sample. Almost 9 in 10 (89.3%) youth reported at least one victimization.

The social ecology is thought to be associated with individual functioning, and to examine this, two *outcomes* were examined. *Subjective Well-being* (7 items, $\alpha = .90$) assesses general life satisfaction from a strengths-based perspective, versus the absence of mental health symptoms (Hamby, Grych, & Banyard, 2018). A sample item is "I feel really good about my life." Other outcome measures were developed via the mixed methods process previously described (Hamby, Taylor, et al., 2018). *Health-related quality of life* (HRQOL; 5 items, $\alpha = .64$) is a simplified and adapted measure (Banyard, Hamby, & Grych, 2017) based on the CDC measure (Centers for Disease Control & Prevention, 2000). Sample item: "During the last month, for about how many days did your health stop you from doing your usual activities, like going to school or spending time with friends?" Higher scores on this index indicate better health-related quality of life in the month before the survey.

2.4 | Data analysis

Qualitative data analysis was used to develop items with strong content validity. Grounded theory was used to identify under-recognized constructs of resilience from participants' own words (Corbin & Strauss, 1990; Walker & Myrick, 2006). Initially, members of the research team (S. H., E. T., and A. S.) and two interns reviewed focus group transcripts, using participants' own words to develop a list of strengths that helped participants work through difficult times. In the second phase, these constructs were further refined and narrowed, and then draft survey items were written to capture them. Further refinement of resilience themes and operationalizations occurred in the cognitive interviews, which were analyzed similarly. For the quantitative data, we conducted descriptive analyses (such as frequencies) and bivariate correlations. We used exploratory factor analysis, coefficient α, and correlation to examine the reliability and validity of scales.

3 | RESULTS

3.1 | Social ecology constructs identified in the qualitative phase of focus groups and interviews

Qualitative data revealed several constructs related to youth resilience that have received little prior research attention, including relational motivation, group connectedness, mattering, and family well-being.

3.2 | Relational motivation

Many youths spoke of being inspired by important people in their lives, including parents, older teammates, coaches, and teachers.

> He was a senior. And, um, he touched all of us in the way he was like, 'Just because you a freshman doesn't mean you can't get out here and do what we do. You come, you come and do what we do.' ...and, I ain't, nobody in the weight room would put under a 45 [pound weight], no matter what we doing. Incline, no matter. If you got anything under a 45, you got to take it off and put a 45 on there. That's what [NAME] taught. And ever since then [NAME] he led, he led... he changed the weight room....Even when he left, he's still had the weight room changed. (Male adolescent)

> I want to be able to make my parents proud and it's what I live for. (Female adolescent)

> I'll be getting sworn in to the Army Reserves Thursday....

> Interviewer: "What made you want to join the Army Reserves?

> I think it's mostly because I kind of want to be...I follow my brother, my big brother, kind of always just followed him around. My dad was in the National Guard for 20 years, my brother was a National Guard, so I just kind of, I've always wanted to be like them. (Female adolescent)

The enduring and cyclical nature of relational motivation was not only reflected in this young woman's description of wanting to follow in her father's and brother's footsteps, but also in youth wanting to serve as inspiration (as well as be inspired) and one mother's reflection on how coaches or other key adults from youth can remain influential for years.

> I want my family to be able to say, to talk to my little brother, 'This is what you can do, this is what you can get out of life if you just go for it.' (Female adolescent)

> I have one that's graduated and so they are forever living in the football "gang" (laughter). They'll be like 30 or 40, and they'll be like, 'Remember when coach said this?' (Mother)

The boundaries of these constructs can also be seen in instances when an opposing idea was expressed. Some youth described seeking motivation elsewhere when they lacked inspiring role models.

> I want to be successful. I want everybody that may have doubted me for a second [to say], 'This girl has done it.' (Female adolescent)

> So, I just want to be able to get further than my mom was able to. (Female adolescent)

3.3 | Group connectedness

In addition to more tangible or incident-based expressions of social support, many people mentioned the value of belonging to a team, camp, or other organization, focusing on the sense of belongingness and mutual commitment, a construct we refer to as "group connectedness".

Being active in like your community, it helps because you meet more people, and then you get more comfortable being around people, and it helps in any kind situation usually....If you're a part of a team, then you're obviously, you're going to meet more people and you're going to build relationships with those people and then it just carries on. (Female adolescent)

Right, if I didn't play volleyball, I'm pretty sure that my math grade would be in the negatives (laughter). Because, yeah, I don't get math....Volleyball is the only thing that keeps me—that makes me study and do good on my tests and everything else. (Female adolescent)

...when I see a kid dragging, if I can't get over to him, I got a thing, I go, 'Hey, if y'all want to keep that guy [NAME] you better get him.' So I put it on the other kids and these kids rally around him. They don't like to see one, any one teammate fall off. Does that make sense? They're going to save them. So they'll go to him, 'Come on man! Pick it up! Let's go!' And they'll run with him, and beside him, and encourage him. It's a pretty neat little thing to watch. (Male coach)

[Youth's name] cannot wait until the week she gets to come to camp. It just gives her a chance to experience people from outside of her county and people that she would have never gotten to meet. We have met some wonderful friends here, people that she will be friends with from now on. That's one thing I love about this place. It's a wonderful place. I'm glad that the kids around here have it. (Mother)

Again, in the interest of defining the boundaries around these concepts, not every participant saw these types of interpersonal connections as a benefit to joining groups

They might be able to teach them something that the parent doesn't know, but...I put him in those things so he can learn his strengths. What he is good at and what he is valuable in. (Mother)

3.4 | Mattering

Many youth, parents, and other caregiving adults talked about the importance of consistent expressions of care and importance.

You've got to show it. They've got to know you're about them, and if you're not, they'll see through you in a minute. 'Cause I've hired coaches that were all about, 'Well, I'm just, I'm a coach, that kid's a turd, that kid's a turd.' And those kids—I've had to put out more fires over stuff like that. Because those kids see straight through. They know. 'And that guy, he doesn't care about me, it's just about what I can do on the football field.' .... they know I'm here. I'm here every day. I'm not going anywhere and everything I do is for them and about them. We don't just deal with football issues. We deal with grades, and parents, and girlfriends, and whatever, you know? Car accidents. Everything comes through this field hatch. (Male coach)

One of the things that they have us do is called a "2 by 10." You spend 2 minutes every day for 10 days just connecting with one kid. And after those 10 days you check in with them again and you already have that relationship with them and you would be surprised how much you can get a kid to do if you build relationships with them. (Female camp counselor and parent)

I mean, at the end of the day I respect her [his mother] more for having the concern and love for me to say I'm wrong than saying I'm right about everything. (Male adolescent)

We know we're always going to be there for each other. My little kids know they're going to be there for each other too. (Mother)

In contrast, one teacher spoke of seeing children in her classroom who do not experience mattering.

"I have a couple of kids that I know that come from a really lost place, whether it be drugs or divorce or whatever, you know, that don't have the same structure as we do...There was even a little girl that had bugs all the time and my little boy said, 'Least she's not in my class.' I said, 'Baby, that's not her fault. Her momma's in jail and her daddy has passed away.' ....[It] is really important they have that person to turn to, or they have people to show up at their parties, you know." (Female teacher and parent)

3.5 | Family well-being

Finally, a fourth construct that emerged was the idea of family well-being, and that youth's own well-being was not something that existed in isolation from other family members.

"...our kids look forward to family gatherings, you know, traditions, you know, whether it be, 'Oh, I can't wait 'til Christmas. Everybody is going to come!' I think that the kids right now have it so, 'Oh, I'm going to get this,' or whatever, you know, but at the same time, whether, you know, we realize they're not, they do enjoy being around the people, or you know having the interactions, seeing mom and dad interact with people, you know, is big. You know, that's how they learn to do it." (Mother)

I think my family, I think living for them, and I've got children [extended family members] running all over the place, and I think that being able to watch them and see them grow up, I mean, and just seeing the love pour out from them, I think that's what gives me purpose, love. (Female adolescent).

"My family was always really close."

One teacher also spoke about the way that a negative shift in family well-being impacts youth:

"...there was a girl and she was in 8th grade, she was a very sweet girl, and one day she just took a pencil, and she just threw it against the wall. She took it and she threw it. And I said, '[Name], I don't know what's going on, but I feel like you need some space, walk in the hallway and I will meet you there in about three minutes, can you do that for me?' She got up and she walked out. Well, her dad got arrested last night and this was the first class of the entire morning and she had to go to school, somehow she got herself there, but she was just, she didn't want to be there."

Although these constructs can be identified as distinct elements of the social ecology, it is also important to note that these factors interact with each other and can also influence other strengths. In the example below, an adolescent male's story embodied group connectedness, relational motivation, as well as endurance and future orientation, illustrating his pathway to overcoming bullying in a way that is seldom captured in the research literature:

"Like, back, back in the day, when I was, um, when I was a kid, I used to get picked on a lot. I was small, scrawny, and everybody just saw that I wasn't doing nothing, so, on in my life, I started trying to make myself a little bit bigger and a better person and I chose to do football and basketball, so now no one messes with me.

Interviewer: ….What about the team aspects of being on the football team? …that was something that we were particularly interested to hear about since you all are on a team together.

Um, when we [the team] go through tough times, we had a rough season this year, and we got better. We knew then, from then on, these boys, you know, I stay on them [he's a team captain]. We stay on everybody and, um, we just work. Work, work, work. Like that right there [points to rest of the team in the weight room]. We're here from day in to day out, working, every day."

4 | PSYCHOMETRICS OF NEW MEASURES

4.1 | Factor analysis

We conducted an exploratory factor analysis on the 21 items developed and revised during the qualitative phase, using principal axis factoring for the extraction and a Promax rotation (See Table 1). Four factors were extracted with eigenvalues over 1, mapping onto the four constructs we sought to operationalize. Group Connectedness formed the first factor, with an eigenvalue of 8.15, accounting for 38.8% of the variance and consisting of 6 items with a loading of 0.4 or higher. The second factor consisted of five Mattering items, with an eigenvalue of 3.17 and explaining 15.1% of the variance. The third factor was Relational Motivation, with an eigenvalue of 1.53, 7.3% of the variance, and three items loading above 0.4. The final factor was Family Well-being, with 7 items, an eigenvalue of 1.10%, and 5.2% of the variance. Together, the four factors explained 66.4% of the variance in the items. The internal consistency of the resulting scales, represented by coefficient alphas, was good to excellent, ranging from 0.70 to 0.90. All four scales had elementary grade reading levels, using the Flesch-Kincaid algorithm, with all but Mattering requiring less than a 4th grade reading level. See Table 1 for individual items and item loadings.

4.2 | Construct validity

In addition to the content validity provided by the qualitative data, construct validity was also explored in the survey data (See Table 2). The three strengths, group connectedness, mattering, and relational motivation, were moderately correlated with each other (r .38–.48), and moderately correlated with the outcome measure, family well-being (r .30–.68), supporting the conceptual analysis of related but distinct aspects of the social ecology.

The scales were also correlated with more commonly assessed indicators of the social ecology, social support, and school climate, to further assess construct validity. These correlations were in a similar moderate range, with r from .32 to .46 for social support received and .30–.41 for school climate. The scales were also compared with two outcome measures, subjective well-being and health-related quality of life. As predicted, they were also moderately correlated with these (r of .39–.67 for subjective well-being and .21–.41 for health-related quality of life). Finally, the scales were also compared with polyvictimization scores, and as predicted, higher levels of polyvictimization were correlated with lower levels of all four new scales (r was −0.14 to −0.40).

5 | DISCUSSION

Using focus groups and individual interviews with youths and caregivers as a foundation, this study identified neglected aspects of the social ecology that are important for understanding how youth cope with a variety of adversities and developmental challenges. Four concepts emerged as key elements of the social ecology beyond social support: relational motivation, group connectedness, mattering, and family well-being. Questionnaires

TABLE 1 Factor analysis of questionnaire items for social ecology constructs

Item	Factor loadings			
	Group connectedness	Mattering	Relational motivation	Family well-being
I have belonged to a group or team that means a lot to me	.874			
I have belonged to a group or team that has inspired me to work hard	.888			
I have belonged to a group or team with people who stand up for me	.769			
I have belonged to a group or team where I learned about working together	.838			
I have belonged to a group or team where people counted on me	.830			
I have belonged to a group or team that has helped me stay out of trouble	.585			
I feel appreciated by my family and friends		.597		
My family and friends care about what I have to say		.838		
I feel like I matter to the people around me		.885		
My family comes to activities that are important to me		.314		
I know my family is proud of me		.460		
I want the people in my life to be proud of me			.689	
I care if I let people in my life down			.791	
I want to be a good example of other people			.590	
My family gets along				.734
My family is happy				.941
My family has a lot to be proud of				.760
My family can fix problems when they need to				.764
My family is doing well				.862
My family feeds good about the future				.705
I can count on my family				.448
Eigenvalues	8.15	3.17	1.53	1.10
% of variance	38.80	15.09	7.26	5.23
Flesch-Kincaid reading level	3.8	5.8	2.5	3.7
Coefficient α	.90	.86	.70	.90
Scale mean	21.03	17.53	11.26	24.00
Scale standard deviation	4.13	3.07	1.38	4.40

Note: Questionnaire items are © Hamby, Taylor, Smith, & Blount, 2018. Reprinted by permission.

TABLE 2 Correlations among four social ecology scales and with related constructs

	1	2	3	4	5	6	7	8	9	10	11	12
1. Group connectedness	–	.44	.38	.30	.32	.33	.29	−.14	.39	.21	.08	.05
2. Mattering		–	.48	.68	.46	.41	.46	−.40	.67	.41	.08	.03
3. Relational motivation			–	**.34**	**.33**	**.37**	**.39**	−.19	**.44**	**.26**	.09	.09
4. Family well-being				–	**.32**	**.30**	**.33**	−.39	**.57**	**.31**	−.02	−.01
5. Social support received					–	**.53**	**.32**	−.12	**.46**	**.19**	.05	.07
6. Social support seeking						–	**.32**	−.12	**.42**	**.14**	*.12*	.07
7. School climate							–	−.26	**.45**	**.23**	**.19**	.06
8. Polyvictimization								–	−.28	**−.32**	−.06	.01
9. Subjective well-being									–	**.41**	.02	−.01
10. Health-related quality of life										–	−.04	−.09
11. Age											–	**.1+8**
12. Gender												–

Note: Italics indicates significance at .05 level. Bold indicates significance at .01 level.

were developed for each of these items, with content emerging from the focus groups and then vetted in the interviews. Factor analysis indicated that these constructs, while related, also formed distinct factors. As predicted, these social ecological constructs were moderately positively correlated with social support and school climate, two more commonly studied elements of the social ecology. They were also inversely correlated with victimization history and positively correlated with two indicators of outcomes, subjective well-being and health-related quality of life.

5.1 | Relational motivation

Each of these factors captures an element of the social ecology that has received relatively little formal attention in research or practice. *Relational motivation* refers to the ways that relationships with key figures, including parents, teachers, and coaches, can serve as sources of inspiration and encouragement for youth. Adolescents' support from coaches and sport teammates is often overlooked (Allen, 2003), but in these qualitative data, coaches, teammates, camp counselors, and others were important role models for many youths. Although sometimes these relationships led to the delivery of forms of social support that have been more frequently studied, relational motivation differed from social support in both tangible and intangible ways. In many of the descriptions from youth, parents, and other caregivers, respect for the older person (not always an adult, as in the case of the high school senior who motivated his teammates to work harder in the weight room) was an essential element of this phenomenon. Pride, or, more specifically, feeling proud, was mentioned several times. Youth want parents and others to be proud of them, and adults expressed pride in those they raise or teach. In some cases, the motivation was wanting to follow in someone's footsteps—such as the young girl who was following her father and brother into the National Guard. These youth are learning how to achieve and live a good life through inspiration and example. This construct also provides some insight into the ways that relationships with key caregivers and teachers can become internalized and lasting characteristics that will carry forward into adulthood and into their own caregiving relationships. We were unable to locate any existing quantitative measures of relational motivation, and hope the brief, easy-to-read measure provided here will stimulate further research.

5.2 | Group connectedness

As Allen (2003) has noted, the impact of team membership on youth is a neglected area of study. The broader construct of school connectedness has received more study (e.g., McNeely et al., 2002; Resnick et al., 1997), but no one in our focus groups or interviews spoke of feeling connected to an entire school (although some expressed alienation or discontent with their school), while many of them spoke of feeling connected to a specific group or team. Further, some of the strong group connections were focused on community groups, not school groups—such as camps and church groups. Measures of school connectedness will miss these community relationships, while a measure of group connectedness can include both school and community groups.

Existing measures that are specific to groups or teams tend to focus on aspects other than a sense of belonging or values development. Hansen and Larson (2002) developed a measure that assesses a range of impacts of youth activities, including time management and acquiring physical skills. Although their measure also has a few items that tap into the kinds of connectedness described by youth here, no single subscale focuses on items that map onto the construct of group connectedness as described by youth and adults in these qualitative data. Their survey also focuses on a single target activity, rather than focusing on whether any activity produces a sense of connectedness to a peer group. However, past research with their survey does indicate the importance of attending to these other elements of youths' social ecology (Hansen, Larson, & Dworkin, 2003). Other prior research also points to the importance of sports' participation, but often through the lens of social support (Chen, 2013).

5.3 | Mattering

Although mattering, or the perception that one is important to one's friends and loved ones, was first introduced as a psychological construct more than 30 years ago (Rosenberg & McCullough, 1981), it has received only scattered attention since then. Although this construct has been identified as a promising factor in theoretical work on resilience (Prilleltensky, 2014), more attention to measurement development and refinement of the construct as expressed in adolescence is needed. Rosenberg and McCullough's original study involved secondary data analysis of items not originally intended to assess mattering (Elliott, Kao, & Grant, 2004), while Pearlin and Leblanc (2001) focus on the absence of mattering, and not mattering as a social ecological strength. There are other scales that use this term, but, much as the case with school connectedness versus group connectedness, some approach the construct in more general terms, referring to significance to the world around us (Elliott et al., 2004), in contrast to the more immediate social networks that were the focus of comments in our qualitative work. For example, one scale includes items such as "People are usually aware of my presence" (Elliott et al., 2004). Several existing scales are longer, have more complex vocabulary, and were developed with adults (e.g., Elliott et al., 2004; Marshall, 2001; Taylor & Turner, 2001). For example, the General Mattering Scale is oriented towards adults, with the content on people being interested in what the participant has to say and how much others depend on the participant (Taylor & Turner, 2001). A brief, easy-to-read scale that is grounded in the experiences of adolescents will hopefully this increase research on this promising construct.

5.4 | Family well-being

The overall level of family functioning has been assessed in a variety of ways, but most of these have focused on family "quality" as a risk or protective factor, and not as another indicator of well-being. Some prior work has focused on needs specific to certain populations, such as families of children with disabilities (Poston et al., 2003). Further, some existing measures focus more on access to resources than true indicators of well-being, despite the names of some subscales (Summers et al., 2005). Many people, youth and adults, make choices based on how it will impact their families, as well as how it impacts themselves, and many people might willingly sacrifice some of their

own well-being for the sake of their family's well-being. Yet, prior research has seldom explored the ways that youths' psychosocial strengths and function are related to family well-being.

Another challenge of many previous studies is a relatively piecemeal and atheoretical approach, which unfortunately can limit their impact, unless someone else is specifically interested in a concept such as mattering or youth group involvement. Thus, we have even less information on how these different aspects of the social ecology relate to each other—and which ones might be most important—than we do about how they all might relate to various youth outcomes. As noted in the introduction, some of the findings for social support and other well-studied aspects of the social ecology have produced more mixed findings than expected by existing theoretical models.

More comprehensive approaches, with a wider range of measures, have the potential to improve our understanding of the impact of interpersonal factors as youth try to meet the challenges of adolescence. We note that the idea of the social ecology, by its very nature, is quite broad and diverse, and that one would not expect all the elements of it to be similarly correlated with each other. Further, it is not even unusual for social ecology scales to have correlations with outcome indicators that are similar or higher than correlations with other aspects of the social ecology (e.g., Stewart & Townley, 2019). One of the goals of work under the resilience portfolio model is to identify social ecological elements that are most important to youth well-being, and mattering, which has content that is clearly distinct from global measures of well-being, may be a particularly important element of the social ecology to emphasize in prevention and intervention. As Stewart and Townley also note, the elements of the social ecology that help youth create a sense of purpose and meaning may be particularly salient for youth functioning, and mattering should fit this category of social ecological aspects that help solidify a sense of meaning, because it establishes the importance of youth to others. This is why qualitative work establishing content validity is an essential element to scale development, in addition to convergent validity.

By incorporating these concepts into the Resilience Portfolio theoretical framework (Grych, Hamby, & Banyard, 2015; Hamby, Grych, & Banyard, 2018) and developing brief scales for constructs, we hope to move away from piecemeal assessment and promote more comprehensive and holistic studies of youth resilience.

5.5 | Strengths and limitations

The results of this study should be evaluated in the context of the strengths and limitations of the project. This project expands research on the social ecology by using mixed methods to explore underrecognized elements of the social ecology that are salient to youths, parents, and other caregivers. The use of two different qualitative approaches, focus groups and interviews, and multiple types of informants in the qualitative phases (youths, parents, and other adults who work with youth) especially helps to validate the findings. The study also expands information on the social ecology as perceived by residents of communities in the southern United States. Nonetheless, it would be valuable to replicate these findings in other groups and in other regions of the world. Future research could incorporate longitudinal designs or other data sources. Further work is needed to replicate these findings.

5.6 | Implications

In terms of research implications, these questionnaires can be used in studies to expand the assessment of the social ecology, and, more broadly, the constructs explored here can be used to expand work on youth development and youth resilience, regardless of whether these specific questionnaires are used. In terms of implications for practice, parents, teachers, therapists and others who work with adolescents should take note that these features of relationships were highly salient to youth and adults in this qualitative work. In general, individuals were more focused on overall relationship quality and perceived long-term investment in their lives than on specific acts of

tangible support. The coach who mentioned that he deals not only with issues related to football or even to schoolwork, but also helps them handle all kinds of family issues, accidents, and other problems, captured something important about what helps youth. In hindsight, adults reflecting on their childhood are more likely to mention the influence of "natural helpers" who will assist them in any issue, than they are to note the importance of a particular prevention program or course of therapy, or even other adults with more limited roles in their lives (Hagler, Hamby, Banyard, & Grych, 2018). Indeed, through that lens, it is somewhat surprising that past work on the social ecology has not done more to incorporate assessment of the quality of salient relationships, whether they be adult mentors, teammates, or others, and their impact on youth. The "2 by 10" intervention mentioned by the camp counselor (spending 2 min a day for 10 days in a row checking in with a youth) is one good concrete tool for promoting mattering. Mentoring is a promising intervention for youth with good evidence to support it (Hagler, 2018), and this study of the social ecology supports more investment in programs that provide respectful and engaged role models for youth.

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