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Psychosocial Competencies Among Clinic-Referred and Community-Based Children: Known-Groups Validity of the Psychosocial Strengths Inventory for Children and Adolescents

by

Alyssa M. Korell

A dissertation

submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy in the Department of Psychology

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Committee Approval

To the Graduate Faculty:

The members of the committee appointed to examine the dissertation of Alyssa Korell find it satisfactory and recommend that it be accepted.

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RE: Study Number IRB-FY2020-222: Psychosocial Strengths Inventory for Children and Adolescents: Discriminative Properties and Short Form Validation

Dear Dr. Peer:

I agree that this study qualifies as exempt from review under the following guideline:
Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).
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Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

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Psychosocial Competencies Among Clinic-Referred and Community-Based Children: Known-Groups Validity of the Psychosocial Strengths Inventory for Children and Adolescents

Dissertation Abstract--Idaho State University (2021)

The development and growth of child psychosocial competencies (e.g., prosociality, compliance with caregivers, attention and affect regulation) protect against the development of psychopathology and moderate the negative impact of existing psychosocial problem behaviors. Moreover, children who exhibit poorly developed psychosocial competencies alongside problematic behaviors are at particular risk for negative developmental cascades. Thus, assessment of psychosocial competencies, in addition to assessment of problem behaviors, can improve identification of children in need of psychosocial services, enrich treatment planning, and improve treatment progress and outcome monitoring. However, pragmatic, multidimensional, and psychometrically validated measures of child psychosocial competencies are limited. The Psychosocial Strengths Inventory for Children and Adolescents (PSICA) is a psychometrically promising and feasible measure to address this gap, although its discriminative properties (i.e., known-groups validity) are unknown to date. The present study therefore evaluated the sensitivity, specificity, and optimal cutoff scores of the PSICA's scales and subscales using data on 135 community-based and 27 clinic-referred children ages 2–10 years that were case-control matched for child age and gender. Results indicated large discrepancies between clinic-referred and community-based children in their frequency of psychosocial competencies, with clinic-referred children rated as showing significantly less psychosocial competence overall ($d = 1.89$, $p < .001$) and caregivers of clinic-referred versus community controls reporting significantly less satisfaction with their child's level of psychosocial competence ($r = .52$, $p < .001$). Clinic-referred children also showed significantly less

psychosocial competence across all three competency domains (i.e., Compliance, Prosociality, and Attention; η_p^2 = .22–.35, *p*s < .001). The discriminative accuracy of the PSICA's Frequency and Satisfaction scales both were excellent (Youden's Js = .73 and .68, AUCs = .93 and .90, respectively; sensitivity [range = .78–.89], specificity [range = .84–.90]), and PSICA Frequency subscales had very good to excellent discriminative accuracy (Youden's Js [range = .64–.68], AUCs = .86–.90, sensitivity [range = .85–.89], specificity [range = .76–.79]). Such discriminative accuracy and empirically derived cutoff scores further support the PSICA as a valid, pragmatic tool to screen children for referral into services, tailor treatment planning, and measure subsequent treatment response.

Key Words*:* psychosocial competencies, Psychosocial Strengths Inventory for Children and Adolescents, childhood, assessment, known-groups validity

Chapter 1: Introduction

Growing research supports the assessment of psychosocial competencies alongside problem behaviors for children, as psychosocial competencies have been shown to reduce the risk for development of psychopathology, moderate the long-term impact of existing behavioral and emotional problems, and facilitate positive developmental trajectories. Existing measures of psychosocial competencies, however, currently lack the pragmatics and validated psychometrics to facilitate screening, treatment planning, and progress and outcome monitoring efforts for children in need of mental health services. To address this gap, the current study examined the Psychosocial Strengths Inventory for Children and Adolescents (PSICA), a multidimensional, caregiver-report measure of child psychosocial competencies. Specifically, the current study used case-control matched data on community and clinic-referred children ages 2–10 to extend the PSICA's psychometric evidence–particularly its sensitivity, specificity, and empirical cutoff scores.

Child Psychosocial Competencies and Developmental Cascades

Increasing efforts have aimed to (a) identify aspects of intrapersonal and interpersonal functioning that promote resiliency and positive developmental trajectories and (b) integrate these factors within clinical interventions to better promote positive development (Bowman, 2013; Briegel et al., 2018; Masten & Cicchetti, 2010; Seligman & Csikszentmihalyi, 2000; Tedeschi & Kilmer, 2005). Identified factors exist across multiple ecological systems (Bronfenbrenner, 2005), including individual systems (e.g., self-regulation skills, positive self-worth, positive future expectations); microsystems involving caregiving/family-based contexts (e.g., nurturing and structured family environments); and extra-familial contexts involving meso-, exo-, and macro-systems (e.g., family supports, participation in prosocial organizations, safe

neighborhoods; Luthar et al., 2000; Masten, 2001; Masten & Coatsworth, 1998; Perren et al., 2007). All of these systems cumulatively influence achievement of psychosocial developmental tasks (e.g., making friends, following instructions), and the psychosocial competencies necessary to perform such tasks have been argued to underlie successful development and resiliency in infancy, childhood, adolescence, and adulthood (Briegel et al., 2018; Masten & Coatsworth, 1998; Masten & Cicchetti, 2010). These psychosocial competencies–which are related to, yet distinct from negative child behaviors–include prosocial behaviors, compliance with authority figures such as parents and teachers, attention regulation, increased independence, and affect awareness and regulation (Briegel et al., 2018; Briggs-Gowan & Carter, 1998; Carter et al., 2003; Dahl, 2015; Dahl & Brownell, 2019; Eisenberg & Mussen, 1989; Toner, Haslam, Robinson, & Williams, 2012).

Psychosocial competencies first arise in infancy (Dahl & Brownell, 2019); rapidly develop in frequency, topography, and functionality during preschool years (Baillargeon et al., 2007; Carter et al., 2003); and continue to uniquely progress in middle childhood, adolescence, and adulthood (Tomasello, 2014). Caregiving relationships represent a key context in which psychosocial competencies begin to develop, as caregivers not only model prosocial behaviors, but actively reinforce a child's early attempts and successes in performing prosocial acts (Dahl & Brownell, 2019). Once mastered, these competencies typically persist (Baillargeon et al., 2007; Burt et al., 2008) and increase in frequency throughout development (Baillargeon et al., 2011). Mastery of early psychosocial competencies also sets a foundation for the development of other psychosocial skills during the same developmental period (e.g., Masten & Coatsworth, 1998), and predicts development of more complex skills throughout childhood and adolescence (Pontoppidan et al., 2017). As an example, prosocial competence may manifest as comforting

behaviors in toddlerhood (e.g., patting another child on the back) and subsequently progress to sitting and listening to a hurt or sad friend in middle childhood: acts that draw upon increasingly sophisticated emotion and attention regulation skills (Bornstein et al., 2010).

Emergence and continuous growth of psychosocial competencies–particularly during childhood–are of significant clinical importance given their implications for both (1) current and (2) future psychosocial functioning (Briegel et al., 2018; Carter et al., 2003; Masten & Cicchetti, 2010). Regarding the former, higher child psychosocial competencies predict fewer psychosocial problem behaviors during the same developmental period, regardless of developmental period being assessed. For example, preschool-aged children who show more frequent prosocial behaviors (e.g., sharing, offering to help) tend to concurrently display fewer externalizing behaviors (e.g., aggression, noncompliance; Huber et al., 2019b). Similarly, in later childhood, children showing greater prosocial and attention regulatory skills are typically rated as having fewer emotion regulation difficulties (Burt et al., 2008; Kim & Cicchetti, 2010; Perren et al., 2007). Moreover, social competence in early adolescence is inversely associated with depressive, anxious, and socially-withdrawn (i.e., internalizing) symptoms (Bornstein et al., 2010).

Beyond exhibiting inverse relations within concurrent developmental periods, psychosocial competencies and emotional/behavioral problems also interact across time to cause and/or moderate subsequent developmental outcomes across functional domains, levels and systems–a process known as developmental cascades (Cicchetti & Curtis, 2006; Masten & Cicchetti, 2010). More specifically, child psychosocial competencies appear to protect against emergence and/or maintenance of future behavior problems (Achenbach & Edelbrock, 1983; Carter, 2002; Carter et al., 2003; Cicchetti & Cohen, 1995; Eron & Huesmann, 1984; Keenan & Shaw, 1997; Mastern & Coatsworth, 1995; 1998), just as early emotional and behavioral

problems are associated with poorer long-term psychosocial competencies. For instance, a child who exhibits prosocial competence with peers in early childhood is likely to make and maintain prosocial friendships in later childhood, which in turn, reduces risk for engagement in deviant peer relationships and delinquent behaviors (Dodge et al., 2008) that cumulatively increase risk for academic underachievement (Caprara et al., 2000) and development of psychopathology in adolescence and adulthood (Huber et al., 2019b; Obradović et al., 2010).

The converse also applies–i.e., deficits in child psychosocial competencies predict deficits in future developmental tasks as well as emergence of future behavior problems (see Briegel et al., 2018; Burt et al., 2008; Carter & Briggs-Gowan, 2006; Carter et al., 2003). For instance, poor attention and affect regulation as well as low prosociality in early childhood increase long-term risks for peer rejection, academic difficulties, and development of psychopathology (e.g., Burt et al., 2008; Caprara et al., 2000; Kim & Cicchetti, 2010). School-aged children who have more trouble making friends and getting along with peers are not only more likely to show comorbid aggression and internalizing symptoms (i.e., anxiety, depression, isolation, somatic complaints), but are also more likely to experience internalizing and externalizing symptoms that persist into adolescence compared to school-aged children with better developed prosocial competencies (Bornstein et al., 2010; Burt et al., 2008).

Such cascading associations demonstrate that psychosocial competencies are typically negatively related to emotional and behavioral problems, in that competencies can be undermined by, yet also protect against, the development and maintenance of psychopathology. At the same time, a nomothetically negative relation between child psychosocial competencies and emotional/behavioral problems does not mean this inverse relation always exists idiographically. To illustrate, children who frequently share toys with their peers tend to rarely

steal toys from peers (and vice versa). However, some children exhibit both behaviors to either a high or low degree (i.e., rarely steal and share toys with peers, frequently steal and share). Moreover, Caprara and colleagues (2000) identified that, even in the presence of co-occurring verbal and physical aggression, prosocial behaviors in childhood robustly predict more positive academic achievement and peer acceptance in early adolescence. Similarly, even after controlling for internalizing and externalizing symptoms in early childhood, social competence during the same time period uniquely reduces the likelihood of adolescent internalizing and externalizing symptoms (Bornstein et al., 2010; Burt et al., 2008). These and other findings indicate that a child's degree of psychosocial competencies (or lack thereof) uniquely predicts subsequent developmental outcomes above and beyond the influence of ongoing child negative behaviors (Briegel et al., 2018; Briggs-Gowan & Carter, 1998; Carpara, 2000; Carter et al., 2003; Carter & Briggs-Gowan, 2006; Cicchetti, 1993). Furthermore, these findings suggest that children who demonstrate poorly developed psychosocial competencies *concurrent* with psychosocial problem behaviors (e.g., frequent aggressive and rare prosocial behaviors) are particularly at risk for persistent, increasingly impaired functioning across developmental domains (Briegel et al., 2018; Carter et al., 2004).

Assessment of Child Psychosocial Competencies

Given the above findings, assessing child psychosocial competencies–rather than just measuring problem behaviors–is crucial for improving quality care for children and their families (Briegel et al., 2018; Carter et al., 2003). Specifically, assessment of child psychosocial competences may provide several advantages to standard psychosocial interventions that only measure psychiatric symptoms but not strengths. These advantages and related applications include (1) improved screening and early identification of children in need of psychosocial

services (American Academy of Pediatrics, 2001; Radeck et al., 2011; US Public Health Service, 2000; Zeanach, 2000), (2) enhanced treatment planning to incorporate and facilitate development of psychosocial strengths alongside reduction of problems (Briegel et al., 2018; Briggs-Gowan et al., 2001; Carter, 2002; Carter et al., 2003; 2004), and (3) better monitoring and evaluation of treatment outcomes (Briegel et al., 2018; Carter et al., 2004; Epstein et al., 2002; Garbacz et al., 2014).

Screening

When psychosocial deficits and problems are identified early, interventions can not only effectively reduce the presence and severity of current difficulties, but can also more readily alter developmental trajectories (Murphy & Fonagy, 2012; Velderman et al., 2009). Thus, screening is key to promoting positive psychosocial development. The use of screening tools, or brief assessments, has been increasingly emphasized to serve this purpose, particularly in childhood (Lavigne et al., 2013). Specifically, screening tools directly aid in identifying children who experience significantly more frequent/severe psychosocial difficulties than developmentally typical in order to connect youth and family to services that can maximize positive developmental outcomes.

The need for screening is especially crucial given that approximately one-sixth of children ages 2–10 in the United States have clinical levels of psychosocial, emotional, and/or developmental problems warranting treatment (Centers for Disease Control and Prevention, 2013; Danielson et al., 2018; Ghandour et al., 2019; US Department of Health and Human Services [USDHHS], 2000; Wichstrom et al., 2012). Additionally, only 20% of children in need of treatment actually receive services (American Academy of Pediatrics, 2019), with only 2–10% of those services having any empirical support (Bruns et al., 2015; Herschell et al., 2010).

Although this service gap is multifactorial (e.g., limited access to services due to location and/or cost, prior negative experiences with mental health professionals; Reardon et al., 2017), one reason why children in need of mental health treatment are underserved is under-identification by health professionals, particularly pediatric medical staff who oftentimes represent the primary professionals who have regular and frequent contact with children and their families (i.e., "pediatric gate keeping;" Bricker et al., 2004). Additionally, among caregivers who identify concerns about their child's emotional/behavioral functioning, few verbally raise these concerns with their child's pediatrician or front-line child clinical contacts (i.e., 20%; Horwitz et al., 2003), which may result from concerns about being stigmatized (Wissow et al., 2013) or lack of knowledge regarding the severity of, and therefore treatment need for, child behaviors (Reardon et al., 2017). Brief, standardized screening tools with psychometrically valid cutoff-scores may ameliorate these caregiver- and clinician-related barriers, and thereby help to close the gap between child psychosocial needs and service utilization, particularly while opportunities for early intervention remain (Lavigne et al., 2016).

Treatment Planning

Once children in need of services have been identified through screening efforts, assessment of psychosocial competencies aids in planning treatment to more closely match a child's needs and build upon extant strengths to facilitate improved functioning. Identifying a child's specific emotional and behavioral needs is fundamental to the process of translating assessment to treatment, as assessment findings directly inform development of an individualized treatment plan. However, clinicians frequently pursue understanding emotional and behavioral difficulties at the expense of integrating strengths throughout the assessment process (Brazeau et al., 2012; Snyder et al., 2006; Tedeschi & Kilmer, 2005). In contrast, adding strengths- or

competency-based measures during pre-treatment assessment can provide a more comprehensive understanding of child and family functioning, increase pre-treatment assessment acceptability and reliability, better inform treatment planning, and enhance therapeutic alliance and caregiver treatment engagement, expectation, and collaboration (Brazeau et al., 2012; Briggs-Gowan & Carter, 1998; Brun & Rapp, 2001; Carter, 2002; Cowger, 1994; Duckworth et al., 2005; Graybeal, 2001; Harniss et al., 1999; Rashid & Ostermann, 2009; Snyder et al. 2006; Tedeschi & Kilmer, 2005) across child psychosocial service sectors (e.g., child mental health, welfare, and family services; Dunst et al., 1994; Saleebey, 1992; Stroul & Friedman, 1996).

Treatment Monitoring and Outcome Evaluation

Assessment of psychosocial competencies is also essential for monitoring treatment response at both nomothetic and idiographic levels. Specifically, while practitioner- and caregiver-attention is frequently biased to negative child behaviors (Kendall-Taylor & Mikulak, 2009; Snyder et al., 2006), most child mental health treatment–and especially prevention–programs aim to not only *decrease* these problem behaviors, but also *increase* positive child behaviors (i.e., psychosocial competencies; Briegel et al., 2018). Yet, without ongoing and/or post-treatment assessment of psychosocial competencies, the degree to which, and when, interventions achieve this latter goal remains unclear.

Furthermore, monitoring and discussing changes in psychosocial competencies throughout treatment has implications for broader family functioning. Caregivers' views of their child can meaningfully affect the way they act and parent (Briegel et al., 2018; Carter et al., 2004). For instance, solely assessing a child's problem behaviors without measuring their prosocial skills, attention and emotion regulation, and compliance can serve to perpetuate a caregiver's negative appraisal of their child and reinforce caregiver stress, which can then affect

actual parenting practices and contribute to continued or worsened child emotional and behavioral difficulties (Fonagy et al., 1995; Zeanah et al., 1986; Carter et al., 2001). Thus, assessment of child psychosocial competencies through caregiver-report measures represents an avenue to foster recognition of child strengths, indirectly enhance caregiver-child relationships, and subsequently improve the likelihood of positive dyadic interactions that are crucial to improving a child's emotional and behavioral functioning (Briegel et al., 2018; Carter et al., 2004; Dahl & Brownell, 2019).

Yet, to effectively serve the above-described purposes, standardized caregiver-report measures of child psychosocial competencies need to be clinically relevant, developmentally appropriate, psychometrically validated, and feasible to administer, score, and interpret in terms of financial cost, time, and ease of understanding (Briegel et al., 2018; Carter et al., 2004; Lavigne et al., 2016; Lewis et al., 2018; Stanick et al., 2019). To date, measures that meet these standards are limited (see Briegel et al., 2018), as existing measures of psychosocial strengths are typically too lengthy and/or prohibitively expensive (e.g., Child Behavior Checklist; Achenbach & Rescorla, 2001), assess only one area of psychosocial competency (e.g., Strengths and Difficulties Questionnaire [SDQ; Goodman, 1997], Emotion Regulation Checklist [ERC; Shields & Cicchetti, 1995]), or are only appropriate for a limited age range (e.g., Infant-Toddler Social and Emotional Assessment [ITSEA; Briggs-Gowan & Carter, 1998], Strengths Assessment Inventory [SAI; Rawana & Brownlee, 2010]) to serve as feasible screening and treatment-monitoring tools. For example, the SAI (Rawana & Brownlee, 2010) evaluates functioning across multiple domains (e.g., coping skills, prosocial attitude, peer connectedness), but is lengthy (124 items) and validated only for children 10–18 years old. Similarly, the ITSEA (Briggs-Gowan & Carter, 1998) also assesses multiple dimensions of competencies; including

attention skills, emotional awareness, prosocial interactions, and compliance; but solely targets children aged 1–3 years and costs money, which creates an impediment to sustainable community use (Lewis et al., 2018; Stanick et al., 2019). In contrast, the SDQ (Goodman, 1997) is brief, free to use, and validated for a wide age range (i.e., children aged 3–16 years), but it only assesses one dimension of psychosocial competency (i.e., prosocial peer behavior). However, one promising measure that bypasses these limitations is the Psychosocial Strengths Inventory for Children and Adolescents (PSICA; Niec et al., 2017).

Psychosocial Strengths Inventory for Children and Adolescents

The PSICA is a free, 36-item, standardized caregiver-report measure of multidimensional psychosocial competence (i.e., attention and affect regulation, compliance to caregivers, and prosociality) among children aged 2–16 years (see Appendix A). The PSICA's child competency scales and respective items were developed with a rational-deductive approach (Burisch, 1978; Ruscio, 2015) following a review of the literature on key child psychosocial-prosocial competencies as well as existing assessment measures of these constructs (see Briegel et al., 2018). Initially conceptualized as having four factors/subscales (i.e., Prosociality, Attention, Affect Regulation, and Compliance), exploratory factor analyses (Dell'armi & Niec, 2017; Niec et al., 2017) and confirmatory factor analyses (Hynes, Peer, & Korell, 2021; Peer et al., 2021) of the PSICA favor a 3-factor structure of the subscales, which comprise Prosociality (14 items; e.g., "Shares", "Is affectionate towards friends own age"), Attention (5 items; e.g., "Has good attention span", "Can concentrate on one thing"), and Compliance (10 items; e.g., "Completes chores when asked", "Obeys house rules").

Two total scales comprise the PSICA. First, the Frequency scale asks caregivers to rate how frequently within the past week a child has shown or engaged in a set of behaviors related to

relevant psychosocial competencies. Second, the Satisfaction scale prompts caregivers to identify whether or not they are satisfied with the extent of their child's item-specific behavior (i.e., "Are you satisfied with this behavior in your child?"). Response options on the Frequency scale range from 1 ("never") to 7 ("always"); whereas, the Satisfaction scale uses a dichotomous response scale (i.e., "YES", "NO"). This structure parallels the format of other evidence-based caregiver-measures of child disruptive behaviors that have been widely validated and used for assessment of pre-treatment functioning and weekly progress monitoring (i.e., Child Relationship Behavior Inventory [CRBI; Briegel et al., 2019]; Eyberg Child Behavior Inventory [ECBI; Eyberg & Pincus, 1999]).

To date, two published studies have examined the PSCIA's psychometric properties, acceptability, and feasibility (Dell'armi & Niec, 2017; Niec et al., 2017; see Briegel et al., 2018). The initial study (Niec et al., 2017) recruited 314 community-based caregivers of children ages 4–16 in the United States via social media; caregivers completed an online survey that included the PSICA; demographics, items assessing readability and acceptability of the PSICA, and three standardized measures of behavior problems, affect regulation, and learning problems in order to test the PSICA's internal consistency, convergent and discriminant construct validity, structural validity, and acceptability. The next study (Dell'armi & Niec, 2017) overall replicated the initial study, but with a community-based sample of 258 mothers in France who completed a French-translated PSICA and SDQ. Both studies–and their main results–are reviewed below.

Validation Study with a United States Community-Based Sample

Niec and colleagues (2017) first investigated the PSICA's psychometrics with an online, community-based, convenience sample. Specifically, they examined the degree to which PSICA scales, subscales, and/or items (1) were rated as readable and acceptable; (2) correlated, or

agreed with, one another overall and within rational subscales (i.e., internal consistency); (3) corresponded with other measures of prosociality, affect regulation, and emotional/behavioral problem behaviors (convergent construct validity); and 4) did not significantly correlate with measures of unrelated constructs (divergent construct validity). Additionally, the PSICA's factor structure was analyzed to evaluate how well the items were related to, or "loaded onto" rationally derived subscales (structural validity).

To answer the above questions, United States-residing caregivers (N = 314) with at least one child age 4–16 years were recruited and consented through online social media platforms (e.g., Facebook, Twitter, parenting blogs). A majority of caregivers identified as White (97%), non-Hispanic/Latina (96%) mothers (87%) and were, on average, middle-aged (M = 38.5 years; SD = 8.0) with some undergraduate education (M = 14.4; SD = 2.2). Reported-upon children were, on average, 7.0 (SD = 3.7) years old, with relatively equal numbers of girls (51%) and boys (49%). Per caregiver-report, a minority of children had a learning or developmental disorder (20%), were receiving special education services (17%), and/or had received treatment for behavioral problems (17%).

After providing demographics, participating caregivers completed the PSICA alongside additional measures of child emotional reactivity and regulation skills (ERC; Shields & Cicchetti, 1995), prosocial behaviors and problem behaviors related to hyperactivity, inattention, conduct, emotional, and peer functioning (SDQ; Goodman, 1997), and academic functioning (Colorado Learning Difficulties Questionnaire [CLDQ]; Wilcutt et al., 2011). Additionally, two items had caregivers use a 5-point Likert scale to rate the PSICA's readability (1 = "very hard to understand", 5 = "very easy to understand") and acceptability (1 = "very unlikely to recommend [the PSICA] to others", 5 = "very likely to recommend [the PSICA] to others").

In this community-based sample, the PSICA demonstrated excellent internal consistency across Satisfaction total (*KR-20* = .95), Frequency total (α = .97), and Frequency subscale ratings (Compliance: α = .91, Prosociality: α = .92, Attention Regulation: α = .91, Affect Regulation: α = .90). Regarding readability, a majority of caregivers (86%) also reported the PSICA was "very easy" or "easy" to understand, with only 3% and <1% reporting it was "hard" or "very hard" to understand, respectively. Acceptability results were comparable to other high-quality caregiver-rating scales (e.g., ITSEA; Briggs-Gowan & Carter, 1998).

Overall, caregivers reported high levels of satisfaction with their child's competencies across items (Satisfaction: *M* = 29.8, *SD* = 8.1; range: 0–36). PSICA Frequency total scores (*M* = 186.4, *SD* = 35.1) ranged between 60 to 250. Frequency subscale scores were as follows: Attention (*M* = 30.9; *SD* = 7.4), Affect Regulation (*M* = 41.5; *SD* = 8.6), Prosociality (*M* = 49.1; *SD* = 9.4), and Compliance (*M* = 58.8; *SD* = 12.3), which appeared consistent with the number of items per scale.

Regarding convergent validity, children who were rated as demonstrating more frequent total psychosocial competence (i.e., higher total Frequency scores) were rated as showing fewer hyperactive behaviors (SDQ Hyperactivity: $r = -.61$, $p < .001$), fewer conduct problems (SDQ Conduct Problems: $r = -.64$, $p < .001$), fewer social problems (SDQ Peer Problems: $r = -.38$, $p < .001$), more prosocial behaviors (SDQ Prosocial Scale: $r = .54$, $p < .001$), and better affect regulation skills (ERC: $r = .77$, $p < .001$). Furthermore, specific PSICA subscales more strongly corresponded to content-similar subscales of the SDQ (i.e., Attention Regulation and SDQ Hyperactivity: $r = -.70$, $p < .001$; Prosociality and SDQ Prosocial: $r = .58$, $p < .001$; Compliance and SDQ Conduct Problems: $r = -.59$, $p < .001$; Affect Regulation and ERC: $r = .79$, $p < .001$). Moreover, support for the PSICA's divergent validity was evidenced by trivial, non-significant

correlations between the PSICA total Frequency scale and academic skills (as measured by the Colorado Learning Difficulties Questionnaire; Wilcutt et al., 2011), after controlling for PSICA Attention items: Frequency and CLDQ Math (r = .07, p = .24); Frequency and CLDQ Spatial (r = .07, p = .19); Frequency and CLDQ Reading (r = -.03, p = .63).

Exploratory factor analysis supported the PSICA's multidimensional nature. Specifically, results from a scree test (Cattell, 1966), parallel analysis plot (Horn, 1965; Humphreys & Montanelli, 1975), and rational analysis of item loadings all indicated a 3-factor solution best fit the data and accounted for approximately 60% of the variance in PSICA responses. The three factors included Attention Regulation, Compliance, and Prosociality, with Affect Regulation items (e.g., *Smiles or laughs*) loading most strongly with the Prosociality factor.

Translation and Validation with a French Community-Based Sample

As noted above, the second published evaluation of the PSICA examined its internal consistency, convergent validity, and factor structure in a French community-based sample of 258 mothers (Dell'armi & Niec, 2017). Following translation of the PSICA into French using forward- and back-translation (Brislin, 1970; Grunwald & Goldfarb, 2006), France-residing mothers were recruited through online parenting platforms to complete French-translated versions of the PSICA and SDQ (Shojaei et al., 2009) alongside a demographic questionnaire. Similar to the initial PSICA investigation, mothers completed the questionnaires regarding their children aged 4–16 years. On average, mothers were middle-aged (M = 39.3 years*; SD* = 6.4 years) with at least a bachelor's or technology degree (77%). Most of the children (67%) in the French community sample were identified as gifted and were, on average, 9.1 (SD = 3.1) years old, with more boys (64%) than girls (36%) represented.

Consistent with the above-mentioned findings in the US validation sample, results from the French PSICA study supported the PSICA's reliability and validity with community-based samples. Specifically, the PSICA once again demonstrated good to excellent internal consistency across Frequency total ($\alpha = .93$) and Satisfaction total (*KR-20* = .89) scales, and Frequency subscale ratings had good internal consistency (αs = .81–.87). Regarding convergent validity, children who were rated as demonstrating more frequent total psychosocial competence (i.e., higher total Frequency scores) were rated as showing fewer total emotional and behavioral problems (SDQ Total Problems: $r = -.28$; $p < .001$), fewer hyperactive behaviors (SDQ Hyperactivity: $r = -.52$, $p < .001$), fewer conduct problems (SDQ Conduct Problems: $r = -.24$, $p < .001$), and more prosocial behaviors (SDQ Prosocial Scale: $r = .21$, $p < .001$). Furthermore, as with the initial US sample, specific PSICA subscales more strongly corresponded to content-similar subscales of the SDQ (i.e., Attention and SDQ Hyperactivity: $r = -.55$, $p < .001$; Prosociality and SDQ Prosocial: $r = .32$, $p < .001$; Compliance and SDQ Conduct Problems: $r = -.31$, $p < .001$). Exploratory factor analysis once again supported the same 3-factor solution found in the initial PSICA study (i.e., Prosociality, Compliance, and Attention Regulation), which together accounted for 42% of the variance in PSICA responses.

Present Study

In summary, findings across the above-detailed studies suggest that the PSICA represents a promising, valid measure of psychosocial competencies for children ages 4–16 years (with preliminary, unpublished support for utilizing the PSICA for children ages 2–3 years old; Graves et al., 2019; Peer et al., 2019; Perez et al., 2019). Given its recent development, however, no published studies examining the PSICA in clinic- versus community-based samples exist to date. Furthermore, the sensitivity, specificity, and associated cutoff values of the PSICA are unknown,

thus limiting the ability to use the PSICA as an efficient screening tool. Precisely, sensitivity refers to the percentage of individuals who are correctly classified as belonging to a particular group (e.g., having a diagnosis/disease), while specificity refers to the percentage of non-diagnosed or non-disordered individuals who are correctly classified as being non-disordered (Šimundić, 2009). A cutoff score represents the value that corresponds to maximum sensitivity and specificity of a given measure and serves to detect children in need of services based on where they score in relation to the cutoff value (Böhning et al., 2008; Shaikh, 2011).

Thus, evaluating the discriminative validity of and establishing empirical cutoff scores for the PSICA could facilitate more rapid, accurate identification of children who show deficits in psychosocial competencies and are at particular risk for long-term psychosocial difficulties. Furthermore, developing cutoff scores and verifying the PSICA discriminative validity could enhance the measure's utility during pre-, mid-, and post-treatment assessments related to clinical interventions. In light of these potential applications and the PSICA's otherwise untested discriminative properties, the current study determined the PSICA's optimal cutoff score and related values of sensitivity and specificity using data from caregivers who completed the PSICA on two distinct samples of children, specifically: (1) community-based, non-referred children and (2) clinic-referred children. The current study used these data to address the following three hypotheses and one related research question:

> ***H_1*:** Consistent with prior examinations of the PSICA's internal consistency among previous community-based samples (Dell'armi & Niec, 2017; Niec et al., 2017), internal consistencies of the PSICA Frequency and Satisfaction scales, both overall and across subscales, were expected to be adequate or greater (i.e., Cronbach's alphas and *KR-20* ≥ .70) in the clinic-referred sample.

***H*$_2$:** PSICA scores were expected to be significantly higher for the community-based sample compared to the clinic-referred sample, such that:

***H*$_{2a}$:** Total PSICA Frequency scale and subscale (i.e., Attention, Compliance, and Prosociality) scores would be significantly higher for the community-based sample versus the clinic-referred sample, and

***H*$_{2b}$:** Total PSICA Satisfaction scale scores would be significantly higher for the community-based sample versus the clinic-referred sample.

***H*$_3$:** The PSICA would demonstrate good or higher sensitivity and specificity (i.e., area under the curves ≥ .70) for the following scores:

***H*$_{3a}$:** Total Frequency scale,

***H*$_{3b}$:** Frequency subscales (i.e., Attention, Compliance, and Prosociality), and

***H*$_{3c}$:** Total Satisfaction scale.

***RQ*$_1$:** What are the optimal cutoff scores for the PSICA Frequency and Satisfaction scales?

Chapter 2: Methods

Participants

To address the above hypotheses and research questions, the current study used data from two PSICA samples: 794 community-based, non-referred children and 27 clinic-referred children. All procedures were approved by Idaho State University's Institutional Review Board. See Tables 1 and 2 for demographics for both samples.

Community-Based Sample of Non-Referred Children

Caregivers were included if they resided in the United States, were proficient in English to complete the survey; had at least one child 2–10 years old, internet access, and an Amazon's Mechanical Turk (MTurk) Worker account with a Human Intelligence Task (HIT) approval rate greater than 95% and more than 50 approved HITs (consistent with best-practice MTurk research practices; Buhrmester et al., 2018). Additionally, given the internet-based nature of the survey in an uncontrolled environment, and in order to minimize careless responding, data were included only for caregivers who passed all five attention checks (i.e., "Select 'Somewhat True' for this question") embedded throughout the survey (Meade & Craig, 2012). To more accurately compare PSICA scores of clinic-referred versus non-referred children, the study excluded cases from the community-based sample who had a caregiver-reported intellectual or neurodevelopmental disorder (n = 54), emotional or behavioral disorder (n = 20), and/or history of receiving mental or behavioral health treatment for emotional and/or behavioral difficulties (n = 60). In total, 85 unique cases were excluded based on these criteria.[1] Additionally, cases from

[1] As an exploratory validity check, PSICA frequency total and SDQ total scores were compared between children with and without caregiver-reported diagnostic and/or mental or behavioral health treatment histories. As expected, caregivers of children with caregiver-reported diagnostic and/or mental or behavioral health treatment histories (n = 85) reported significantly lower PSICA Frequency Total scores (M = 164.7, SD = 33.6) than did caregivers of children without

the community sample who were reported by caregivers to have clinical levels of total emotional and behavioral problems on the SDQ were excluded (n = 175; Goodman, 1997).

After outliers were excluded (see below), the community-based sample included 625 caregivers (61.1% mothers; 34.4% fathers) in young to middle-adulthood (M_{age} = 35.4 years; SD_{age} = 7.7; range: 19–75). A majority of caregivers in this sample identified as non-Hispanic/Latinx (91.2%) and White (77.3%), followed by Black/African American (9.8%), Asian (8.0%), Multiracial (3.2%), Native American (1.0%), and Other (0.6%). One caregiver (0.2%) did not provide information about their racial identification, while five caregivers (0.8%) did not provide information about their ethnic identification. Caregivers reported on children who were, on average, 5.5 years old (SD = 2.7; range: 2–10) with relatively equal numbers of girls (49.4%) and boys (50.6%). A majority of children were identified as non-Hispanic/Latinx (89.1%) and White (73.9%), followed by Black/African American (10.1%), Multiracial (8.8%), Asian (5.9%), Native American (0.8%), Other (0.3%) and Pacific Islander (0.2%). Consistent with the sample's community-based status, children showed normal levels of total emotional and behavioral problems per caregiver-report on the SDQ (SDQ_{total} M = 7.6; SD = 4.2; Goodman, 1997). See Table 1 for a full description of demographics for the community-based sample.

Clinic-Referred Sample

For the clinic-referred sample, archival case data were excluded for (a) children with a caregiver-reported intellectual and developmental disorder (n = 1) and (b) siblings who were not

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caregiver-reported diagnostic and/or treatment histories (n = 803; M = 184.2, SD = 30.8; $t(886)$ = 5.50, $p < .001$), with this difference being moderate in magnitude (d = 0.60). Similarly, among children with caregiver-reported diagnostic and/or related treatment histories (n = 85), caregivers reported significantly higher SDQ Total Problem scores (M = 15.9, SD = 6.0) than they did for children without caregiver-reported diagnostic and/or treatment histories (n = 803; M = 10.6, SD = 6.0; $t(886)$ = 6.88, $p < .001$), with this difference being large in magnitude (d = 0.88).

treated directly (n = 3) due to non-independence of data. For cases with multiple caregivers completing a PSICA on a same clinic-referred child, only one caregiver's data were retained to maintain independence of data. For cases with a clearly identified primary versus secondary caregivers (i.e., grandmother, step-mother, step-father), only primary caregiver data were included (n = 3). In cases with no clearly identified primary versus secondary caregiver that involved mixed gender caregiver-dyads (n = 14), the distribution of caregiver gender was maintained by randomly selecting caregivers until an equal number of male and female caregivers remained. Random selection occurred through assigning each caregiver a number (i.e., 1 or 2) and through use of a random number generator (Random.org; Haahr, 2020). For cases with same gender caregiver-dyads and no clear primary versus secondary caregiver (n = 1), one caregiver's data were randomly selected for retention using the above random number generator.

Based on these criteria, the clinic-referred sample comprised 27 caregivers who reported on 27 unique children. Overall, this sample's caregivers were predominantly White (88.9%), non-Hispanic (88.9%) maternal caregivers (70.4%) who were in young to middle adulthood (M_{age}= 37.8; SD_{age}= 7.7; range: 29–54). Similarly, caregivers' clinic-referred children were primarily White (88.9%), non-Hispanic/Latino (85.2%) boys (66.7%). Mean child age was 5.3 years (SD = 2.1). See Table 2 for a full description of demographics for the community-based sample.

Consistent with the sample's clinic-referred status, children showed clinical levels of disruptive behavior per caregiver-report on the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). Specifically, caregivers reported clinically elevated rates of child behavior problems at pre-treatment (Frequency T-score M = 67.5; SD = 6.8) and problems associated with

these behaviors (Problem T-score *M* = 68.4; *SD* = 7.2). Additionally, of the clinic-referred children with caregiver-completed broadband measures of child psychosocial functioning (i.e., Behavior Assessment System for Children–Second Edition [Reynolds & Kamphaus, 2004], Child Behavior Checklist [Achenbach & Rescorla, 2001]; *n* = 11), 72.3% exhibited clinically elevated levels of externalizing problems (i.e., aggression, inattention/hyperactivity, and/or rule-breaking behavior; Externalizing T-score *M* = 70.1; *SD* = 9.8), 63.6% exhibited clinically elevated levels of internalizing problems (i.e.., anxiety, somatic complaints, withdrawn behavior, depressive symptoms; Internalizing T-score *M* = 69.1; *SD* = 15.1), and 62.5% exhibited clinically elevated total difficulties (Total Problems T-score *M* = 69.0; *SD* = 6.6).

Procedures

Community-Based Sample of Non-Referred Children

Caregivers in the community-based sample were recruited through MTurk, with data collected February–March 2019. Caregivers who opted to participate provided digital informed consent prior to answering family demographic and survey questions, which included the PSICA as described previously and the SDQ (Goodman, 1997). The SDQ was utilized to assess generalizability and non-clinical representativeness of the community sample. Among caregivers who had more than one child aged 2-10 years, the child for whom caregivers were asked to answer survey questions was randomly selected.

Clinic-Referred Sample

The current study used archival data from caregivers who (1) presented to a university-based outpatient training clinic for behavioral parent training for their children ages 2–10 and (2) completed a PSICA during their first pre-treatment assessment session. During this session, caregivers consented to assessment and treatment for their clinic-referred child, provided family

demographics, completed other intake assessment procedures relevant to referral, and participated in a semi-structured clinical interview. Interviews and measures were administered by graduate-level training clinicians under the direction of a practicum supervisor and a licensed clinical psychologist.

Case-Control Matching

To examine the PSICA's discriminative validity (see below), cases from the community-based sample were matched to cases in the clinic-referred sample. This procedure, known as case-control matching (Grimes & Schulz, 2005; Setia, 2016), has been utilized in past examinations of sensitivity, specificity, and cutoff scores for related caregiver-reported child behavior assessment measures (e.g., Chen et al., 2018; Rich & Eyberg, 2001). Case-control designs involve selecting and directly comparing individuals who differ on a specified outcome (e.g., clinic-referred versus non-referred), while matching cases based on known or suspected confounding variables (e.g., demographic characteristics) in order to limit the degree of variability between samples to diagnostic or referral status. Consistent with past studies (e.g., Chen et al., 2018) and previously identified demographics that predict PSICA scores (Peer et al., 2019; Perez et al., 2019), community-based cases were matched to clinic-referred cases based on child age and gender on a 5:1 ratio congruent with estimates that approximately one-sixth of children ages 2–10 in the United States have clinical levels of psychosocial symptoms warranting treatment (Centers for Disease Control and Prevention, 2013; Danielson et al., 2018; Ghandour et al., 2019). Therefore, each clinic-referred case was case-controlled matched to five community-based cases; when more than five community-based cases were available for a specific clinic-referred case, five were randomly selected using a random number generator. The

final case-control matched dataset included 27 clinic-referred cases and 135 community-based cases.

Data Analysis

Power Analysis

G*Power software (Faul et al., 2007) was used to estimate required sample size for the primary analyses comparing PSICA Frequency scale and subscale scores (i.e., MANOVA) and Satisfaction scores (i.e., Mann-Whitney *U* test) between clinic-referred and community-based samples at an associated power of .80. As preliminary evidence comparing clinic-referred and community-based samples indicated large differences in caregiver-reported frequency of (*g*s = 1.10–1.56) and satisfaction with child psychosocial competencies (*g* = 2.18; Graves et al., 2019), the required combined sample size to detect significant differences between groups was at most 132 for the MANOVA analysis and 34 for the Mann-Whitney *U* test (i.e., clinic-referred sample $n \geq 7$; community-based sample $n \geq 33$). Thus, results suggest that analyses with the samples had sufficient power.

Outliers

The interquartile range (IQR) multiplier approach (Tukey, 1977) was used to identify outliers for PSICA total Frequency and Satisfaction scales for the community-based ($n = 3$) and clinic-referred ($n = 0$) samples. Tukey's method was employed since it does not make assumptions of distribution and is a robust method in the presence of extreme data values (Seo, 2006). Furthermore, a multiplier of 2.2 times the IQR to identify scores below quartile 1 and above quartile 3 was used given evidence that the 2.2IQR rule more accurately identifies outliers than the 1.5IQR rule (Hoaglin et al., 1986; Hoaglin & Iglewicz, 1987).

Missing Data

Visual inspection of missing data patterns across variables and Little's (1988) missing completely at random (MCAR) test were conducted to evaluate missing data patterns for both samples. For the clinic-referred sample, six of the study's variables (15.0%), six cases (22.2%), and eight items (0.7%) had missing data. For those six cases with missing values, the number of missing values ranged 1–2 (M = 1.3, SD = 0.5), with four cases missing only one item and two cases missing two items. Little's test indicated that clinic-referred sample data were MCAR, $\chi^2(179) = 15.66$, $p = 1.00$.

Visual inspection of the community data identified one participant who did not provide answers to 22 (61%) of the PSICA Frequency items. As this pattern was highly discrepant from the range of missing responses per case for the remaining community participants (see below), this participant's data were excluded from the final dataset. Following exclusion of this participant, missing data analysis indicated that 15 of the study's variables (15.5%), 15 cases (1.9%), but only 32 items (0.04%) had missing data. For the 15 cases with missing values, the number of missing values ranged 1–5, with seven cases missing only one item and two cases missing five items. Little's test indicated that community-sample data were MCAR, $\chi^2(299) = 290.55$, $p = .63$.

Based on the limited missing data per participant, nonsignificant Little's tests, and missing data being less than 5% of all values (Graham, 2009), the expectation-maximization (EM) algorithm was used to replace missing values for partially completed PSICA scores, as EM under these circumstances generates values that closely approximate other best-practice methods (i.e., multiple imputation) and observed data (Lin, 2010; Twala, 2009). All analyses were conducted with and without EM imputation. Significance values from both methods were

equivalent (i.e., all *p*-values < .05 calculated with EM-imputed data remained below .05 without imputation), therefore only results with EM-imputation are reported below.

Primary Analyses

Internal Consistency. For both samples, internal consistency of the PSICA Frequency scale and subscales (i.e., Prosociality, Compliance, and Attention Regulation) was calculated with Cronbach's alphas. Additionally, internal consistency of the PSICA Satisfaction scale was calculated with Kuder-Richardson 20 (KR-20), an alpha coefficient representative of dichotomous data (Cronbach, 1951; Streiner, 2003).

Differences in Scale and Subscale Scores. An independent samples *t*-test was conducted to assess whether PSICA Frequency scale scores were significantly higher in clinic-referred children versus the non-referred children. Given negatively skewed Satisfaction scores, a Mann-Whitney *U* test was conducted to examine hypothesized differences in PSICA Satisfaction scale scores between clinic-referred and matched community-based children. A MANOVA was subsequently performed to compare PSICA Compliance, Attention, and Prosociality subscale scores between samples. Cohen's *d* was used the index of effect size for the independent samples *t*-test comparing PSICA Frequency scale scores between groups, with *d*s = 0.20–0.49, 0.50–0.79, and 0.80+ interpreted as small, medium, and large effects, respectively (Cohen, 1969). Effect size of the Mann-Whitney *U* test was represented by the rank-biserial correlation, with *r*s = .10–.29, .30–.49, and .50+ indicative of small, medium, and large effect sizes, respectively (Cureton, 1956). Lastly, partial eta squared (η_p^2) was used as the index of multivariate effect size for overall differences in subscale scores between groups, with η_p^2 = .01–.05, .06–.13, and .14+ indicative of small, medium, and large differences, respectively (Cohen, 1969).

Sensitivity, Specificity, and Cutoff Scores. Receiver operating characteristic (ROC; Šimundić, 2009) curves for the PSICA Frequency total scale, each Frequency subscale, and the Satisfaction scale were examined alongside the area under the curve (AUC; Habibzadeh et al., 2016) as an initial step in evaluating PSICA cutoff scores. The ROC curve plots the true positive rate (i.e., sensitivity) against the false positive rate (i.e., 1 – specificity) for all possible cutoff values. The AUC is commonly examined alongside a ROC curve, as it represents a global measure that assesses the discriminative accuracy, or the likelihood of accurately classifying a case as falling in the clinical versus normative range, for each scale of interest. AUC values range between .50 and 1.00, with values of .50 indicating a scale is non-discriminating. In contrast, AUC values of .70–.80 indicate "good" discriminative ability, while values of .90 to 1.00 indicate "excellent" to "perfect" classification of cases into groups, respectively (Šimundić, 2009).

Additionally, Youden's J index (Böhning et al., 2008; Shaikh, 2011) was used to determine optimal cutoff point scores for PSICA Frequency scale and subscale as well as Satisfaction scale scores. Youden's J index is obtained by subtracting one from the sum of sensitivity and specificity (Böhning et al., 2008; Shaikh, 2011). Youden's J for tests with poor discriminative ability (e.g., sensitivity and specificity each = 50% or .50) equal zero, while values of 1 coincide with perfect discriminative or diagnostic accuracy. Thus, Youden's J values closer to 1 are indicative of higher diagnostic accuracy. Since Youden's J is a global measure of diagnostic accuracy and does not reflect the exact estimates of sensitivity and specificity associated with a cutoff score, an approach that considers the highest Youden's J index alongside clinical judgment about the relative costs and benefits of a particular score's sensitivity and specificity values is recommended (Smits, 2010). In the current study, J values were computed to

determine optimal cutoff scores for the PSICA scales and subscales and to contextualize the relative discriminative validity of the cutoff scores across all scales and subscales assessed. In the event of multiple equally highest Youden's J values (n = 1), the Youden's J corresponding with higher sensitivity was selected to prioritize detection of children who may be in need of mental health services (Lavigne et al., 2013). Table 5 summarizes this process.

Chapter 3: Results

Chi-square and independent sample *t*-tests were first conducted to assess differences between clinic-referred versus matched community-based samples on demographic variables (i.e., child and caregiver age, gender, ethnicity, race) and to identify potential covariates. There were no significant differences between samples on child age, $t(160) = 0.00$, $p = 1.00$, $d = 0.00$; gender, $\chi^2(1) = 0.00$, $p = 1.00$, $v = .00$; ethnicity, $\chi^2(2) = 1.92$, $p = .38$, $v = .11$; or race, $\chi^2(4) = 5.41$, $p = .25$, $v = .18$. Similarly, there were no significant differences in caregiver age, $t(144) = -0.94$, $p = .35$, $d = 0.29$; gender, $\chi^2(1) = 0.20$, $p = .66$, $v = .04$; ethnicity, $\chi^2(2) = 1.55$, $p = .46$, $v = .10$; or race, $\chi^2(5) = 3.67$, $p = .60$, $v = .15$. Table 3 summarizes these results.

Internal Consistency

Consistent with prior examinations of the PSICA's internal consistency in community-based samples (Briegel et al., 2018), the PSICA demonstrated good to excellent internal consistency across Satisfaction total (*KR-20* = .87), Frequency total (α = .94), and Frequency subscale ratings (Compliance: α = .88, Prosociality: α = .86, Attention Regulation: α = .88) in this community sample. The PSICA demonstrated similarly high internal consistency in the clinic sample. As predicted by hypothesis 1, the PSICA demonstrated adequate to excellent internal consistency across Satisfaction total (*KR-20* = .91), Frequency total (α = .89), and Frequency subscale ratings (Compliance: α = .78, Prosociality: α = .86, Attention Regulation: α = .87) in this clinic sample. Table 4 summarizes these results.

Cross-Sample Comparisons of PSICA Scores

Consistent with hypothesis 2a, there was a large, statistically significant difference in Frequency total scores between children in the community-based and clinic-referred samples; $t(160) = 8.71$, $p < .001$, $d = 1.89$. Specifically, and as seen in Figure 1, community-based children had higher Frequency total scores ($M = 193.4$, $SD = 25.6$) than clinic-referred children ($M = 147.0$, $SD = 23.4$). Consistent with hypothesis 2b, and as seen in Figure 2, PSICA Satisfaction scores were also significantly higher for community-based ($Mdn = 31$) versus clinic-referred children ($Mdn = 16$), $U = 359.5$, $p < .001$. This difference also was large in magnitude ($r = .52$).

Prior to conducting the MANOVA to assess differences in subscale scores, its statistical assumptions were tested. Correlations between subscales were examined to verify that the data met the assumption of moderate relations between outcome variables of interest. This assumption was considered met based upon statistically significant, large correlations between each subtest pair ($rs = .64–.67$, $p < .001$) that did not indicate multicollinearity (i.e., rs > .90; Tabachnick & Fidell, 2012). Additionally, the covariance matrices among the outcome variables did not significantly vary, (Box $M = 16.92$, $F[6, 12386.15] = 2.70$, $p = .01$) using Tabachnick & Fidell's (2012) guideline (i.e., $p > .001$). Bartlett's test of sphericity suggested that the residuals of the outcome variables were significantly correlated, $\chi^2(5) = 188.79$, $p < .001$. Lastly, homogeneity of error variance also appeared to be practically equivalent across groups, as indicated by non-significant Levene's F tests for each subscale (ps = .20–.55). Consequently, MANOVA's statistical assumptions were met.

There was a statistically significant and large difference in composite Compliance, Attention, and Prosociality subscale scores based on community-based versus clinic-referred

status, $F(3, 158) = 28.2$, $p < .001$, Wilk's $\Lambda = 0.03$, $\eta_p^2 = .97$; see Figures 3, 4, and 5, respectively. Follow-up ANOVAs indicated statistically significant, large differences in each subscale between community and clinic-referred samples, consistent with hypothesis 2a. Specifically, Compliance subscale scores were significantly higher in the community-based ($M = 50.1$, $SD = 9.7$) versus clinic-referred children ($M = 36.9$, $SD = 7.9$); $F(1, 160) = 44.25$, $p < .001$; and to a large degree, $\eta_p^2 = .22$. Significant, large differences also were observed in Prosociality subscale scores between clinic-referred and community-based children; $F(1, 160) = 52.59$, $p < .001$, $\eta_p^2 = .25$; with higher scores again observed for community-based ($M = 78.5$, $SD = 9.2$) versus clinic-referred children ($M = 63.7$, $SD = 11.8$). Attention subscale scores also were significantly higher for community-based ($M = 26.3$, $SD = 5.5$) compared to clinic-referred children ($M = 16.5$, $SD = 5.2$), $F(1, 160) = 74.15$, $p < .001$, $\eta_p^2 = .32$.

In order to assess whether scores were uniquely different between the clinic-referred and community-based samples (i.e., after accounting for shared variance between subtests), Roy Bargman stepdown tests were performed. An ANOVA was first performed using community versus clinic-referred status to predict Compliance scores. Consistent with univariate ANOVA results, clinic versus community status significantly predicted Compliance scores, $F(1, 160) = 44.25$, $p < .001$. A series of ANCOVAs were then performed on Attention and Prosociality, respectively. Controlling for Compliance, clinic versus community status still significantly predicted Attention subscale scores, $F(1, 159) = 27.10$, $p < .001$. Finally, controlling for Compliance and Attention scores, clinic versus community status continued to significantly predict Prosociality scores, $F(1, 158) = 4.38$, $p = .04$. Results therefore indicated unique, significant differences across all three subscales between children in the clinic-referred versus community sample.

Sensitivity, Specificity, and Cutoff Scores

ROC analyses, sensitivity, specificity, and optimal cutoff scores for PSICA total and subscale scores are presented in Table 6. PSICA Frequency and Satisfaction total scales demonstrated excellent ability to differentiate clinic-referred from non-referred community children (AUCs = .93 and .90, respectively). PSICA subscales also differentiated children's referral status with good to excellent discrimination (AUCs = .86–.90). Optimal cutoff scores presented in Table 5 correspond to scores at which sensitivity and specificity are maximized (indicated by Youden's J) for each PSICA scale (see also Table 6). Consistent with hypotheses 3a–3c, corresponding sensitivity (range: 77.8%–88.9%) and specificity (range: 76.3%–90.4%) of each scale and subscale score were comparable or higher to established, caregiver-reported standardized screening measures (e.g., Child Behavior Checklist [Achenbach & Rescorla, 2001], ECBI [Eyberg & Pincus, 1999], SDQ [Goodman, 1997]).

Table 1

Community-Based Sample Demographics

	M (*SD*)	*n*	%
Child			
Age	5.5 (2.7)		
Gender			
Boys		316	50.6
Girls		309	49.4
Ethnicity			
Non–Hispanic		557	89.1
Hispanic/Latino		60	9.6
Other		8	1.3
Race			
White		462	73.9
Black/AfricanAmerican		63	10.1
Biracial/Multiracial		55	8.8
Asian		37	5.9
Native American		5	0.8
Pacific Islander		1	0.2
Other		2	0.3
Caregiver			
Age	35.4 (7.7)		
Relationship to Child			
Mother		382	61.1
Father		215	34.4
Other female caregiver		17	0.03
Other male caregiver		5	0.01
Other, not reported		6	0.01
Ethnicity			
Non–Hispanic		570	91.2
Hispanic/Latino		46	7.4
Other		4	0.6
Unreported		5	0.8
Race			
White		483	77.3
Black/African American		61	9.8
Asian		50	8.0
Biracial/Multiracial		20	3.2
Native American		6	1.0
Other		4	0.6
Unreported		1	0.2

Note. $N = 625$

Table 2

Clinic-Referred Sample Demographics

	M (*SD*)	*n*	%
Child			
Age	5.3 (2.1)		
Gender			
Boys		18	66.7
Girls		9	33.3
Ethnicity			
Non–Hispanic		23	85.2
Hispanic/Latino		4	14.8
Race			
White		24	88.9
Black African/American		3	11.1
Caregiver			
Age	37.8 (7.7)		
Gender			
Female		19	70.4
Male		8	29.6
Ethnicity			
Non–Hispanic		24	88.9
Hispanic/Latino		3	11.1
Race			
White		24	88.9
Black/African American		3	11.1

Note. $N = 27$

Table 3

Demographic Comparisons between Clinic-Referred and Case-Controlled Community Samples

	***Clinic-Referred*[a]**	***Case-Controlled*[b]**			
	M (*SD*)	*M* (*SD*)	*t*(*df*)	*p*	*d*
Child					
Age	5.3 (2.1)	5.4 (2.1)	0.00(160)	1.00	0.00
	n (%)	*n* (%)	χ^2(*df*)	*p*	*v*
Gender					
Boys	18 (66.7)	90 (66.7)	0.00(1)	1.00	.00
Girls	9 (33.3)	45 (33.3)			
Ethnicity					
Non–Hispanic	23 (85.2)	123 (91.1)	1.92(2)	.38	.11
Hispanic/Latino	4 (14.8)	10 (7.4)			
Other		2 (1.5)			
Race					
White	24 (88.9)	101 (74.8)	5.41(4)	.25	.18
Black/African American	3 (11.1)	11 (8.1)			
Multiracial		15 (11.1)			
Asian		5 (3.7)			
Native American		3 (2.2)			
	M (*SD*)	*M* (*SD*)	*t*(*df*)	*p*	*d*
Caregiver					
Age	37.8 (7.7)	35.5 (7.8)	-0.94(144)	.35	0.29
	n (%)	*n* (%)	χ^2(*df*)	*p*	*v*
Gender					
Female	19 (70.4)	89 (65.9)	0.20(1)	.20	.04
Male	8 (29.6)	46 (34.1)			
Ethnicity					
Non–Hispanic	24 (88.9)	127 (94.1)	1.55(2)	.10	.10
Hispanic/Latino	3 (11.1)	7 (5.2)			
Other		1 (.7)			
Race					
White	24 (88.9)	107 (79.3)	3.67(5)	.60	.15
Black/African American	3 (11.1)	11 (8.1)			
Asian		6 (4.4)			
Multiracial		5 (3.7)			
Native American		4 (3.0)			
Other		1 (.7)			

Note. [a]$N = 27$, [b]$N = 135$

Table 4

Internal Consistency of PSICA Scales and Subscales per Subsample

	n items	Community-Based[a]	Clinic-Referred[b]
Frequency Total	36	.94	.89
Compliance	10	.88	.78
Attention	5	.88	.87
Prosociality	14	.86	.86
Satisfaction Total	36	.87	.91

Note. [a]$N = 625$, [b]$N = 27$

Figure 1

PSICA Frequency Total Score Comparison Between Case-Controlled Community-Based and Clinic-Referred Children

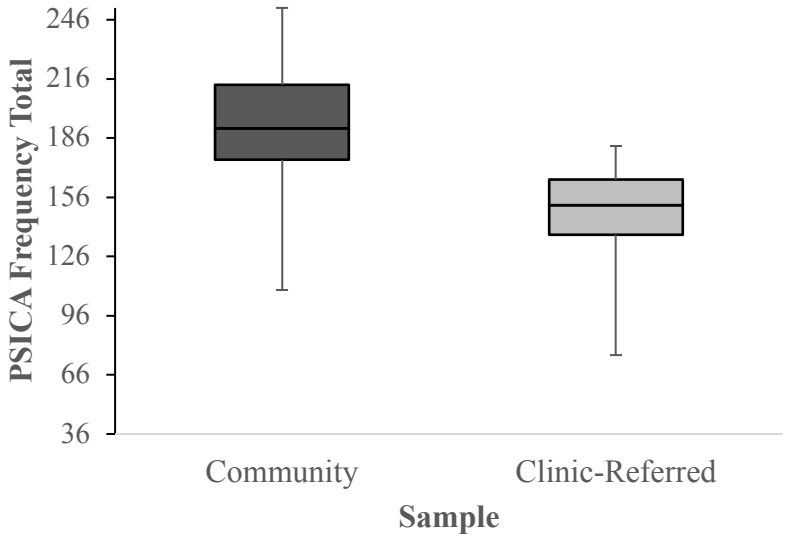

Figure 2

PSICA Satisfaction Total Score Comparison Between Case-Controlled Community-Based and Clinic-Referred Children

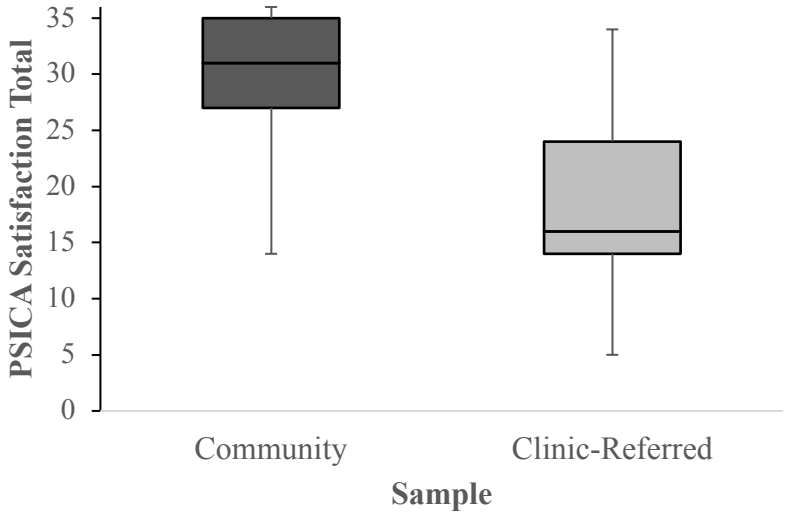

Figure 3

PSICA Compliance Subscale Score Comparison Between Case-Controlled Community-Based and Clinic-Referred Children

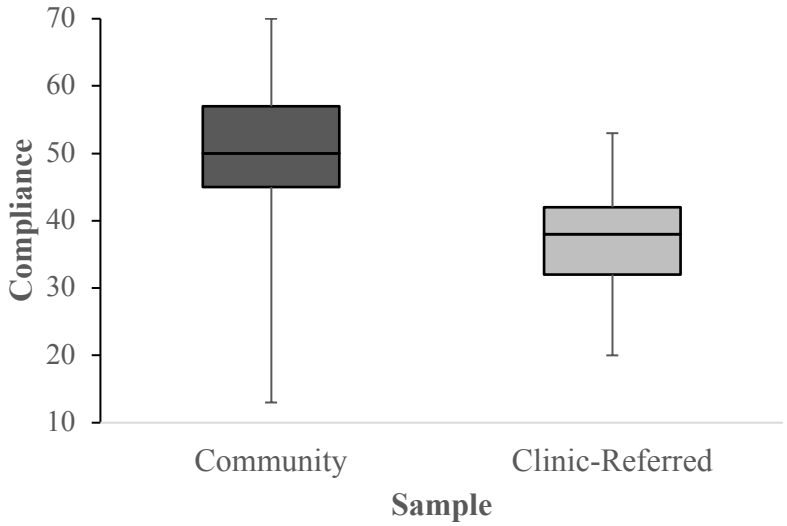

Figure 4

PSICA Attention Subscale Score Comparison Between Case-Controlled Community-Based and Clinic-Referred Children

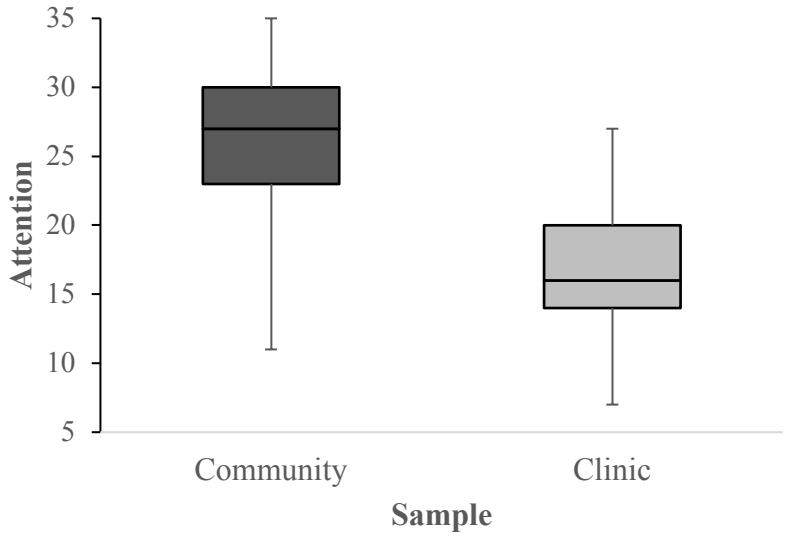

Figure 5

PSICA Prosociality Subscale Score Comparison Between Case-Controlled Community-Based and Clinic-Referred Children

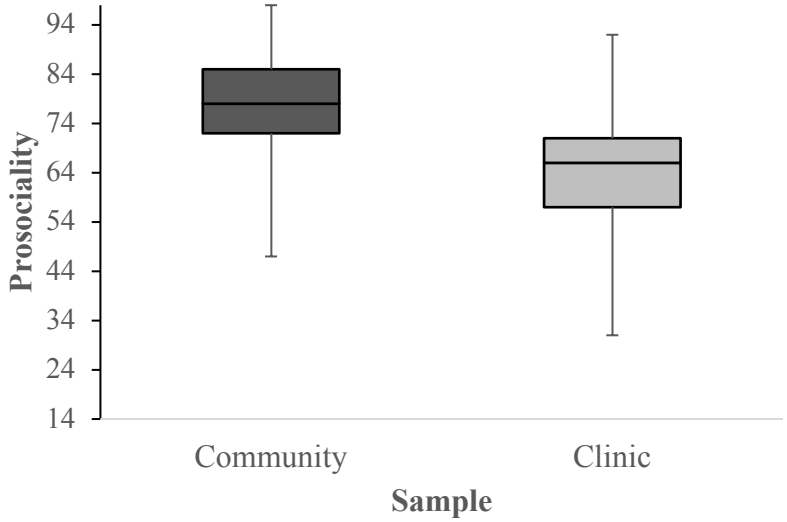

Table 5

Process of Determining Optimal Cutoff Score for PSICA Scale and Subscales

Potential Score	Sensitivity	Specificity	Youden's J
	Frequency Total		
165	.78	.87	.65
166	.82	.86	.67
167	.82	.85	.67
168	.82	.84	.66
169	.85	.84	.70
170	**.89**	**.84**	**.73**
171	.89	.81	.70
172	.89	.79	.68
173	.89	.77	.66
174	.89	.76	.65
175	.93	.74	.67
	Compliance		
39	.70	.87	.58
40	.70	.85	.56
41	.70	.83	.53
42	.82	.82	.64
43	.85	.80	.65
44	**.89**	**.76**	**.65**
45	.89	.71	.60
46	.93	.67	.60
47	.93	.62	.55
48	.93	.59	.52
49	.93	.54	.47
	Attention		
17	.59	.91	.50
18	.63	.91	.54
19	.74	.88	.62
20	.78	.85	.63
21	.82	.82	.63

22	**.89**	**.79**	**.68**
23	.93	.74	.67
24	.96	.65	.62
25	.96	.58	.54
26	.96	.51	.47
27	1.00	.46	.46
	Prosociality		
66	.56	.91	.47
67	.56	.89	.45
68	.63	.87	.50
69	.70	.83	.53
70	.74	.82	.56
71	**.85**	**.79**	**.64**
72	.85	.73	.59
73	.85	.68	.53
74	.93	.67	.59
75	.93	.61	.53
76	.93	.56	.49
	Satisfaction Total		
19	.63	.96	.59
20	.63	.96	.59
21	.67	.93	.60
22	.67	.92	.59
23	.67	.91	.58
24	**.78**	**.90**	**.68**
25	.82	.86	.67
26	.85	.78	.63
27	.85	.74	.59
28	.89	.67	.56
29	.93	.63	.56

Note. $N = 162$. Optimal cutoff scores are bolded.

Table 6

ROC Curve Analyses and Optimal Cutoff Scores (OCS) for PSICA Scale and Subscales

	AUC [CI 95%]	*p*	Sensitivity	Specificity	Youden's J	OCS
Frequency Total	.93 [.88, .97]	< .001	88.9%	83.7%	.73	170
Compliance	.87 [.80, .93]	< .001	88.9%	76.3%	.65	44
Attention	.90 [.85, .96]	< .001	88.9%	79.3%	.68	22
Prosociality	.86 [.78, .94]	< .001	85.2%	78.5%	.64	71
Satisfaction Total	.90 [.84, .97]	< .001	77.8%	90.4%	.68	24

Note. $N = 162$

Chapter 4: Discussion

This study is the first to evaluate the PSICA's known-groups or discriminative validity as well as internal consistency with a clinic-based sample. Consistent with study hypotheses, all of the PSICA's scales and subscales demonstrated adequate or greater internal consistency with both of the current study's samples. Indeed, the PSICA's Frequency and Satisfaction scales had good to excellent internal consistency with the community-based and clinic-referred samples. Additionally, all three Frequency subscales had adequate to good internal consistency across the two subsamples. These results are similar to those from prior psychometric examinations of the PSICA with community samples (i.e., Dell'armi & Niec, 2017; Niec et al., 2017), even as the current study is the first to examine the PSICA's internal consistency with a clinical sample. These findings not only further validate the PSICA's reliability across samples, but also facilitate the study's comparisons of caregiver-reported frequency of, and satisfaction with, psychosocial competencies between clinic-involved and community-based children.

As hypothesized, comparisons between samples indicated large, significant caregiver-reported disparities between clinic-referred and community-based children in their frequency of psychosocial competencies overall (i.e., PSICA Frequency scale scores) and within all three competence subdomains (i.e., compliance with caregivers, attention-regulation, and prosociality; i.e., PSICA Frequency subscale scores). As specifically predicted, clinic-referred youth were typically rated as having significantly less psychosocial competence compared to non-referred, community-based children. Caregivers of clinic-referred children versus community controls also reported significantly less satisfaction with their children's engagement in these psychosocial competencies, with this difference once again being large. These findings highlight a co-occurrence between behavior concerns and deficits in psychosocial competencies that place

children at particular risk for poor developmental trajectories later into childhood and adolescence, including peer rejection, academic difficulties, and psychopathology (Bornstein et al., 2010; Burt et al., 2008; Caprara et al., 2000; Kim & Cicchetti, 2010). Effective interventions to decrease psychosocial problems and increase related-yet-distinct competencies as early as possible are therefore crucial for improving long-term psychosocial outcomes for children. Screening and accurate identification of children in need of behavioral health services are foundational to this aim.

The present study also demonstrated the PSICA's ability to differentiate children's referral status based upon caregiver-reported engagement in psychosocial competencies. Particularly, results indicated that discriminative accuracy (i.e., known-groups validity) was comparable to if not higher than that of other well-established screening measures for child mental health (i.e., SDQ [Brøndbo et al., 2011; Goodman, 1997]; CBCL [Achenbach & Rescorla, 2001]. Specifically, discriminative accuracy was excellent for the PSICA's Frequency and Satisfaction scales and very good to excellent for its Frequency subscales. This high discriminative accuracy in turn facilitated the empirical identification of optimal cutoff scores for each of the PSICA's scales and subscales. Previously, these cutoff scores had been lacking, which limited the PSICA's feasible interpretability and clinical utility (Stanick et al., 2019). Present results, however, now support the use of the PSICA as an effective, pragmatic tool to screen children for potential referral into services due to lagging development of competencies.

High discriminative accuracy across PSICA subscales also facilitate efficient tailoring during treatment planning and standardized, multidimensional criteria for evaluating treatment response. For instance, while the nomothetic trend points to deficits in competencies across all subscales among clinic-referred youth, not all of these children fall below cutoffs in all areas

(i.e., 37% of clinic-referred children scored above a cutoff in at least one competency scale/subscale). In such cases, the PSICA's subscale-specific cutoff scores could help clinicians to identify both (a) specific inter- and intra-personal deficits and (b) developmentally normative competencies that can be utilized as strengths to facilitate further growth during interventions. Relatedly, instances where Frequency scores fall in the normal range while Satisfaction Total scores fall in the clinical range may inform clinicians about potentially maladaptive caregiver perceptions, attitudes, and/or parenting stress. Additionally, these patterns of caregiver perceptions–even when biased–are still relevant to treatment planning, since caregivers' views of their children can meaningfully affect the way they act and parent (Briegel et al., 2018; Carter et al., 2004), which can then impact their children's behaviors and development (Fonagy et al., 1995; Zeanah et al., 1986; Carter et al., 2001).

Future Directions

The current study adds to knowledge about the psychometric properties of the PSICA and informs future directions related to measurement and development of psychosocial competencies throughout childhood and into adolescence. Considering this study's findings alongside prior investigations of the PSICA, its known psychometrics to date include its convergent and divergent construct validity, structural validity, concurrent construct validity, known-groups validity, norms and cutoff scores, and internal consistency. These psychometrics, in addition to pragmatic qualities of measures (e.g., brief, accessible, free, readable, and acceptable) are essential for measures to serve as screening, treatment planning, and treatment monitoring tools (Briegel et al., 2018; Carter et al., 2004; Lavigne et al., 2016; Lewis et al., 2018; Stanick et al., 2019). Initial findings (Dell'armi & Niec, 2017; Niec et al., 2017) demonstrated the PSICA's divergent, convergent, concurrent, and structural validity; internal consistency with community

samples; and acceptability as a caregiver-rating scale of psychosocial competencies in community-based children aged 4–16. Findings of the current study complements this prior work with knowledge of its known-groups validity, internal consistency with a clinical group, norms, and cutoff scores. Psychometric and pragmatic properties that remain to be understood include the PSICA's predictive criterion validity, potential development of different norms by gender and age group, development of a shortened version to increase feasibility, and treatment sensitivity.

Additionally, the present findings complement unpublished research (Graves et al., 2019; Peer et al., 2019; Perez et al., 2019) that extends the PSICA's range to 2–3 year olds in both clinical and community contexts. Such increased scope provides an additional avenue in understanding the developmental progression of different psychosocial competencies. For instance, Carter and colleagues' investigation (2003) examined the continuity of multiple competencies, including compliance, attention, persistence, and prosocial peer interactions, with findings pointing to increases in each competency with age. However, their measure (i.e., the ITSEA) is limited to use in infancy through toddlerhood, limiting the ability to uniformly examine ongoing trends past 3 years of age. Similarly, a more recent investigation (Baillargeon et al., 2011) examined developmental progression of prosocial behaviors in children ages 17 to 41 months, though no additional dimensions of competencies were assessed. Given the cascading impacts of psychosocial competencies, it remains important to continue to understand their developmental course, including whether and which areas of competency are foundational to the developmental sequence of other competencies, how the relation between specific competencies may change with age, and how inter- and intra-individual deficits in specific competencies uniquely confer risks for poor developmental trajectories.

A related next step to measuring continuity and presentations of competencies across development is consideration to whether different versions of the PSICA should be developed. One consideration may include development and evaluation of multi-informant reports to expand assessment of competencies across system levels (e.g., home, school) and informants (caregiver, teacher). Validation of use of the PSICA through teacher-report is underscored by the fact that children most often enter services for psychosocial problems through the educational setting (Farmer et al., 2003). Additionally, a self-report version for older children would aid in elucidating the interactions between multiple dimensions of psychosocial competencies and internalizing difficulties over time, as children are often more accurate reporters of internalizing symptoms relative to caregivers (De Los Reyes et al., 2015) and can accurately and consistently report on their psychosocial functioning starting around the age of 7 to 8 years (e.g., Michael & Merrell, 1998; Norwood, 2007). Considering also that girls often show more frequent prosocial behaviors than boys (Briegel et al., 2019; Chaplin & Aldao, 2013), and that the frequency of prosocial behaviors increases with age (e.g., Baillargeon et al., 2011; Borstein et al., 2010), natural next steps might include examining whether different cutoffs should exist depending on child age and gender.

Consideration may also be given to whether certain PSICA items can be trimmed while retaining psychometric properties of the full version. One such method involves trimming items through an integration of internal, external, and professional judgment criteria (Stanton et al., 2002). An empirically winnowed short-form of the PSICA may further enhance the feasibility of its administration and scoring, particularly when it would be included as part of a battery of assessments and when considering that lack of time is consistently identified as a barrier to

assessment practices across multiple child mental health service sectors (e.g., O'Brien et al., 2016; Peer et al., 2021).

Moving beyond its applications in the screening and treatment planning process, an additional next step will be to examine the PSICA's treatment sensitivity (i.e., responsiveness). Should the PSICA demonstrate adequate psychometric responsiveness, presenting scores to caregivers at regular intervals throughout treatment could be an asset to improving their perceptions of their children's behaviors and enhancing likelihood of treatment completion, thus optimizing child outcomes (e.g., Briegel et al., 2018; Danko et al., 2016; Lyon & Budd, 2010). Additionally, findings of the current study identify cutoff scores against which scores throughout treatment can be referenced, therefore serving to elucidate treatment progress, inform which competencies may be most readily targeted by treatment, and identify whether and what intervention components correspond to significant gains in competencies to developmentally appropriate levels (i.e., improvements in PSICA scores from below to above cutoffs) throughout the course of treatment.

Limitations

Notwithstanding the above promising findings, the current study has several notable limitations, including those related to demographics and diagnostic characteristics of children in each sample, characteristics of responding caregivers, and use of caregiver report compared to direct observation. More specifically, findings of the current study must be contextualized within the samples examined, including their diagnostic and demographic characteristics. With the present study, comparisons were made between (a) children who showed clinically elevated behavior problems, high rates of emotional and behavioral comorbidities, and whose caregivers presented for treatment due to their child's behavior problems and (b) children without

diagnoses, normative emotional and behavioral scores, and whose caregivers had no history of seeking treatment for their child's emotional or behavioral concerns. Although this method is an appropriate and conventional first step in assessing a measure's known-groups validity (Lewis et al., 2018; Weinstein, Obuchowski, & Lieber, 2005; Zhou, Obuchowski, & McClish, 2002), such distinctions in presence and severity of emotional/behavioral problems, and subsequent treatment-seeking, are not as dichotomized in clinical practice (Bossuyt et al., 2003). For example, even among the community sample examined in this study, 21.8% (n = 175) of children without diagnoses or treatment history showed clinically elevated emotional and behavioral problems per SDQ total scores and were thus excluded from the final community-based control sample. Relatedly, among children in the clinic-referred sample, behavioral and emotional problems not only occurred more frequently compared to same-aged peers, but were likely to be more severe and impairing, as (a) severity of emotional and behavioral difficulties and (b) presence of comorbid conditions each increase the likelihood that caregivers present to treatment with their children (Ghandour et al., 2019). Since sensitivity is typically higher in studies where the condition of interest is of greater severity in the clinical population (Ransohoff & Feinstein, 1978), a next step will be to examine the PSICA's discriminative properties when a broader continuum of emotional/behavioral problems and/or psychosocial competencies are considered among treatment-involved and community-based children.

Relatedly, it is also important to highlight that the primary presenting concerns for children in the clinic sample were disruptive behavior problems; rather than anxiety, mood, or traumatic stress concerns; which also commonly lead to treatment referral for preschool and school-aged children (Jacob et al., 2018; Larson et al., 2013; Rushton, Bruckman, & Kelleher, 2002). Children with primary internalizing and traumatic stress difficulties are also at risk for,

and can simultaneously exhibit, deficits in psychosocial functioning, including emotion regulation (e.g., Frewen, Dozois, Neufeld, & Lanius, 2012), prosocial behaviors (Huber et al., 2019b), and attention regulation (Dvir et al., 2014; Racer & Dishion, 2012). At the same time, behavior problems are the most commonly diagnosed mental/behavioral health conditions among children aged 2–10 (Child and Adolescent Health Measurement Initiative, 2016) and are the most common reasons for treatment referral in childhood (Rushton, Bruckman, & Kelleher, 2002). Additionally, almost two-thirds of the present study's clinic-referred sample had clinically significant levels of internalizing as well as externalizing symptoms (at least per caregiver-ratings on standardized, validated measures). This high degree of child mental health comorbidity corresponds with findings from national samples of community youth (Child and Adolescent Health Measurement Initiative, 2016) and samples of clinic-referred children (e.g., Jensen & Steinhausen, 2014). The current sample is therefore congruent with trends regarding psychosocial problems that prompt entry into mental health services for early childhood to school-aged youth (Erath et al., 2009; Farmer et al., 2003; Sayal, 2006), even as it remains unclear how accurately the PSICA discriminates between healthy controls and children with clinical problems other than disruptive behaviors (or at least in the absence of disruptive behavior).

Furthermore, findings of the current study must be contextualized within demographic characteristics of responding caregivers. Specifically, caregivers in the current community sample were predominantly non-Hispanic, White mothers in their mid-thirties. These characteristics are similar to initial community-based validation studies of the PSICA, in which respondents were primarily (Niec et al., 2017) or exclusively (Dell'armi & Niec, 2017) maternal caregivers and were, on average, in their late thirties. These demographics also converge with

other examinations of parents who complete MTurk surveys regarding their children's functioning (Jensen-Doss et al., 2021) in which responders are again found to be predominantly non-Hispanic, White, maternal caregivers in their mid- to late-thirties. Caregivers in the clinical and community-based caregivers were similarly distributed regarding their racial, gender, and age characteristics. Research consistently documents greater likelihood of service/help-seeking for child behaviors among White and maternal caregivers relative to other racial groups and to paternal caregivers (e.g., Erath et al., 2009; Sayal, 2006; Thurston et al., 2015). Thus, there is overlap in the representation of caregiver characteristics for those in the community and clinic-referred samples here relative to other examinations of community-based and treatment-involved samples.

Yet, a limitation remains in the generalizability of the present study's results, specifically when considering continued disparities and underrepresentation in need-identification, access to care, and service entrance and utilization among children of ethnic and racial minority status, despite findings that document increased mental and behavioral health needs for these youth (e.g., Alegria et al., 2010; Lu, 2017; Thurston et al., 2015). Additionally, ethnic and racial minority families disproportionately experience lower socioeconomic status (SES), a consistent factor related to parental stress (e.g., Emmen, 2014). Since the present study did not assess SES for both samples, direct comparisons of SES across samples, as well as examination of whether PSICA scores may differ at varying levels of SES, were prohibited. Nevertheless, prior research with the ECBI (Gross et al., 2007) noted that, compared to caregivers of middle/upper SES, caregivers of low-SES were more likely to rate their children's behaviors as problematic–even though the frequency of child behaviors did not significantly vary by SES. Thus, it remains

worthwhile to examine whether a similar pattern might be observed for PSICA Frequency and Satisfaction scores among families of low versus middle/upper SES.

Furthermore, the present findings are limited in their representative of paternal caregivers. Past studies indicate that paternal caregivers report more negative attitudes towards and less frequently utilize mental health services for their children (e.g., Triemstra et al., 2017), and report fewer positive *and* negative child psychosocial behaviors (Briegel et al., 2019) compared to maternal caregivers. Preliminary evidence suggests this latter gender effect may also exist for PSICA Frequency and Satisfaction scale and subscale scores–notwithstanding significant inter-rater reliability of PSICA scores across matched mother-father dyads (Perez et al., 2019). However, additional research is needed to better ascertain the extent to which PSICA scores vary by caregiver gender, and thus warrant different cutoff scores for different caregiver genders.

An additional limitation concerns the measurement of psychosocial competencies using caregiver-report rather than behavior observation. Specifically, it remains unknown the degree to which psychosocial competencies as assessed through caregiver-report (and specifically the PSICA) correspond to actual demonstrations of these competencies. At the same time, caregivers' perceptions of their child's behaviors remain crucial to assess not only because they can affect their actual parenting practices (and subsequently their child's behaviors; Briegel et al., 2018; Carter et al., 2001; 2004; Fonagy et al., 1995; Zeanah et al., 1986), but also predict seeking and utilization of child mental health services (e.g., Thurston et al., 2015). Importantly, preliminary analyses (Peer et al., 2019) have identified significant, moderate convergence (i.e., $r = .40$) between caregiver-ratings on the PSICA Compliance subscale and expert-coded child compliance during a validated standardized behavioral assessment (i.e., Dyadic Parent-Child

Interaction Coding System–IV; Eyberg et al., 2013), further underscoring that the PSICA can serve as an efficient tool to understanding patterns of competencies displayed by children. However, as of yet, neither the Attention nor Prosociality subscales have been validated against standardized behavioral or similar assessments, and thus doing so will be a necessary step in further determining the scope of the PSICA's convergent and concurrent validity. This step is warranted given that some parents who report high levels of stress and/or their own mental health problems perceive their child's behavior as more problematic compared to healthy controls (e.g., Des Los Reyes et al., 2015; Miragoli et al., 2018), and thus may underestimate child psychosocial competencies. Validating the PSICA Attention and Prosociality subscales with observational methods (e.g., Direct Observation Form [McConaughy & Achenbach, 2009]; limited resource task [Huber et al., 2019a]) can therefore help take into account parent perceptions, which have a meaningful impact on parenting practices (and subsequent child behavior), while minimizing potential bias in reporting.

Relatedly, it is important to acknowledge that the PSICA does not assess all competency domains relevant to psychosocial development, and that the relative importance of certain competencies may shift throughout different developmental stages. As an example, academic achievement orientations, and the individual psychosocial competencies that influence them (e.g., persistence/motivation to succeed, self-confidence), purportedly become more important for psychosocial achievement in middle versus earlier childhood (Masten & Coatsworth, 1998). Future studies may therefore wish to examine how and whether additional areas of competencies (i.e., new subscales) might add utility to the PSICA for clinical practice and/or research, particularly across different developmental periods.

Conclusion

Psychosocial competencies have been recognized as foundational to successful development and resiliency throughout the lifespan (Briegel et al., 2018; Masten & Coatsworth, 1998; Masten & Cicchetti, 2010). Their emergence and growth protect against the development of psychosocial problems, such as aggression, emotion regulation difficulties, and problematic peer relationships (e.g., Burt et al., 2008; Caprara et al., 2000; Kim & Cicchetti, 2010), and therefore facilitate positive developmental cascades (Cicchetti & Curtis, 2006; Masten & Cicchetti, 2010). Assessment of child psychosocial competencies in conjunction with other standardized measures of child functioning and contextual factors is therefore crucial to enhance detection of children in need of psychosocial services, tailor treatment planning to facilitate development of psychosocial strengths alongside reduction of problems, and improve monitoring of treatment outcomes. The PSICA represents a promisingly feasible and psychometrically sound screening measure to serve these purposes, with findings of the present study notably extending its empirical support and clinical utility. Considering the present study's limitations and PSICA psychometrics that remain to be known, future directions include examinations of the PSICA's properties when administered to more diverse samples, its predictive validity, appropriateness of gender- and age-based norms, and treatment responsiveness to further enhance its utility in developmental research and clinical practice.

Conflict of interest: The author declares no conflict of interest, but acknowledges that their dissertation chair and advisor, Dr. Peer, is one of the developers of the PSICA.

References

Achenbach, T. M., & Edelbrock, C. S. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. University of Vermont, Department of Psychiatry.

Achenbach, T.M., & Rescorla, L.A. (2001). *Manual for the ASEBA School-Age Forms & Profiles*. University of Vermont, Research Center for Children, Youth, & Families.

Alegria, M., Vallas, M., & Pumariega, A. J. (2010). Racial and ethnic disparities in pediatric mental health. *Child and Adolescent Psychiatric Clinics of North America*, *19*(4), 759–774.

American Academy of Pediatrics. (2001). Committee on children with disabilities: Developmental surveillance and screening of infants and young children. *Pediatrics, 108*, 192–196.

Baillargeon, R. H., Morisset, A., Keenan, C. L., Jeyaganth, S., Boivin, M., & Tremblay, R. E. (2011). The development of prosocial behaviors in young children: A prospective population-based cohort study. *Journal of Genetic Psychology, 172*(3), 221–251.

Baillargeon, R. H., Normand, C. L., Seguin, J. R., Zoccolillo, M., Japel, C., Perusse, D., …. Tremblay, R. E. (2007). The evolution of problem and social competence behaviors during toddlerhood: A prospective population-based cohort survey. *Infant Mental Health Journal, 28*(1)*,* 12–38.

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of Royal Statistical Society. Series B (Methodological), 57*, 289–300.

Bird, M., Graves, J., Hynes, W., Korell, A., Lachance, K., Rieske, R., Peer, S., Perez, T., & Sepulveda, G.* *Psychosocial Strengths Inventory for Children and Adolescents: Multi-modal, -dimensional, and –informant validation.* Unpublished manuscript.

*author list is in alphabetical order and not indicative of final authorship order

Böhning, D., Böhning, W., & Holling, H. (2008). Revisiting Youden's index as a useful measure of the misclassification error in meta-analysis of diagnostic studies. *Statistical Methods in Medical Research*, *17*(6), 543–554.

Bossuyt, P.M., Reitsma, J.B., Bruns, D.E., Gatsonis, C.A., Glasziou, P.P., Irwig, L.M., Moher, D., Rennie, D., de Vet, H.C.W., & Lijmer, J.G. (2003). The STARD statement for reporting studies of diagnostic accuracy: Explanation and elaboration. *Croatian Medical Journal, 44*(5), 639–650.

Bowman, P. J. (2013). A strengths-based social psychological approach to resiliency: Cultural diversity, ecological, and life span issues. In S. Prince-Embury, & D. H. Saklofske (Eds.), *Resilience in children, adolescents, and adults: Translating research into practice* (pp. 299–324). Springer Science.

Brazeau, J. N., Teatero, M. L., Rawana, E. P., Brownlee, K., & Blanchette, L. R. (2012). The Strengths Assessment Inventory: Reliability of a new measure of psychosocial strengths for youth. *Journal of Child & Family Studies, 21*, 384–390.

Briegel, W., Greuel, J., Stroth, S., & Heinrichs, N. (2019). Parents' perception of their 2–10-year-old children's contribution to the dyadic parent-child relationship in terms of positive and negative behaviors. *International Journal of Environmental Research and Public Health, 16*(7), 1–26.

Briegel, W., Peer, S. O., Dell'armi, M., & Niec, L. N. (2018). Building resilience through PCIT: Assessing child adaptive functioning and parent–child relationship quality. In L. N. Niec (Ed.), *Handbook of Parent-Child Interaction Therapy: Innovations and applications for research and practice*. (pp. 341–356). Springer.

Briggs-Gowan, M., & Carter, A. S. (1998). Preliminary acceptability and psychometrics of the Infant-Toddler Social and Emotional Assessment (ITSEA): A new adult-report questionnaire. *Infant Mental Health Journal, 19*, 422–445.

Brøndbo, P. H., Mathiassen, B., Martinussen, M., Heiervang, E., Eriksen, M., Moe, T. F., ... & Kvernmo, S. (2011). The strengths and difficulties questionnaire as a screening instrument for Norwegian child and adolescent mental health services: Application of UK scoring algorithms. *Child and Adolescent Psychiatry and Mental Health*, *5*(1), 1−10.

Bronfenbrenner, U. (2005). Ecological models of human development. In M. Gauvain & M. Cole (Eds.), *Reading on the development of children* (4th ed.). (pp. 3–8). Worth Publishers.

Brun, C., & Rapp, R. C. (2001). Strengths-based case management: Individuals' perspectives on strengths and the case manager relationship. *Social Work, 46*(3), 278–288.

Buhrmester, M. D., Talaifar, S., Gosling, S. (2018). An evaluation of Amazon's Mechanical Turk, its rapid rise, and its effective use. *Perspectives in Psychological Science*, *13*(2), 149–154.

Burisch, M. (1978). Construction strategies for multiscale personality inventories. *Applied Psychological Measurement, 2*(1), 97–101.

Burt, K. B., Obradović, J., Long, J. D., & Masten, A. S. (2008). The interplay of social competence and psychopathology over 20 years: Testing transactional and cascade models. *Child Development, 79*(2), 359–374.

Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. (2000). Prosocial foundations of children's academic achievement. *Psychological Science, 11*(4), 302–306.

Carter, A. S. (2002). Assessing social-emotional and behavior problems and competencies in infancy and toddlerhood: Available instruments and directions for application. In B. Zuckerman, A. Lierberman, & N. Fox (Eds.), *Emotion regulation and developmental health: Infancy and early childhood* (pp. 277–299). Johnson & Johnson Pediatric Institute.

Carter, A. S., Briggs-Gowan, M. J., & Davis, N. O. (2004). Assessment of young children's social-emotional development and psychopathology: Recent advances and recommendations for practice. *Journal of Child Psychology and Psychiatry*, *45*(1), 109–134.

Carter, A. S., Briggs-Gowan, M. J., Jones, S. M., & Little, T. D. (2003) The Infant–Toddler Social and Emotional Assessment (ITSEA): Factor structure, reliability, and validity. *Journal of Abnormal Child Psychology*, *31*(5), 495–514.

Carter, A. S., Garrity-Rokous, F. E., Chazan-Cohen, R., Little, C., & Briggs-Gowan, M. (2001). Maternal depression and comorbidity: Predicting early parenting, attachment security, and toddler social-emotional problems and competencies. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 18–26.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*, 245–276.

Centers for Disease Control and Prevention. (2013). Mental health surveillance among children – United States, 2005-2011. *Morbidity and Mortality Weekly Report, 62*(2), 1–35.

Chaplin, T. M., & Aldao, A. (2013). Gender differences in emotion expression in children: A meta-analytic review. *Psychological Bulletin, 139*(4), 735–765.

Chen, Y., Fortson, B. L., & Tiano, J. D. (2018). Preliminary validity of the Eyberg Child Behavior Inventory with Taiwanese clinic-referred children. *Journal of Child and Family Studies, 27*(12), 3816–3830.

Child and Adolescent Health Measurement Initiative (CAHMI; 2016). 2016 National Survey of Children's Health (NSCH), *SPSS Indicator Data Set*. Data Resource Center for Child and Adolescent Health supported by Cooperative Agreement from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). Retrieved 12/13/18 from www.childhealthdata.org.

Cicchetti, D., & Cohen, D. J. (1995). Perspectives on developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology: Vol 1. Theory and Methods* (pp. 3–20). New York, NY: Wiley.

Cicchetti, D., & Curtis, W. J. (2006). The developing brain and neural plasticity: Implications for normality, psychopathology, and resilience. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology: Vol. 2. Developmental Neuroscience* (2nd ed., pp. 1–64). Wiley.

Cohen, J. (1969). *Statistical power analysis for the behavioral sciences* (1st ed.). New York, NY: Academic Press.

Cowger, C. D. (1994). Assessing client strengths: Clinical assessment for client empowerment. *Social Work, 39*, 262–268.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297–334.

Cureton E. E. (1956) Rank-biserial correlation. *Psychometrika*, *21*(3), 287–290.

Dahl, A. (2015). The developing social context of infant helping in two U.S. samples. *Child Development*, *86*(4), 1080–1093.

Dahl, A. & Brownell, C. (2019). The social origins of human prosociality. *Current Directions in Psychological Science, 28*(3), 274–279.

Danielson, M. L., Bitsko, R. H., Ghandour, R. M., Holbrook, J. R., & Blumberg, S. J. (2016). Prevalence of parent-reported ADHD diagnosis and associated treatment among U.S. children and adolescents. *Journal of Clinical Child & Adolescent Psychology, 47*(2), 199–212.

Danko, C. M., Garbacz, L. L., & Budd, K. S. (2016). Outcomes of parent–child interaction therapy in an urban community clinic: A comparison of treatment completers and dropouts. *Children and Youth Services Review*, *60*, 42–51.

De Los Reyes, A., Augenstein, T. M., Wang, M., Thomas, S. A., Drabick, D., Burgers, D. E., & Rabinowitz, J. (2015). The validity of the multi-informant approach to assessing child and adolescent mental health. *Psychological Bulletin*, *141*(4), 858–900.

Dodge, K. A., Greenberg, M. T., Malone, P. S., & the Conduct Problems Prevention Research Group (2008). Testing an idealized dynamic cascade model of the development of serious violence in adolescence. *Child Development, 79*(6), 1907–1927.

Duckworth, A.L., Steen, T.A., & Seligman, M.E.P. (2005). Positive psychology in clinical practice. *Annual Review of Clinical Psychology, 1*, 629–651.

Dunst, C. J., Trivette, C. M., & Deal, A. G. (Eds.). (1994). *Supporting and strengthening families: Methods, strategies and practices.* Brookline Books.

Dvir, Y., Ford, J. D., Hill, M., & Frazier, J. A. (2014). Childhood maltreatment, emotional dysregulation, and psychiatric comorbidities. *Harvard Review of Psychiatry*, *22*(3), 149–161.

Eisenberg, N., & Mussen, P. H. (1989). *The roots of prosocial behavior in children*. Cambridge University Press.

Emmen, R. *Positive parenting in ethnic minority families: Challenges and outcomes*. [Doctoral dissertation, Leiden University]. Proefschriftmaken.nl, Uitgeverij BOXPress BV, 's-Hertogenbosch.

Epstein, M., Nordness, P., Cullinan, D., & Hertzog, M. (2002). Scale for assessing emotional disturbance. *Remedial and Special Education*, *23*, 141–148.

Erath, S. A., Keiley, M. K., Pettit, G. S., Lansford, J. E., Dodge, K. A., & Bates, J. E. (2009). Behavioral predictors of mental health service utilization in childhood through adolescence. *Journal of Developmental and Behavioral Pediatrics, 30*(6), 481–488.

Eron, L. D., & Huesmann, L. R. (1984). The control of aggressive behavior by changes in attitudes, values, and the conditions of learning. In R. J. Blanchard & D. C. Blanchard (Eds.), *Advances in the study of aggression* (Vol. 1, pp. 139–171). Academic Press.

Eyberg, S., & Pincus, D. (1999). *Eyberg Child Behavior Inventory & Sutter-Eyberg Student Behavior Inventory-Revised: Professional manual.* Psychological Assessment Resources.

Eyberg, S., & Funderburk, B. (2011). *Parent-child interaction therapy protocol*. Gainesville, FL: PCIT International Publishing.

Eyberg, S. M., Nelson, M. M., Ginn, N. C., Bhuiyan, N., & Boggs, S. R. (2013). *Dyadic parent-child interaction coding system: Comprehensive manual for research and training* (4th ed.). Gainesville, FL: PCIT International.

Farmer, E. M. Z., Burns, B. J., Phillips, S. D., Angold, A., & Costello, E. J. (2003). Pathways into and through mental health services for children and adolescents. *Psychiatric Services, 54*(1), 60–66.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191.

Fonagy, P., Target, M., Steele, M., & Gerber, A. (1995). Psychoanalytic perspectives on developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology, vol. 1: theory and methods* (pp. 504–554). John Wiley & Sons Inc.

Frewen, P., Dozois, D., Neufeld, R., & Lanuis, R. (2012). Disturbances of emotional awareness and expression in post-traumatic stress disorder: Meta-mood, emotion regulation, mindfulness, and interference of emotional expressiveness. *Psychological Trauma: Theory, Research, Practice, and Policy*, 4, 152–161.

Garbacz, L. L., Brown, D. M., Spee, G. A., Polo, A. J., & Budd, K. S. (2014). Establishing treatment fidelity in evidence-based parent training programs for externalizing disorders in children and adolescents. *Clinical Child and Family Psychology Review, 17*(3), 230–247.

Ghandour, R. M., Sherman, L. S., Vladutiu, C. J., Ali, M. M., Lynch, S. E., Bitsko, R. H., & Blumberg, S. J. (2019). Prevalence and treatment of depression, anxiety, and conduct problems in US children. *Journal of Pediatrics, 206,* 256–267.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60,* 549–576.

Graves, J., Korell, A., Bird, M., Perez, T., & Peer, S. (2019). *Comparison of psychosocial competencies in community versus clinical samples: Instrument validation and practice implications.* Poster presented at the Annual Southeastern Idaho Psi Chi Conference, Pocatello, ID.

Graybeal, C. (2001). Strengths-based social work assessment. *Families in Society, 82*(3), 233–242.

Grimes, D. A., & Schulz, K. F. (2005). Compared to what? Finding controls for case-control studies. *The Lancet*, *365*, 1429–1433.

Grunwald, D., & Goldfarb, N. M. (2006). Back translation for quality control of informed consent forms. *Clinical Research Best Practices, 2*(2), 1–6.

Haahr, M. (2020). Random.org: True Random Number Service. Retrieved from https://www.random.org

Habibzadeh, F., Habibzadeh, P., & Yadollahie, M. (2016). On determining the most appropriate test cut-off value: The case of tests with continuous results. *Biochemia Medica*, *26*(3), 297–307.

Harniss, M. K., Epstein, M. H., Ryser, G., & Pearson, N. (1999). The Behavioral and Emotional Rating Scale: Convergent validity. *Journal of Psychoeducational Assessment*, 17, 4–14.

Hoaglin, D.C., Iglewicz, B., and Tukey, J.W. (1986). Performance of some resistant rules for outlier labeling, Journal of American Statistical Association, 81, 991–999.

Hoaglin, D. C., and Iglewicz, B. (1987), Fine tuning some resistant rules for outlier labeling, Journal of American Statistical Association, 82, 1147–1149.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*, 179–185.

Horwitz, S. M., Gary, L. C., Briggs-Gowan, M. J., & Carter, A. S. (2003). Do needs drive services use in young children? *Pediatrics, 112*(6), 1373–1378.

Huber, L., Plötner, M., & Schmitz, J. (2019a). Behavioral observation of prosocial behavior and social initiative is related to preschoolers' psychopathological symptoms. *PLoS One*, *14*(11), 1–18.

Huber, L., Plötner, M., & Schmitz, J. (2019b). Social competence and psychopathology in early childhood: A systematic review. *European Child and Adolescent Psychiatry, 28*, 443–459.

Humphreys, L. G. & Montanelli, R. G. (1975). An investigation of the parallel analysis criterion for determining the number of common factors. *Multivariate Behavioral Research, 10*, 193–206.

Hynes, W., Peer, S., & Korell, A. (2021). *Briefer and better assessment: The Psychosocial Strengths Inventory for Children and Adolescents – Short Form (PSICA–SF)*. Unpublished manuscript.

Jacob, G., van den Heuvel, M., Jama, N., Moore, A. M., Ford-Jones, L., & Wong, P. D. (2019). Adverse childhood experiences: Basics for the pediatrician. *Pediatrics and Child Health*, *24*(1), 30–37.

Jensen, C. M. & Steinhausen, H.–C. (2014). Comorbid mental disorders in children and adolescents with attention-deficit/hyperactivity disorder in a large nationwide study. *ADHD Attention Deficit and Hyperactivity Disorders, 7*(1), 27–38.

Jensen-Doss, A., Patel, Z. S., Casline, E., Mora, V. A., Timpano, K. R., & Timpano, R. (2021). Using mechanical turk to study parents and children: An examination of data quality and representativeness. *Journal of Clinical Child and Adolescent Psychology*, 1–15.

Keenan, K., & Shaw, D. (1997). Developmental and social influences on young girls' early problem behavior. *Psychological Bulletin, 121*(1), 95–113.

Kendall-Taylor, N., & Mikulak, A. (2009). *Child mental health: A review of the scientific discourse.* FrameWorks Institute.

Kim, J. & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry, 51*(6), 706–716.

Larson, J., dosReis, S., Stewart, M., Kushner, R., Frosch, E., & Solomon, B. (2013). Barriers to mental health care for urban, lower income families referred from pediatric primary care. *Administration and Policy in Mental Health and Mental Health Services Research, 40,* 159–167.

Lavigne, J. V., Feldman, M., & Meyers, K. M. (2016). Addressing the base rate fallacy for a sustainable screening program in integrated primary care. *Journal of Pediatric Psychology*, *41*(10), 1081–1090.

Lewis, C. C., Mettert, K. D., Dorsey, C. N., Martinez, R. G., Weiner, B. J., Nolen, E., Stanick, C, Halko, H., & Powell, B. J. (2018). An updated protocol for a systematic review of implementation-related measures. *Systematic Reviews, 7*(66), 1–8.

Lin, T. H. (2010). A comparison of multiple imputation with EM algorithm and MCMC method for quality of life missing data. *Quality & Quantity: International Journal of Methodology, 44*, 277–287.

Lu, W. (2017). Child and adolescent mental disorders and health care disparities: Results from the national survey of children's health, 2011–2012. *Journal of Health Care for the Poor and Underserved, 28*(3), 988–1011.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*, 543–562.

Lyon, A., & Budd, K. (2010). A community mental health implementation of parent–child interaction therapy (PCIT). *Journal of Child & Family Studies*, *19*(5), 654–668

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56,* 227–238.

Masten, A. S. & Cicchetti, D. (2010). Developmental cascades. *Development and Psychopathology, 22*(3), 491–495.

Masten, A., & Coatsworth, J. D. (1995). Competence, resilience, and psychopathology. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology: Vol. 2. risk disorder and adaptation* (pp. 715–752). Wiley.

Masten, A. S. & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, *53*(2), 205–220.

McConaughy S. H. & Achenbach T. M. (2009). *Manual for the ASEBA direct observation form*. Burlington: University of Vermont, Research Center for Children, Youth, & Families.

Michael, K. D. & Merrell, K. W. (1998). Reliability of children's self-reported internalizing symptoms over short to medium-length time intervals. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*(2), 194–201.

Miragoli, S., Balzarotti, S., Camisaca, E., & Di Blasio, P. (2018). Parents' perception of child behavior, parenting stress, and child abuse potential: Individual and partner influences. *Child Abuse and Neglect*, *84*, 146–156.

Murphy, M., & Fonagy, P. (2012). Mental health problems in children and young people. *Annual Report of the Chief Medical Officer*, 1–13.

Norwood, S. (2007). Validity of self-reports of psychopathology from children of 4–11 years of age. *Vulnerable Children and Youth Studies, 2*(2), 89–99.

Obradović, J., Burt, K. B., & Masten, A. S. (2010). Testing a dual cascade model linking competence and symptoms over 20 years from childhood to adulthood. *Journal of Clinical Child & Adolescent Psychology*, *39*(1), 90–102.

O'Brien, D., Harvey, K., Howse, J., Reardon, T., & Creswell, C. (2016). Barriers to managing child and adolescent mental health problems: A systematic review of primary care practitioners' perceptions. *British Journal of General Practice*, *66*(651), 693–707.

Peer, S., Korell, A., & Graves, J. (2019, April). *Psychosocial strengths inventory for children and adolescents (PSICA): Multi-informant, multi-modal validation with a clinic sample*. Paper presented at the 2019 Western Psychological Association Convention, Pasadena, CA.

Peer, S., Saunders, B., Korell, A., & Hansen, R. (2021). *Changes in child trauma assessment practices and related barriers during and after a community-based learning collaborative*. Manuscript under review.

Perez, T., Korell, A., Graves, J., Bird, M., & Peer, S. (2019, January). *Differences and similarities in maternal and paternal ratings using a novel measure of child psychosocial competencies.* Poster presentation at the Annual Southeastern Idaho Psi Chi Conference, Pocatello, ID.

Perren, S., Stadelmann, S., von Wyl, A., & von Klitzing, K. (2007). Pathways of behavioural and emotional symptoms in kindergarten children: What is the role of pro-social behaviour? *European Journal of Child and Adolescent Psychiatry, 16*, 209–214.

Pontoppidan, M., Niss, N. K., Pejtersen, J. H., Julian, M. M., & Vaever, M. S. (2017). Parent report measures of infant and toddler social-emotional development: A systematic review. *Family Practice, 34*(2), 127–137.

Racer, K. H., & Dishion, T. J. (2012). Disordered attention: Implications for understanding and treating internalizing and externalizing disorders in childhood. *Cognitive and Behavioral Practice*, *19*(1), 31–40.

Ransohoff, D. & Feinstein, A. (1978). Problems of spectrum and bias in evaluating the efficacy of diagnostic tests. *New England Journal of Medicine*, *299*(17), 926–930.

Rashid, T., & Ostermann, R. F. (2009). Strength-based assessment in clinical practice. *Journal of Clinical Psychology, 65*, 488–498.

Rawana, E., & Brownlee, K. (2010). *The Strengths Assessment Inventory–manual.* Centre of Excellence for Children and Adolescents with Special Needs.

Reardon, T., Harvey, K., Baranowska, M., O'Brien, D., Smith, L., & Creswell, C. (2017). What do parents perceive are the barriers and facilitators to accessing psychological treatment for mental health problems in children and adolescents? A systematic review of

qualitative and quantitative studies. *European Journal of Child and Adolescent Psychiatry*, *26*, 623–647.

Reynolds, C. R., & Kamphaus, R. W. (2004). *Behavior Assessment System for Children* (2nd ed.). Pearson Assessments.

Rich, B. A. & Eyberg, S. M. (2001). Accuracy of assessment: The discriminative and predictive power of the Eyberg Child Behavior Inventory. *Ambulatory Child Health,* 7, 249–257.

Ruscio, J. (2015). Rational/theoretical approach to test construction. *The Encyclopedia of Clinical Psychology*. 1–5.

Rushton, J., Bruckman, D., & Kelleher, K. (2002). Primary care referral of children with psychosocial problems. *Archives of Pediatrics and Adolescent Medicine, 156,* 592–598.

Saleebey, D. (1996). The strengths perspective in social work practice: Extensions and cautions. *Social Work, 41*, 296–305.

Sayal, K. (2006). Annotation: Pathways to care for children with mental health problems. *Journal of Child Psychology and Psychiatry, 47*(7), 649–659.

Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5–14.

Seo, S. (2006). *A review and comparison of methods for detecting outliers in univariate data sets* [Doctoral dissertation, University of Pittsburgh]. Semanticscholar.org.

Setia, M. S. (2016). Methodology series module 2: Case-control studies. *Indian Journal of Dermatology*, *61*(2), 146–151.

Shaikh, S. A. (2011). Measures derived from a 2 x 2 table for an accuracy of a diagnostic test. *Journal of Biometrics and Biostatistics*, 2(128), 1–4.

Šimundić, A. M. (2009). Measures of diagnostic accuracy: basic definitions. *The Electronic Journal of the International Federation of Clinical Chemistry*, *19*(4), 203–211.

Smits, N. (2010). A note on Youden's J and its cost ratio. *BMC Medical Research Methodology*, *10*(1), 1–4.

Snyder, C. R., Ritschel, L. A., Rand, K. L., & Berg, C. J. (2006). Balancing psychological assessments: Including strengths and hope in client reports. *Journal of Clinical Psychology*, *62*(1), 33–46.

Stanick, C. F., Halko, H. M., Nolen, E. A., Powell, B. J., Dorsey, C. N., Mettert, K. D., Weiner, B. J., Barwick, M., Wolfended, L., Damschroder, L. J., & Lewis, C. C. (2019). Pragmatic measures for implementation research: Development of the psychometric and pragmatic evidence rating scale (PAPERS). *Translational Behavioral Medicine*, *11*(1), 11–20.

Stanton, J. M., Sinar, E. F., Balzer, W. K., & Smith, P. C. (2002). Issues and strategies for reducing the length of self-report scales. *Personnel Psychology*, *55*(1), 167-194

Streiner, D. L. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment, 80*(1), 99–103.

Stroul, B. A., & Friedman, R. M. (1996). The system of care concept and philosophy. In B. A. Stroul (Ed.), *Creating systems of care in a changing society* (pp. 3–22). Paul H. Brookes.

Tabachnick, B. G. & Fidell, L. S. (2012). *Using multivariate statistics* (6th ed.). Pearson.

Tedeschi, R. G. & Kilmer, R. P. (2005). Assessing strengths, resilience, and growth to guide clinical interventions. *Professional Psychology: Research and Pediatrics, 36*(3), 230–237.

Thurston, I. B., Phares, V., Coates, E. E., & Bogart, L. M. (2015). Child problem recognition and help-seeing intentions among black and white parents. *Journal of Clinical Child and Adolescent Psychology, 44*(4), 604–615.

Tomasello, M. (2014). The ultra-social animal. *European Journal of Social Psychology, 44*, 187–194.

Toner, E., Haslam, N., Robinson, J., & Williams, P. (2012). Character strengths and wellbeing in adolescence: Structure and correlates of the values in action inventory of strengths for children. *Personality and Individual Differences, 52*(5), 637–642.

Triemstra, K. T., Niec, L. N., Peer, S. O., & Christian-Brandt, A. S. (2017). The influence of conventional masculine gender role norms on parental attitudes toward seeking psychological services for children. *Psychology of Men and Masculinity, 18*(4), 311–320.

Tukey, J.W. (1977). *Exploratory data analysis*. Addison-Wesley.

Twala, B. (2009). An empirical comparison of techniques for handling incomplete data using decision trees. *Applied Artificial Intelligence, 23*, 373–405.

US Public Health Service. (2000). *Report of the Surgeon General's Conference on Children's Mental Health: A national action agenda.* Department of Health and Human Services.

Velderman, M. K., Crone, M. R., Wiefferink, C. H., & Reijneveld, S. A. (2009). Identification and management of psychosocial problems among toddlers by preventive child health care professionals. *European Journal of Public Health*, *20*(3), 332–338.

Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Cornell University Press.

Weinstein, S., Obuchowski, N.A., & Lieber. (2005). Clinical evaluations of diagnostic tests. *American Journal of Roentgenology, 184*, 14–19.

Wichstrom, L., Berg-Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H. (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and Psychiatry, 53*(6), 695–705.

Wissow, L. S., Brown, J., Fothergill, K. E., Gadomski, A., Hacker, K., Salmon, P., & Zelkowitz, R. (2013). Universal mental health screening in pediatric primary care: A systematic review. *Journal of American Academy of Child and Adolescent Psychiatry, 52*(11), 1134–1147.

Wyman, P. A., Sandler, I., Wolchik, S., & Nelson, K. (2000). Resilience as cumulative competence promotion and stress protection: Theory and intervention. In D. Cicchetti, J. Rappaport, I. Sandler, & R. P. Weissberg (Eds.), *The promotion of wellness in children and adolescents* (pp. 133–184). Child Welfare League of America.

Zeanah, C. H. (2000). Disturbances of attachment in young children adopted from institutions. *Journal of Developmental & Behavioral Pediatrics, 21*, 230–236.

Zeanah, C.H., Keener, M.A., & Anders, T.F. (1986). Developing perceptions of temperament and their relation to mother and infant behavior. *Journal of Child Psychology and Psychiatry, 27*, 499–512.

Zhou, X.H., Obuchowski, N.A., & McClish, D.K. (2002). Statistical methods in diagnostic medicine. New York: Wiley & Sons.

Appendix A

PSICA

Directions: Below are a series of phrases that describe children's behavior. Please (1) circle the number describing *how often* the behavior *currently* occurs with you child, and (2) circle 'yes' or 'no' to indicate whether you are satisfied *currently* with this behavior in your child.

	How often does this occur with your child?	**Never**	**Seldom**		**Sometimes**		**Often**	**Always**	**Are you satisfied with this behavior in your child?**	
1.	Gets dressed promptly when asked.	1	2	3	4	5	6	7	YES	NO
2.	Promptly comes to table for mealtime.	1	2	3	4	5	6	7	YES	NO
3.	Has good table manners.	1	2	3	4	5	6	7	YES	NO
4.	Is willing to eat most food presented.	1	2	3	4	5	6	7	YES	NO
5.	Completes chores when asked.	1	2	3	4	5	6	7	YES	NO
6.	Is willing to get ready for bed when asked.	1	2	3	4	5	6	7	YES	NO
7.	Goes to bed on time.	1	2	3	4	5	6	7	YES	NO
8.	Obeys house rules.	1	2	3	4	5	6	7	YES	NO
9.	Obeys without threat of punishment	1	2	3	4	5	6	7	YES	NO
10.	Acts willing when told to do something.	1	2	3	4	5	6	7	YES	NO
11.	Complies with parents about rules.	1	2	3	4	5	6	7	YES	NO
12.	Is calm if doesn't get own way.	1	2	3	4	5	6	7	YES	NO
13.	Can use words to express being upset.	1	2	3	4	5	6	7	YES	NO
14.	Speaks politely to adults.	1	2	3	4	5	6	7	YES	NO
15.	Asks appropriately for needs.	1	2	3	4	5	6	7	YES	NO
16.	Is relaxed.	1	2	3	4	5	6	7	YES	NO
17.	Smiles or laughs.	1	2	3	4	5	6	7	YES	NO
18.	Is respectful to parents.	1	2	3	4	5	6	7	YES	NO
19.	Plays gently with toys and other objects.	1	2	3	4	5	6	7	YES	NO
20.	Takes care of toys.	1	2	3	4	5	6	7	YES	NO
21.	Shares.	1	2	3	4	5	6	7	YES	NO
22.	Tells the truth.	1	2	3	4	5	6	7	YES	NO
23.	Helps other children.	1	2	3	4	5	6	7	YES	NO
24.	Speaks politely with friends own age.	1	2	3	4	5	6	7	YES	NO
25.	Speaks politely with brothers and sisters.	1	2	3	4	5	6	7	YES	NO
26.	Is affectionate toward friends own age.	1	2	3	4	5	6	7	YES	NO

OVER →

How often does this occur with your child?	Never	Seldom	Sometimes	Often	Always	Are you satisfied with this behavior in your child?
27. Is affectionate toward sisters and brothers.	1	2	3	4	5	6	7	YES NO
28. Plays independently.	1	2	3	4	5	6	7	YES NO
29. Waits for turn.	1	2	3	4	5	6	7	YES NO
30. Is focused.	1	2	3	4	5	6	7	YES NO
31. Has good attention span.	1	2	3	4	5	6	7	YES NO
32. Finishes tasks or projects.	1	2	3	4	5	6	7	YES NO
33. Can entertain self alone.	1	2	3	4	5	6	7	YES NO
34. Can concentrate on one thing.	1	2	3	4	5	6	7	YES NO
35. Can sit calmly.	1	2	3	4	5	6	7	YES NO
36. Stays dry overnight.	1	2	3	4	5	6	7	YES NO

Note. The *Compliance* subscale includes items 1, 2, 5, 6, 7, 8, 9, 10, 11, and 12. The *Prosociality* subscale includes items 3, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, and 27. The *Attention* subscale includes items 30, 31, 32, 34, and 35.