Children's Evaluation of Everyday Social Encounters Questionnaire – Short Form

Validation

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A Thesis

presented to

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Master of Arts

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By Jasmine R. Berry

Dr. Debora J. Bell, Thesis Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled

Children's Evaluation of Everyday Social Encounters Questionnaire – Short Form

Validation

presented by Jasmine R. Berry, a candidate for the degree of master of arts, and hereby certify that, in their opinion, it is worthy of acceptance.

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ABSTRACT

The main goal of the current study was to validate a short form of the Children's Evaluation of Everyday Social Encounters Questionnaire (ChEESE-Q). In order to do this, we administered a two-vignette version of the ChEESE-Q (i.e., ChEESE-Q SF) to an independent sample of grade-school children (N=241), along with measures of various adjustment indicators, affect, and emotion regulation. Results indicated that the ChEESE-Q SF fit the same 3-factor structure as the original ChEESE-Q, with each factor-based subscale being invariant across grade and gender. Results also indicated that the ChEESE-Q could not only be shortened at the vignette level, but it could be shortened at the item level as well, and maintain excellent model fit with the same three factor structure. The ChEESE-Q SF also demonstrated acceptable internal consistency and test-retest reliability. In terms of validity, the ChEESE-Q SF subscales correlated with related constructs in expected directions. Specifically, negative information processing was associated with higher anxious and depressive symptomology, as well as higher negative affect. Positive information processing was associated with lower depressive symptomology, and higher positive affect. This study also demonstrated that negative information processing is associated with more aggressive and delinquent behavior and with maladaptive emotion regulation (i.e., inhibition and dysregulation strategies).

Positive information processing is associated with more adaptive emotion regulation (i.e.,

coping strategies. Implications for future research and interventions utilizing the

ChEESE-Q SF are discussed.

INTRODUCTION

The Children's Evaluation of Everyday Social Encounters Questionnaire (ChEESE-Q; Bell et al., 2009) was designed to be a comprehensive measurement of social information processing (SIP) styles. SIP theory suggests that youths' reactions to social events involve a cyclical process of steps -- cognitive processes that influence behavior, and then feedback and consequences that influence future cognitive and behavioral reactions. This theory was first proposed as a way to describe the relationship between social cognition, antisocial behavior, and social maladjustment in children (Dodge, 1986). Using SIP theory, it has since been demonstrated that, when encountering an ambiguous social stimulus, children engage in the processing steps that make up the SIP model (e.g., cue encoding, cue interpretation, goal setting, response generation) before arriving at a behavioral response (Crick & Dodge, 1994). Each of these processing steps is interrelated and maladaptive SIP can occur throughout each step of the process (e.g., negative cue encoding, hostile attribution biases, greater access to aggressive response options, enactment of aggressive responses). When maladaptive SIP occurs at every step or at most steps of the process, it is referred to as a pattern of processing or a *style*. Styles of processing are important to investigate because they highlight the fact that maladjustment is not simply linked to maladaptive social *responding* (i.e., the latter behavioral step in this process) but is instead part of a larger process.

Even so, much of the SIP literature has primarily focused on relating specific steps of SIP theory to maladjustment, rather than investigating the relationship between overall styles of processing and adjustment. The ChEESE-Q has demonstrated the utility of examining overall processing styles, and has also aided in understanding meaningful

relationships between SIP styles and adjustment, helping to bridge this gap in the literature. However, to date, the ChEESE-Q's validation has focused on its association with internalizing affect and adjustment. The ChEESE-Q's relationship to other constructs that are empirically or theoretically related to SIP, such as externalizing issues and affect regulation, remains to be evaluated. In addition, the ChEESE-Q's utility is limited by its length (i.e., typically takes 25 minutes to complete). This presents a problem when researchers need a briefer measure, such as when the ChEESE-Q is included as one of several measures in an assessment battery. Accordingly, the current study aims to validate a short form of the ChEESE-Q to evaluate its comparability to the original measure as a reliable measure of SIP styles that are related in theoretically meaningful ways to affect and internalizing adjustment, as well as to extend its validity by examining SIP style scores to other theoretically indicated correlates, namely affect regulation and externalizing adjustment.

Social Information Processing: Characteristics and Correlates

Social information processing refers to the cognitive, emotional, and behavioral processes by which individuals notice, interpret, and respond to their social environments. Crick and Dodge's (1994) classic SIP model describes behavioral responses to ambiguous social stimuli as a result of a sequence of steps. According to this model, when a child is confronted with an ambiguous social stimulus, there are five distinct steps of processing. First the child *encodes cues* about the situation (i.e., notices internal and external cues relevant to the situation). Second, the child *interprets cues* (i.e., makes causal and intent attributions, as well as self-evaluations and evaluations of past performances). Third, the child *identifies or clarifies his/her goals* for the situation (i.e.,

decides what is his or her desired outcome for the situation). Fourth, the child **constructs or accesses possible responses**. Finally, the child **selects** a response and **enacts**. The model of SIP is cyclical – following each of these steps and the resulting behavioral response, the model suggest that children then use **peer response** and **self-evaluation of the selected response** (i.e., what was the result of selecting this response? Did the response achieve the desired goal?) to inform how they might respond to a similar ambiguous social stimulus in the future (Crick & Dodge, 1994).

Adaptive SIP (i.e., SIP that will ultimately lead to prosocial responses and prosocial peer interaction) has been linked to lower rates of hostile attributions (when interpreting cues), higher relational goals (as opposed to instrumental goals), less distress in provocation situations, and overall positive adjustment (e.g., doing well in school; Nelson & Crick, 1999). Conversely, maladaptive SIP (i.e., SIP that does not result in prosocial responses or prosocial peer interactions) has been related to various types of maladjustment, including externalizing issues such as aggression and conduct problems, as well as internalizing issues such as depression and anxiety (Bell, Luebbe, Swenson, & Allwood, 2009; Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006; Crozier et al., 2008; Dodge, Laird, Lochman, & Zelli, 2002; Marien & Bell, 2004; Luebbe et al., 2010).

Dodge and colleagues proposed that children with aggressive tendencies are more likely to have a maladaptive SIP process when in an ambiguous social situation, resulting in increased likelihood of violent, or antisocial, behavior (Crick & Dodge, 1994; Dodge et al., 1986). More specifically, aggressive children tend to selectively attend to aggressive cues, be hypersensitive to cues of threat, and overlook other situational factors

that may have influenced the other person's behavior (Bradshaw & Garbarino, 2004). Furthermore, aggressive children tend to have well-developed hostile attribution biases, leading them to infer greater hostility in other people's ambiguous behaviors. Aggressive children also have a larger repertoire of aggressive responses, and believe aggressive responses are more effective at obtaining their desired goal (Perry, Perry, & Rasmussen, 1986; Quiggle, Garber, Panak, & Dodge, 1992; Dodge, Pettit, McClaskey, & Brown, 1986). Longitudinal studies have demonstrated that maladaptive information processing persists from youth into adolescence, and continues to be associated with aggression, even after controlling for prior behavior problems (Fontaine et al., 2002; Zelli et al., 1999). Cross-sectional studies have demonstrated that maladaptive processing partially mediates the effect of early peer rejection on later aggression (Dodge, Lansford, Burks, Bates, Pettit, Fontaine, & Price, 2003).

Similar to children who exhibit aggressive symptomology, research has found that children who exhibit depressive symptomology are more likely to also exhibit several aspects of maladaptive SIP. This includes hostile attribution biases when interpreting cues, filtering out positive cues during cue encoding, having a poverty of response options to access (particularly prosocial responses), and having hopeless expectations (Dodge, 1993). Children who exhibit depressive symptomology are also more likely to attribute negative situations to internal, stable, and global causes (Quiggle, Garber, Panak, Dodge, 1992).

Social Information Processing: Limitations

SIP is a well-researched construct, but there have been major gaps in the literature when it comes to measuring and examining correlates of overall styles of information

processing. SIP styles refer to children's tendency to consistently show negative or positive processing across steps of the SIP model. What this means is that it is not just maladaptive *responding* that is linked to antisocial behavior, but that maladaptive responding is the final step of a SIP process that involved other important components – such as encoding situational cues as negative, making negative attributions about the intent and causes of others' behavior in the situation, identifying negative goals for the situation, and accessing a repertoire of negative responses (Bell et al., 2009). In the SIP literature, it is generally accepted that patterns/styles of processing exist (Dodge, 2003; Crick & Dodge, 1994), however there has been little research covering comprehensive, standardized, and well-validated *measurement* of styles of processing. Instead, much of the literature on information processing is limited due to taking a piecemeal approach to measurement, only examining individual parts of the model. For example, the Children's Automatic Thought Scale (Schniering & Rapee, 2002) and the Children's Thought Questionnaire focus on negative beliefs (i.e., cue interpretation/hostile attribution biases), but focus very little on the rest of the SIP model (Marien & Bell, 2004; Schniering & Rapee, 2002).

Even when researchers have attempted to examine the model more comprehensively, they have tended to do so by using a combination of separate step-specific measures to examine components of the SIP model. One study (Dodge, Laird, Lochman, & Zelli, 2002) used several different measures of the steps of SIP to examine SIP styles. However, this process was very time consuming, required individual interviews with each participant, and the study fell short of being fully comprehensive

(i.e., mostly examined hostile intent attributions, aggressive response generation, positive evaluation of aggression, and orientation toward instrumental goals).

Another major limitation of much of the SIP measurement literature has been that many studies rely on vignette-based measures using social stimuli that have not been tested for accuracy and relevance on the target population. Instead, many studies recycle the Crick & Dodge, 1996 theoretically meaningful vignettes (e.g., Lemerise, Thorn, & Costello, 2016; MacBrayer et al., 2003; Goldweber et al., 2011), without testing for relevance or indication that the presented ambiguous situations may elicit the desired interpretation in the target population. These vignettes have even been used in diverse and drastically different samples without first being focus group tested for relevance (e.g., racial/ethnically diverse populations, high exposure to violence populations, and low socioeconomic status population; Goldweber et al., 2011). Moreover, researchers have found that using these vignettes from previous literature does not always yield good or expected results, and that some vignettes are more relevant or successful than others (e.g., vignettes involving interactions with teacher and mother have been less successful in past research; Bickett et al., 1996; MacBrayer et al., 2003). Finally, these vignettes are geared towards eliciting more aggressive responses, rather than targeting a wide range of internalizing and externalizing issues (e.g., having a peer spill milk all over you, being hit with a ball on the playground; Crick & Dodge, 1996). Thus, for many years, there has remained a clear gap in the literature regarding well-validated, comprehensive measurement of SIP.

The SIP literature is also limited due to its predominant focus on SIP's relation to youth externalizing problems. As noted earlier, initial development of the SIP model

focused on its role in youth aggression, and many studies have demonstrated a

relationship between various steps of the SIP process and aggressive, violent, and

antisocial behavior. This seems like a fairly restricted use of the SIP model, especially

given the large literature supporting the association between maladaptive attributions,

part of the social cue interpretation SIP step, and internalizing problems such as

depression and anxiety (Garber & Hilsman, 1992). At the same time, it is reasonable to

assume that other SIP steps, such as response generation or selection, may be

maladaptive in youth with internalizing problems, but not necessarily in the same way as

for youth with externalizing problems. For example, while aggressive youth are more

likely to endorse aggressive goals and response options (Crick & Dodge, 1994), evidence

suggests that depressed youth are more likely to respond to perceived social threats with

withdrawal (Hoglund & Leadbeater, 2007). Comprehensive understanding of youth SIP

calls for assessment that includes the full multi-step SIP model and that is relevant to

multiple types of maladjustment.

　　　Other constructs besides internalizing and externalizing adjustment are also

relevant to a full understanding of how youths process and respond to their social worlds.

For example, consideration of affective processes such as emotion regulation provides an

important complement to the SIP model's focus on cognitive and behavioral responses.

Lemerise and Arsenio (2000) argue that emotion and emotion regulation processes

should play a larger role in our examination of the SIP model and SIP's correlates. It is

quite apparent that many ambiguous social situations examined by the SIP literature are

especially likely to be emotionally arousing for children (e.g., having milk spilled all over

them, being teased by others, being excluded from play; Lemerise & Arsenio, 2000).

Even Crick and Dodge (1994) explicitly state that emotion processes play a large role in SIP, although their widely used conceptual model of SIP focuses on the cognitive and behavioral processes and does not attend explicitly to affective processes except in very limited ways. One such place in the SIP model where we see mention of affective processes is in the goal clarification step. Crick and Dodge (1994) include arousal regulation, and posit that goals can function as a way to maintain or regulate emotions, and that emotions can function as a way to energize goals. It is not just the goal steps that can be influenced by emotion regulation processes. For example, the response enactment step can be influenced by how intensely a child feels his or her emotions, as well as influenced by his or her emotion regulatory capacity (Lemerise & Arsenio, 2000). Accordingly, we can hypothesize that the strategies children use to regulate emotions (e.g., coping strategies, inhibitory strategies, dysregulated strategies) could be related to or influence the positive or negative way children respond at each step throughout the SIP model. However, the relationship between emotion regulation strategies and styles of information processing has not yet been examined in the literature; thus it is apparent that the relationship between SIP and emotion regulation processes warrants further investigation.

Children's Evaluation of Everyday Social Encounters Questionnaire

The ChEESE-Q was designed to address several of the limitations in the prior SIP literature. In particular, its developers focused on creating a comprehensive measure that could be used by researchers interested in studying SIP styles in youths and adolescents (Bell et al., 2009; Luebbe et al., 2010). The ChEESE-Q's six vignettes are each accompanied by ten questions (the first question is open-ended to assess the child's initial

thoughts about the vignette, and is followed by a series of questions in 5-point Likert-type response format). Responses to items are summed to yield a total score for the three different subscales (Negative Information Processing Style [NIPS; characterized by negative causal and intent attributions and avoidant and distress expression goals], Positive Information Processing Style [PIPS; characterized by positive attributions, solution-focused goals, face-saving goals, relationship-focused goals, and positive success and efficacy expectations], and Positive Response Evaluation Style [PRES; characterized by solution-focused or relationship-focused responses and positive affect expression goals]). Higher scores on subscales suggest increasingly negative or positive styles of processing. As for psychometric properties, internal consistency coefficients typically ranged from .72 to .87, and test-retest reliability coefficients typically ranged from .55 to .83 (Bell et al., 2009). With regard to validity, positive SIP style subscales are negatively associated with depression, and positively associated with positive affect. The negative SIP style subscale is positively associated with anxiety, depression, and negative affect (Bell et al., 2009; Luebbe et al., 2010). Based on these findings, Bell and colleagues (Bell et al., 2009; Luebbe et al., 2010) have posited that SIP styles can be conceptualized as part of an expanded tripartite model of depression and anxiety. Clark and Watson's (1991) original tripartite model predicts that positive and negative affect, which are largely orthogonal, are differentially related to internalizing symptoms. Specifically, (high) negative affect is related to both depression and anxiety but (low) positive affect is related only to depression and unrelated to anxiety. The tripartite model has been supported by numerous studies (Jacques & Mash, 2004; Joiner, Catanzaro, & Laurent, 1996; Dalieden, Chorpita & Lu, 2000), and the addition of the ChEESE-Q

studies suggests that both affect and cognition follow this tripartite pattern of relationships.

Although there are many psychometric advantages to the ChEESE-Q, it is not without its limitations. One limitation of the ChEESE-Q is that, while it extended the SIP literature's focus to internalizing issues, it has not been examined in relation to externalizing issues or examined in relation to emotion regulation. Examining these relationships could help extend the validity of the ChEESE-Q and expand its nomological network. Another, more notable, limitation of the ChEESE-Q is its length. The ChEESE-Q includes six vignettes, with nine questions per vignette, and typically takes 25 minutes to complete. This presents a problem in studies where it would be useful to examine SIP styles, but they are not the construct of interest, or in studies where time is an issue and multiple other measures are used as well (e.g., studies done in school settings). This also presents a problem for the ChEESE-Q's utility as a clinical tool. In high resource settings, the ChEESE-Q can be an excellent tool, but studies have shown that low-resource settings require tools with established reliability and validity metrics that are easily accessible and *brief* in order to achieve satisfactory evidence-based assessment (Beidas, Stewart, Walsh, Lucas, Downey, Jackson, Fernandez & Mandell, 2016). Given these issues, developing a short form of the ChEESE-Q and establishing its relevance to externalizing behavior and affect regulation would help maximize its usefulness and allow for further investigation of SIP styles and their relationship to adjustment.

Current Study

The overarching aim of the proposed study was to validate a short form of the ChEESE-Q by examining the factor structure, reliability, and concurrent and discriminant

validity of the short form, used with a sample of elementary- and middle school-aged

youth. Within this broad aim, we addressed four specific aims. First, we examined extent

to which the factor structure of the ChEESE-Q SF was comparable to the long form

ChEESE-Q. Relevant to this aim, we hypothesized that: (1) the ChEESE-Q SF would

replicate the three-factor structure of the long-form ChEESE-Q, producing three

subscales (i.e., Negative Information Processing Style [NIPS], Positive Information

Processing Style [PIPS], and Positive Response Evaluation Style [PRES]; **hypothesis 1**) ,

(2) measurement invariance would be demonstrated across gender groups (i.e., males and

females; **hypothesis 2a**), and (3) measurement invariance would be demonstrated across

grades (i.e., 5th and 6th grades versus 7th and 8th grades; **hypothesis 2b**).

The second aim of this study was to examine the reliability of the ChEESE-Q SF,

including internal consistency and test-retest reliability for the factor-based subscales.

Hypotheses for this aim included: (1) all subscales would demonstrated satisfactory

internal consistency (**hypothesis 3a**), (2) all subscales would demonstrate satisfactory

test-retest reliability (**hypothesis 4a**), (3) both genders and both age groups would

demonstrate satisfactory internal consistency (**hypothesis 3b**), and (4) both genders and

both age groups would demonstrate satisfactory test-retest reliability (**hypothesis 4b**).

The third aim of this study was to replicate the concurrent and discriminant

validity demonstrated by the original ChEESE-Q. We did this by examining the links

between the subscales of the ChEESE-Q SF and internalizing issues (i.e., depression and

anxiety), as well as positive and negative affect. Specific hypotheses for this aim were

based on previous research using the original ChEESE-Q (e.g., Luebbe et al., 2010) as

well as the conceptual relations suggested by the tripartite model (Clark and Watson,

1991). Similarly, we hypothesized that: (1) NIPS would be positively associated with depression, while PIPS and PRES would be negatively associated with depression (**hypothesis 5**), (2) NIPS would be positively associated with anxiety, while PIPS and PRES would show no relationship with anxiety (**hypothesis 6**), and (3) NIPS would be positively associated with negative affect and unassociated with positive affect, while PIPS and PRES would be positively associated with positive affect and unassociated with negative affect (**hypothesis 7**).

The final aim of this study was to extend the validity of the short form by examining the links between the subscales and two conceptually- and empirically-meaningful types of correlates, externalizing issues (i.e., aggression and delinquency), and positive and negative emotion regulation. Consistent with previous research on specific SIP steps and externalizing adjustment, we hypothesized that NIPS would be positively associated with aggression and delinquency, while PIPS and PRES would be unassociated with aggression and delinquency (**hypothesis 8**). Finally, extending the validity of the ChEESE-Q with regard to positive and negative emotion regulation adds to its nomological network, as well as aids in our understanding of the relationship between emotion regulation and cognition styles. Consistent with demonstrated relationships between SIP subscales and positive and negative affect, we hypothesized that NIPS would be positively associated with maladaptive emotion regulation strategies (e.g., Inhibition and Dysregulation) and negatively associated with adaptive emotion regulation strategies (e.g., Coping) whereas PIPS and PRES would have the opposite pattern of relationships to adaptive and maladaptive emotion regulation strategies (**hypothesis 9**). Hypotheses are summarized in Table 1.

METHODS

Participants

Primary Sample:

The primary sample was used to examine the factor structure of the ChEESE-Q SF, measurement invariance, internal consistency, and ChEESE-Q SF subscale correlations with depression, anxiety, positive affect, negative affect, and emotion regulation strategies.

Participants were 241 youths in 5th to 8th grades (57% females) recruited from two local area schools in a small Midwestern city as a part of a larger study. Children were 10 to 15 years old ($M = 11.97$, $SD =1.18$) and included 57 fifth graders (22 boys, 35 girls), 62 sixth graders (29 boys, 34 girls), 68 seventh graders (35 boys, 33 girls), and 53 eighth graders (18 boys, 35 girls). Chi-square analyses indicated no significant differences in number of participants in each grade level, $\chi^2(3) = 2.07$, $p = .56$. The ethnic/racial composition of the sample was as follows: 93% Caucasian, 2% African American, 3% Hispanic/Latino, 2% Asian (2 participants identified as American Indian, and 1 participant identified as half Indian). Data on the socioeconomic status of this sample were not available.

Secondary Sample:

The secondary sample was used to examine test-retest reliability and ChEESE-Q SF subscale correlations with externalizing behavior.

Participants were 252 youths in 3rd to 6th grades recruited from a public school district in a small Midwestern city. Children were 8 to 13 years old (M = 10.27, SD = 1.25) and included 55 third graders (29 girls, 26 boys), 48 fourth graders (31 girls, 17 boys), 56 fifth graders (21 girls, 35 boys), and 60 sixth graders (30 girls, 30 boys). Chi-

square analyses indicated no significant differences in number of participants in each

grade level, $\chi^2(3) = 1.56$, $p = .66$. The ethnic/racial composition of the sample

reflected the geographic area = 81% Caucasian, 7% African American, 3% Asian

American, and 3% Hispanic (6% identified as "other", 1 participant identified as

American Indian, and 2 participants did not report ethnicity). Children came from

primarily middle-class to upper-class families – 43% of families' income ranged from

$40,000 to $80,000 per year, and 29% of families' income was more than $80,000 per

year (Bell et al., 2009).

Power Analysis

Factor analysis was used to investigate and confirm the factor structure of the

short form. The suggested absolute minimum sample size for factor analysis is five

subjects per variable, or at least 100 participants (Streiner, 1994). However, where

possible, larger samples are recommended (Loehlin, 2009), and an N of 200 participants

is a typical sample size in published studies in which SEM results are reported (Kline,

2011). Power analyses suggested that for multiple regression analyses with the proposed

number of independent variables (i.e., three), sample sizes needed for small and medium

effects with 80% power at an alpha level of 0.05 are 550 and 77, respectively (Faul et al.,

2013). For linear regression analyses, sample sizes needed for small and medium effects

with 80% power at an alpha level of 0.05 are 395 and 55, respectively (Faul et al., 2013).

Given that in this study ns = 241 and 252 for the primary and secondary samples,

respectively, there was sufficient statistical power in correlational and regression analyses

to detect expected effects (moderately small to moderate effect sizes), as well as

sufficient statistical power to conduct factor analysis.

Procedure

Recruitment involved sending information letters and permission forms home to inform parents, and speaking to students during class periods to inform them of the study. Students were required to return a parent-signed permission form, and to sign a form indicating their own assent, in order to participate in the study. Students received a small prize (e.g., pencil or candy) for returning the permission forms, whether or not the parent gave permission for them to participate. Once students signed assent forms, they were presented with packets consisting of study measures. For 5th grade students, instructions and measure items were read aloud by a research assistant while participants responded to their questionnaires. For 6th to 8th grade students, classroom teachers read instructions aloud but permitted students to work ahead. Research assistants were available to provide help or extra clarification. After participating, students were presented with a small prize, such as a pencil or a snack, as a thank-you for their time. Each school was also compensated $12 per participant to be used for school supplies or events.

Measures

Children's Depression Inventory – Short Form (CDI – S; Kovacs, 1992). The CDI is a measure of childhood depressive symptoms. Participants endorse statements about their feelings in the past two weeks, and items are scored on a 0-2 scale and summed to provide a total score. Higher scores indicate more severe symptoms. The reliability and validity of the CDI are well-established, with internal consistency ranging from 0.71 to 0.94 (Kovacs, 1983; Saylor et al., 1984), test-retest reliability ranging from 0.66 to 0.82 over spans up to 6 weeks (Finch et al., 1987), and significant concurrent and predictive validity (Saylor et al., 1984). The 10-item short form of the CDI was

developed from a backward stepwise internal reliability analysis (Kovacs, 1992).

Retained items were taken from 4 of the 5 CDI factors (negative mood, anhedonia, ineffectiveness, and negative self-esteem). The CDI short form has been demonstrated to be internally consistent (Cronbach alpha = 0.80), and highly correlated with the full CDI (r=0.89) in a normative sample of 1266 children aged 7 through 15 years (Kovacs, 1992). The alpha for the current sample was .90.

State Trait Anxiety Inventory for Children – Trait Form (STAIC; Spielberger, 1973). The STAIC-T is a youth-report measure that assesses an individual's current trait anxiety levels. The measure consists of 20-items related to trait anxiety, and respondents rate whether items are, "hardly ever true", "sometimes true", or "often true" for the child. The STAIC has demonstrated acceptable reliability (coefficient alpha = 0.80 or higher; Crowley & Emerson, 1986; Spielberger, 1973). Six week test-retest reliability estimates range from 0.65 – 0.75, indicating children's responses are stable over time (Spielberger, 1973). The STAIC also correlates with other measures of children's general anxiety, which demonstrates convergent validity (Crowley & Emerson, 1986). The alpha for the current sample was .90.

Positive and Negative Affect Schedule for Children (PANAS-C; Laurent et al., 1999). The PANAS-C consists of positive affect (e.g., interested, excited, strong, enthusiastic) and negative affect (e.g., distressed, upset, guilty, hostile). Positive affect is assessed with 12 items and negative affect is assessed with 15 items. All items are scored on a five-point Likert scale (from *very slightly or not at all* to *extremely*) for how much they have been experiencing a specific emotional state. Internal consistency for positive affect (α = .87) and negative affect (α = .92) are typically high (Laurent et al., 1999). In

the current study, internal consistency for positive affect was α = .85, and internal

consistency for negative affect was α = .86.

Child Behavior Checklist and Teacher Report Form (CBCL/TRF;

Achenbach, 1991; Achenbach, 1991). The CBCL and TRF are 113-item checklists that

ask parents (or teachers) to make ratings from 0 to 2 depending on the extent to which a

particular statement describes their youth (0 = *not true*, 1=*somewhat or sometimes true*,

2=*very true or often true*). The CBCL and TRF consist of eight subscales: Withdrawn,

Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention

Problems, Delinquent Behavior, and Aggressive Behavior. The CBCL and Teacher

Report Form (TRF) have been standardized to obtain reference points (i.e., typical reports

by such informants for normative youth samples; Achenbach & Edelbrok, 1983;

Edelbrok & Achenbach, 1984). The CBCL and TRF also demonstrate adequate internal

consistency (0.78 or higher for each subscale and 0.72 or higher for each subscale,

respectively; Achenbach & Rescorla, 2001) as well as adequate test-retest reliability

(0.82 or higher for each subscale and 0.60 or higher for each subscale, respectively;

Achenbach & Rescorla, 2001). For the current study the Aggressive Behavior,

Delinquent Behavior, and overall Externalizing Behavior subscales were used. Internal

consistency in the current sample was comparable for aggressive behavior and overall

externalizing scales, but lower than published levels for the delinquent behavior scale.

Alphas for these subscales with the CBCL in the study sample were as follows:

Aggressive Behavior (α = .91), Delinquent Behavior (α = .58), and Overall Externalizing

Behavior (α = .81). Alphas for these subscales with the TRF in the study sample were as

follows: Aggressive Behavior ($\alpha = .94$), Delinquent Behavior ($\alpha = .46$), and Overall Externalizing Behavior ($\alpha = .80$).

Children's Emotion Management Scales (CEMS; Zeman, Shipman, & Penza-Clyve, 2001). The CEMS assesses youth's regulation of negative emotions. The CEMS can be divided into three smaller subscales: the 11-item Children's Sadness Management Scale (CSMS), the 12-item Children's Anger Management Scale (CAMS), and the Children's Worry Management Scale (CWMS). Each of these three scales are further divided into three subscales: (1) Inhibition (-example-), (2) Dysregulated Expression (-example-), and (3) Emotion Regulation Coping (-example-). For these scales, children respond to items on a Likert scale from 0 (hardly ever, 1 (sometimes), and 2 (often). Coefficient alphas for these subscales typically range from .62 to .77, and test-retest reliability usually ranges from .61 to .80 (Zeman, Shipman, & Penza-Clyve, 2001). For the different scales, internal consistency for the current study ranged from .59 to .81.

Youth Regulation of Positive Emotions Scale (YRPES; Early & Bell, 2013). The YRPES is a 25-item scale that asks youths to respond to items on a Likert scale from 0 (hardly ever), 1 (sometimes), to 2 (often) to assess how youths regulate positive emotions. The YRPES yields three subscales: (1) Happiness Coping, which indicates a youth's tendency to effectively manage feelings of positive emotion, (2) Happiness Inhibition, which indicates a youth's tendency to dampen or hide feelings of positive affect, and (3) Happiness Dysregulation, which indicates youth's tendency to express positive affect uncontrollably. For the current study, all subscales were internally consistent, *Coping* ($\alpha = .68$), *Inhibition* ($\alpha = .83$), *Dysregulation* ($\alpha = .78$).

Children's Evaluation of Everyday Social Encounters Questionnaire – Short Form (ChEESE-Q SF): Short Form Construction. The ChEESE-Q SF is a two-vignette shortened version of the six-vignette ChEESE-Q. In order to reduce the number of vignettes from 6 to 2, we examined bivariate correlations of each two-vignette combination (AD, BD, BE, CF, DF, EF) with the full ChEESE-Q. Ultimately, vignettes B and E were chosen from the original measure because the combination incorporated social situations with and without an adult, and with two common types of ambiguously threatening youth social encounters (an introduction and a performance situation), and demonstrated expected relations to the full measure. In order to maintain a comprehensive assessment of SIP, we chose to retain items from each step of the process. More specifically, we retained the entire set of questions that followed a vignette – meaning we only shortened the ChEESE-Q by vignette rather than by items. This method of reduction has also been used by other researchers (Meins, McCarthy-Jones, Fernyhough, Lewis, Bentall, & Alloy, 2012). Both girls' and boys' versions of the ChEESE-Q SF are utilized, so the hypothetical peer gender in vignettes matches the self-identified gender of the participant.

The first question, in response to each vignette, is open-ended and assesses the child's initial thoughts about the vignette. All other questions on the ChEESE-Q SF utilize a 5-point Likert scale (1= *definitely not*, 5=*definitely*). The second question, in response to each vignette, assesses the interpretation step of the SIP model. Response options include positive and negative internal and external causal attributions (e.g., *your friend thinks you'll like that movie, you never pick good movies*), as well as positive, negative, neutral and accidental intent attributions (e.g., *s/he was being mean to you, s/he*

just want to [it wasn't about you]). Question 3 is a state affect question that assesses the child's positive and negative affect responses to vignettes. Question 4 assesses the goal clarification step of the SIP model. Response options include prosocial goals (e.g., *just work out the situation*), as well as avoidant and non-prosocial goals (e.g., *try to avoid or ignore the situation, show that you're angry or upset*). Question 5 assesses the response access and construction step of the SIP model. Response options include both negative (e.g., *yell and say you want to see another movie*) and positive (e.g., *see if there is a movie you both want to see*) responses. Question 6 examines goal justifications, and participants rate how well their chosen response would help to achieve their goal. Questions 7 and 8 assess behavioral enactment efficacy and goal attainment efficacy.

For scoring (excluding the open-ended question 1 designed to evaluate participant attention to the vignette), response options are grouped and summed based on prior literature. For example, attribution questions include internal, external, and accidental causal attributions, and positive, negative, and neutral intent attributions. For the question assessing response generation, response options include prosocial, passive avoidant, active avoidant, or negative responses. Scores are the proportion of each type of response, averaged across the six vignettes. Psychometric properties of this measure are the focus of the Results section.

RESULTS

Data Cleaning and Descriptive Statistics

During preliminary analyses, we examined the data for outliers, missing values, and grade and gender differences in responding on measures. Influential outliers for ChEESE-Q SF items were winsorized at the 95th and 5th percentiles. Means and standard

deviations for all measures and ChEESE-Q subscales can be found in Table 2.

Correlations between all measures and subscales can be found in Table 3.

Primary Hypothesis Testing

AIM 1: FACTOR STRUCTURE AND MODEL VALIDATION

We examined the structure of the ChEESE-Q SF using confirmatory factor analysis,

loading items on subscales parallel to the subscales of the ChEESE-Q. Multiple

indicators of fit were examined (i.e. chi-square, Root Mean Square Error of

Approximation [RMSEA], Standardized Root Mean Square Residual [SRMR], and the

Bentler Comparative Fit Index [CFI]) to determine satisfactory model fit. Hu and Bentler

(1999) suggest cutoff scores for fit indices as follows: RMSEA cut-off value of .06,

SRMR cutoff value of .08, CFI value $\geq$ .95. Bentler (2004) suggests at most three indices

of fit be reported. For this step we also assessed whether all items (i.e., all questions and

responses under each vignette) were necessary for the short form (i.e., the best model fit

or the only satisfactory model fit is with all items). In order to do so, we strategically

removed the poorest fitting items one at a time and continuously assessed fit using the

above-mentioned model fit indicators.

We examined measurement invariance the ChEESE-Q SF using multi-group

confirmatory factor analysis between gender groups and age groups. The same model

indicators used with the overall CFA were used to assess the multi-group CFA models

(i.e., chi-square, RMSEA, SRMR, CFI). There are four levels in establishing full

invariance of a model: configural invariance, metric (weak) invariance, scalar (strong)

invariance, and strict invariance. However, strict invariance suggests a highly restricted

model and is rarely achieved in practice, thus experts suggest it is unreasonable to expect

strict invariance (Bialosiewicz, Murphy, & Berry, 2013; Putnick & Bornstein, 2016). Accordingly, to establish full measurement invariance with the ChEESE-Q SF, we assessed the first three levels.

Configural invariance is established through acceptable model fit indicators when combining both groups and freely estimating all parameters. Weak invariance is established, after restricting the model further, if the CFI has changed less than .01 from the configural invariance model and the RMSEA of the weak invariance model is within the confidence interval of the configural invariance model (Cheung & Rensvold, 2002). Strong invariance is established, after restricting the model even further, if the CFI has changed less than .01 from the weak invariance model, and the RMSEA for the strong invariance model is within the confidence interval of the weak invariance model (Cheung & Rensvold, 2002).

Hypothesis 1: Factor Structure

A three-factor structure fit the data the best, similar to the original ChEESE-Q. The fit for the three-factor structure including all items was adequate (chi-square=229.26, p<.0001, SRMR = .07, RMSEA= .06 [CI = .05 - .07], CFI = .94). However, once we removed items involving Internal and External Causal Attributions, the fit of the overall model was good (chi-square=110.09, p=.0009, SRMR = .06, RMSEA= .05 [CI = .03-.07], CFI=.98). Removing any other items decreased overall model fit. Accordingly, the model without internalizing and externalizing Causal attributions was the one we accepted and assessed for the ChEESE-Q SF. Note that the chi-square was significant in both model fits, likely due to the large sample size.

As shown in Table 4, each item loaded significantly on its respective latent factor (loadings ranged from .41 - .73). All specified covariances were significantly different from zero, with the exception of the covariance between error terms associated with Distress Expression Goals and Distress Expression Justifications. Correlations between factors were similar to the original ChEESE-Q; specifically, NIPS was negatively associated with PIPS (r = -.48), NIPS was negatively associated with PRES (r = -.30), and PIPS was positively associated with PRES (r = .93).

Hypothesis 2a: Measurement Invariance across Gender

In order to examine measurement invariance, we first examined each gender group individually. Results showed that the independent baseline models had satisfactory fit indicators for both girls and boys. For girls, fit indicators were: RMSEA = .0276 (CI = .000 - .0601), CFI = .99. For boys, fit indicators were: RMSEA = .0450 (CI = .000 - .0771), CFI = .98. Next, we attempted to establish configural invariance. Model 1 freely estimated all parameters (with the exception of those constrained for model identification). Estimates indicated good model fit: chi-square=156.62, p=.11; CFI = .98, RMSEA = .0362 (CI = .00 – .0596). This suggested that the same number and pattern of constructs or factors was present in both the boys' and girls' subsamples. Next, we attempted to establish weak invariance. Model 2 estimated the extent to which the ChEESE-Q SF met weak invariance criteria or, more specifically, whether the factor loadings and the items had the same meaning across groups. Constraining factor loadings for the indicator items showed that weak invariance was, in fact, established (Δ CFI = .005; Δ RMSEA = .004) for the ChEESE-Q SF. Finally, we attempted to establish strong invariance. Model 3 estimated the extent to which the ChEESE-Q SF met strong

invariance criteria or, more specifically, whether the corresponding indicator means and intercepts were equivalent across groups. Analyses indicated that strong invariance was, in fact, established (Δ CFI = .002; Δ RMSEA = -.0001)

Hypothesis 2b: Measurement Invariance across Age

The independent baseline models had generally comparable fit indicators across age. For younger participants (5th and 6th graders), fit indicators were: RMSEA = .07 (CI = .0459- .0979), CFI = .93. For 7th and 8th grade (older) youth, fit indicators were: RMSEA = .06 (CI = .0230 - .0824), CFI = .97. In testing for measurement invariance, Model 1 estimated and demonstrated configural invariance of the ChEESE-Q SF between younger and older subsamples by freely estimating all parameters (with the exception of those constrained for model identification). Estimates indicated acceptable model fit: chi-square=202.41, p=.0002; CFI = .95, RMSEA = .06. (CI = .0452 - .0830). This suggested that the same number and pattern of constructs or factors was present in both the old and young sub-samples. Model 2 estimated the extent to which the ChEESE-Q SF met weak invariance criteria or, more specifically, whether the factor loadings and the items had the same meaning across groups. Constraining factor loadings for the indicator items showed that weak invariance was, in fact, established (Δ CFI = -0.004; Δ RMSEA = .005) for the ChEESE-Q SF. Model 3 estimated the extent to which the ChEESE-Q SF met strong invariance criteria or, more specifically, whether the corresponding indicator means and intercepts were equivalent across groups. Analyses indicated that strong invariance was, in fact, established (Δ CFI = -.0004; Δ RMSEA = .002).

AIM 2: RELIABILITY

We assessed the reliability of the ChEESE-Q SF using alpha correlations in SAS to examine internal consistency, and using Pearson Product Moment Correlations between time 1 and time 2 testing to examine test-retest reliability. We hypothesized that all subscales of the ChEESE-Q SF would be internally consistent overall, as well as internally consistent for gender and age groups separately. We also hypothesized that all subscales of the ChEESE-Q SF would yield adequate test-retest reliability overall, as well as for gender and age groups separately.

Hypotheses 3a and 3b: Internal Consistency for Overall Model and Gender and Age Groups

All subscales demonstrated acceptable to good internal consistency: NIPS ($\alpha =$ .77), PIPS ($\alpha =$ .80), and PRES ($\alpha =$ .70). Both gender groups and age groups also demonstrated acceptable internal consistency for each subscale. This suggested that all test items were measuring the same construct for the different scales of the ChEESE-Q SF. Coefficient Alphas for the overall ChEESE-Q SF, as well as for different gender and age groups can be found in Table 5.

Hypotheses 4a and 4b: Test-Retest Reliability for Overall Model and Gender and Age Groups

Test-retest data were not available in the primary sample. Thus, test-retest reliability was examined using a previous administration of the longer ChEESE-Q with the secondary SAMPLE (n=252; Bell et al., 2009). These data examined 4-week test-retest reliability with the original 6-vignette ChEESE-Q, and we used these data to extract scores for the 2-vignette short form. Four-week test-retest coefficients for the extracted ChEESE-Q SF subscales were as follows: NIPS ($r =$ .61), PIPS ($r =$ .67), and PRES ($r =$

.49). The NIPS and PIPS 4-week test-retest coefficients for the ChEESE-Q SF were comparable to the NIPS and PIPS 4-week test-retest coefficients of the longer ChEESE-Q (i.e., .67 and .69, respectively). However, using the short form, PRES indicated a significant degree of change over time and was lower than the 4-week test-retest reliability for the original ChEESE-Q (i.e., .60; Bell et al., 2009).

Using the primary sample (i.e., the independent administration of the ChEESE-Q SF; n = 241), we were able to examine the six-month stability of the ChEESE-Q SF for the three subscales, as well as for the subscales by gender groups (i.e., girls and boys) and age groups (i.e., younger youths [grades 5 and 6] and older youths [grades 7 and 8]). Six-month test-retest coefficients for the subscales were as follows: NIPS ($r = .48$), PIPS ($r = .59$), and PRES ($r = .36$). These scores indicated some degree of stability over time, but also a significant degree of change over time. This suggested the ChEESE-Q SF subscales were less stable over a longer time-span. However, test-retest over such a long period of time is not generally examined and, in fact, would not necessarily be expected. Test-Retest results can be found in Table 5.

AIM 3: VALIDITY

We examined the validity of the ChEESE-Q SF using correlational analyses between measures of depression, anxiety, and affect, and the subscales of the ChEESE-Q SF. We hypothesized that NIPS would be positively associated with depression, anxiety, and negative affect. We also hypothesized that PIPS and PRES would be negatively associated with depression, unassociated with anxiety, and positively associated with positive affect.

Hypothesis 5: ChEESE-Q SF Subscale Correlations with Depression

Relationships with depression for the three subscales were significant in all of the predicted directions. NIPS was positively associated with depression ($r = .20$). PIPS was negatively associated with depression ($r = -.22$). PRES was negatively associated with depression ($r = -.14$). This suggests that the ChEESE-Q SF subscales are related to depressive symptomology comparably to the longer ChEESE-Q. Correlation Coefficients for all subscales and their relations to depression can be found in Table 6.

Hypothesis 6: ChEESE-Q SF Subscale Correlations with Anxiety

Relationships with anxiety for the three subscales were significant in predicted directions. NIPS was positively associated with anxiety ($r = .17$). PIPS and PRES were unassociated with anxiety. This suggests that, comparable to the original ChEESE-Q, the ChEESE-Q SF subscales are predictive of anxious symptomology. Together, with the findings for ChEESE-Q SF relations to depression, the ChEESE-Q SF has demonstrated that it follows the same tripartite model of Anxiety and Depression (Clark & Watson, 1991) as the original ChEESE-Q. Correlation Coefficients for all subscales and their relation to anxiety can be found in Table 6.

Hypothesis 7: ChEESE-Q SF Subscale Correlations with Positive and Negative Affect

Relationships with positive and negative affect were significant in predicted directions. NIPS was associated with negative affect ($r = .18$) and unassociated with positive affect. PIPS was positively associated with positive affect ($r = .38$) and negatively associated with negative affect ($r = -.14$). PRES was positively associated with positive affect ($r = .23$), and unassociated with negative affect. Correlation coefficients for all subscales and their relation to positive and negative affect can be found in Table 6.

AIM 4: EXTENSION OF VALIDITY

We extended the validity of the ChEESE-Q SF by using correlational analyses to assess the relationships between measures of externalizing issues and emotion regulation, and the subscales of the ChEESE-Q SF. We hypothesized that NIPS would be positively associated with aggressive behavior, delinquent behavior and overall externalizing behavior. We also hypothesized that PIPS and PRES would be unassociated with aggressive behavior, delinquent behavior, and overall externalizing behavior. Furthermore, we hypothesized that NIPS would be positively associated with inhibition and dysregulation emotion regulation strategies, and that PIPS and PRES would be positively associated with coping emotion regulation strategies.

Hypothesis 8: ChEESE-Q SF Subscale Correlations with Externalizing Issues

For these analyses, we examined three subscales of the CBCL and TRF: Aggressive Behavior, Delinquent Behavior, and Overall Externalizing Behavior. All ChEESE-Q SF subscales (i.e., NIPS, PIPS, PRES) were uncorrelated with both the parent- and teacher-reported Aggression and Delinquency subscales of the CBCL and TRF, as well as the teacher-reported Overall Externalizing Behavior subscale on the TRF. PIPS and PRES were uncorrelated with the parent-reported Overall Externalizing Behavior subscale on the CBCL, however NIPS was positively correlated with the parent-reported Overall Externalizing Behavior subscale on the CBCL ($r = .17$). Subscale correlations with externalizing issues can be found in Table 7.

Hypothesis 9: ChEESE-Q SF Subscale Correlations with Positive and Negative Emotion Regulation

For each factor, relationships with positive and negative emotion regulation strategies were significant in predicted and theoretically meaningful directions. For the Youth Regulation of Positive Emotion Scale (YRPES): (1) NIPS was positively associated with the Inhibition and Dysregulation subscales, and unassociated with the Coping subscale, (2) PIPS was positively associated with the Coping subscale, negatively associated with the Inhibition subscale, and unassociated with the Dysregulation subscale, and (3) PRES was negatively associated with the Inhibition subscale, and uncorrelated with the Coping and Dysregulation subscales. For the Children's Worry Management Scale (CWMS): (1) NIPS was positively associated with Dysregulation subscales, and unassociated with the Coping and Inhibition subscales, (2) PIPS was positively associated with the Coping subscale, negatively associated with the Dysregulation subscale, and unassociated with the Inhibition subscale, and (3) PRES was unassociated with all three subscales (i.e., Coping, Inhibition, and Dysregulation). For the Children's Anger Management Scale (CAMS): (1) NIPS was positively associated with the Dysregulation subscale, negatively associated with the Coping subscale, and unassociated with the Inhibition subscale, (2) PIPS was positively associated with the Coping subscale, negatively associated with the Dysregulation subscale, and unassociated with the Inhibition subscale, and (3) PRES was positively associated with the Coping subscale, negatively associated with the Dysregulation subscale, and unassociated with the Inhibition subscale. For the Children's Sad Management Scale (CSMS): (1) NIPS was unassociated with all three subscales (i.e., Coping, Inhibition, and Dysregulation), (2) PIPS was positively associated with the Coping subscale, negatively associated with the Inhibition subscale, and unassociated with the Dysregulation subscale, and (3) PRES

was positively associated with the Coping subscale, and unassociated with the Inhibition and Dysregulation subscales. The relationship of the ChEESE-Q SF subscales to positive and negative emotion regulation can be found in Table 8.

Supplemental Analyses: Moderating Effects of Gender and Grade

Initial correlation analyses (Table 9) indicated that being a girl was associated with higher anxiety, which is consistent with literature on internalizing problems. Being a girl was also associated with higher scores on coping and dysregulation emotion regulation strategies for positive and negative emotions (i.e., happy and worried), as well as associated with a positive information processing style. Being a boy was associated with higher scores on coping and inhibition emotion regulation strategies for a negative emotion (i.e., sadness). Gender was not associated with depression, positive affect, or negative affect. Grade was not associated with any of the variables of interest.

Hierarchical multiple regression analyses were used to test whether gender or age moderated the relationships between depression, anxiety, positive affect, negative affect, and SIP styles. For example, to test the potential moderating effects of grade and gender on the relation between SIP style and negative affect, we ran a regression with grade, gender, and SIP style in the first step, the interactions between grade and SIP style and gender and SIP style in the second step, and the interaction between grade, gender, and SIP style in the third step. In total we ran 12 regressions (see Tables 10, 11, 12, and 13): 3 with SIP styles (i.e., NIPS, PIPS, PRES) predicting negative affect, 3 with SIP styles predicting positive affect, 3 with SIP styles predicting depression, and 3 with SIP styles predicting anxiety. Of these 12 regression models, 7 had a significant interaction.

There were three significant interactions between grade and SIP style predicting negative affect. Follow-up simple regressions showed that NIPS was significantly related to higher negative affect at higher grades ($F(1,116) = 5.95$, $p < .0001$) but not lower grades ($F(1,114) = 2.64$, $p > .05$), whereas PIPS and PRES were significantly associated with low negative affect for lower grades ($F(1,114) = 3.80$, $p < .05$; $F(1,114) = 3.22$, $p < .05$) but not higher grades ($F(1,116) = 1.51$, $p=.21$; $F(1,116) = 0.46$, $p = .50$).

There were three significant interactions between grade and SIP style predicting depression. Follow-up simple regressions showed that NIPS was significantly related to higher depression across all grades, but more strongly related to higher depression at lower grades ($F(1,114) = 4.59$, $p > .01$) than higher grades ($F(1,116) = 2.77$, $p < .05$). PIPS and PRES were significantly associated with low negative affect for lower grades ($F(1,112) = 5.44$, $p <.01$; $F(1,112) = 3.99$, $p <.01$) but not higher grades ($F(1,116) = 2.40$, $p =. 07$; $F(1,116)= 1.38$, $p = .25$).

There was one significant interaction between grade and SIP style predicting anxiety. Follow-up simple regressions showed that PRES was significantly related to lower anxiety in lower grades ($F(1,112) = 2.43$, $p < .05$) but not higher grades ($F(1,116) = .73$, $p = .54$).

None of the interaction terms involving gender were significant in predicting negative affect, positive affect, depression, or anxiety.

DISCUSSION

The current study reported on the validation of a two-vignette short form version of the ChEESE-Q, called the ChEESE-Q SF. This validation included examining the factor structure of the ChEESE-Q SF, the reliability metrics, and the association between

the ChEESE-Q SF and adjustment indicators, affect, and emotion regulation. The original

ChEESE-Q yielded three factors that corresponded to styles of social information

processing (SIP): (1) Positive Information Processing Style (PIPS), (2) Positive Response

Evaluation Styles (PRES), and (3) Negative Information Processing Style (NIPS). The

original ChEESE-Q also demonstrated strong internal consistency and test-retest

reliability, and was predictive of multiple adjustment indicators and affect.

Our first step in this study was to determine if the ChEESE-Q SF had a

comparable factor structure to the original ChEESE-Q. In order to do this, similar

confirmatory factor-analytic procedures were used with the ChEESE-Q SF in an

independent sample of grade-school children. Data fit the three-factor structure

remarkably well in the independent sample, with numerous fit indices suggesting

excellent model fit. Furthermore, we found that the ChEESE-Q SF was invariant across

grade and gender groups and could be shortened at the item level. Our next step was to

examine the reliability and the validity of the ChEESE-Q SF. We found that the

ChEESE-Q SF presented acceptable test-retest and internal consistency scores, and that

SIP styles were related to all other constructs in a comparable manner to the ChEESE-Q,

and in theoretically meaningful ways.

Contributions to the Literature

Our study makes several contributions to the current literature. The first, and most

important, contribution this study makes is adding to the options for measuring and

investigating SIP styles in a brief, psychometrically sound way. The original ChEESE-Q

addressed gaps in the literature by providing well-validated, comprehensive measurement

of SIP and SIP styles, but at twenty-five minutes it is simply too long to be used in most

multiple-measure research studies or to be used regularly during clinical practice. The ChEESE-Q SF addresses this limitation of the original ChEESE-Q by significantly reducing the number of vignettes included, as well as supporting a small reduction in the number of items necessary to determine styles.

In constructing the ChEESE-Q SF, we initially shortened the original ChEESE-Q by vignette in order to maintain a comprehensive assessment of SIP (i.e., the questions following each vignette assess the SIP steps of the Crick and Dodge, 1994 SIP model), and to determine styles. However, in our current investigation we wanted to know if the original ChEESE-Q could be further shortened at the SIP step level, the question level, or the item level. The original ChEESE-Q was useful in partially answering this question of whether or not we needed all SIP steps for evaluation of styles – the researchers found that only including cue interpretation, goal clarification, and response evaluation and decision-making was enough to determine styles (Bell et al., 2009).

In the current study, going even further, we investigated whether each of the remaining steps, questions, and items were necessary to determine styles. What we found was that not all items in the interpretation step were necessary. Specifically, internalizing and externalizing causal attribution items (e.g., *s/he wanted everyone to meet you*, *s/he wanted to see how you could handle it*) were not necessary in the interpretation step. These items loaded best onto their theoretically expected factors (i.e., positive internal/external causal attributions on the positive factor and negative internal/external causal attributions on the negative factor), but including these items decreased overall model fit. Only positive and negative intent attribution items (i.e., *s/he was being nice to me, s/he was being mean to me*) were useful in determining styles. One reason for this

finding could be the valenced nature of the intent attribution items – whereas causal attribution items do not include wording that implies positive or negative affect or intentions (i.e., nice/mean), the intent attribution items do. Youths may be better at endorsing these valenced items, as the items could directly reflect their positive or negative feelings toward the situation presented in the vignette. Another reason for this finding could be the simplicity of the retained items – these items may load better because they may be easier for youths to interpret or assume of others' actions. It may be easier for youths to assume the provocateur is being mean or nice, than it is for them to assume the provocateur wants to see how the youth may handle the situation. These issues could have led to youths' lower or inconsistent endorsement of the internal and external causal attribution items, and resulted in weaker factor loadings.

Another way our study contributes to the current literature is by extending SIP styles' relationship to adjustment indicators to include externalizing behavior. In our investigation we found that parent reported externalizing behavior (a combination of both aggressive and delinquent behavior) was positively associated with NIPS. We found no relationship between PIPS or PRES and externalizing behavior, as predicted. This finding informs us that, although the ChEESE-Q and CHEESE-Q SF were designed to be geared towards internalizing issues, they are also useful predictors of externalizing behaviors and provide utility in studying styles as they relate to externalizing behavior.

Our study also contributes to the current literature through the extension of knowledge about SIP styles' relations to affective processes such as emotion regulation. Previous literature suggests that, similar to SIP styles and positive and negative affect, positive and negative emotion regulation strategies may also follow a tripartite model

pattern in their relations to depression and anxiety (Early et al., 2013). More specifically, previous research documented that depression and anxiety were both generally related to negative emotion regulation strategies, but only depression was related to low-positive emotion regulation strategies. In the current study, NIPS was related to negative emotion regulation strategies (i.e., inhibition or dampening of emotion, and dysregulation or uncontrollable negative expression of emotion), and PIPS and PRES were related to more positive emotion regulation strategies (i.e., coping or savoring of emotions). While these relationships between styles and emotion regulation strategies are theoretically expected, this is the first time these relationships have been examined empirically, aiding in our understanding of how the tripartite model not only applies to affect, also to a spectrum of valence-related constructs such as information processing and emotion regulation.

The relationship demonstrated among information processing styles, affect, and emotion regulation suggests that SIP exists in a broader context of emotion regulation and affective processes that influence decision making *alongside* cognitive processes. It is important to note that the ChEESE-Q SF captures a snapshot of youths' SIP processes in response to specific ambiguous social situations. However, within the larger context of development, we know that past experiences have led to youths' current processing capacities, and current experiences will lead to youths' future processing capacity. In fact, developmental literature (e.g., Rothbart, 1981) suggests that affective, emotion regulatory, and cognitive processes are present in individuals as early as infancy. Over time, youths' and adolescents' processing patterns may shift with development, as well as with their growing capacity for emotion regulation and self-reflection. Thus, future

studies may look to examine SIP styles more longitudinally, while integrating both affective and emotion regulatory processes into the SIP model.

Limitations

While the results of the current study are generally supportive of the ChEESE-Q SF being a valid and useful measure, there are a few caveats to the findings. One major limitation of this study is that we had to use an embedded ChEESE-Q SF to investigate parts of the ChEESE-Q SF's reliability and validity. In other words, for some analyses, rather than using an independently administered ChEESE-Q SF, we pulled the two-vignette short form combination from a previously administered ChEESE-Q and ran analyses with these data. The first reason we had to use the embedded ChEESE-Q SF was to adequately assess its test-retest reliability in a timeframe comparable to the original ChEESE-Q. The ChEESE-Q SF was, in fact, independently administered on two separate occasions, but these administrations were 6-months apart. Thus, it was impossible to examine test-retest reliability of the ChEESE-Q SF in a comparable manner to the original ChEESE-Q's 4-week test-retest reliability (Bell et al., 2009; Luebbe et al., 2010). Accordingly, we used the embedded ChEESE-Q SF to investigate 4-week test-retest reliability and found that the embedded short form's reliability was acceptable and comparable to the longer ChEESE-Q. However, in using the embedded form, there is no way to know if these results are due to the embedded ChEESE-Q SF sharing a sample population with the original ChEESE-Q administrations, or if these results are due to the embedded nature of the extracted vignettes. The embedded ChEESE-Q SF stability over time could be influenced by the other vignettes, thus it is important that the measure is examined further for reliability.

We also used the embedded ChEESE-Q SF to examine SIP styles' relationship with externalizing behavior. As no externalizing measures were administered as part of the study examining the ChEESE-Q SF, we examined externalizing data previously administered as part of the original ChEESE-Q study. Results were as predicted with the embedded ChEESE-Q SF – externalizing issues were positively associated with NIPS and unassociated with PIPS or PRES – however, in moving from the original, longer ChEESE-Q to the embedded short form, SIP styles' relationship to externalizing behavior was attenuated. With the original ChEESE-Q that teacher-reported externalizing behavior, along with parent-reported, was correlated with NIPS, but with the ChEESE-Q SF only parent-reported externalizing behavior was associated with NIPS. Of note, the sample size for reports of externalizing behavior were lower than desired. In addition, it may be beneficial to use more observational techniques to examine externalizing behavior, such as the Revised Edition of the School Observation Coding System (REDSOCS; Bagner, Boggs, & Eyberg, 2010). This has proven to be an excellent technique for gathering externalizing data, and may offer more evidence of externalizing issues than parent- and teacher-report alone. Accordingly, it would be useful in the future to further examine externalizing behavior and its relation to SIP styles using a larger sample size, as well as utilizing observational methods.

Finally, our study is limited due to mono-method bias in examining both SIP styles and internalizing constructs. Using youth self-report to measure both styles and internalizing symptomology could potentially lead to overestimating the relationship between these constructs. In assessing externalizing behavior, there was method variance because we incorporated parent- and teacher-report. However, both self- and other-report

suffer from retrospective limitations. What this means is that our study asks youth, teachers, and parents to think on past experiences, thoughts, actions, and feelings, rather than assessing in the moment. For a more accurate representation of feelings and actions, future researchers could utilize ecological momentary assessment (EMA), which would capture how the participant is feeling in real-time in their natural environment. Future researchers could also use school behavior reports to avoid the retrospective limitation. School behavior reports are inherently about students' past behaviors, however they tend to be written in the moment or not long after the occurrence of disruptive incidents. Therefore, they can be a useful tool for an in-the-moment assessment of a child's behavior.

Implications and Future Directions

Despite its limitations, this study provides initial evidence for a short form of the ChEESE-Q that both replicates the psychometric properties of the original full-length measure and reduces the subject burden. The reduced time to complete this measure increases its utility and feasibility, making it easier to measure styles of processing in research and in clinical practice. Moving forward, the ChEESE-Q SF could be a useful tool in helping to investigate some of the remaining gaps in the SIP literature. One such gap is the dearth of evidence examining how SIP styles change over time as a function of treatment, and assessing whether targeting SIP styles would be an effective strategy for treating internalizing and externalizing issues. The ChEESE-Q SF would be useful in addressing this gap because its shortened nature allows it to be a measure that can be given out weekly before or during session. This way, clinicians can track style changes alongside modules in treatment protocols. Additionally, clinicians could target specific

goal setting issues or attribution biases identified by the ChEESE-Q SF and track if targeting these aspects of SIP styles aids treatment.

Another gap in the literature that the ChEESE-Q SF could aid in investigating is the dearth of evidence examining SIP styles across different populations. To date, SIP styles have predominantly been investigated in white, middle class samples, non-treatment seeking samples, or samples low on crime exposure/low on exposure to imminent threats in their environment. Extending the literature to investigate different populations would allow us a greater understanding of how SIP styles function across populations. Within clinical populations, it would useful to see how SIP styles relate to higher levels of depression, anxiety, and negative affect. Studying SIP styles with this population could potentially shows us more pronounced relationships between SIP, adjustment indicators, affect, and affect regulation. Within more diverse populations, or populations high on crime exposure, we could study if similar SIP styles are present, and if they function the same way in relation to adjustment indicators and affect. It has been previously reported that youths with high/chronic crime exposure or who have been witnesses to violence, report fewer depressive symptoms (Fitzpatrick, 1993). Even further, it has been theorized that these individuals possess extraordinary coping mechanisms, which may ultimately have a negative impact on their psychological well-being (Fitzpatrick, 1993). Investigating SIP styles in such populations may demonstrate that different populations have differing styles of processing, or that SIP styles may be differentially predictive of adjustment indicators.

Finally, moving forward, it will be important to investigate whether the global approach that the ChEESE-Q SF takes (i.e., groups positive and negative items from all

steps of the model under one style) is superior to a more modular approach (i.e., separating out steps and examining positive and negative processing at the specific step level). This will be useful in examining how positive and negative responding at the step level relates to adjustment indicators. For example, causal attributions are a key component of children's information processing (Crick & Dodge, 1994), however the data here demonstrated that including causal attributions into the ChEESE-Q SF global model decreased the overall model fit. This is not to say that causal attributions are not important, but rather the causal attribution items did not neatly fit into a global negatively or positively valenced category. A key aspect of the SIP model is that information processing can be broken down into unique steps and viewed at the step level. While investigating styles and the interrelation of steps is important, we can see that some aspects of the model may not fit into this global approach. Because the ChEESE-Q is comprised of the proposed SIP model steps that can be combined into style scores, this measure should be useful for looking at both the global and more modular approaches. Thus, future research can utilize the ChEESE-Q SF to continue to examine the relative utility of these two approaches, as well as different methods of combining them to predict adjustment.

Conclusions

The ChEESE-Q SF is an efficient measure that identifies three distinct styles of information processing that are predictive of anxious and depressive symptomology, as well as affect, externalizing behavior, and emotion regulation strategies. The ChEESE-Q SF also demonstrates satisfactory internal consistency and test-retest reliability comparable to the original ChEESE-Q. Moreover, results from this study suggest that an

expanded SIP model that includes other constructs, such as affect and emotion regulation, may be a fruitful avenue to pursue in the future. Overall, the ChEESE-Q SF seems like a promising measure that could be used to address important gaps in the SIP literature. It offers the advantage of being able to examine SIP from a more global style-based perspective, as well as from a more modular step-based perspective in future research; and with continued validation, it may prove to be a useful tool in clinical practice as well as research.

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TABLES AND FIGURES

TABLE 1   Hypothesis Table

Hypothesis

Aim 1:	**examine extent to which the factor structure of the ChEESE-Q SF is comparable to the long form ChEESE-Q**
1	the ChEESE-Q SF will replicate the three-factor structure of the long-form ChEESE-Q, producing three subscales (i.e., Negative Information Processing Style [NIPS], Positive Information Processing Style [PIPS], and Positive Response Evaluation Style [PRES]
2a	measurement invariance will be demonstrated across gender groups (i.e., males and females)
2b	measurement invariance will be demonstrated across grades (i.e., 5-6 and 7-8)
Aim 2:	**examine the reliability of the ChEESE-Q SF, including internal consistency and test-retest reliability for the factor-based subscales**
3a	all subscales will demonstrated satisfactory internal consistency
3b	both genders and both age groups will demonstrate satisfactory internal consistency
4a	all subscales will demonstrate satisfactory test-retest reliability

4b	both genders and both age groups will demonstrate satisfactory test-retest reliability

Aim 3:	**replicate the concurrent and discriminant validity demonstrated by the original ChEESE-Q**

5	NIPS will be positively associated with depression, while PIPS and PRES will be negatively associated with depression

6	NIPS will be positively associated with anxiety, while PIPS and PRES will show no relationship with anxiety

7	NIPS will be positively associated with negative affect and unassociated with positive affect, while PIPS and PRES will be positively associated with positive affect and unassociated with negative affect

Aim 4:	**extend the validity of the short form by examining the links between the subscales and two conceptually- and empirically-meaningful types of correlates, externalizing issues (i.e., aggression and delinquency), and positive and negative emotion regulation**

8	NIPS will be positively associated with aggression and delinquency, while PIPS and PRES will be unassociated with aggression and delinquency

9	the YRPES and CEMS are both broken into 3 subscales (Coping, Inhibition, and Dysregulation) – it is predicted that on both scales NIPS will be positive associated with Inhibition and Dysregulation, but negatively associated with Coping, while PIPS and PRES will be positively associated with Coping, and negatively associated with Inhibition and Dysregulation

TABLE 2

Means and Standard Deviations for Study Measures and ChEESE-Q SF Subscales

Measure/Subscale[a]		Mean	Standard Deviation
ChEESE-Q SF	NIPS	16.37	6.23
	PIPS	45.99	8.55
	PRES	22.73	5.65
YRPES	Coping	11.29	3.54
	Inhibition	3.05	3.46
	Dysregulation	5.88	3.53
CWMS	Coping	3.23	1.59
	Inhibition	3.09	1.83
	Dysregulation	1.10	1.30
CSMS	Coping	5.57	2.46
	Inhibition	3.97	2.25
	Dysregulation	1.40	1.37
CAMS	Coping	3.34	1.69
	Inhibition	2.98	2.02
	Dysregulation	2.07	1.66
CDI-S	Depression	2.95	4.04
STAIC-T	Anxiety	12.39	8.05
PANAS	Positive Affect	51.01	10.40
	Negative Affect	27.36	9.82
TRF	Aggressive Behavior	2.57	5.19
	Delinquent Behavior	.45	.98
	Externalizing Behavior	3.02	5.88
CBCL	Aggressive Behavior	6.21	5.77
	Delinquent Behavior	1.29	1.59
	Externalizing Behavior	7.50	6.92

Notes. [a] ChEESE-Q SF: Children's Evaluation of Everyday Social Encounters Questionnaire – Short Form, NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style, YRPES: Youth Regulation of Positive Emotion Scale, CWMS: Children's Worry Management Scale, CSMS: Children's Sadness Management Scale, CAMS: Children's Anger Management Scale, CDI: Children's Depression Inventory, STAIC-T: State Trait Anxiety Inventory for Children – Trait Form, PANAS: Positive and Negative Affect Schedule, TRF: Teacher Report Form, CBCL: Child Behavior Checklist

<div style="text-align:center">TABLE 3   Correlation Matrix</div>

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	PIPS																		
2.	NIPS	-.18**																	
3.	PRES	.75****	-.10																
4.	CDI	-.24***	.22***	-.17*															
5.	STAIC-T	-.10	.21**	-.03	.65****														
6.	PA	.38****	-.109	.24***	-.38****	-.29****													
7.	NA	-.14*	.25****	-.11	.62****	.61****	-.25****												
8.	YRPES-C	.48****	-.08	.38****	-.31****	-.07	.44****	-.13*											
9.	YRPES-I	-.36****	.37****	-.24***	.39****	.33****	-.30****	.33****	-.31****										
10.	YRPES-D	.06	.23***	.04	.13*	.27****	.16*	.30****	.45****	.13*									
11.	CAMS-C	.38****	-.13	.35****	-.26****	-.21***	.26****	-.28****	.33****	-.13*	-.15*								
12.	CAMS-I	.09	.03	.10	-.02	.06	.02	-.05	.04	.25****	-.02	.47***							
13.	CAMS-D	-.25****	.17**	-.21***	.29****	.34****	-.10	.49****	-.04	.21***	.32****	-.56****	-.27****						
14.	CWMS-C	.38****	-.08	.35****	-.14*	-.05	.24***	-.06	.37****	-.18***	-.05	.42****	.18**	-.14*					
15.	CWMS-I	-.05	.02	.01	.16*	.22***	-.17**	.27****	-.03	.10	.02	-.08	.31****	.19**	.20**				
16.	CWMS-D	-.13*	.23***	-.03	.37****	.46****	-.14*	.39****	-.04	.26****	.33****	-.19**	.02	.25****	-.02	-.03			
17.	CSMS-C	.18**	-.11	.11	-.26****	-.18**	.19**	-.14*	.18**	-.18**	-.16*	.32****	.20**	.09	.41****	.22***	-.22***		
18.	CSMS-I	-.17**	.09	-.09	.26****	.34****	-.28****	.35****	-.16*	.27****	.05	-.18**	.29****	.28****	.00	.56****	.05	.28****	
19.	CSMS-D	-.07	.10	-.09	.38****	.46****	-.13*	.44****	-.08	.18**	.23***	-.25****	-.01	.37****	.05	.02	.44****	-.10	.08

Notes. NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style, CDI: Children's Depression Inventory, STAIC-T: State Trait Anxiety Inventory for Children – Trait Form, PA: Positive Affect, NA: Negative Affect, YRPES-C: Youth Regulation of Positive Emotion Coping Subscale, YRPES-I: Youth Regulation of Positive Emotion Inhibition Subscale, YRPES-D: Youth Regulation of Positive Emotion Dysregulation Subscale, CAMS-C: Children's Anger Management Scale Coping Subscale, CAMS-I: Children's Anger Management Scale Inhibition Subscale, CAMS-D: Children's Anger Management Scale Dysregulation Subscale, CWMS-C: Children's Worry Management Scale Coping Subscale, CWMS-I: Children's Worry Management Scale Inhibition Subscale, CWMS-D: Children's Worry Management Scale Dysregulation Subscale, CSMS-C: Children's Sad Management Scale Coping Subscale, CSMS-I: Children's Sad Management Scale Inhibition Subscale, CSMS-D: Children's Sad Management Scale Dysregulation Subscale.

*$P<.05$, **$p<.01$, ***$p<.001$, ****$p<.0001$*

TABLE 4
Item Loadings for ChEESE-Q SF Factors

	NIPS[a]	PIPS[a]	PRES[a]
Negative Intent Attributions	.56		
Avoidant Goals	.41		
Distress Expression Goals	.62		
Avoidant Justifications	.46		
Distress Expression Justifications	.73		
Positive Intent Attributions		.42	
Solution-Focused Goals		.48	
Face Saving Goals		.66	
Relationship-Focused Goals		.71	
Self-Efficacy		.59	
Goal Attainment		.67	
Solution-Focused Justifications			.69
Face Saving Justifications			.73
Relationship-Focused Justifications			.65

Notes. [a]NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style

TABLE 5

ChEESE-Q SF Subscales' Internal Consistency and 6-Month Test-Retest Reliability[c] for the Overall Model and Gender/Age Groups

	NIPS[a]		PIPS[a]		PRES[a]	
	Alpha	Test-Retest	Alpha	Test-Retest	Alpha	Test-Retest
Overall Model	.77	.48	.80	.59	.73	.36
Gender Groups						
Girls[b]	.78	.51	.79	.59	.69	.41
Boys[b]	.78	.43	.81	.56	.78	.26
Age Groups						
Younger Youth[b]	.78	.45	.79	.57	.69	.35
Older Youth[b]	.78	.49	.82	.61	.78	.36

Notes. [a] NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style

[b] Girls (N = 141), Boys (N = 112), Younger Youth (N = 129), Older Youth (N = 125).

[c] The ChEESE-Q SF was administered on two separate occasions 6-months apart, therefore we have included the 6-month test-retest reliability of the ChEESE-Q SF in this table. However, in order to obtain test-retest data more comparable to the original ChEESE-Q (i.e., 4-week test-retest), we extracted the ChEESE-Q SF vignettes from a previously administered long form ChEESE-Q, 4-week test-retest coefficients were as follows: NIPS (r = .61), PIPS (r = .67), and PRES (r = .49).

TABLE 6
ChEESE-Q SF Subscale Correlations With Internalizing Adjustment and Affect

	NIPS[a]	PIPS[a]	PRES[a]
Depression	.22**	-.24**	-.17*
Anxiety	.21*	-.10	-.03
Positive Affect	-.11	.38***	.24**
Negative Affect	.25***	-.16*	-.11

Notes. [a] NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style.

*p < .01, **p < .001, ***p < .0001.

TABLE 7

ChEESE-Q SF Subscale Correlations With CBCL and TRF Aggressive, Delinquent, and Externalizing Behavior Subscales

	NIPS[a]		PIPS[a]		PRES[a]	
	TRF[b]	CBCL[b]	TRF	CBCL	TRF	CBCL
Aggressive Behavior	.18	.08	.04	-.002	-.04	-.12
Delinquent Behavior	.13	.12	.08	-.05	-.08	-.02
Externalizing Behavior	.18	.17*	.05	.03	-.05	-.05

Notes. [a] NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style.
[b] TRF: Teacher Report Form, CBCL: Child Behavior Checklist.

*p<.01

TABLE 8
ChEESE-Q SF Subscale Correlations With Positive and Negative Emotion Regulation

	NIPS[a]			PIPS[a]			PRES[a]		
	Coping	Inhibition	Dysregulation	Coping	Inhibition	Dysregulation	Coping	Inhibition	Dysregulation
Worry	-.07	.02	.22***	.38****	-.05	-.13	.35****	-.09	-.08
Sadness	-.11	.09	.10	.18*	-.17*	-.07	.11	.007	-.03
Anger	-.13*	.03	.17*	.38****	.09	-.25****	.35****	.10	-.21***
Happiness	-.08	.37****	.23****	.48****	-.33****	.05	.04	-.24***	.04

Notes. [a] NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style.

*P<.05, **p<.01, ***p<.001, ****p<.0001

TABLE 9

Correlations of Gender and Grade to ChEESE-Q SF Subscales, Emotion Regulation,
Depression, Anxiety, and Affect

Measure/Subscale[a]		Grade	Gender[b]
ChEESE-Q SF	NIPS	.01	-.03
	PIPS	.00	**.21****
	PRES	.00	.10
YRPES	Coping	.10	**.23****
	Inhibition	-.09	-.12
	Dysregulation	.08	**.17***
CWMS	Coping	-.02	**.15***
	Inhibition	-.05	-.09
	Dysregulation	-.07	**.21****
CSMS	Coping	.05	**-.21****
	Inhibition	.07	**-.15***
	Dysregulation	-.03	.12
CAMS	Coping	.06	.04
	Inhibition	.03	-.02
	Dysregulation	-.01	-.10
CDI-S	Depression	-.06	.04
STAIC-T	Anxiety	-.07	**.22****
PANAS	Positive Affect	.03	.11
	Negative Affect	-.07	.10

Notes. [a] ChEESE-Q SF: Children's Evaluation of Everyday Social Encounters Questionnaire – Short
Form, NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style,
PRES: Positive Response Evaluation Style, YRPES: Youth Regulation of Positive Emotion Scale,
CWMS: Children's Worry Management Scale, CSMS: Children's Sadness Management Scale, CAMS:
Children's Anger Management Scale, CDI: Children's Depression Inventory, STAIC-T: State Trait
Anxiety Inventory for Children – Trait Form, PANAS: Positive and Negative Affect Schedule.
[b] Gender was coded as 0 and 1 for boys and girls, respectively. Positive correlations indicate more
endorsement by girls, while negative correlations indicate more endorsement by boys.

*<p<.05, **p<.01, ***p<.001*

TABLE 10   Moderation Effects of Gender and Grade on SIP Style Predicting Negative Affect

	Negative Affect		
Model 1	B	SE B	β
Step 1			
Gender	7.64	7.77	.39*
Grade	-2.85	3.85	.32*
NIPS	.39	1.12	.21
Step 2			
Grade*NIPS	.42	.20	**.40****
Gender*NIPS	.17	.13	.15
Step 3			
Grade*Gender*NIPS	-.07	.50	-.42
Model R^2		.15	
F for model		6.45****	
Model 2	B	SE B	β
Step 1			
Gender	11.78	7.25	.60
Grade	-2.08	1.39	-.23
PIPS	-.15	.11	-.13
Step 2			
Grade*PIPS	.14	.06	**.35***
Gender*PIPS	.08	.22	.20
Step 3			
Grade*Gender*PIPS	-.04	.02	-.70
Model R^2		.10	
F for model		3.98***	
Model 3	B	SE B	β
Step 1			
Gender	5.03	5.61	.26
Grade	-2.30	1.36	-.26
PRES	-.22	.19	-.12
Step 2			
Grade*PRES	.31	.11	**-.38****
Gender*PRES	.45	.39	.56
Step 3			
Grade*Gender*PRES	-.09	.05	-.73
Model R^2		.08	

F for model	3.15**

Notes. NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style

*p < .05, **p<.01, ***p<.001

TABLE 11   Moderation Effects of Gender and Grade on SIP Style Predicting Positive Affect

	Positive Affect		
Model 1	*B*	*SE B*	*β*
Step 1			
Gender	-.45	8.81	-.02
Grade	-.19	4.37	-.01
NIPS	-.47	1.27	**-.24***
Step 2			
Grade*NIPS	.06	.23	.06
Gender*NIPS	-.01	.15	-.01
Step 3			
Grade*Gender*NIPS	.02	.07	.13
Model R^2		.04	
F for model		1.75	
Model 2	*B*	*SE B*	*β*
Step 1			
Gender	1.93	7.61	.09
Grade	-.67	1.46	-.07
PIPS	.47	.12	**.36*****
Step 2			
Grade*PIPS	.03	.06	.06
Gender*PIPS	-.14	.23	-.31
Step 3			
Grade*Gender*PIPS	.02	.02	.24
Model R^2		.13	
F for model		5.86****	
Model 3	*B*	*SE B*	*β*
Step 1			
Gender	-3.28	6.07	-.16
Grade	-.35	1.47	-.04
PRES	.29	.20	.15
Step 2			
Grade*PRES	.01	.12	.01
Gender*PRES	.02	.41	.02
Step 3			

Grade*Gender*PRES	.03	.05	.23
Model R^2		.06	
F for model		2.38*	

Notes. NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style

*p <.05, ****p<.0001

TABLE 12   Moderation Effects of Gender and Grade on SIP Style Predicting Depression

	Depression		
Model 1	*B*	*SE B*	*β*
Step 1			
Gender	.23	.16	.28
Grade	-.10	.05	**-.27***
NIPS	.02	.01	.22
Step 2			
Grade*NIPS	.01	.01	**.26***
Gender*NIPS	-.01	.02	-.17
Step 3			
Grade*Gender*NIPS	0	0	-.06
Model R^2		.09	
F for model		3.63**	
Model 2	*B*	*SE B*	*β*
Step 1			
Gender	-.51	.31	-.61
Grade	-.14	.06	**-.37***
PIPS	-.02	0	**-.41******
Step 2			
Grade*PIPS	.01	0	**.33***
Gender*PIPS	.01	.01	.74
Step 3			
Grade*Gender*PIPS	0	0	.03
Model R^2		.10	
F for model		4.30***	
Model 3	*B*	*SE B*	*β*
Step 1			
Gender	-.29	.24	-.35
Grade	-.14	.06	**-.36***
PRES	-.02	.01	**-.32***
Step 2		.02	
Grade*PRES	.01	0	**-.31***
Gender*PRES	.01	.02	.39
Step 3			
Grade*Gender*PRES	0	0	.07

| Model R^2 | .06 |
| F for model | 2.50* |

Notes. NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style

*p<.05, **p<.01, ***p<.001, ****p<.0001

TABLE 13   Moderation Effects of Gender and Grade on SIP Style Predicting Anxiety

	Anxiety		
Model 1	B	SE B	β
Step 1			
Gender	.27	.16	.33
Grade	-.08	.05	-.22
NIPS	.01	.01	.19
Step 2			
Grade*NIPS	.01	.01	.22
Gender*NIPS	.01	.02	.12
Step 3			
Grade*Gender*NIPS	0	0	-.23
Model R^2		.12	
F for model		5.37****	
Model 2	B	SE B	β
Step 1			
Gender	.10	.30	.12
Grade	-.09	.06	-.25
PIPS	-.01	0	**-.22***
Step 2			
Grade*PIPS	0	0	.27
Gender*PIPS	.01	0	.50
Step 3			
Grade*Gender*PIPS	0	.01	-.38
Model R^2		.10	
F for model		4.29***	
Model 3	B	SE B	β
Step 1			
Gender	.06	.23	.07
Grade	-.09	.06	-.24
PRES	-.01	.01	-.14
Step 2			
Grade*PRES	-.01	0	**.28***
Gender*PRES	.02	.02	.65
Step 3			
Grade*Gender*PRES	0	0	-.51
Model R^2		.08	

F for model	3.36**

Notes. NIPS: Negative Information Processing Style, PIPS: Positive Information Processing Style, PRES: Positive Response Evaluation Style

*p<.05. **p<.01, ***p<.001, ****p<.0001*

TABLE 14 **Summary of Hypotheses and Results**

	Hypothesis	Supported/Unsupported	Additional Notes
1	the ChEESE-Q SF will replicate the three-factor structure of the long-form ChEESE-Q, producing three subscales (i.e., Negative Information Processing Style [NIPS], Positive Information Processing Style [PIPS], and Positive Response Evaluation Style [PRES]	SUPPORTED	The three-factor structure of the ChEESE-Q is definitely replicated, and including all of the original items and original theoretically meaningful error correlations provides the model with a good fit (CFI: 0.93, TLI: 0.92, RMSEA: 0.06). However, if internalizing and externalizing intent attributions items are removed from the model (the items that loaded the poorest in the CFA), then the new ChEESE-Q SF model fit is excellent (CFI: 0.98, TLI: 0.97, RMSEA: 0.05). And still includes the original 3-factor structure.
2a	measurement invariance will be demonstrated across gender groups (i.e., males and females)	SUPPORTED	There were no significant differences between any item loadings for males and females.

2b	measurement invariance will be demonstrated across grades (i.e., 5-6 and 7-8)	SUPPORTED	There were no significant differences between any item loadings for 5-6 and 7-8 grades.
3a	all subscales will demonstrated satisfactory internal consistency	SUPPORTED	All subscales demonstrated satisfactory internal consistency.
3b	both genders and both age groups will demonstrate satisfactory internal consistency	SUPPORTED	Both genders and age groups demonstrated satisfactory internal consistency.
4a	all subscales will demonstrate satisfactory test-retest reliability	PARTIALLY SUPPORTED	In the pull-out short form from the second administration of the long-form ChEESE-Q, the test-retest is adequate (PIPS: 0.67, NIPS: 0.61, PRES: 0.49). However the 6-month test-retest on the short form is lower (likely due to the time gap; PIPS: 0.59, NIPS: 0.48, PRES: 0.36).
4b	both genders and both age groups will demonstrate satisfactory test-retest reliability	PARITALLY SUPPORTED	We only have 6-month test-retest data for the different gender groups. As seen with the overall 6-month test-retest, there is some stability over time, but there is also a significant degree of change.

| 5 | NIPS will be positively associated with depression, while PIPS and PRES will be negatively associated with depression | SUPPORTED |
| 6 | NIPS will be positively associated with anxiety, while PIPS and PRES will show no relationship with anxiety | SUPPORTED |
| 7 | NIPS will be positively associated with negative affect and unassociated with positive affect, while PIPS and PRES will be positively associated with positive affect and unassociated with negative affect | SUPPORTED |

8	NIPS will be positively associated with aggression and delinquency, while PIPS and PRES will be unassociated with aggression and delinquency	SUPPORTED
9	the YRPES and CEMS are both broken into 3 subscales (Coping, Inhibition, and Dysregulation) – it is predicted that on both scales NIPS will be positive associated with Inhibition and Dysregulation, but negatively associated with Coping, while PIPS and PRES will be positively associated with Coping, and negatively associated with Inhibition and Dysregulation	SUPPORTED

FIGURE 1: ChEESE-Q SF Confirmatory Factor Analysis
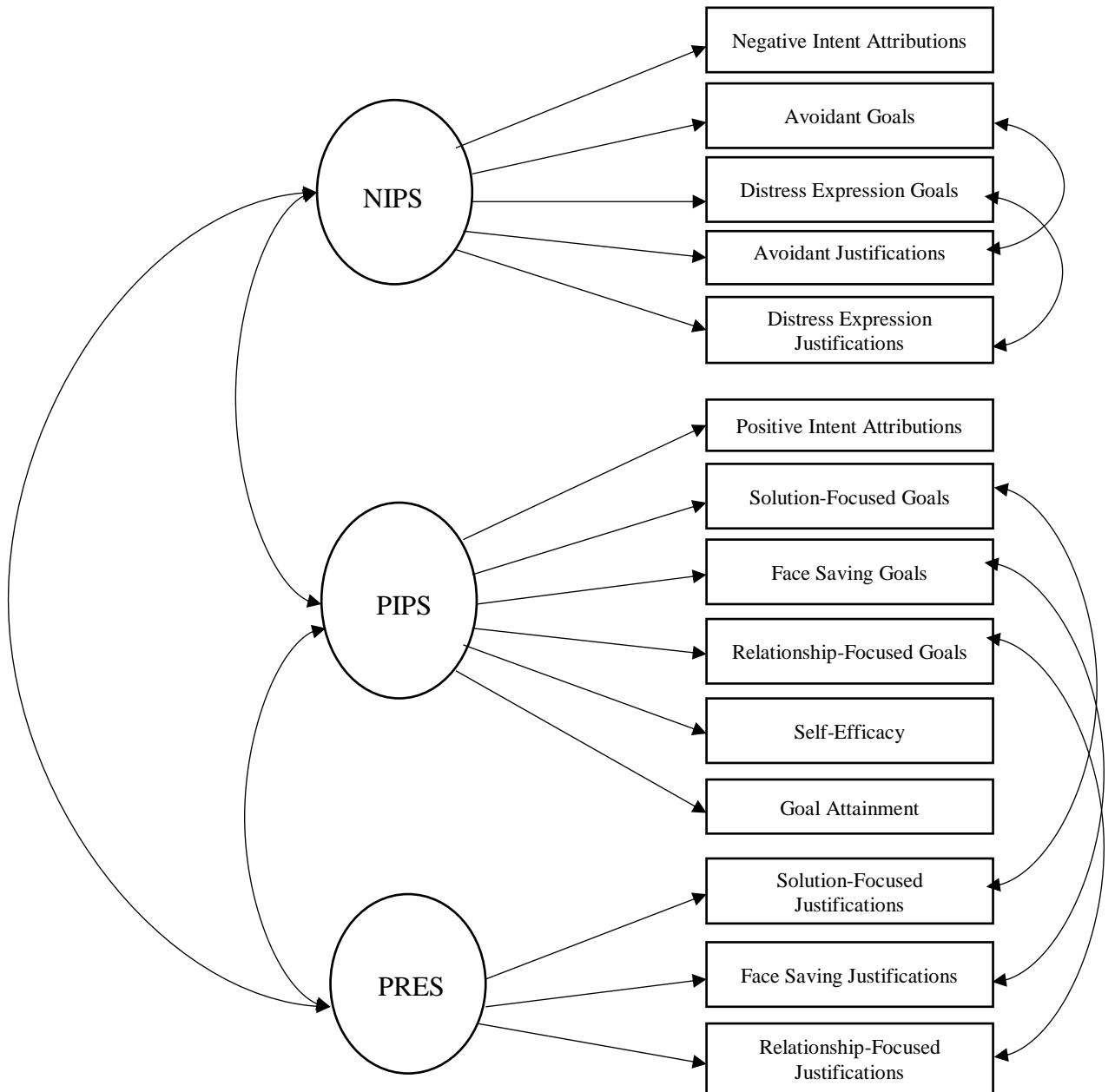
Notes. NIPS: Negative information processing style, PIPS: Positive information processing style, PRES: Positive response evaluation style.

APPENDIX A

Chart of Literature Reviewed, Relevant Findings, and Potential Problems

Citation	Constructs Defined	Relevant Findings	Issues/Limitations/ Identified gaps in literature
Crick & Dodge, 1994	Social information processing Model of social information processing Social information processing patterns Adjustment	Reformulated model of human performance and social exchange. Reformulation assimilates almost all previous studies and is useful heuristic for organizing the SIP field (i.e., widely-used Crick & Dodge model of SIP). Evidence supports the empirical relation between characteristic processing styles and children's social adjustment, with some aspects of processing likely to be causal of behaviors that lead to social status and other aspects likely to be responsive to peer status.	Future research should have two objectives: study the relationship between social information processing and social behavior from a normative, developmental perspective and study the relationship between social information processing and social behavior for deviant groups of children.
Bell, Luebbe, Swenson,	Negative Information Processing Style	Development and validation of ChEESE-Q as a measure of SIP.	Would benefit from continued psychometric evaluation, such as

& Allwood, 2009	Positive Information Processing Style Positive Response Evaluation Style	Overall, ChEESE-Q demonstrates moderate temporal stability and internal consistency in assessing SIP. Results support presence of negative and positive information processing styles. These styles are predictive of depressive and anxious symptomology.	examining relations to externalizing problems as an index of discriminant validity. Relied solely on child-report measures, so relations of internalizing problems and SIP could have been inflated. Generalizability to more diverse populations is unclear.
Burgess, Wojslaw owicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006	Coping strategies Children's emotional responses Adaptive attributions	Children reported more adaptive attributions regarding potentially stressful social situations when their mutual friends were involved than when unfamiliar peers were involved. Children more likely to report feelings of embarrassment for situations involving unfamiliar peers, and more likely to report feeling okay for	May be important to observe children's coping strategies in real life situations that are challenging or ambiguously caused. A more in-depth assessment of children's emotional responses to hypothetical or real-life stressful situations with peers would better elucidate the social-emotional connection.

		situations involving close friends. All children endorsed adult intervention, whether with familiar peers or unfamiliar peers.	
Crozier et al., 2008	Deviant processing patterns Antisocial behavior Self-regulatory processes Reactive and proactive aggression	Robust relationship between deviant processing patterns (deviant SIP) and conduct problems in youth. Deviant processing patterns related to both concurrent and future antisocial behavior as well as to reactive and proactive aggression. Antisocial behavior in older adolescents significantly associated with hostile attribution biases, self-defense goal identification, selection of aggressive responses to ambiguous provocations, and the	Study not designed in a manner that would allow a more specific examination of directionality of the relation between autonomic activity and patterns of SIP. Study examined how self-regulatory processes are related across participants, and then used the results to make inferences about intraperson regulatory processes. This is a leap of conclusion. Study measures of autonomic nervous system activity and SIP should not be taken as

		positive evaluation of aggressive responses.	exhaustive measures of these domains.
Dodge, Laird, Lochman, & Zelli, 2002	Social cognitive/Information processing patterns Aggression Social cognitive factors	Findings support the hypotheses that children display internally consistent patterns in emotion knowledge and information processing, the these patterns are reliably distinct from each other, and that these patterns predict individual differences in aggressive behavior in the classroom. Provides a psychometric foundation for the assessment of multiple, distinct, social cognitive patterns in children for use in developmental research and clinical applications in the classroom.	Magnitude of relations between social-cognitive factors and aggression is modest. Limited generalizability of the findings. Need to improve the psychometric structure of certain processing variables.
Marien & Bell, 2004	Depression/internalizing problems Tripartite model of depression and anxiety	Only depression characterized by a deficiency in positive thought. Finding supports tripartite model where lack of positive	Study relied exclusively on children self-report. Further examination of CTQ psychometric properties is needed:

		affect (anhedonia) is unique to aggression. Found that girls endorsed higher levels of negative thoughts than boys, in contrast to other research suggesting no sex differences.	vignettes and thought items were derived from theory and research, however it is unknown to what extent they accurately represent the types of thoughts that children who are clinically anxious or depressed, as well as children more generally, have in everyday life.
Luebbe et al., 2010	Negative information processing style Positive information processing style Positive response evaluation style Social information processing patterns/styles Depression/anxiety	Anxiety and depression related to negative information processing style. Depression uniquely related to a less positive information processing style. Negative SIP predicted anxiety and depression over and above negative affect. SIP functioning partially mediated the relations of	Possible that different vignettes may elicit different responses. Did not assess levels of physiological hyperarousal, and anxious arousal in social situations may likely activate NIPS-like SIP, and may help explain relations of arousal to anxiety. Used only child self-report so monomethod bias cannot be ruled out.

		affect to internalizing symptoms.	Inclusion of additional mediators or moderators of the interplay between trait affect and trait SIP is warranted.
Bradshaw & Garbarino, 2004	Exposure to community violence

Social-cognitive processing biases

Externalizing behavior

Social-cognitive processing styles | Exposure to family violence during childhood and adolescence is associated with an increased risk for development of externalizing behavior problems.

Children who have been maltreated tend to display negatively biased social-cognitive processing styles, which may in turn increase their likelihood of reacting aggressively in ambiguous social situations. | Need more research on: gender differences in social-cognitive processing biases which have varying effects on the types of aggressive acts committed and the variations in social environments that encourage the development of negative and aggressive social cognitions.

An ecological approach would be useful for examining how individual factors such as social cognition and physiological reactivity, influence and are influenced by the family, peer group, and community. |

Perry, Perry, & Rasmussen, 1986	Aggression Aggressive beliefs Peer censure/victim suffering	Aggressive subjects reported easier to perform aggression/more difficult to suppress aggressive impulses. Aggressive subjects believe aggression would yield rewards and reduce aversive treatment by others.	Subjects asked to imagine themselves aggressing toward same-sex targets, so sex of subject effects are confounded with sex of target effects. Findings that girls expected greater victim suffering, peer censure, and guilt following aggression may all be due to the fact that girls were asked to imagine aggressing against girls, and boys against boys.
Quiggle, Garber, Panak, & Dodge, 1992	Hostile attribution biases Internal/global/stable causes Aggression Depression Assertive responses/behavior	Aggressive children showed hostile attribution biases, were more likely to report that they would engage in aggressive behavior, and indicated that aggression would be easy for them. Depressed children similarly showed hostile attribution biases, but were more likely to attribute negative	Study was conducted with a community sample of children identified on the basis of self-report, teacher report, and peer nominations. The extent to which these results are generalizable to a clinical referred sample of children who have diagnoses of a mood disorder and/or conduct disorder – aggressive

		situations to internal, stable, and global causes.	type needs to be investigated.
		Depressed children reported less likely to use assertive responses and that they expected that assertive behavior would lead to more negative and fewer positive outcomes.	
		Comorbid children showed patterns similar to both aggressive and depressed children.	
Dodge, Petit, McClaskey, & Brown, 1986	Social competence Social information processing Social incompetence Social information processing patterns Group entry Children's social behavior	Measures of each of the five steps of processing were found to predict children's competence and success at the behavioral task, with unique increments in prediction being provided by several steps of processing. Child's performance at peer group entry significantly predicted peers' judgements of him	Status groups did not display distinct patterns of processing social information. Research consists of correlations among variables, so cannot answer questions about causation and development.

		or her, and those judgements, in turn, significantly predicted the peers' behavior toward that child. Support for a reciprocal influence model of the relation between social information processing patterns and children's social behavior.	
Fontaine et al., 2002	Response valuation/ Valuation of aggressive behavior Externalizing conduct problems Outcome expectancy of aggression	The tendency to valuate ones' own aggressive behavior as a more positive (or less negative) style of social responsivity was found to be uniquely and consistently predictive of externalizing conduct problems across adolescent years. Response valuation of aggressive behavior represents a domain of response decision that is empirically distinct from outcome expectancy of aggression.	Although study found consistent pattern of significant relations between processing factors and behavior in grades 7-9, but this pattern did not continue when response selection and outcome expectancy factors were correlated with future externalizing behavior in grades 10-11.

		Response and decision making patterns contribute to maintenance and growth in externalizing behavior problems during adolescence.	
Zelli et al., 1999	Aggressive retaliation Aggressive beliefs Deviant processing Habitual aggression	A stronger belief that aggressive retaliation is acceptable predicted more deviant processing 1 year later and more aggression two years later. Latter effect substantially accounted for by the intervening effects of deviant processing on aggression.	Does not directly address the issue of how aggressive beliefs and deviant processing contribute to the *development* of habitual aggression. Investigation relied on correlational methods, therefore empirical support to the causal model linking aggression beliefs to aggressive behavior through the intervening effects of deviant processing must be interpreted with some caution.
Dodge, Lansford, Burks, Bates,	Peer rejection Withdrawn behavior	Early peer rejection predicts growth in aggression.	Possible that exacerbation of withdrawal would be found during

Petit, Fontaine, & Price, 2003	Antisocial development Social Information Porcessing patterns	Rejection exacerbated antisocial development only among children initially disposed toward aggression. SIP patterns found to partially mediate the effect of early rejection on later aggression.	adolescence, when withdrawn behavior becomes increasingly non-normative and is associated with psychopathology. Perhaps social rejection has other, unmeasured, effects on nonaggressive children, such as increasing depression, academic failure, or psychosomatic symptoms.
Nelson & Crick, 1999	Hostile attribution biases Prosocial development Prosocial responses to provocation Aggressive responses to provocation	Prosocial young adolescents less likely to attribute hostile intent or feel distressed in provocation situations, gave relatively more negative evaluations of aggressive responses and relatively more positive evaluations of prosocial responses to provocation, and were more likely to endorse relational rather than instrumental goals in dealing with provocation.	Gender differences found might not actually represent inherent differences between boys and girls, but the influence of gender stereotypes. Findings are correlational in nature and therefore do not allow for causal inferences. Need measures with greater ecological validity or greater age

			spans to document the developmental trajectory of age- and gender-related trends.
Schniering & Rapee, 2002	Negative self-statements Automatic thoughts Internalizing/externalizing difficulties Negative beliefs	Development of scale to assess wide range of negative self-statements in children and adolescents – focusing specifically on cognition. Assesses automatic thoughts related to both internalizing and externalizing difficulties in children and adolescents. Measure is also developmentally sensitive. Overall results indicate that the measure is a psychometrically sound and valid measure of childhood negative beliefs.	Addressed many gaps/limitations, but would benefit from further psychometric evaluation.
Lemerise, Thorn, &	Peer relationships	Both second and fifth graders displayed response evaluation and	It is not known whether SIP obtained for children this age with known

Costello, 2016	Response evaluation and decision making Response type (hostile, competent, passive) Social goals	decision making that depended on both the type of relationship they had with the provocateur and on the type of response (hostile, competent, or passive). Social goals were affected by relationship with provocateur.	peers as targets would better predict aggression or prosocial behavior than SIP obtained with hypothetical targets. Lacks method to measure SIP reliably and accurately in younger children. This is important because usual hypothetical situation methodology used to assess SIP underestimates younger children's SIP. Inaccurate estimates of younger children's SIP may contribute to the poor predictive validity of SIP measures in younger children reported in the literature.
Hoglund & Leadbeater, 2007	Victimization Conflict situations Cognitions about peers beliefs Skills	Subtypes of victimization both bias adolescents' cognition about peers' beliefs in conflict situations and skills relating to peers. In turn, these beliefs and skills differentially	Longitudinal research is needed to confirm the dynamic transactions that concurrent associations allude to and to establish the directionality of the models proposed.

| | Feeling regulation | compromised their ability to regulate feeling of depression, anxiety or anger or limit reticent behaviors in response to peer threats. | Reliance on self- and teacher-report data may inflate some of the findings because of shared method variance among constructs.

Hypothetical social scenarios might also provoke less anxiety or wariness than actual negative experiences among adolescents than among younger children. |
|---|---|---|---|
| Clark & Watson, 1991 | Anxiety/depression

Negative affect

Positive affect

Tripartite model of anxiety and depression | Anxiety and depression can be reliably assessed and can be differentiated on the basis of factors specific to each syndrome.

Tripartite model with negative affect being related to anxiety and depression and low positive affect (anhedonia) being uniquely related to depression. | Provides theoretical approach to anxiety and depression, but it is unclear how they manifest together in persons (outside of theory). |

APPENDIX B

ChEESE-Q SF Example Vignette

You are going to the movies with a friend. Your friend wants to see one movie, but you heard it wasn't good and you really don't want to see it.

1. **Why do you think your friend said s/he wants to see that movie?**
2. **Do you think it was because:**
   a. **You didn't pick anything**
   b. **You never pick good movies**
   c. **Your friend thinks you'll like that movie**
   d. **Your friend doesn't care what you want**
   e. **s/he was being nice to you**
   f. **s/he was being mean to you**
   g. **s/he just wanted to (*it wasn't about you*)**
   h. **it was an accident (*s/he didn't mean to*)**
3. **If this happened to you, how would you feel?**
   a. **Worried or nervous**
   b. **Angry or mad**
   c. **Sad or down**
   d. **Happy or excited**
4. **If this happened to you, how much would your goal be to:**
   a. **Just work out the situation**
   b. **Try to avoid or ignore the situation**
   c. **Show that it's okay/not a big deal**
   d. **Try to make yourself feel better**
   e. **Show that you're angry or upset**
   f. **Just focus on getting along with your friend**
5. **If this happened to you, what would you do? Your answer should be what you *WOULD* do, not what you think you *SHOULD* do. How much do you think you would:**
   a. **See if there is a movie you both want to see**
   b. **Tell your friend you heard it wasn't good**
   c. **Don't say anything and go to the movie anyway**
   d. **Pretend you want to go to the movie**
   e. **Make up a reason why you can't go to the movie**
   f. **Say you're sick and have to go home**
   g. **Tell your friend you refuse to go to that movie**
   h. **Yell and say you want to see another movie**
   i. **Other:**
6. **How much would your circled response meet these goals?**
   a. **Just work out the situation**

       b. **Try to avoid or ignore the situation**
       c. **Show that it's okay/not a big deal**
       d. **Try to make yourself feel better**
       e. **Show that you're angry or upset**
       f. **Just focus on getting along with your friend**
       g. **Other:**

7. **How well do you think you could do the response you circled?**
8. **How well do you think your circle choice would work to meet your goal?**