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A Review of the Psychometric Properties of the Child and Adolescent Needs and Strengths (CANS): Perspectives on the Present State of the Literature and Future Directions

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ABSTRACT

The Child and Adolescent Needs and Strengths (CANS) is a comprehensive tool assessing functioning, strengths, acculturation, caregiver needs/resources, behavioral/emotional needs, and risk behaviors of youth and children. Although this tool is widely used within the United States, minimal work has been published overviewing the tool, synthesizing existing research that utilizes it, and highlighting studies that specifically examine its psychometric properties such as reliability and validity. The purpose of this article is to overview much of the existing research and literature that has been published in peer-reviewed journals that employs the CANS to offer researchers, helping professionals, families, agencies, and institutions a synopsis of the current status of the tool. Additionally, suggestions and future directions of the CANS are offered with the intent of strengthening and solidifying the tool's understanding, utility, and application.

KEYWORDS

Adolescents; assessment; children; child and adolescents needs and strengths (CANS); foster care

PRACTICE IMPLICATIONS

- Despite the Child and Adolescent Needs and Strengths (CANS) wide use within community and state agencies (e.g. foster care), minimal discussion of its psychometric properties exist within the academic, peer-reviewed literature.
- We implore professional, practitioner, and researcher alike to offer greater attention to psychometric properties of the CANS within academic, peer-reviewed literature to improve its utility and safety.
- Innovative approaches of psychometric evaluation such as predictive modeling and structural equation modeling are illustrated and encouraged.

The Child and Adolescent Needs and Strengths (CANS) assessment was first developed in the late 1990s and early 2000s by Dr. John Lyons as a comprehensive tool to guide both youth and youth-serving agencies (e.g.,

child protective services, foster care systems, and public family services) in communicating and making informed decisions regarding the future of a youth within their care. It evaluates areas such as strengths, resources, behavioral/emotional needs, and risk behaviors (Praed Foundation, 2021). It is widely accepted by numerous public agencies within the United States with either the standard tool or a variation of it being used in all 50 states (Praed Foundation, 2019) potentially being used to assist hundreds of thousands of youth annually (Children's Bureau of the U.S. Department of Health and Human Services, 2020). Despite its release nearly 20 years ago and its wide use among numerous state agencies to guide decision-making and communication for youth in services, research published in peer-reviewed academic journals regarding facets of reliability, validity, and other measurement properties is sparse. Additionally, minimal discussion has been published within peer-reviewed literature that reviews the tool, synthesizes existing research that employs the tool, or specifically highlights studies examining the dimensions of reliability and validity of the tool.

This lack of robust and critical academic discussion of a tool that is utilized by state agencies nationwide assisting informed care and treatment of hundreds of thousands of vulnerable children and adolescents annually is concerning and possibly reckless. In 2018 alone, 687,345 youth were served nationally by state foster care systems (Children's Bureau of the U.S. Department of Health and Human Services, 2020). The CANS tool seeks to evaluate children and adolescents in a variety of areas including sensitive and serious topics such as mental health, substance abuse, self-injury, harm to others, fire setting, hospitalizations, and suicide, to name a few. Results of the evaluated areas are used to inform decisions or actions taken with the child or adolescent including treatment, care, and safety protocols (Praed Foundation, 2021). It is potentially dangerous for the child/adolescent as well as the environment or system that they are a part of, to base decisions on a tool whose psychometric properties have received little to no attention within the academic community.

Thus, the purpose of this manuscript is twofold. The first objective is to provide a brief overview of much of the existing peer-reviewed research and literature of the CANS regarding its utilization and ability to offer insight on the target population. The second objective is to provide recommendations for improvement, adaptation, and application to researchers, agencies, community leaders, and helping professionals. This manuscript is not a meta-analysis; rather, it is a discussion of the present state of academic literature and recommendations for potential evaluation or application of this tool. In striving to meet these objectives, we will first provide a brief overview of the history and purpose of the CANS. Then, we will review research and literature that has

been published within the academic community that examines its reliability and validity. Lastly, we will offer discussion of possible future directions of this assessment and its potential uses.

History and Purpose

In the late 1990s and early 2000s the CANS grew out of the Childhood Severity of Psychiatric Illness (CSPI) as developed by Dr. John Lyons, a clinical psychologist (Praed Foundation, 2021). The CANS tool considers broad contextual needs as well as strengths of the adolescent/child and their system. Specifically, it has six core foci. The first core being *life domain functioning*, which includes items examining family functioning, medical/physical information, school behavior, legal information, and other systemic functioning information. The *strengths* core focuses on assets in areas such as social and spiritual strengths, support system, and resiliency. The *acculturation* core focuses on language, traditions, rituals, and cultural-related stress. The *care-giver needs and resources* core evaluates the youth's primary caregiver(s)'s involvement, mental health, safety, and other characteristics. The *behavioral/emotional needs* core attends to psychological and behavioral needs, trauma, and substance use concerns of the adolescent. Lastly, the *risk behaviors* core evaluates perilous or potentially perilous thoughts and behaviors including suicide, self-harm, various forms of aggression, runaway, delinquency, fire setting, and misbehavior of the adolescent. Although these are the six core domains of the CANS, there are multiple versions that emphasize different facets of a child's experiences, characteristics, and systems, depending on the agency's need or population being served (see, Praed Foundation, 2019); henceforth we will refer to these adapted types as "variants" or "variation of CANS." All items among these core foci are scored on a scale of zero to three when assessing the need or strength (0 = *no evidence of need*; 3 = *need is dangerous or disabling*). The score of each item is linked with an "Appropriate action," or recommendation of urgency level of next steps on a scale of zero to three (0 = *no action needed*; 3 = *strength creation or identification may be indicated*). The CANS tool is rated by a certified professional who holds a bachelor's-level degree or higher, completes the provided training, and scores on a test vignette with at least 70% agreement against a certified assessor (Praed Foundation, 2021).

The CANS was developed from a communimetric approach that values priorities of implications and action for each of the measurement items, focuses on descriptions, and minimizes cause and effect assumptions (Lyons, 2009). Communimetrics, "makes no assumption that one is divining the 'truth' about what is being observed through the measurement process. One is only attempting to communicate what he or she thinks is true at any given time" (Lyons, 2009, p. 12). These priorities can be seen within the CANS

assessment package as each item focuses on unique dimensions of the child/adolescent and are each tied to an individual action item. Although having varying approaches, communimetrics and traditional psychometric measures share a similar purpose within youth care settings: to enhance service planning for the child/adolescent and their family. Although the communimetric approach claims to be different and more nuanced than traditional psychometric measures (Lyons, 2009), with its utilization to inform service planning, it is imperative that this approach is actively appraised within the peer reviewed academic literature.

Lyons and Fernando (2017) stated that, “CANS is designed for use either as a prospective assessment tool for decision support and recovery and/or service planning or as a retrospective quality improvement device demonstrating an individual youth’s progress” (p. 3). As the CANS is heavily utilized for decision-making with a vulnerable population of youth, specifically in-care youth, it is essential that tools such as the CANS are held to the highest possible standard. One method of achieving this is to provide substantial, ongoing empirical evidence over persons and historical time of the reliability and validity of the CANS. Thus, we turn first to the types of evidence for reliability and validity, and then to the published evidence of the CANS’s reliability and validity.

Reliability and Validity

Reliability is a fundamental cornerstone in measurement. A reliable instrument is one that performs in consistent, predictable ways. For a scale to be reliable, the scores produced by the instrument should not change unless a variable the instrument is measuring has been altered. Therefore, any observed change in scores can be attributed to actual change in that variable. The less the score we obtain reflects other extraneous factors, the more reliable our scale is. All methods of measuring reliability involve estimating the variable’s true score and determining what proportion of the observed score attributable to the true score (DeVellis, 2017).

Whereas *reliability* concerns how much a variable influences a set of items, *validity* concerns whether the variable is the underlying cause of item covariation (DeVellis, 2017, p. 83). Validity is inferred from the manner in which a scale is constructed, its ability to predict specific events, or its relationship to measures of other constructs. There are essentially three types of validity that correspond to these operations: (a) content validity, which concerns item sampling adequacy; (b) criterion-related validity, which is concerned with predicting a process (and thus is sometimes called “predictive” validity); (c) construct validity, which is directly concerned with the theoretical relationship of a variable to other variables. There are many sources to learn more about classical definitions and calculations of

reliability and validity. These include Anastasi (1988), Crocker and Algina (1986), McDonald (2000), and Nunnally and Bernstein (1994), and Messick (1995), among countless others.

Evidence of CANS Reliability

Presently, minimal research has been published in credible, peer-reviewed academic journals solely examining facets of reliability (other than internal consistency, the weakest form of reliability evidence) of the comprehensive CANS or its variants. Regarding internal consistency, many of the items within the CANS are linked with one another both cross-sectionally and over time including frustration management, aggressive behavior, trauma, and behavioral risks to name a few (Accomazzo et al., 2015; Blakely et al., 2017; Cordell et al., 2016; Go et al., 2017; Griffin, Martinovich, Gawrom, & Lyons, 2009; Cordell et al., 2016). These internal links are important as they suggest that the items are, on average, consistently capturing a similar construct within the adolescent's life or system. However, to date, we could find no study that explicitly examined the test–retest reliability of the CANS.

Kisiel et al. (2018) examined the inter-rater reliability of a variant of the CANS, the CANS-Trauma, among 10 adolescents and children from three different agencies in the state of Illinois. This 110-item tool is similar to the comprehensive version of the CANS but with an emphasis on trauma-related areas. Contrasting an evaluator's retrospective CANS evaluation of the 10 cases with the agency clinician's initial CANS evaluation at intake, intraclass correlation of each of the items suggested a range of scores from .02 (poor) to 1.00 (perfectly aligned). Approximately 25% of the items had inter-rater reliability scores below .59 while approximately 31% of the items had a score of 1.00 resulting in overall, inter-rater scores of all items being .75. Although the overall score was above the threshold of the recommended .70 (LeBreton et al., 2003), nearly a fourth of the items (approximately 27) fell below that threshold.

Anderson et al. (2003) examined the inter-rater reliability of only the 41-item mental health dimension of the CANS among 60 cases at a treatment facility and found a moderately high percent of agreement between clinician-researcher as well as researcher–researcher. Agreement for the items ranged from 55 to 90% between clinicians and researchers, and 61 to 98% between researchers alone. Of the coding differences between clinicians and researchers, approximately 48% effected action in the treatment plan as recommended by the tool (Anderson et al., 2003). Among Singapore communities, it seems that the inter-rater reliability among CANS assessors suggests promise (Liu et al., 2014). Specifically, that when an independent researcher and caseworker

trained in CANS evaluation assessed 130 randomly selected participant files, there were .79 to .89 of overall agreement with the initial clinical assessment score across the core domains.

Although there is a limited body of research examining inter-rater reliability of the CANS, certification for offering the tool requires that upon completion of the training, trainees complete a test case vignette where they must reach 70% agreement with a gold standard evaluation prior to being able to offer the tool themselves (Lyons, 2009). This training and certification are expected to be completed annually by professionals who administer the CANS (Praed Foundation, 2021). However, although it is widely acknowledged that inter-rater reliability scores suggesting 70% agreement or higher are acceptable (LeBreton & Senter, 2008), there are some research practitioners that suggest that if the assessment is evaluating important dimensions of an individual that are linked to important decision-making processes (such as facets of the CANS), an inter-rater reliability score should be a .90 at a minimum with .95 being optimal (Nunnally & Bernstein, 1994). For example, it is possible that a professional offering the CANS could still reach the appropriate threshold of 70% agreement while also incorrectly evaluating serious risk factors of an adolescent's life such as self-harm, harm to others, or suicide. Failure to correctly assess items such as these, even if they get all others correct, could be detrimental to the child, family, foster family, helping professionals, and organizations supporting the child.

Evidence of CANS Validity

Face Validity Evidence

The Praed Foundation emphasizes that the CANS, in its standard or variant form, is used in professional or public agencies within all 50 states (Praed Foundation, 2019) which may indicate that many see its content, structure, and applicability as an appropriate and helpful tool to be used for communication and decision-making within treatment. For example, Texas Department of Family and Protective Services use the CANS with children within their care to not only better understand the behavioral strengths and needs of a child but also use the gathered information to ensure that the child is receiving care and services that will help them and their family reach their goals (see, Texas Department of Family and Protective Services, 2021 for more information). This is notable as many practitioners may have decades of valuable experience evaluating, supporting, or treating adolescents and their families. This acceptance and use of this tool by practitioners with copious amounts of experience offers some form of validation. This is defined as face validity that is a subjective conclusion by a professional about the use and value of a tool such as the CANS (Drost, 2011). Although

noteworthy, face validity is widely seen as the weakest form of validity and should not be the only dimension considered while reviewing the makeup of an assessment or tool to determine its quality (Drost, 2011). Additionally, face validity should not be confused with content validity as it does not evaluate what the test *actually* measures, but rather what it *appears* to measure (Anastasi, 1988).

Lastly, developers claim “The approach clearly makes sense to those working directly with children and families” (Lyons, 2009, p. 103). However, although it is widely accepted across child- and adolescent-serving communities, those professionals administering and using this tool are only part of who this tool needs to “make sense to.” This tool also needs to be understood, appropriately interpreted, and accepted by the respondents to it: the children, adolescents, and their families (DeVellis, 2017). If it is not fully understood by the respondents and their families, there could be serious repercussions such as misplacement, not providing needed support, and harm to self and others. The CANS is still lacking systematic, rigorous validation of its content and approach through peer-reviewed academic mediums. This is not to say that the CANS evaluation is poor or useless, but rather until appropriate steps are taken toward comprehensive content, criterion, and construct validation, it should be used and applied with caution.

Content Validity Evidence

We were unable to find any form of content validation within peer-reviewed, academic literature that includes a systematic evaluation of CANS items by a panel of expert professionals as recommended by Crocker and Algina (1986). Nor could we find feedback from populations or communities about their understanding and interpretation of CANS items as recommended by DeVellis (2017).

Criterion Validity Evidence

Although still growing, some studies have examined consistent predictive abilities, themes, and trends of CANS, although not all with significant findings. First, studies have suggested that some CANS items and domains are significantly linked with other assessments and items beyond the CANS. For example, CANS items assessing family functioning, strengths, sexualized behavior, and school functioning have been linked with dimensions of mental health such as depression (Stoner et al., 2013) or items assessing trauma experiences and risk behaviors of the youth were significant indicators of foster care placement stability or disruption (Weiner et al., 2011). Some research has suggested that a variant of the CANS predicted the same level of care of adolescents in the child welfare system that a group of integrated helping professionals suggested nearly 83% of the

time. Further, adolescents that were part of these concordant decisions illustrated greater clinical improvement compared to adolescents where decisions of the integrated professionals and the CANS diverged (K. H. B. Chor et al., 2012). Similar findings have been echoed in other studies utilizing CANS as an assessment-based decision-making algorithm that have predicted level of placement (B.K.H. Chor et al., 2015; Lardner, 2015) and risk of disruption in child welfare care (Epstein et al., 2015). Other research has offered similar patterns of CANS assessment by predicting quality levels of care or explaining variance in levels of care. However, it is important to note that CANS and level of placement data analyzed within these studies, may be highly correlated because professionals completing the CANS assessment may also have been involved in the level of placement decision-making process. Thus, additional investigation considering this confounding construct is warranted. Further, some studies have suggested minimal associations across domains or with other non-CANS constructs either concurrently or at later dates (Dimmick et al., 2011; Williams-Butler, 2018).

Construct Validity Evidence

One study exploring a suggested 28-item short-form of the CANS among a small, predominantly Hispanic youth sample in the Los Angeles community illustrated promising reports of validity when statistically compared to diagnoses within the Diagnostic and Statistical Manual of Mental Disorders IV Edition (DSM-IV; American Psychiatric Association (APA), 2000), the Youth Outcome Questionnaire (YOQ), and the YOQ-Self Report (YOQ-SR; Alamdari & Spanovic Kelber, 2016). However, these findings were only represented in a small sample for some of the analyses (< 29 parental figures and < 19 youth clients; Alamdari & Spanovic Kelber, 2016).

Another study examining the construct validity of CANS (Dilley et al., 2007) also showed promise when compared with the established Child and Adolescent Functional Assessment Scale (CAFAS). However, this particular study was not peer-reviewed or published within an academic journal but was shared publicly through an education resource database; thus, it should be understood that the researcher's decision-making regarding the methodological approach and its interpretation of the subsequent findings of the study were not rigorously reviewed by experts through a credible journal's blind peer review process. In comparing the CANS with the CAFAS, the researchers analyzed 304 adolescents within the Illinois juvenile justice system who both committed a legal offense and qualified for a diagnosis of psychosis or emotional disturbance. This sample was predominately male (approximately 68%) with approximately 63% indicating Euro-American, 29% African American, and 6% Hispanic. Many of the CANS items were positively and significantly ($p < .05$) correlated with the eight domains of the CAFAS; however, there was

a large range between the strength of correlations, ranging from .11 (small) to .72 (large) with the overwhelming majority of correlations being $< .30$ (moderately small). Similar to other studies highlighted in this article that examine correlates between CANS and other assessments, this study did not specifically indicate whether the CANS and CAFAS were administered by the same professional. Having both administered by the same professional could offer concerns related to correlations of the two constructs and is a potential limitation worth noting.

A third promising study (Kisiel et al., 2018), evaluated the CANS-Trauma against a variant of the Trauma Symptom Checklist for Children (TSCC; Briere, 1996) and the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) among a sample of 257 children and adolescents across three different agencies. Results of bivariate correlations of all four subscales of the CANS-trauma (trauma experiences, traumatic stress symptoms, child behavioral/emotional needs, and the child risk behaviors) predominantly suggested significant, positive associations with all subscales of the TSCC-A and the CBCL. However, the CANS-Trauma domain of traumatic stress symptoms was not significantly linked with the externalizing problems subscale of the CBCL. Strength of associations varied between .16 (small) to .51 (moderate to large). Specifically, of the 32 correlations of the CANS-Trauma domains 22% had smaller effect sizes (.25 or smaller), 66% had moderate effect sizes (.26-.45), and 9% had larger effect sizes of nearing .50 or larger (Leppink et al., 2016).

Future Directions and Recommendations for CANS

There are relatively few peer-reviewed works within established academic journals that specifically study the psychometric properties of the CANS (either reliability or validity, including its utility in service planning for this population). Further, of the scholarship that does exist, the variant of the CANS examined may be different from study to study which poses difficulties in understanding its overall properties and generalizability. This is a gap that needs to be addressed within the academic, peer reviewed literature and thus we suggest multiple opportunities to improve the validity, and thus utility, of the CANS and the effectiveness and efficiency of services delivered to clients.

Our first suggestion is that researchers should use more sophisticated psychometric approaches for evaluating structural aspects of the CANS than most previous research, which has predominantly used simple bivariate correlations. Specifically, we recommend researchers use structural equation modeling (SEM; Little, 2013). SEM allows complex social phenomena within intricate systems such as child welfare to more fully and accurately be examined. With its unique abilities and flexibility, SEM can closely reflect the examined social phenomena and experiences near precisely, a common goal

within social scientific research (Tarka, 2018). SEM reflects an advanced generation of statistical techniques that can be used to test the extent to which the respective research meets the recognized standards for high-quality statistical analysis (Cook & Campbell, 1979; Fornell, 1983). It allows researchers to capture and examine complex and systemic processes that will not only serve theory but also practice (Tarka, 2018). It is these advantages that have led to the widespread adoption of SEM across multiple social science disciplines, including psychology, demographic research, genetics, medical sciences, criminology, economics, and market research (Tarka, 2018).

Dima (2018) provided an excellent tutorial for the initial steps of SEM in a specific and rigorous six-step R-based (R Core Team, 2020) psychometrics tutorial that investigates validity and reliability for scales such as the CANS. These six steps include an inspection of, “(1) item distributions and summary statistics, item properties via (2) non-parametric and (3) parametric item response theory, (4) scale structure using factor analysis, (5) reliability via classical test theory, and (6) calculation and description of global scores.” Dima’s (2018) approach outlines specific ways to assess multiple dimensions of the assessment far beyond simple descriptive statistics or bivariate correlations. With the unique origins and use of the CANS as a communimetric tool, evaluating it through various approaches as outlined above would allow a more contextualized understanding of its psychometric properties as well as offer detailed ways of improving it. If applied researchers (and even methodologists) used these six steps in every study using the CANS, the knowledge base of this tool would expand rapidly. Wang et al. (2012) use latent discrete-time survival analysis with children in foster care, and Lambert, Johnson, and Wang (2017) demonstrate how a mediation model can be used to test the validity of an assessment score in child welfare investigations. In short, there are many blueprints and resources available to assist future researchers and helping professionals utilize SEM to begin attending to the present deficit of research examining CANS psychometric properties.

Researchers should also provide more rigorous evidence of convergent and discriminant validity through a multitrait-multimethod (MTMM) approach (Campbell & Fiske, 1959). MTMM approaches should optimally be conducted through a latent (CFA) framework (Byrne, 2011; Little, 2013) to differentiate method variance (such as self-report, peer report, professional rating, etc.) from construct variance. Byrne (2011) provided a very accessible example for applied researchers with a variant of this approach used by Baumann et al. (2011) in the creation of a concept-guided risk assessment in Texas.

Predictive modeling will also be a very useful set of techniques for evaluating the predictive validity of CANS. Cuccaro-Alamin et al. (2017) reported these five advantages of using predictive risk models (PRM) relative to other actuarial methods of risk assessment: (1) They can identify unobserved relationships among variables. (2) They can learn and adjust to new relationships

present in the data, which allows the models to capture dynamic changes in risk. (3) They use existing data on the population for which the tool is being used, whereas more common actuarial instruments are rarely validated with the population of interest. (4) They are more consistent because there is no arbitrary selection of predictors. (5) They operate independently of worker training and compliance. They note that, despite its proven utility in many fields, PRM has only recently been applied to the classification of risk in CPS, but it has been used to predict risk of maltreatment, recurrence, child death, failed reunifications, and youth resilience, among others (see, Schwartz et al., 2017; Amrit et al., 2017 for recent examples).

Predictive analytics can play primary roles within child protection and care through estimating potential maltreatment of the child as well as other outcomes such as child deaths and failure in treatment among many others (Schwartz et al., 2017). What was particularly noteworthy about the Schwartz et al. study was that they created three models, one for each of the following questions related to different decision points: (1) “What are the odds that a report of abuse and/or neglect will be verified or substantiated through the investigation process?” (p. 317); (2) What are the odds that a case will receive different types and intensities of services based on their history, background, report of abuse and/or neglect and substantiation?” (p. 318); and (3) “What services are most likely to prevent a case from having another report of abuse and/or neglect?” (p. 318) They found that these models add value in both prediction and “prescription.” An important, unanticipated, finding was that providing services to children and families who did not need the services had a negative impact. The authors noted that this needs to be studied further because historically it has been widely believed that services do no harm. It was concluded that modeling and machine learning could dramatically improve the utilization and accuracy of assessments. These findings were echoed in more recent research where data from CANS assessments were used within a machine learning system to estimate potential success within treatment for 3,000+ youth; thus, illustrating CANS application within predictive modeling environments (Troy et al., 2021). See, Kuhn and Johnson (2013) for other excellent examples of applied predictive modeling.

Researchers should examine the association between item or domain scores, services/interventions, and outcomes. CANS was developed to help enhance service planning within child and adolescent agencies by linking responses to recommended actions (Lyons & Fernando, 2017). SEM and decision tree analytic approaches (e.g., Hastie et al., 2016) should be used to test whether specific items/domains and scores (or differential patterns of items/scores) could or should lead to differential actions (i.e., different types of services or treatment). This would provide substantive evidence of Messick’s “consequential aspect” of validity which, “Appraises the value implications of score interpretation as a basis for action as well as the actual and potential

consequences of test use, especially in regard to sources of invalidity related to issues of bias, fairness, and distributive justice” (p. 745). This type of evidence would also validate the specific scores of individual items and/or domains and the subsequent actions necessary as well as possibly identify critical items or critical scores (such as dangerousness to self or others) which would necessitate immediate/emergency interventions.

Finally, we implore researchers, developers, helping professionals, or others who employ the recommendations noted above, that they do so within the academic, peer-reviewed domain. The peer review system is an established process that allows for scholarly materials to be critiqued and scrutinized by others that are considered experts on a given topic area or methodological approach. This rigorous process is meant to act as a filter to reduce the probability for low quality, deeply flawed, dangerous, or poorly completed research or theories to be published or shared in public arenas. With topical or methodological experts reviewing the material, peer review can enhance the quality of the research and information being presented by helping the authors recognize and eradicate any errors (Kelly, Sadeghieh, & Adeli, 2014). This process is widely accepted among scholars who agree that this process enhances the quality of the work and scientific communication (Mark Ware Consulting, 2016). With such a widely used tool such as the CANS that affects millions of children, adolescents, families, and communities, it is vitally important that research and literature evaluating psychometric properties is done properly. The academic peer review process helps ensure this by allowing experts both topically and methodologically to rigorously review and scrutinize a submitted project’s protocols, interpretation of results, and application to the community.

Conclusion

The CANS tool has much to offer with its large net of contextual factors, expansive adoption across the United States, ability to be tailored to a specific agency and population, simplicity of use, and rigorous training prior to use. Regardless of these strengths, the CANS is not without its shortcomings, one of which is the lack of appraisal and discussion of it within the peer-reviewed academic literature historically and presently. In the past 10 years, only four longitudinal studies incorporating CANS data have been completed and published in the peer reviewed literature (Sokol et al., 2020). With modern-day agencies, communities, and adolescent needs and strengths evolving, it could be dangerous to utilize assessment protocols that are not actively appraised within the literature.

Potentially of most concern is the current lack of peer-reviewed published evaluations of its psychometric properties. Few peer-reviewed studies specifically analyzed its psychometric properties using data from varying communities,

populations, and agencies. Further, of the studies available, majority use basic psychometric evaluative processes (e.g., cronbach's alpha, bivariate correlations, etc.) with findings that lack consistency from study to study. Although these simple processes can be valuable, with the CANS being developed within the communimetric framework and inclusive of a wide variety of contextual factors, it is important that robust, multidimensional, and sophisticated psychometric analyses are used to best capture, evaluate, and improve this tool. With the development and evolution of structural equation modeling including multitrait-multimethod within a latent framework, predictive modeling, latent discrete-time survival analysis, among others, these assessments have the ability to assess the nuance and varying dimensions of complex tools such as CANS. Because of the present lack of focused and robust psychometric evaluation within the academic literature, it is difficult to make the claim that the CANS is reliable and valid for all communities it is applied to and agencies that use it. Great potential for psychometric evaluation exists with the CANS because of its current use among a plethora of diverse organizations and communities, many of which, we assume, collect, track, and publish data from the CANS for agency management, local legislatures, or other governing bodies. In conclusion, with CANS informing important and differential pathways of service for vulnerable children and adolescents, it is vital that we ensure that this tool is reliable and valid; we implore researchers, clinicians, public officials, and other professionals to collaborate on this effort to ensure quality care and safety for those within our community.

Disclosure statement

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