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RELATIONAL, INDIRECT, AND SOCIAL AGGRESSION: MEASURE
DEVELOPMENT FOR EMERGING ADULTS

A Dissertation Presented

By

Nicole Lafko Breslend

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The Faculty of the Graduate College

of

The University of Vermont

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Specializing in Psychology

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Abstract

Research indicates that relational aggression, social aggression, and indirect aggression are important predictors and outcomes of social development (Archer & Coyne, 2005). Socially, indirectly, and relationally aggressive behaviors are utilized in order to harm an individual's social status, relationships, and/or social resources (Archer, & Coyne, 2005), but scholars disagree about the extent of the similarities and differences between these subtypes. Previous efforts to understand the distinction between these subtypes of aggression have been limited by how these behaviors have been operationalized and studied. The primary aim of the current study was to develop a self-report measure of these aggressive behaviors for emerging adults by utilizing factor analytic techniques to examine existing and newly created items. A series of five stages was used to code all items into existing theoretical categories of behavior (e.g., social aggression), establish the factor structure of the items, select the best items to measure each factor, test measurement invariance across subgroups (e.g., men and women), ensure strong psychometric properties, and relate the final factor structure to relevant developmental correlates (e.g., depressive symptoms).

Three independent samples of emerging adults aged 18 – 29 years (49.51% – 52.33% women; $M_{age} = 25.71 - 26.26$) were recruited online through Amazon's Mechanical Turk (sample 1 $N = 299$; sample 2 $N = 299$; sample 3 $N = 119$). Indirect, social, and relational aggression items were selected and adapted from existing self-report measures of these constructs for adults and several new items were created from qualitative interviews with emerging adults.

Through a rigorous theoretical, methodological, and statistical approach, the Relational/Social Aggression in Adulthood Measure (RSAAM) was developed. The final factor structure consisted of three factors: Ignoring, Gossip, and Relational Manipulation. The three factors demonstrated measurement invariance across gender and educational groups and strong internal consistency and test-retest reliability. Purely relationally manipulative behaviors were distinct from other, related behaviors (i.e., ignoring, gossip) and were also differentially related to developmental correlates. Findings suggest that it may be advantageous for researchers to move beyond broad theoretical definitions of relational and social aggression and instead focus on the specific aggressive behaviors being enacted.

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*Please note that the version of this manuscript approved by the Graduate College of the University of Vermont has been altered and this version of the manuscript should be utilized in all future work.

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Introduction

Research indicates that relational aggression, social aggression, and indirect aggression are important predictors and outcomes of social development (Archer & Coyne, 2005). In contrast to physical aggression, which seeks to harm or threaten harm to one's physical well-being (e.g., kicking, hitting, pushing; Dodge, Coie, & Lynam, 2006), socially, indirectly, and relationally aggressive behaviors are utilized in order to harm an individual's social status, relationships, and/or social resources (Archer, & Coyne, 2005). These aggressive behaviors share a number of features; in fact, many of the same behaviors (e.g., gossip) are found in measures of all three subtypes (Archer & Coyne, 2005). However, scholars disagree about the extent of their similarity and researchers using the three terms have theoretically framed the behaviors differently (Archer & Coyne, 2005). Thus, questions remain regarding the utility of examining the behaviors that comprise these subtypes separately. In fact, very little research has investigated if these types of aggressive behavior are, indeed, distinct enough to warrant separate investigation (see Archer & Coyne, 2005; Coyne, Archer, & Eslea, 2006 for exceptions) or if they are slightly different definitions of a single underlying aggressive subtype. In addition, most measures of relational, social, and indirect aggression were developed for young children and then were altered for use with late adolescents and adults. With a few exceptions (e.g., Nelson, Springer, Nelson, & Bean, 2008), researchers have assumed that the behavioral indicators of these types of aggression remain relatively unchanged into adulthood. Further, although these aggressive behaviors have been linked to peer problems and internalizing problems (see Archer & Coyne, 2005 for a review), no

research to date has investigated if these aggressive behaviors are differentially related to outcomes. The current study was designed to address these limitations using a novel data collection technique with a sample of emerging adults.

Indirect, Social, and Relational Aggression: Controversy

Aggression is defined as a behavior that is intended to hurt or harm another person and can take multiple forms (e.g., physical, social, relational). Indirect aggression was one of the first subtypes of aggression to be recognized as distinct from physical and verbal aggression by researchers in the 1940s (Allport, Bruner, & Jandorf, 1941).

However, it was not until the 1980s that a clear definition of indirect aggression was formulated and systematically examined. Lagerspetz, Björkqvist, and Peltonen (1988) defined indirect aggression as, “circumventory behavior that exploits social relations among peers in order to harm the person at whom the anger is directed” (p. 409).

Björkqvist, Lagerspetz, and Kaukiainen (1992) later expanded upon this initial definition and clarified that, “indirect aggression is a type of behavior in which the perpetrator attempts to inflict pain in such a manner that he or she makes it seem as though there has been no intention to hurt at all. Accordingly, he or she is more likely to avoid counteraggression and, if possible, to remain unidentified” (p. 118). Thus, Björkqvist’s indirect aggression consists of dyadic or group-level behaviors meant to hurt or harm others that are enacted without directly confronting the victim or in a way that the aggressor can feign innocence (Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Feshbach, 1969). Björkqvist’s indirect aggression can be physical (e.g., putting a tack on someone’s chair) or social/relational (e.g., gossip, exclusion, rejection) (Buss, 1961). The

present study focused on social or relational forms of indirect aggression rather than physical forms of indirect aggression.

The term “social aggression” was introduced as a way to define behaviors that were either direct or indirect in nature and entailed the “manipulation of group acceptance through alienation, ostracism, or character defamation” (Cairns et al., 1989, p. 323). In other words, social aggression is comprised of behaviors meant to manipulate group acceptance and/or social status (e.g., character attacks, embarrass in public to hurt social status; Cairns et al., 1989).

Crick expanded the definition of social aggression by identifying relational aggression (e.g., friendship withdrawal threats; Crick & Grotpeter, 1995; Crick, Ostrov, & Werner, 2006) as, “behaviors that harm others through damage (or the threat of damage) to relationships or feelings of acceptance, friendship, or group inclusion” (Crick et al., 1999, p. 77). These researchers argued that close social relationships are an important goal, particularly for females (Crick & Grotpeter, 1995). Therefore, a highly effective way to harm an individual is to target that person’s close social relationships. This form of aggressive behavior is distinct from the Cairns et al. (1989) definition of social aggression because the aggression can target peer group acceptance, social standing, *or dyadic interpersonal relationships* (i.e., relational manipulation), which is not included in Cairns’ definition of social aggression (Archer & Coyne, 2005; Grotpeter & Crick, 1996; Crick & Grotpeter, 1995; see Murray-Close, Nelson, Ostrov, Casas, & Crick, 2016, for a review). Thus, the definition of relational aggression encompasses the Cairns et al. (1989) definition of social aggression (i.e., damaging feelings of acceptance or group inclusion) and adds interpersonal peer relationships (e.g., friendships) as an

important target of these aggressive behaviors. Relational aggression is distinct from indirect aggression in that the perpetrator of relationally aggressive acts may be known or anonymous (i.e., direct or indirect).

To make matters more complicated, recent definitions of social aggression have been altered from the original theoretical definition (i.e., Cairns et al., 1989) and most researchers use this more recent definition. Specifically, Galen and Underwood (1997) defined social aggression as including many of the behaviors captured by Cairns' social and relational aggression (e.g., gossip), but added gestural non-verbal behaviors (i.e., gives dirty looks, rolls his/her eyes). Specifically, these researchers argued, "...the construct of relational aggression may not capture all of the forms of aggression evident in girls' peer interactions. Negative facial expressions and gestures and subtle jabs at another's self-esteem may also be important features of girls' aggressive behavior... Social ostracism or relationship manipulation may begin with rolling of eyes, tossing of hair, and turning away from a peer" (Galen & Underwood, 1997, p. 590). In their assessments of social aggression, these researchers added two items to Crick's measure of relational aggression (i.e., gives others dirty looks; rolls his/her eyes) and labelled the measure one of social aggression. Subsequent researchers have utilized this revised measure, and consistent with Underwood and colleagues (1997; 2009), termed it social aggression. Therefore, the Underwood et al. (2009) definition of social aggression includes Cairns and colleagues' (1989) definition of social aggression (i.e., targeting peer acceptance and social status) and Crick and Grotpeter's (1995) definition of relational aggression (i.e., targeting dyadic relationships such as friendships) and adds non-verbal behaviors (see Figure 1 for a graphical representation of this nesting). It is not surprising

that many researchers have been left confused by the definitions of relational and social aggression and have resorted, in many cases, to using the terms “social/relational aggression” (e.g., Hemphill et al., 2010).

In addition, although it was originally conceptualized as a similar form of aggression to social or relational aggression (e.g., Archer & Coyne, 2005; Card, Stucky, Sawalani, & Little, 2008; Owens, Slee, & Shute, 2000), researchers have recently suggested that indirect aggression is distinct from social and relational aggression because it reflects the *mode* of delivery of the aggressive act (overt/confrontational or covert/non-confrontational; see Nelson et al., 2008). Both social and relational aggression can be direct (i.e., confrontational behaviors such as embarrassing someone in public, not inviting someone to party if they do not do what the aggressor wants, rolling eyes in front of the victim) or indirect (i.e., non-confrontational behaviors such as rumor spreading or gossiping behind the target’s back). Therefore, indirect aggression may not, in itself, serve as a separate form of aggression but rather may function as a mode of delivery of some socially and relationally aggressive behaviors (e.g., indirect social aggression). Nelson and colleagues (2008) utilized this framework in their study of forms of aggression in emerging adulthood. The authors argued that, “...the construct of indirect aggression, as defined by Lagerspetz et al. (1988), includes behaviors in which harm is indirectly achieved as the perpetrator seeks to remain anonymous. This definition gives focus to the potential importance of defining any aggressive behavior (relationally manipulative or otherwise) along covert/non-confrontational versus overt/confrontational lines” (p. 641). Thus, the current study utilized this framework proposed by Nelson and colleagues (2008) and sought to examine both direct and indirect modes of social and

relational aggression. However, since research investigating non-physically aggressive behaviors has often used the term indirect aggression, and treated indirect aggression as a distinct form of aggression, this previous research will be included in discussions of forms of aggression. It is important to note, however, that these indirectly aggressive behaviors may be best conceptualized as social or relational aggression in form and indirect in mode.

Emerging Adulthood

Although the vast majority of research on indirect, relational, and social aggression has been conducted with children, there is evidence that these behaviors occur during adulthood (e.g., Nelson et al., 2008). Emerging adulthood is a distinct period of development characterized by identity exploration, demographic variability (e.g., housing, schooling), and an ambiguous role in society (i.e., not an adolescent but not yet an adult; Arnett, 2000). This developmental period is hypothesized to last from approximately ages 18 to 29 years and is present primarily in developed countries (Arnett, 2000; 2004).

Research suggests that there are developmental changes in the use of different forms of aggression. Young children are limited by their social and cognitive abilities and thus tend to employ relatively unsophisticated forms of aggression like physical aggression (Lagerspetz & Björkqvist, 1994). However, some researchers suggest that as children get older, their use of more crude forms of aggression (e.g., physical) decreases whereas their use of more sophisticated, and potentially more socially acceptable, aggressive behaviors (i.e., relational, social, indirect; Lagerspetz & Björkqvist, 1994)

increases, at least into early adolescence. In fact, evidence indicates that relationally, socially, and indirectly aggressive behaviors increase through early to mid-adolescence, (e.g., Cleverly, Szatmari, Vaillancourt, Boyle, & Lipman, 2012; Ehrenreich, Beron, Brinkley, & Underwood, 2014), and then begin to decline in frequency (see Murray-Close et al., 2016, for a review). Nevertheless, these aggressive behaviors still occur and are associated with developmental outcomes in adults. In fact, relational aggression has even been reported in samples of elderly individuals living in assisted living residences (Trompetter, Scholte, & Westerhof, 2011). Research by Nelson and colleagues (2008) indicated that, in a sample of emerging adults, the most frequently cited forms of aggression for women aggressing against women were verbal aggression (i.e., verbal intimidation and disparagement; e.g., “insult his masculinity”, “yell, curse”) and indirect relational aggression (Nelson et al., 2008). Previous studies that have used the terms relational and indirect aggression have demonstrated that these behaviors are associated with maladaptive outcomes in emerging adulthood for both men and women (e.g., internalizing problems, rejection, lower subjective well-being; Kaukiainen et al., 2001; Werner & Crick, 1999); however, due to a relative lack of research, it is unclear whether similar patterns may emerge in studies using Cairns’ and Underwood’s definitions of social aggression. Nevertheless, taken together, findings suggest that indirect, relational, and social aggression are important constructs to examine in emerging adulthood.

To investigate socially, indirectly, or relationally aggressive behaviors during emerging adulthood, it is necessary to develop measures that can be used with the diverse subpopulations that are reflected in this distinct developmental period. Unfortunately, the vast majority of the studies exploring the factor structure and/or initial psychometric

properties of adult measures of indirectly, relationally, and socially aggressive behaviors have utilized primarily Caucasian, college samples (for an exception, see Murray-Close, Ostrov, Nelson, Crick, & Coccaro, 2010). This limits the generalizability of these measures and their associated factor structure to other racial, ethnic, and socioeconomic groups as well as to those with differing levels of educational attainment. Arnett (2000) described individuals who do not attend college after high school as the “forgotten half” (p. 476). This “forgotten half” is vastly understudied due to the relative difficulty accessing these individuals (as compared to readily available college students) and their heterogeneity in terms of demographic status, life circumstances (e.g., parent versus non-parent), and employment (Arnett, 2000). However, it is this extreme heterogeneity that is *characteristic* of emerging adulthood (Arnett, 2000). Thus, it is imperative to investigate the quality of our measures of aggressive behavior in both college students and non-college students of diverse racial and socioeconomic backgrounds in order to begin to understand the frequency and harmfulness of these behaviors in emerging adulthood *as a whole*.

Importance of Self-Report

There are a multitude of ways in which indirect, social, and relational aggression have been empirically examined. Specifically, observations, peer ratings, peer nominations, teacher-reports, parent-reports, and self-reports have all been used to measure these aggressive behaviors (Archer & Coyne, 2005). However, most of these methods (i.e., observations, peer ratings, peer nominations, teacher-reports, and parent-reports) are primarily appropriate and feasible with children who have an easily

distinguishable peer group (e.g., classmates), engage in relatively observable behaviors (e.g., overtly aggressive behaviors), can be observed in an unobtrusive manner, and/or have close, regular contact with the reporter (e.g., teacher, parent) (Forrest, Eatough, & Shevlin, 2005). Thus, measuring these types of aggression in emerging adulthood poses a unique challenge to researchers as the aggressive behaviors of emerging adults tend to be relatively sophisticated and more difficult to detect by outside observers. There is also significant variability in the existence and relevance (e.g., amount of contact) of potential reporters (e.g., peer group, teacher, parent; Crothers, Schreiber, Field, & Kolbert, 2009; Forrest et al., 2005), especially given the demographic differences of emerging adults (e.g., in college versus in the workforce; children versus no children; living at home versus at college versus independently). For example, a parent-report may be appropriate for an emerging adult living at home but not for one living independently.

Given the limitations of other methods during this developmental period, self-report measures may provide a feasible resource for measuring socially and relationally aggressive behaviors in emerging adults. Although some researchers question the validity of self-report methods given the social undesirability of these aggressive behaviors (e.g., Lagerspetz et al., 1988; Österman et al., 1994), others argue that self-report measures have been reliably used in many psychological domains and any potential problems with self-report measures are outweighed by their practical (e.g., ease of administration) and methodological (e.g., not necessary to identify and poll a peer group) strengths (Campbell, Sapochnik, & Muncer, 1997). Indeed, self-report measures of relationally, socially, or indirectly aggressive behaviors have been effectively used in samples of children (e.g., Crick & Grotpeter, 1995) and adolescents (e.g., Little, Jones, Henrich, &

Hawley, 2003). However, there is a relative dearth of reliable and valid self-report measures for assessing these aggressive behaviors in emerging adulthood (see Murray-Close et al., 2016). In order to accurately understand the developmental manifestation and correlates of these aggressive behaviors in emerging adulthood, it is imperative to develop reliable and valid self-report measures by addressing some of the limitations of current self-report batteries.

Addressing the Controversy

As discussed previously, many researchers disagree about the distinction or convergence of indirect, relational, and social aggression (see Archer & Coyne, 2005). This disagreement may stem in part from the existence of items on measures that do not reflect the underlying theoretical definitions of the aggressive behavior the measure is developed to assess (e.g., friendship manipulation items on measures purporting to assess Cairns' social aggression). This disagreement may also stem from a lack of research investigating if there are meaningful differences between these subtypes of aggression.

Some researchers have attempted to address this definitional controversy to determine what, if any, differences or similarities exist between indirect, relational, and social (i.e., Cairns' and Underwood's definitions together) aggression. Perhaps most often cited, Archer and Coyne (2005) conducted a comprehensive literature review regarding these subtypes of aggression (these researchers viewed indirect aggression as a form, rather than mode, of aggression) and concluded that "there are very few differences between indirect, relational, and social aggression in terms of the actions involved, their development, sex differences, and consequences. One repercussion of researchers

continuing to use three names for essentially the same phenomenon is that research tends to occur in parallel instead of building upon the work of others” (Archer & Coyne, 2005, p. 225). Although these authors offered a persuasive theoretical argument and thorough comparative review of the literature, they did not empirically test their assertions by analyzing the factor structure of the items purporting to measure indirect, social, and relational aggression.

Coyne, Archer, and Eslea (2006) sought to empirically test some of the conclusions arrived at by Archer and Coyne (2005) by assessing the factor structure of relational, indirect (these researchers viewed indirect aggression as a form, rather than mode, of aggression), and Underwood’s social aggression in adolescence. Items were derived from existing measures of relational, indirect, and Underwood’s social aggression. Based on factor analyses, the authors determined that the items hypothesized to make up the constructs of relational, indirect, and social aggression fell into three distinct categories that they termed indirect aggression (e.g., gossiping, ignoring someone, sending anonymous mean notes), direct relational aggression (e.g., not inviting someone to a party, threatening to break off a friendship, getting others to dislike someone), and non-verbal social items (e.g., giving dirty looks, rolling eyes). However, the authors also found that, when physical and verbal forms of aggression were included in the model, indirect, relational, and social aggression all loaded onto the same factor whereas physical and verbal aggression loaded onto their own distinct factors. The authors used this finding to argue that indirect, relational, and social aggression are more similar than different and that these behaviors should be examined as one construct.

In an attempt to develop and test the factor structure of a measure of social and relational aggression in emerging adults, Crothers et al. (2008) developed the Young Adult Social Behavior Scale (YASB). The authors created this measure by first conducting a qualitative analysis of the types of behaviors associated with peer conflict in adolescent girls. Then, the authors developed 14 items to reflect what they termed indirect socially (e.g., gossip, stealing friends or romantic partners) and direct relationally (i.e., confrontation strategies to achieve interpersonal damage; e.g., threatening to withdraw friendship, ignoring someone) aggressive behaviors (Xie, Swift, Cairns, & Cairns, 2002). Results of a confirmatory factor analysis utilizing a sample of college students indicated that the items on the YASB loaded on two distinct factors: indirect social aggression and direct relational aggression. However, these researchers made the a priori decision to not include any items that could be conceptualized as direct social aggression or indirect relational aggression. This approach appears to prioritize the distinction between direct versus indirect aggressive behaviors, rather than capturing the theoretical differences between relational aggression and Cairns' social aggression. As the authors conflate mode of aggression (i.e., indirect versus direct) with form of aggression (i.e., social versus relational), it is not clear whether similar factors would emerge if direct and indirect modes of social and relational forms of aggression were assessed. In fact, many of the items identified as indirect social aggression are theoretically consistent with relational aggression (e.g., stealing a friend is an example of friendship manipulation). Nevertheless, these results lend further support to the idea that examining indirect versus direct aggression as a mode rather than a form may be beneficial.

Nelson and colleagues (2008) adopted a bottom-up approach similar to that of Crothers et al. (2008) to understanding engagement in different forms of aggression. However, unlike Crothers et al. (2008), these authors utilized a sample of emerging adults to conduct their initial qualitative analysis. Specifically, these authors asked a sample of college students to report what college students do to be mean to each other (e.g., “What do most women do when they want to be hurtful or mean to another woman?”). Then, the responses were coded and categorized into direct relational aggression (e.g., “blackmail them”), indirect relational aggression (e.g., “talk about them behind their backs”), ignoring/avoiding non-verbal aggression (e.g., “silent treatment”; included in Crick’s original definition of relational aggression and Nelson et al. concluded that it was best conceptualized as relational aggression, not a separate category, after analysis), gestural non-verbal aggression [i.e., the Galen & Underwood (1997) definition of social aggression; e.g., “give them dirty looks”], verbal aggression (e.g., “yell, curse”), passive aggression (e.g., “taking a job opportunity she wants”), direct physical aggression (e.g., “punch”), and indirect physical aggression (e.g., “destroy property”). Results indicated that the most frequently cited forms of aggression for women aggressing against women were indirect relational and verbal aggression. Participants reported that men primarily used direct physical and verbal aggression against other men. Additionally, approximately half to two-thirds of participant responses describing female aggression were covered by the construct of relational aggression. In contrast, gestural non-verbal aggression was rarely mentioned by respondents, leading the authors to conclude that, “the disdainful body expressions added to the list of relationally manipulative behaviors

in the social aggression construct of Galen and Underwood (1997) may not be as relevant in emerging adulthood” (p. 655).

The research conducted to date has provided an important stepping stone toward understanding social, indirect, and relational aggression in emerging adulthood.

However, as will be discussed in further detail below, there are a number of methodological issues with these studies that make any conclusions regarding the similarities and differences between these subtypes of aggression tentative at best.

Measurement Issues

Mapping theory onto items. Current measures of relational, social, and indirect aggression in emerging adulthood are significantly limited by the fact that the items do not always accurately map onto the theoretical definition of the aggressive form that they are purported to measure. In addition, some items are not clearly aggressive in nature. For example, some measures of indirect aggression include the item “Saying ‘I’m not your friend’” (Björkqvist, Lagerspetz, & Kaukiainen, 1992). Clearly, this item does not map onto the theoretical definition of Björkqvist’s indirect aggression because it is a direct act. Further, many of the same behavioral items are used in measures that are purported to assess relational, social, and indirect aggression. For example, “rumor spreading” is used to assess all three constructs. As the definitions of social and relational aggression are nested (see Figure 1), and indirect aggression may be best conceptualized as a modality, some overlap in the items used to measure these subtypes of aggression is understandable. However, the existence of overlapping items prevents a thorough understanding of which behaviors are best conceptualized as reflecting a particular

aggressive subtype (e.g., relational aggression versus Cairns' social aggression) and if any items that are unique to a particular subtype (e.g., gestural non-verbal behaviors in Underwood's social aggression) strengthen our understanding of this class of behaviors.

As noted previously, the current study conceptualized indirect aggression as a mode of delivery of an aggressive act (covert/non-confrontational rather than overt/confrontational; see Nelson et al., 2008). An example of direct relational aggression may be, "threaten to withdraw friendship in order to get him/her to comply with my wishes," whereas indirect relational aggression may include, "gossip to a friend in order to get that friend mad at our mutual friend." There is some evidence that indirect Cairns' social and relational aggression are more common in adulthood than are direct Cairns' social and relational aggression (Nelson et al., 2008), a finding consistent with Lagerspetz and Björkqvist's (1994) developmental model of aggression. Since existing measures of indirect aggression likely include behaviors that are indirect in mode but social or relational in form, the current study drew from these measures when identifying potential items to assess social and relational subtypes of aggression.

Developmental considerations for emerging adults. Another limitation of current measures of relational, social, and indirect aggression is that they may not adequately capture the developmental manifestation of these behaviors in emerging adulthood. Currently, all of the measures developed to measure indirect, social, or relational aggression in adulthood, with the exception of two (i.e., Kaukianen et al., 2001; Forrest et al., 2005), were created by making measures designed for use with children and adolescents age-appropriate for adults. For example, the peer nomination item "Pick three kids who try to make another kid not like a certain person by spreading rumors about

them or talking behind their backs” (Crick & Grotpeter, 1995) was altered for use with adults in the Self-Report of Aggression and Social Behavior Measure (Morales & Crick, 1998) to be “When I have been angry at, or jealous of someone, I have tried to damage that person’s reputation by gossiping about him/her or by passing on negative information about him/her to other people.” Additionally, several researchers have utilized adolescent samples in order to develop and/or test items that were then used in adult measures. For example, Crothers and colleagues (2008) created the YASB by conducting qualitative interviews with adolescent girls regarding behaviors associated with peer conflict. These researchers then tested the factor structure of their measure with a sample of college students. By developing items based on girls’ responses, they may have missed important behaviors relevant for women in emerging adulthood as well as for boys and men.

Perhaps the adaptation of items from child measures for use with adults is appropriate and empirically sound. Indeed, many of these measures have displayed adequate psychometric properties and have performed well in factor analyses (e.g., Murray-Close et al., 2010; Burt & Donnellan, 2009). However, one danger of simply “ageing-up” measures to be appropriate for use with adults is that some important behaviors that are present in adulthood may not be present in childhood (e.g., stealing romantic partners, saying something hurtful that appears rational when questioned). Nelson and colleagues (2008) noted, “...emerging adults also reflected greater complexity in the range of possible responses...there may be cognitive and relational advances that allow emerging adults to use a wider range of aggressive strategies against others than is typically seen in earlier developmental periods” (p. 656). In addition, some

of the behaviors captured by these measures may not be as salient or meaningful in adulthood. For example, Nelson et al. (2008) found that gestural non-verbal aggression (e.g., rolling eyes) was not commonly reported in a sample of emerging adults. Therefore, this “ageing-up” approach may lead researchers to miss important behaviors or to focus on less relevant behaviors in emerging adults. Thus, a goal of the current study was to integrate items generated from a study of college students’ qualitative reports of common aggressive behaviors (from Nelson et al., 2008) with items from existing measures in an effort to more fully capture aggressive behaviors in emerging adulthood.

Developmental correlates. Current measures of indirect, relational, and social aggression are also limited because little attention has been paid to their relation to developmental correlates, particularly in emerging adulthood. Specifically, it is unclear if the additions to Cairns’ definition of social aggression offered by relational aggression and Underwood’s social aggression improve predictive power in terms of developmental correlates. For instance, does including behaviors that assess relational manipulation (i.e., relational aggression) in addition to those that examine damage to peer acceptance and social standing (i.e., Cairns’ social aggression) improve our understanding of developmental risk for internalizing pathology? Similarly, the usefulness of distinguishing between direct and indirect modes of social and relational aggression in the prediction of outcomes in emerging adulthood has not been examined; however, since Björkqvist, Lagerspetz, and Kaukiainen (1992) have argued that indirect aggression is utilized, in part, to avoid retaliation, it is possible that individuals using indirect aggression may not experience the same negative outcomes as those exhibiting direct modes of aggression.

Research examining indirect, social, and relational aggression in children and adolescents has demonstrated that these behaviors are related to internalizing symptoms concurrently and over time (e.g., Card et al., 2008; Crick et al., 2006; Ellis, Crooks, & Wolfe, 2009; Fite, Stoppelbein, Greening, & Preddy, 2011; Murray-Close, Ostrov, & Crick, 2007; Underwood, Beron, & Rosen, 2011; Spieker et al., 2012). The limited work that has been conducted with adults suggests that these aggressive behaviors are also associated with internalizing difficulties in adulthood (e.g., Gros, Gros, & Simms, 2010; Werner & Crick, 1999). Rudolph and colleagues (2000) suggest that relational forms of aggression may be experienced as interpersonally stressful and may contribute to, or exacerbate, maladaptive beliefs about the self and relationships. In turn, this interpersonal stress may overwhelm an individual's coping resources and contribute to the development of depressive symptoms.

Research with children indicates that some indirectly, socially, and relationally aggressive youth are also victimized by their peers (i.e., targeted by aggressive behaviors; e.g., Crick et al., 2001; Gros et al., 2009). Researchers have postulated that aggressive behaviors are experienced as aversive by others, which leads to maltreatment by peers (Crick & Grotpeter, 1995). Additionally, victimized youth may choose to engage in aggressive behaviors as a means of retaliation or to prevent future attacks (Yeung & Leadbeater, 2007; Sugimura & Rudolph, 2012; Ostrov & Godleski, 2013). Although limited, research indicates that these aggressive behaviors are also associated with peer victimization in emerging adulthood (e.g., Kelley & Robertson, 2008).

None of the studies investigating whether relational, social, and indirect aggression are distinct constructs (i.e., Archer & Coyne, 2006; Coyne et al., 2006;

Crothers et al., 2008; Nelson et al., 2008) have assessed whether these forms of aggression are uniquely (or differentially) related to developmental correlates. If, for example, it was demonstrated that items that assess dyadic relationship manipulation (i.e., relational aggression; Crick & Grotpeter, 1995) were related to developmental correlates above and beyond items that reflect damage to social acceptance (i.e., Cairns' social aggression), a strong case could be made that these forms of aggression are not only distinct but that their distinction is *meaningful*. Thus, if factor analyses support distinct subtypes of aggression, it will be important to also determine if these forms and/or modes have discriminant predictive power in terms of significant developmental correlates.

Gender

Some researchers have argued that gender plays an important role in the development of relational, indirect, and social aggression. Campbell (1999) argued that the costs of direct aggression are greater for females than for males (see Björkqvist, 1994 for a discussion of the related concept of “effect/danger ratio”); therefore, females are more likely to avoid potentially damaging direct encounters and instead utilize indirect methods of gaining a competitive advantage. Crick and Grotpeter (1995) hypothesized that females are more likely to engage in relational aggression because it targets interpersonal relationships, a particularly important domain for females. Expanding on this idea, Rudolph (2002) argued that, because female relationships tend to be characterized by more intimacy, self-disclosure, and emotional support than those of males, threats to interpersonal relationships are particularly harmful for females. Similarly, Underwood (2004) argued that non-verbal forms of social exclusion may be

especially important in female peer groups because there are relatively few social consequences for these behaviors and overt meanness can be avoided while still maintaining popularity. Underwood (2004) also suggested that due to high levels of intimacy and self-disclosure in female peer groups, even subtle indicators of exclusion may be powerful. Thus, these researchers suggest that girls and women may exhibit higher levels of social, indirect, and relational aggression than boys and men.

However, a comprehensive meta-analysis by Card and colleagues (2008) found that, in childhood and adolescence, males and females engage in similar levels of indirect, relational, and social aggression. Further, research suggests that any gender differences in these behaviors may be even less likely to occur in adulthood (e.g., Bailey & Ostrov, 2008; Basow et al., 2007; Burton et al., 2007; Forrest et al., 2005; Goldstein, 2011; Loudin, Loukis, & Robinson, 2003; see Archer, 2004 and Archer & Coyne, 2005, for reviews), perhaps due to an increased flexibility in gendered interactions during this developmental period (e.g., unsegregated friendship groups, romantic relationships; Ostrov & Godleski, 2010). The current study assessed measurement invariance in regards to gender in order to determine if mean gender differences can be appropriately examined using the newly developed measure.

Goals and Hypotheses

Previous efforts to understand the differences between relational, social, and indirect aggression have been limited by how these behaviors have been operationalized and studied. As a result, we do not know whether the unique behaviors captured by the theoretical definitions of relational aggression and Underwood's social aggression

empirically fall into the same category as Cairns' social aggression, or whether these subtypes of aggression are indeed distinct constructs. It is also unclear whether these distinctions among behaviors improve our ability to understand important developmental correlates in adults. Additionally, since researchers have often used the terms indirect, relational, and social aggression interchangeably, it has not been readily acknowledged that indirectly aggressive behaviors only encompass some of the behaviors included by relational and social aggression and that this way of aggressing may be best conceptualized as a mode, rather than a form, of aggression.

It appears that a closer look at our current measures of relational, social, and indirect aggression is sorely needed. Thus, the first goal of the current study was to code all existing items on adult measures of relational, social, and indirect aggression as Cairns' social, relational, Underwood's social, or unclear in form and direct, indirect, or unclear in modality. Additionally, behaviors from qualitative interviews with emerging adults about aggression (drawn from Nelson et al., 2008) that fit the definitions of relational, Cairns' social, or Underwood's social aggression (direct or indirect in mode), were not adequately captured by items on existing measures, and appeared relevant for emerging adults were added to the item pool.

The second goal of the current study was to develop a revised measure of social and relational aggression in emerging adulthood by utilizing factor analytic techniques to examine the item pool. Analyses were designed to explore whether theoretically distinct forms (e.g., Cairns' social, relational, and Underwood's social) of aggression emerged as empirically distinct constructs, if other factor structures emerged that were not congruent with theory about relational and social aggression, or if these behaviors emerged as one

construct. Based on the fact that much of the theory and empirical evidence in this area of study are mixed, no specific hypotheses were made.

The third goal was to determine if any factors that emerged in the factor analyses were differentially related to developmental correlates (e.g., depressive symptoms), thus demonstrating meaningful and useful distinctions for researchers. As exploratory techniques were utilized to identify the factor structure of the items, no hypotheses were made regarding relations to developmental correlates. Finally, the fourth goal of the current study was to test the psychometric properties of the newly developed measure, including the internal consistency of any subscales, test-retest reliability, and the invariance of the final model across gender and educational groups (i.e., in college versus not in college; in college and/or have at least a bachelor's degree versus not in college and does not have at least a bachelor's degree). It was expected that the final measurement model would be reliable and would be invariant across gender and educational status.

Method

Overview

Three separate samples were collected via Amazon's Mechanical Turk (MTurk) in the current study: Sample 1 (i.e., participants for initial EFAs for core aggressive behavior items; participants for CFAs for items with social and relational identifiers), sample 2 (i.e., participants for CFAs, invariance testing, and relations to developmental correlates), and sample 3 (i.e., participants for internal consistency and test-retest reliability analyses).

Amazon's Mechanical Turk. MTurk is a crowdsourcing application in the social sciences (Chandler, Mueller, & Paolacci, 2013) that is becoming a popular method for recruiting large samples at a relatively low cost (Shapiro, Chandler, & Mueller, 2013). Participants choose Human Intelligence Tasks (i.e., HITs) of interest and are compensated when they successfully complete each task (e.g., surveys; Mason & Suri, 2012).

There are several reasons that MTurk was well-suited for use in the current study. First, a goal of the current study was to develop a measure that is generalizable to a diverse group of emerging adults. Research suggests that MTurk samples are significantly more diverse (e.g., race, SES, educational status) than traditional college samples (e.g., Buhrmester, Kwang, & Gosling, 2011; Casler, Bickel, & Hackett, 2013). Second, the current study required multiple relatively large samples that would take extensive time to recruit in a traditional manner. Through MTurk, data can be collected quickly and at a minimal cost (e.g., Buhrmester et al., 2011; Horton & Chilton, 2010). Third, one criticism of self-reports of aggressive behaviors is that individuals may display a social desirability bias such that they under-report their engagement in these behaviors. By using an MTurk sample, participants had complete anonymity and no in-person contact with a researcher. This may have lessened (although likely did not completely eradicate) this particular type of response bias.

Participants

Sample 1 participants. Data from 299 participants were gathered for sample 1; nine participants were excluded because they did not answer at least 90% of the attention

check questions correctly and an additional 11 were excluded because they exceeded the age range for the study (i.e., they were above the age of 29). The final sample included 279 men ($N = 132$; 46.81%) and women ($N = 146$; 52.33%; one person did not report gender) between the ages of 18 and 29 ($M_{\text{age}} = 25.71$, $SD = 2.71$) (see Table 1).

Participants identified as White (75.99%), Black (12.19%), Asian (5.73%), Latino (4.30%), American Indian or Alaska Native (0.36%), and other (1.43%). Approximately 25% of the sample was enrolled in college (undergraduate) at the time of the study (6.81% community college; 0.36% technical college; 2.87% two-year university/college; 15.41% four-year university/college). The highest level of education attained by participants was: 0.72% some high school; 38.35% high school; 19.35% associate's degree; 32.62% bachelor's degree, 6.45% master's degree; and 0.72% doctorate. The majority of participants reported being employed, with 51.25% reporting full-time employment, 27.96% reporting part-time employment, and 19.00% reporting being unemployed at the time of the study. Most participants reported a yearly household income between "less than \$10,000" and "\$70,000" (16.49% less than \$10,000; 49.10% \$11,000 - \$40,000; 24.01% \$41,000 - \$70,000; 5.02% \$71,000 - \$100,000; 1.08% \$101,000 - \$150,000; 0.72% \$151,000 - \$250,000; 0.36% \$251,000 or more). Sample 1 was demographically similar to the United States population of emerging adults (Arnett, 2016).

Sample 2 participants. Data from 299 participants were gathered for sample 2; seven participants were excluded because they did not answer at least 90% of the attention check questions correctly and an additional 10 were excluded because they exceeded the age range for the study (i.e., they were above the age of 29). The final

sample included 282 men ($N = 135$; 47.87%) and women ($N = 146$; 51.77%; one person did not report gender) between the ages of 18 and 29 ($M_{\text{age}} = 25.44$, $SD = 2.68$) (see Table 1). Participants identified as White (69.86%), Black (12.77%), Asian (7.09%), Latino (7.44%), American Indian or Alaska Native (1.06%), and other (1.42%). Approximately 29% of the sample was enrolled in college (undergraduate) at the time of the study (6.38% community college; 1.06% technical college; 3.90% two-year university/college; 17.38% four-year university/college). The highest level of education attained by participants was: 1.77% some high school; 42.91% high school; 18.79% associate's degree; 28.72% bachelor's degree; 5.32% master's degree; and 0.35% doctorate. The majority of participants reported being employed, with 54.26% reporting full-time employment, 19.5% reporting part-time employment, and 22.34% reporting being unemployed at the time of the study. Most participants reported a yearly household income between "less than \$10,000" and "\$70,000" (17.73% less than \$10,000; 44.68% \$11,000 - \$40,000; 26.60% \$41,000 - \$70,000; 5.31% \$71,000 - \$100,000; 2.48% \$101,000 - \$150,000; 0.35% \$151,000 - \$250,000). Sample 2 was also demographically similar to the United States population of emerging adults (Arnett, 2016).

Sample 3 participants. Data from 119 participants were gathered for sample 3; two participants were excluded because they exceeded the age range for the study (i.e., they were above the age of 29) and 14 participants were excluded because they incorrectly entered their MTurk ID. The final sample included 103 men ($N = 52$; 50.49%) and women ($N = 51$; 49.51%) between the ages of 18 and 29 ($M_{\text{age}} = 25.26$, $SD = 2.94$) (see Table 1). Participants identified as White (69.90%), Black (10.68%), Asian (7.77%), Latino (9.71%), American Indian or Alaska Native (0.97%), and other (0.97%).

Approximately 35% of the sample was enrolled in college (undergraduate) at the time of the study (4.85% community college; 1.94% technical college; 4.85% two-year university/college; 23.30% four-year university/college). The highest level of education attained by participants was: 4.85% some high school; 47.57% high school; 15.53% associate's degree; 26.61% bachelor's degree; 4.85% master's degree; and 0.97% doctorate. The majority of participants reported being employed, with 51.45% reporting full-time employment, 23.30% reporting part-time employment, and 23.30% reporting being unemployed at the time of the study. Most participants reported a yearly household income between "less than \$10,000" and "\$70,000" (17.48% less than \$10,000; 51.46% \$11,000 - \$40,000; 21.36% \$41,000 - \$70,000; 6.80% \$71,000 - \$100,000; 0.97% \$101,000 - \$150,000; 0.97% \$151,000 - \$250,000). Sample 3 was also demographically similar to the United States population of emerging adults (Arnett, 2016). Retention was 72.82% for the two-week follow-up.

Procedure

All study procedures were approved by the Institutional Review Board at the University of Vermont.

Nelson et al. (2008) coding items. Free-response items gathered by Nelson and colleagues (2008) were evaluated for potential inclusion in the current study. The participants for Nelson and colleagues' (2008) study included 134 college students aged 18–25 years (56.5% female; $M_{agefemale} = 19.30$; $M_{agemale} = 20.7$) recruited from a general education course at a private religious university in the Western United States.

Participants for this study were predominantly Caucasian (89.4%) and participation was completely voluntary.

Participants in Nelson et al. (2008) were asked four questions: 1) What do most men do when they want to be hurtful or mean to another man?; 2) What do most men do when they want to be hurtful or mean to a woman?; 3) What do most women do when they want to be hurtful or mean to another woman?; and 4) What do most women do when they want to be hurtful or mean to a man? Participants were asked to base their answers on college-aged men and women. Behaviors that fit the definitions of relational or social aggression (direct or indirect), were not adequately captured by items on existing measures, and appeared relevant for emerging adults were coded and included as potential items for the newly developed measure.

Amazon's Mechanical Turk procedures. Participants were recruited from MTurk and were consented online prior to beginning the survey. In order to ensure an even distribution of men and women as well as educational attainment, each sample was collected via four subsamples: 1) women with a college, university, community college, or technical college degree or who were currently enrolled (i.e., currently taking classes or enrolled as a student but on school break) in college as full-time or part-time students; 2) women without a college, university, community college, or technical college degree and who were not currently enrolled (i.e., not currently taking classes and not enrolled as a student who was on school break) in college as full-time or part-time students; 3) men with a college, university, community college, or technical college degree or who were currently enrolled (i.e., currently taking classes or enrolled as a student but on school break) in college as full-time or part-time students; and 4) men without a college,

university, community college, or technical college degree and who were not currently enrolled (i.e., not currently taking classes and not enrolled as a student who was on school break) in college as full-time or part-time students. Participants were required to be U.S. residents and to have at least a 90% task approval rate for their previous HITs (e.g., surveys). Ten attention check items were placed within the surveys; these items asked participants to enter a specific response such as “Please select the Almost Never response option”. To ensure that responses were not random or automated, participants were not included in the study (i.e., their data were removed from the dataset) if they had more than one incorrect response to these ten attention check items.

Based on the estimated time to complete the survey, participants were paid \$0.50 in sample 1, \$0.75 in sample 2, \$0.50 in sample 3, and \$0.50 in the two-week follow-up of sample 3. For the two-week follow-up survey, participants were contacted using an MTurk ID to complete surveys. MTurk IDs are anonymous such that the researcher cannot identify to whom the MTurk ID number belongs. Emails were sent through the MTurk system and, therefore, participants were not able to reply to the first author with identifying information. One email was sent the day prior to the survey being available, one email was sent the day the survey became available, and two emails were sent after that day to participants who had not yet completed the follow-up survey.

Measures

Overview. Figure 2 displays a flow chart of the stages of this study. In stage 1, all items on existing measures of relational, social, and indirect aggression for adults and additional items provided by a qualitative study by Nelson et al. (2008) were coded and

revised as necessary. The *Measures Considered for Inclusion in Exploratory Factor Analyses* section and Table 2 provide information (e.g., subscales, example items) regarding measures that were included in the current study. In stage 2 (sample 1), a demographic questionnaire and the revised aggression items (see Table 5) were administered to 299 emerging adults. In stage 3 (sample 2), a demographic questionnaire, developmental correlate measures, and the behavioral aggression items were administered to an independent sample of 299 emerging adults. In stage 4, a demographic questionnaire and the final measure were administered to an independent sample of 119 emerging adults (sample 3). The demographic questionnaire and the final measure were re-administered to the sample used in stage 4 in order to assess two-week test-retest reliability (stage 5).

Demographic information. Participants indicated their age, gender, racial/ethnic identity, highest level of education attained, if they were enrolled in college at the time of the study, income, and work status (i.e., unemployed, employed full-time, employed part time). If participants indicated that they were enrolled in college, they were asked to indicate if they attended a two-year, four-year, technical, or community college.

Measures considered for inclusion in exploratory factor analyses.

The Adult Indirect Aggression Scale- Aggressor Version (ISA-A; Forrest et al., 2005). The ISA-A consists of 25 items assessing adults' engagement in indirect aggression (e.g. "Intentionally embarrassed them in public"; "Intentionally ignored another person"; "Used private jokes to exclude them"). Participants indicate the frequency they have used each behavior over the past year on a scale from 1 (never) to 5

(very often). Previous research suggests favorable psychometric properties of this measure (Forrest et al., 2005).

The Adult Interpersonal Aggression Inventory (AIAI; Schober, Björkqvist, & Somppi, 2009). Two subscales of the AIAI were utilized: Indirect Aggression (10 items; e.g., “When provoked by, or angry with another person, have you told stories about them which would damage their reputation?”) and Non-Verbal Direct Aggression (Four items; e.g., “When somebody has made you angry or provoked you, have you given them dirty looks just to let them know you don’t want their friendship or company?”). Participants indicate the frequency they have used each behavior over the past year on a scale from 1 (never) to 5 (very often). Previous research suggests favorable psychometric properties of this measure (Schober et al., 2009).

Antisocial Behavior Questionnaire (STAB; Burt & Donnellan, 2009). The Social Aggression subscale of the STAB was used in the current study (11 items; e.g., “Gave someone the silent treatment when angry with him/her”, “Revealed someone’s secrets when angry with him/her”). Participants indicate how often they engage in particular behaviors on a scale from 1 (never) to 5 (nearly all the time). The Social Aggression subscale has demonstrated good internal consistency in prior research (Burt & Donnellan, 2009; Burt & Donnellan, 2010; Burt, Donnellan, & Tackett, 2012).

The Richardson Conflict Response Questionnaire (RCRQ; Green, Richardson, & Lago, 1996; Richardson & Green, 2003). The Indirect Aggression subscale of the RCRQ was included in the current study (10 items; e.g., “Spread rumors about them”, “Gathered other friends on my side”). Participants indicate how often they have engaged in particular behaviors in the past year when angry on a scale from 0 (never) to 4 (very

often). This subscale has demonstrated good internal consistency in prior research (e.g., Green et al., 1996; Richardson & Green, 2003).

The Self-Report of Aggression & Social Behavior Measure (SRASBM; Bailey & Ostrov, 2008; Morales & Crick, 1999; Murray-Close et al., 2010). The SRASBM includes 11 items assessing adults' engagement in relational aggression against peers over the past year (e.g., "I have threatened to share private information about my friends with other people in order to get them to comply with my wishes", "When I am not invited to do something with a group of people, I will exclude those people from future activities"). Participants respond on a scale from 1 (not at all true) to 7 (very true). The Relational Aggression subscale has demonstrated good internal consistency in prior research (e.g., Murray-Close et al., 2010).

Underwood's Social Aggression (Galen & Underwood, 1997). Although there are currently not measures of this construct in adulthood, there is tentative evidence that the gestural non-verbal behaviors proposed by Galen and Underwood (1997) are present in emerging adults (Nelson et al., 2008). Therefore, three items indicative of this subtype of aggression were developed based on the items used in samples of late adolescents (e.g., Ehrenreich, Beron, Brinkley, & Underwood, 2014) and were included for evaluation in the current study. One of Underwood's original items (i.e., "Gives others dirty looks, rolls his/her eyes, or uses other gestures to hurt others' feelings, embarrass them, or make them feel left out") was broken into three separate items in the current study in order to provide more clarity about the specific behaviors being utilized. The items for the current study are: "Give others dirty looks to hurt others' feelings, embarrass them, or make them feel left out", "Roll eyes in order to hurt others' feelings,

embarrass them, or make them feel left out”, and “Use non-verbal gestures to hurt others’ feelings, embarrass them, or make them feel left out,” Participants indicate how often they engage in particular behaviors on a scale from 1 (never) to 5 (very often).

Young Adult Social Behavior Scale (YASB; Crothers et al., 2009). Two subscales of the YASB were used: Indirect Social Aggression (five items; e.g., “I contribute to the rumor mill at school/work or with my friends and family”) and Direct Relational Aggression (five items; e.g., “When I am angry with a friend, I have threatened to sever the relationship in hopes that the person will comply with my wishes”). Participants indicate their engagement in these behaviors on a scale from 1 (never) to 5 (always). Previous research suggests favorable psychometric properties of these subscales (Crothers et al., 2009).

Stage 4 outcome measures.

Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Depressive symptoms were assessed using the CES-D, a 20-item measure in which participants report how frequently they exhibited symptoms of depression (e.g., “I felt sad”; “I had crying spells”) over the previous week on a scale from 0 (rarely or none of the time) to 3 (most or all of the time). Previous research has demonstrated favorable psychometric properties of this instrument with college students (e.g., Radloff, 1991) and the internal consistency in the current study (sample 2) was excellent (Cronbach’s $\alpha = .93$).

Revised Peer Experiences Questionnaire (RPEQ; Prinstein, Boergers, & Vernberg, 2001; Vernberg, Jacobs, & Hershberger, 1999). The Reputational (three

items; e.g., “Someone tried to damage your social reputation by spreading rumors or put-downs about you”) and Relational (five items; e.g., “Someone did not invite you to a party/social event even though they knew you wanted to go”) Victimization subscales of the RPEQ were combined to assess how often individuals were the target of relational/social aggression. Participants rated their experiences on a scale from 1 (never) to 5 (a few times a week). Previous work has established the internal consistency (Cronbach’s alpha = 0.85), test-retest reliability over a 6 month period (0.48 to 0.52), and validity of this measure (Prinstein et al., 2001; Vernberg et al., 1999) and the internal consistency in the current study (sample 2) was excellent (Cronbach’s $\alpha = .92$).

Data Analytic Plan

Stage 1.

Item coding, revision, and reading level analysis. The current study consisted of five stages (Figure 2). The first stage consisted of revising the coding scheme developed by Nelson and colleagues (2008) to categorize all items on existing measures into the following forms and modes: Cairns’ social aggression, relational aggression, Underwood’s social aggression, or unclearly defined in form; and direct, indirect, or unclear in modality. The original coding scheme of Nelson and colleagues (2008) was revised for the purposes of the present study because the original scheme did not include a category for Cairns’ social aggression and instead coded these items into relational aggression.

Despite the theoretical nesting of constructs depicted in Figure 1, relational aggression and Underwood’s social aggression were coded based on the *unique* behaviors

offered by these constructs, above and beyond items already captured by Cairns' previous formulation of social aggression. For example, although the item, "Gossips to harm social status" would fit with the definitions of Cairns' social, relational, and Underwood's social aggression because the latter definitions built upon the original conceptualization offered by Cairns, it would only be coded as Cairns' social aggression. Thus, the coding scheme was mutually exclusive within form and mode (e.g., an item would not be coded as both direct and indirect in modality). Items were coded as Cairns' social aggression if they primarily targeted peer acceptance and social status. Items were coded as relational aggression if they primarily targeted dyadic relationships such as friendships. Finally, items were coded as Underwood's social aggression if they primarily involved non-verbal gestural behaviors. See Table 3 for definitions.

The first author and a reliability coder independently coded each item into form and modality. Items gathered by asking emerging adults about aggressive behaviors typical in this developmental period (i.e., the items collected by Nelson et al., 2008) were also evaluated to assess if there were additional behaviors that fit the definitions of relational, Cairns' social, or Underwood's social aggression (direct or indirect in mode), were not adequately captured by items on existing measures, and appeared relevant for emerging adults. These items were added to the full item pool and coded. Any coding discrepancies were resolved by the first author, the reliability coder, and a doctoral level expert in the area of relational aggression research.

Item revisions were made to items in order to: 1) create a parallel structure across items (i.e., all items worded in the first person, similar wording used across items); 2) remove references to proactive or reactive functions of aggression (e.g., "when someone

hurts my feelings...”, “...in order to get them to comply with my wishes”); and 3) remove direct references to social or relational aggression in the item (e.g., “...in order to let them know you don’t want their friendship or company”).

Additionally, based on decisions made after item coding (see Item Coding, Revision, and Reading Level Analysis section below), items were revised into three separate item sets: 1) core aggressive behaviors (e.g., Gossiped about someone); 2) aggressive behaviors with a clear Cairns’ social aggression identifier that specified that the aggression was used to damage the victim’s feelings of acceptance or their reputation (e.g., “Gossiped about someone in order to make them feel left out, uncool or disliked, or to hurt their reputation”); and 3) aggressive behaviors with a clear relational aggression identifier that specified that the aggression was used to damage the victim’s close relationships (“Gossiped about someone in order to hurt or make them worry about their friendship/relationship(s) with me or others”).

A reading level analysis was conducted on all core aggressive behavior items to determine the reading difficulty level. Based on the results of a Flesch-Kincaid Grade Level analysis (Kincaid, Fishburne, Rogers, & Chissom, 1975), any core behavior items with a reading difficulty level exceeding an eighth grade education were reworded. Additionally, the response scale was revised such that participants indicated how much they engaged in a particular behavior currently and over the past year on a 5-point likert scale of measurement: 1 (never), 2 (rarely), 3 (occasionally), 4 (often), and 5 (very often).

After items were finalized, redundant or repetitive items were deleted. The first author and the doctoral level expert in relational aggression identified the item that best

mapped onto the theoretical constructs of interest within a set of similar items; these items were retained.

Stage 2.

Exploratory factor analyses. The second stage consisted of administering the core aggressive behavior items (i.e., without the relational/social identifiers) from stage 1 to a sample of 279 emerging adults ages 18 to 29. Exploratory factor analyses (EFAs) were utilized to determine the appropriate number and composition of factors and to reduce the item pool. All items were examined for violations of normality using SPSS 23.0 (IBM Corp., 2014). Based on significant violations of normality in samples 1 and 2, maximum likelihood estimation with robust standard errors (MLR) was used to accommodate non-normal data (Muthen & Muthen, 1998-2012) in all exploratory and confirmatory factor analyses. Moreover, even though no aggression items had more than 1.4% missing data, suggesting that missing data were ignorable (Graham, 2009), all data were considered in analyses as MLR uses full-information maximum likelihood estimation.

Because most of the core aggressive behavior items could not be clearly categorized into social or relational aggression, and therefore could not be mapped onto distinct theoretical factors by the researcher (see Results: Stage 1 Item Coding, Revision, and Selection section), it was determined that exploratory analyses would be the most appropriate. An EFA using Mplus 7.4 software (Muthén & Muthén, 1998-2012) and a geomin rotation (i.e., rotation that allows factors to correlate) was used to select the appropriate number and composition of latent factors. EFA techniques do not require a

priori selection of number of factors or their composition and allow items to cross-load onto multiple factors (Brown, 2006).

Parallel analysis, overall goodness of fit statistics, and factor composition (i.e., factors with only one or two items with strong factor loadings were considered poorly defined) were utilized to determine the optimal number of factors. Parallel analysis uses eigenvalues from the sample data and compares these values to eigenvalues produced by completely random data; if a factor accounts for more variance than is expected by chance (i.e., from the random eigenvalues), then it is retained (Brown, 2006, p. 27). Once the number of factors was determined, items with factor loadings below .50 and/or with cross-loadings above .30 were dropped from the model. Analyses were run in an iterative fashion such that once the worst-fitting items were dropped, the model was re-analyzed and items were reassessed for magnitude and statistical significance until all remaining items met the criterion above. Additionally, the EFA models were run separately by gender in each iteration of the analyses. If an item did not exhibit adequate fit for one gender (i.e., factor loading was below .50 and/or with cross-loadings above .30), the item was dropped. Finally, in order to ensure a brief final measure, the five items with the highest factor loadings were selected to comprise each factor.

The following fit statistics were employed to evaluate model fit of the best-fitting model: Chi-square (χ^2 : $p > .05$ good), Comparative Fit Index (CFI; $> .90$ acceptable, $> .95$ good), Tucker Lewis Index (TLI; $> .90$ acceptable, $> .95$ good), Root Mean Square Error of Approximation (RMSEA; $< .08$ acceptable, $< .05$ good) and the Standardized Root Mean Square Residual (SRMR; $< .08$ good) (Hu & Bentler, 1999).

Confirmatory factor analyses of items with relational/social identifiers. A series of follow-up analyses were conducted with the items with relational and social identifiers in order to explore if explicit reference to a social or relational target (e.g., target social status versus target interpersonal relationships) was relevant, above and beyond the core behaviors, for differentiating factors. Once the final items were identified utilizing EFA techniques, the corresponding items with social and relational identifiers were subjected to CFA analyses using the MLR estimator in Mplus 7.4 (Muthén & Muthén, 2015). The first CFA was a two-factor model that consisted of 30 items (i.e., each of the 15 items from the EFA final model was broken into a Cairns' social and relational item); one factor consisted of the items with a social identifier and the second included items with a relational identifier. The residuals of paired items were not allowed to correlate. The purpose of this analysis was to examine whether items with a clear differentiation between social and relational aggression loaded onto a social versus relational aggression factor, respectively. Good model fit for this model would highlight the relevance of the *target* of the core behaviors (i.e., whether the target was social status versus close interpersonal relationships), as detailed by theory regarding Cairns' social and relational aggression, for defining these aggressive behaviors.

A second model was specified in which each factor from the final model determined by the EFA analyses was broken into two factors: one factor with a relational identifier and one factor with a social identifier. For example, as detailed in the Results section, an Ignoring factor emerged in the EFA. As such, in this CFA, there were two Ignoring factors (i.e., Ignoring items with a social aggression identifier and Ignoring items with a relational aggression identifier). This purpose of this secondary analysis was

to examine the correlations between the corresponding factors with relational and social aggression identifiers and the overall goodness of fit of the model. This model retained the original factor structure from the EFA, accommodating the relevance of the different behaviors for the factor structure. However, this model extended the original model to include the target of the aggressive behavior, providing a test of whether this addition yielded insights into the aggressive behaviors, above and beyond the core behaviors. The residuals of paired items were not allowed to correlate. To test the importance of the target of the aggressive behaviors, a series of nested CFA models were compared using chi-square difference tests with the Satorra-Bentler scaling correction (Satorra, 2000) in order to determine if modeling target factors separately (e.g., an Ignoring factor with a social aggression identifier and an Ignoring factor with a relational aggression identifier) considerably improved model fit, when compared to a model in which these items loaded onto a single factor (i.e., Ignoring). If this six-factor model fit the data well, the correlations between the corresponding factors were low, and the chi-square tests were significant, the utilization of these items with relational and social aggression identifiers would be considered for inclusion in the measure.

Stage 3.

Confirmatory factor analyses. Because EFA procedures are exploratory in nature, it is recommended that results from an EFA are cross-validated in an independent sample (Brown, 2004, p. 30). Therefore, the third stage consisted of administering the final aggression items from stage 2 to a new sample of 282 emerging adults. A series of nested CFA models were compared in order to confirm that the factor structure determined in stage 2 was replicated in an independent sample.

Measurement invariance. A series of nested, multi-group CFA analyses were conducted to examine measurement invariance across gender and educational status (i.e., in college versus not in college; in college OR hold at least a bachelor's degree versus those not in college and without at least a bachelor's degree) in the best fitting model. In accord with the recommendation of Brown (2006, p. 269), the final CFA model was tested for measurement invariance in a "step-up" approach. First, the model was examined separately in each group (e.g., men and women) to determine if the model fit and factor loadings were similar across groups; if overall goodness of fit and loadings were appropriate, invariance testing was conducted. Second, a configural model (i.e., equal form) was estimated to determine if each group (e.g., men and women) had the same number and pattern of factors and loadings. Third, a metric invariance model (i.e., weak invariance) was used to test the equality of factor loadings across groups (i.e., configural plus factor loadings held to equality across groups). Finally, a scalar model (i.e., strong invariance) was used to test the equality of item intercepts across groups (i.e., configural plus metric plus intercepts held to equality across groups).

Concurrent validity: Developmental correlates. In order to assess how the final factors of the best-fitting model were related to relevant developmental correlates (i.e., depressive symptoms, relational/social victimization), a structural equation model (SEM) was conducted using Mplus version 7.4 (Muthén & Muthén, 2015) with MLR in sample 2. This SEM utilized the final CFA model and specified paths from each factor to each developmental correlate. The developmental correlates were allowed to correlate in the model.

Stages 4 and 5.

Internal consistency and two-week test-retest reliability. In the fourth and fifth stages, the final set of items was administered to a new set of 119 emerging adults. In these stages, the internal consistency (stage 4) and two-week test-retest reliability (stage 5) of the measure were examined. Based on the factor composition of the items, subscales were created that averaged the items across each factor. Cronbach's alpha was computed for each subscale using SPSS version 23 software (IBM SPSS, Inc., 2014). A bivariate correlation was computed between each baseline subscale score and two-week follow-up subscale score.

Results

Stage 1 Item Coding, Revision, and Selection

Item coding. Eighty-four items from existing measures of social, relational, and indirect aggression were considered for coding. An additional two items were developed based on qualitative responses gathered by Nelson et al. (2008). See Table 4 for a complete list of items.

Form. After initial inspection, 13 of the 86 items were not considered for coding in the current study. These items were not coded because the item was not deemed clearly aggressive in nature (10 items; e.g., "I break a friend's confidentiality to have a good story to tell") or the item was a type of aggression not investigated in the current study (3 items; e.g., verbal; "Called them names"). Additionally, seven items were classified as non-aggressive relational manipulation (e.g., "Tried to influence them by making them feel guilty"). These items included behaviors that were intended to manipulate an interpersonal relationship, but were not necessarily aggressive in intent (i.e., conducted in

order to hurt or harm the other person). Overall, 66 items were considered for coding as Cairns' social, relational, or Underwood's social aggression. Items with a strikethrough in Table 4 are items that were excluded for the detailed reasons.

Through the coding process, it became evident that, in most cases, items did not fall clearly into categories of Cairns' social, relational, or Underwood's social aggression. For example, the item "Purposefully left them out of activities" could be categorized as Cairns' social aggression if the aggressor left victims out of group activities (e.g., did not invite them to a party) as a way to make them feel that they were not accepted by the peer group and to damage their social status. Alternatively, "purposefully left them out of activities" could be coded as relational aggression if the activities were dyadic in nature (e.g., not inviting a close friend to an activity that the two friends generally do together). As another example, the item "Stopped talking to them" could be coded as relational aggression if the intent was to make victims worry about their relationship with the aggressor. However, it is also possible that an aggressor could stop talking to victims as a way to hurt their social status (e.g., ignoring a peer in front of others to make him or her look bad to the peer group); in this case, the behavior would reflect Cairns' social aggression. Indeed, if the aggressor does not have a close interpersonal relationship with the victim, then not talking to the peer may reflect Cairns' social, rather than relational, aggression.

A review of Underwood's social aggression items indicated that these items reflected specific behaviors, rather than targets of behaviors. This is because the non-verbal behaviors specified by Underwood (e.g., rolled eyes) could be used to target victims' feelings of acceptance as well as to target their close relationships. In fact, the

addition of the target of the aggressive act (e.g., “Rolled my eyes in order to make them feel left out, uncool or disliked, or to hurt their reputation” [Cairns’ social] and “Rolled my eyes in order to hurt or make them worry about their friendship/relationship(s) with me or others” [relational]) illustrates how these non-verbal behaviors could reflect either Cairns’ social or relational aggression, depending on the target of the behavior.

Based on these coding ambiguities, it was decided that many of the items as originally written could not be coded as clear exemplars of Cairns’ social or relational aggression. Therefore, the 40 items selected for inclusion in the EFAs (see Item selection and revision section below) were revised to capture the core aggressive behavior (e.g., “Rolled my eyes”, “Purposely left someone out of activities [e.g., going to the movies or a bar]”) without explicit reference to social or relational targets.

Mode. The majority of items were coded as unclear in modality. Items were coded as unclear if the way in which an aggressive behavior was carried out could not be clearly determined. For example, the item “Turned other people against them” could be enacted in a direct or indirect fashion. An aggressor could be overt by telling people not to associate with the victim in front of the victim (i.e., direct) *or* the aggressor could be covert by strategically turning people against the victim (e.g., sharing secrets) while maintaining a facade of innocence or anonymity (i.e., indirect). Based on the large number of items that were deemed unclear in modality, it was decided that modality would not be considered further in any analyses.

Item selection and revision. EFAs were conducted on the 40 behavioral items to assess whether they reflected a single factor or several distinct factors. Items were selected to not be redundant with other items and to capture a wide array of behaviors.

Revisions made to the final set of items for the EFAs are included in Table 5 and the full list of items administered to participants is included in Appendix A.

Items with relational/social aggression identifiers. Two additional identifier terms detailing the specific target of the behavior were created. One identifier reflected Cairns' social aggression because it specified that the aggressive behavior was used to damage the victim's feelings of acceptance or their reputation (e.g., "Ignored someone on purpose in order to make them feel left out, uncool or disliked, or to hurt their reputation"). The second identifier reflected relational aggression because it specified that the aggressive behavior was used to damage the victim's close relationships ("Ignored someone on purpose in order to hurt or make them worry about their friendship/relationship(s) with me or others"). A social and relational identifier were paired with each behavioral item, yielding 80 items. These items assessed each of the specific behaviors, but further detailed whether the behavior targeted acceptance/reputation (Cairns' social) or relationships (relational). These items were subjected to a set of follow-up analyses (see Confirmatory factor analysis for items with relational/social identifiers section). As Underwood's social aggression items were conceptualized as specific aggressive behaviors, rather than targets of aggression, an Underwood's social aggression identifier was not created. Instead, the Underwood behaviors were paired with the Cairns' social and relational identifiers.

Preliminary Analyses

The Kolmogorov-Smirnov Test of Normality was used to evaluate data for violations of normality (i.e., whether the sample distribution was significantly different

from the normal distribution at $p < .01$ or $p < .001$); violations from acceptable skewness and/or kurtosis were present for all items assessed in samples 1, 2, and 3. No problematic univariate or multivariate outliers were detected. In sample 1, 20 items had missing data but no items had more than 1.4% of the sample ($N = 4$) missing. Graham (2009) suggests that missing data at levels around 5% are unlikely to bias findings. Additionally, Little's MCAR test was not significant [$\chi^2(294) = 305.52, p = .31$], suggesting that the aggression items were missing completely at random. Taken together, these findings suggest that missing data for sample 1 were ignorable. In sample 2 and sample 3 baseline, no participants were missing data on any aggression items. The results of Little's MCAR test across sample 3 baseline and the two-week follow-up was not significant [$\chi^2(15) = 22.18, p = .10$], suggesting that the data across waves were missing completely at random.

Stage 2 Initial Factor Structure

Exploratory factor analyses. The behavioral items retained and revised from stage 1 (Table 5) were administered to a sample of 279 emerging adults (sample 1). See Table 6 for the final EFA results. Results suggested that a three-factor model fit the data best. Utilizing the criterion above (i.e., removing items with factor loadings below .50 and/or with cross-loadings above .30) and an iterative EFA process, the items were reduced in number from 40 to 18. The five items on each factor with the highest loadings were selected to comprise the three factors (i.e., 15 items total). These three factors were labeled Ignoring, Gossip, and Relational Manipulation. The Ignoring factor included: stopped talking to someone on purpose; gave someone the silent treatment; ignored someone on purpose; limited a conversation to a few words on purpose; and acted "cold"

or indifferent (i.e., not interested) towards someone. The Gossip factor included: made mean comments about someone's private life to other people; gossiped about someone; shared details about someone's private life with other people; made fun of someone behind their back; and called someone names behind their back. The Relational Manipulation factor included: told other people not to associate with someone; attempted to steal a rival's friend; flirted with someone's boyfriend or girlfriend; tried to break up or end someone's romantic relationship; and talked bad about someone to a person they had a crush on. The overall goodness of fit statistics indicated good model fit, $\chi^2(63) = 89.78$, $p = .02$, RMSEA = 0.04 (90% CI = 0.02 – 0.06), SRMR = .03, TLI = 0.97, CFI = 0.98.

Confirmatory factor analyses for items with relational/social identifiers. Once the final core aggressive behavior items were identified utilizing EFA techniques (see Exploratory factor analyses section and Table 6), the corresponding items with social and relational identifiers were subjected to CFA analyses. The factor variances were standardized and the factors were allowed to correlate freely.

The first model was a two-factor CFA consisting of 30 items (i.e., each item from the final EFA model was broken into one Cairns' social aggression and one relational aggression item); one factor consisted of the items with a social identifier (15 items) and the second factor included items with a relational identifier (15 items). Overall goodness of fit statistics indicated poor model fit, $\chi^2(404) = 1791.125$, $p < .001$, RMSEA = 0.10 (90% CI = 0.11 – 0.12), SRMR = .10, TLI = 0.68, CFI = 0.71. The correlation between the Cairns' Social Aggression and Relational Aggression factors was also very high ($r = 0.96$, $p < .001$); however, the results of a nested model comparison between this two-factor model and a one-factor model indicated that the two-factor model fit the data better

($p < .001$). This suggests that the items with social identifiers and items with relational identifiers were more appropriately categorized separately than together. However, based on the high correlation between factors and the poor overall model fit, it was determined that this two-factor model was not an appropriate fit to the data. The poor model fit suggests that clearly defining the target of an aggressive behavior as socially or relationally aggressive does *not* change the factor structure of the items to make these aggressive behaviors fall together into strictly Relational Aggression and Cairns' Social Aggression factors.

A second model was specified in which the three-factor model determined by the EFA analyses was broken into a six-factor model using the relational and social identifiers. Specifically, there were two Ignoring factors (i.e., Ignoring items with a social identifier and Ignoring items with a relational identifier), two Gossip factors (i.e., Gossip items with a social identifier and Gossip items with a relational identifier), and two Relational Manipulation factors (i.e., Relational Manipulation items with a social identifier and Relational Manipulation items with a relational identifier). Overall goodness of fit statistics indicated acceptable model fit, $\chi^2(390) = 723.78, p < .001$, RMSEA = 0.06 (90% CI = 0.05 – 0.06), SRMR = .04, TLI = 0.92, CFI = 0.93. However, the correlations among the paired factors were high. Specifically, the Ignoring factor with the social identifier was highly correlated with the Ignoring factor with the relational identifier ($r = .89, p < .001$), the Gossip factor with the social identifier was highly correlated with the Gossip factor with the relational identifier ($r = .92, p < .001$), and the Relational Manipulation factor with the social identifier was perfectly correlated with the Relational Manipulation factor with the relational identifier ($r = 1.00, p < .001$).

A series of nested CFAs were compared in order to test if constraining each of the paired factors to fall on one factor (e.g., the correlation between the Ignoring factor with a social identifier and the Ignoring factor with a relational identifier was constrained to one) degraded model fit as compared to the six-factor model. If model fit was significantly degraded, this would suggest that a model in which the paired factors with the social and relational identifiers were modeled separately provided a better fit to the data. Results indicated that the six-factor model fit the data better than a model that constrained the correlation of the two Ignoring factors to one ($p < .001$) and one that constrained the correlation of the two Gossip factors to one ($p < .001$). This suggests that the Ignoring factor with a relational identifier and the Ignoring factor with a social identifier were statistically distinct; this same distinction was also true for the Gossip factors. However, a model that combined the Relational Manipulation factor with a relational identifier with the Relational Manipulation factor with a social identifier into one factor did not exhibit worse fit than the six-factor model ($p = 0.37$), suggesting that the distinction between these factors was not important for the Relational Manipulation factor.

These findings suggest that the items with clear relational and social identifiers were very highly related but were nonetheless statistically distinct for the Ignoring and Gossip factors. The results of this series of CFAs, coupled with the poor model fit of the first CFA that attempted to model Relational Aggression (i.e., 15 items) and Social Aggression (i.e., 15 items) factors, suggest that the core aggressive behaviors appear to account for much of the variance in these models. Furthermore, the high correlations among factors suggest that the specific target (i.e., relational or social) of these behaviors

provides minimal information in terms of making distinctions between these factors. As such, it was determined that the items with relational/social identifiers did not clearly offer more utility to measurement than did the items without the identifiers; in fact, the items with an identifier added were not useful at all for defining the structure of the Relational Manipulation factor. The inclusion of these items would also double the length of the final measure. Therefore, in an effort to create a brief, parsimonious measure these items were not considered further for inclusion in the final measure.

Stage 3 Final Factor Structure

Confirmatory factor analyses. In order to confirm the factor structure of the model, the items retained in the EFA analysis were administered to an independent sample of 282 emerging adults (sample 2). The factor variances were standardized in this model and all results were interpreted from the fully standardized model. The CFA model in Table 7 and Figure 3 demonstrated good model fit, $\chi^2(87) = 179.34$, $p < .001$, RMSEA = 0.06 (90% CI = 0.05 – 0.07), SRMR = 0.04, TLI = 0.94, CFI = 0.95.

The Ignoring factor was significantly and positively related to the Gossip ($r = 0.71$, $p < .001$) and Relational Manipulation ($r = 0.53$, $p < .001$) factors. Gossip and Relational Manipulation were also significantly, positively related ($r = 0.76$, $p < .001$). All of the item loadings on the Ignoring factor were significant and ranged from 0.73 to 0.78. The item loadings on the Gossip factor were also significant and ranged from 0.74 to 0.83. Finally, the Relational Manipulation item loadings were all significant and ranged from 0.74 to 0.85.

In order to confirm that this model was the best fit to the data, a series of nested CFAs were compared. These nested models compared the fit of the three-factor model to several two-factor models (e.g., the Gossip and Ignoring factors were combined) and to a one-factor model. See Figure 4 for a depiction of these nested models. Results indicated that the three-factor model fit the data significantly better than any of the nested models (all $ps < .001$); therefore, the three-factor model was retained. The reading grade level for all final items were at the eighth grade level or below (see Appendix C for reading grade level of each item)

Measurement invariance.

Overview. A series of nested, multi-group CFA analyses were conducted to examine measurement invariance across gender and educational status (i.e., currently enrolled in college versus not enrolled; currently enrolled in college and/or at least a bachelor's degree versus not in college and no degree at the bachelor's level or above) in the final CFA model. See Table 8 for complete model results.

Gender invariance testing. The models testing the final CFA model separately by gender displayed overall acceptable fit. Chi-square difference tests between the configural, metric, and scalar models were all nonsignificant (all $ps > .20$), supporting strong measurement invariance across women and men.

Educational status invariance testing: Enrolled in college versus not enrolled in college. Although most investigations of emerging adults utilize traditional college samples, college is a unique context and the behaviors exhibited among emerging adults in this context may be different from those exhibited by emerging adults not attending college. In order to confirm the utility of this measure in samples of individuals not

traditionally studied (i.e., those not currently in college), invariance testing was conducted among those currently attending college (undergraduate; i.e., community, technical, two-year college/university, or four-year college/university) and those not enrolled in college at the time of the study. The models testing the final CFA model separately by educational status displayed adequate model fit. Chi-square difference tests between the configural, metric, and scalar models were all nonsignificant (all $ps > .20$), supporting strong measurement invariance across individuals enrolled in college and those not currently enrolled in college.

Educational/degree status invariance testing: Currently enrolled in college and/or at least a bachelor's degree versus not in college and no degree at the bachelor's level or above. It is possible that there are behavioral differences between those who are in the process of gaining a college degree or have already done so and those who did not attend college; indeed, Arnett (2000) terms individuals who do not attend college the “forgotten half” in emerging adult research. Therefore, testing was conducted to examine measure invariance among those currently attending college (undergraduate; i.e., community, technical, two-year college/university, or four-year college/university) and/or who held at least a bachelor's degree versus individuals who were not enrolled in college at the time of the study and did not hold a degree at the bachelor's level or above. The models testing the final CFA model separately by educational/degree status displayed adequate model fit. Chi-square difference tests between the configural, metric, and scalar models were all nonsignificant (all $ps > .40$), supporting strong measurement invariance across individuals enrolled in college and/or

had at least a bachelor's degree and those not currently enrolled in college and did not have at least a bachelor's degree.

Structural model for developmental correlates. To examine if the Ignoring, Gossip, and Relational Manipulation factors were differentially related to relevant developmental correlates (i.e., depressive symptoms, relational/social victimization), a SEM was conducted using sample 2 (see Figure 4). This SEM utilized the final CFA model and specified paths from each factor to each developmental correlate. The developmental correlates were allowed to correlate in the model. The SEM model demonstrated good model fit, $\chi^2(123) = 227.71, p < .001$, RMSEA = 0.06 (90% CI = 0.04 – 0.07), SRMR = 0.04, TLI = 0.95, CFI = 0.96.

Relational/social victimization was correlated with depressive symptoms ($r = 0.42, p < .001$). The fully standardized model results indicated that the Ignoring factor did not significantly predict depressive symptoms ($\beta = 0.17, p = .11$) or relational/social victimization ($\beta = 0.13, p = .18$). The Gossip factor also did not predict depressive symptoms ($\beta = -0.10, p = .51$) or relational/social victimization ($\beta = -0.06, p = .62$). However, Relational Manipulation significantly, positively predicted both depressive symptoms ($\beta = 0.42, p < .001$) and relational/social victimization ($\beta = 0.66, p < .001$).

Stages 4 and 5 Internal Consistency and Test-Retest Reliability

The final 15 items determined by the factor analyses were administered to an independent sample of 119 emerging adults (sample 3). At baseline, internal reliability was excellent for the Ignoring (Cronbach's $\alpha = .89$), Gossip (Cronbach's $\alpha = .91$), and Relational Manipulation (Cronbach's $\alpha = .90$) subscales.

Test-retest reliability was strong as indicated by between time-point correlations for Ignoring ($r = .71, p < .001$), Gossip ($r = .69, p < .001$), and Relational Manipulation ($r = .80, p < .001$).

Discussion

Researchers have disagreed about the extent of the similarities and differences between Cairns' social, relational, and Underwood's social aggression (Archer & Coyne, 2005); as such, it has remained unclear if there is empirical and theoretical merit in investigating the behaviors that are derived from these definitions separately. The primary purpose of the current study was to develop a reliable and valid measure of social and relational aggression for emerging adults using items from established measures of indirect, social, and relational aggression. In stage 1, all existing items on adult measures of relational, social, and indirect aggression were coded as Cairns' social, relational, and Underwood's social aggression; items were also coded as direct and indirect in modality. In stage 2, items that were revised to reflect a core aggressive behavior (e.g., "Purposely left someone out of activities [e.g., going to the movies or a bar]") were subjected to EFA analyses. Additionally, once the factors and their composition were determined using EFA techniques with the core aggressive behaviors, these items with a relational aggression and a social aggression identifier added were subjected to follow-up CFA analyses. In stage 3, CFAs with an independent sample were used to confirm the factor structure of the model determined by the EFA analyses. The measurement invariance of the model was also tested along with the factors' relations to developmental correlates. Finally, in stages 4 and 5, the internal consistency and test-

retest reliability of the measure was established. Through this approach, the Relational/Social Aggression in Adulthood Measure (RSAAM) was developed (Appendix B).

Item Coding and Revision

The item coding during stage 1 yielded some surprising findings. Specifically, most items could be coded as Cairns' social *or* relational aggression depending on the *specific target of the behavior*. For example, the item "Revealed someone's secrets when angry with him/her" would be conceptualized as Cairns' social aggression if the behavior harmed the victim's social status; alternatively, the item would be relational aggression if the goal was to tell the secret in order to get the victim's friend mad at the victim. This suggests that the differentiation between Cairns' social and relational aggression is challenging to capture, and that most extant measures purporting to assess each form do not adequately distinguish between these subtypes. Perhaps previous findings regarding the distinctions between Cairns' social and relational aggression have been mixed because most items used to measure these types of aggression do not unambiguously map onto a specific theoretical construct. However, although most past research has not utilized items that clearly delineate relational or social targets, findings from several studies suggest that these types of aggressive behaviors *do* fall on distinct factors (e.g., Coyne et al., 2006; Crothers et al., 2008), although the composition of these factors differed across studies. In other words, despite not clearly defining items as relationally or socially aggressive, the behaviors appear to be distinct in other ways. Therefore, items in the current study were developed in order to test whether there are distinct subtypes of

aggressive *behaviors*; in addition, follow-up analyses assessed whether the incorporation of the *target* of the behavior (i.e., social or relational) provided additional information about this class of behaviors. This was an important strength of the current study as no other research has clearly distinguished between these two facets.

Similar to the item coding for form, many of the items could be considered direct or indirect based on the *specific context* of the action. For example, the item “Limited a conversation to a few words on purpose” would be coded as direct if the aggressor made it explicit that they were intentionally limiting their conversation with the victim. Alternatively, this item would be considered indirect if the aggressor pretended that they were not intentionally limiting their conversation with the victim (e.g., said that they simply did not have anything to say to the victim) or that the victim misinterpreted the aggressor’s actions (e.g., said that the victim was being overly sensitive). It became evident through the item coding that many behaviors could be enacted in a number of different ways and that in order to test the impact of modality in these analyses, the items would need to be revised to be clearly direct or indirect in nature. It was determined that developing a measure to target modality was beyond the scope of the current project; therefore, modality was not considered in any statistical analyses. Future research would benefit from creating indirect and direct identifiers for the items on the RSAAM and testing if this differentiation by modality has utility in terms of refining the factor structure of the measure and the factors’ relations to developmental correlates.

Factor Structure of Final Measure

The results of the exploratory (sample 1) and confirmatory (sample 2) factor analyses with the core aggressive behavior items indicated that a three-factor model fit the data best. The Ignoring factor was composed of five items that measure ignoring and exclusionary behavior (e.g., “Stopped talking to someone on purpose”). The Gossip factor was composed of five items that measure gossip, rumor spreading, and related behaviors (e.g., “Shared details about someone's private life with other people”). Finally, the Relational Manipulation factor was composed of five items that measure attempts to manipulate the interpersonal relationships (i.e., romantic relationships or friendships) of victims (e.g., “Tried to break up or end someone’s romantic relationship”).

The composition of these factors suggests that there are important distinctions between the behaviors that are categorized as ignoring, gossip, and relational manipulation. Interestingly, the majority of the items on the Relational Manipulation factor were some of the few items that were coded as clearly relational aggression (e.g., “Tried to break up or end someone’s romantic relationship”) without any sort of identifier added. The items on the Ignoring and Gossip factors were primarily unclear in form such that they could be conceptualized as Cairns’ social or relational aggression depending on the specific target of the behavior. Thus, behaviors that clearly and specifically target interpersonal relationships appear distinct from other related behaviors (i.e., ignoring, gossip) that can be used to target social status as well as relationships.

These findings are similar to those of Coyne and colleagues (2006), who had the following three factors emerge when using exploratory factor analyses: indirect aggression (e.g., gossiping, ignoring someone, sending anonymous mean notes), direct

relational aggression (e.g., not inviting someone to a party, threatening to break off a friendship, getting others to dislike someone), and non-verbal social items (e.g., giving dirty looks, rolling eyes). However, unlike in the current study, many of the gossiping and ignoring behaviors in the Coyne et al. (2006) study fell onto the same factor and a distinct Underwood's social aggression factor emerged. This may reflect a developmental difference in the way that these behaviors co-occur during emerging adulthood, but longitudinal research spanning multiple developmental periods is required to confirm this hypothesis. Further, it is important to note that the findings from the current study are not directly comparable to other studies due to definitional and methodological differences (e.g., assumptions regarding the confluence of modality and form in previous work). Although more research is required in this area, the emergence of distinct relational manipulation/aggression factors across multiple studies is promising and suggests that there is something unique and meaningful about this class of behaviors.

Another interesting observation is that the behaviors defined as the "silent treatment," which were originally proposed by Crick and Grotpeter (1995) to be a part of relational aggression, did not fall into the Relational Manipulation factor but instead fit best with ignoring and exclusionary behaviors. Indeed, across multiple rigorous statistical tests (i.e., EFA, CFA, nested model comparisons), the silent treatment did not load onto the Relational Manipulation factor. This is in contrast to theoretical categorizations in previous research (e.g., Nelson et al., 2008) and again suggests that clearly relationally manipulative behaviors are distinct from related behaviors that can be used to target either relationships or social status.

The structure of the Relational Manipulation factor suggests that items on existing measures of indirect, social, and relational aggression do not include all of the most relevant behaviors for emerging adults. Specifically, two of the five items on this factor were items developed based on the qualitative analysis conducted by Nelson and colleagues (2008). Furthermore, the majority of the items on this factor, including the Nelson et al. (2008) items, involved the manipulation of the victim's romantic relationships. Research suggests that the importance of peers declines into emerging adulthood whereas the importance of romantic relationships increases (Brown, 2004). As it has been argued that aggressors will target the most important domain for their victim (Rudolph, 2002), it is logical that many of the behaviors aimed at harming interpersonal relationships in this age group will target romantic relationships. Indeed, although it was not included in her self-report measure of relational aggression, Crick and colleagues (1999) noted that, "whereas relationally aggressive children have been found to manipulate others' feelings in the *same*-sex peer group, older adolescents' described ways in which peers threaten others' feelings of acceptance by *opposite*-sex peers" (p. 93). The structure of this factor clearly suggests that items used to measure relationally and socially aggressive behaviors in childhood cannot be simply "aged-up" for use with adults. These items suggest that there is heterotypic continuity such that the manifestation of these aggressive behaviors may change over time (e.g., become more focused on targeting romantic relationships) and, therefore, items should be developed specifically for use with adults.

Notably, none of Underwood's social aggression items were included in the final measure nor did the items form a separate factor. Although some of these items (e.g.,

“Gave someone dirty looks”) loaded adequately onto the Ignoring factor, they were not among the five highest-loading items on the construct and, therefore, were not included in the final measure. It appears that these non-verbal items are best conceptualized as indicators of ignoring, rather than a distinct category of behavior. There are several possible explanations for these findings. First, congruent with the findings of Nelson and colleagues (2008), it is possible that these non-verbal behaviors are not as relevant in emerging adulthood as has been demonstrated in younger age groups (e.g., Underwood et al., 2011). Although these behaviors may be present in emerging adulthood, they may not be the best items to capture the constructs of interest. Second, it is possible that these behaviors are important in emerging adulthood but cannot be accurately reported by aggressors. Because of their subtlety, these non-verbal behaviors may occur outside of conscious awareness and, as such, an aggressor may have difficulty reporting on their engagement in these behaviors, making these items inappropriate for use in a self-report measure. However, before firm conclusions can be made about the importance of Underwood’s social aggression in emerging adulthood, these behaviors should be investigated from the victim’s perspective and by using observational techniques.

Analyses with Items with Relational/Social Identifiers

In order to test the utility of clearly specifying the target of the aggression to capture Cairns’ social and relational subtypes, items selected using the EFA techniques were then broken into social and relational aggression identifier items. A two-factor CFA model that specified a Cairns’ Social Aggression and a Relational Aggression factor did not fit the data well. Additionally, the correlation between the two factors was very high

($r = 0.96, p < .001$). A nested model comparison of this two-factor model to a one-factor model, however, did demonstrate that the two-factor model fit the data significantly better. Despite the fact that items with a social aggression identifier did fit statistically better when separate from items with a relational aggression identifier, the high correlation between these factors and the poor overall model fit suggest that clearly defining the aggressive behavior as socially or relationally aggressive did *not* change the factor structure of the items to make these aggressive behaviors fall together into strictly Relational Aggression and Cairns' Social Aggression factors. This suggests that the target (i.e., relationships versus social status) does not appear as important as the core aggressive behaviors themselves.

Because an acceptable factor structure had already been determined using the core aggressive behavior items, a second CFA analysis was specified to test the utility of using social and relational identifiers within the context of the previously determined factor structure. Specifically, the three-factor model determined by the EFA analyses was broken into a six-factor model using the relational and social identifiers. The model fit was acceptable; however, the correlations among paired factors were very high. The results of a series of nested model comparisons suggested that the Ignoring factor with the relational identifier was distinct from the Ignoring factor with the social identifier and the Gossip factor with the relational identifier was distinct from the Gossip factor with the social identifier; however, the Relational Manipulation factor with the relational identifier was not distinct from the Relational Manipulation factor with the social identifier. Although there were significant improvements in model fit when the Ignoring and Gossip factors were separated into social or relational targets, the high correlations

suggest that the overlap between these paired factors was high. In fact, for the relational manipulation items, the items with relational identifiers were not statistically distinguishable from those with social identifiers. This was likely true because most of the items on the Relational Manipulation factor were those that could be unequivocally coded as relational aggression; as such, these items appear inherently relationally aggressive based on the core behaviors and adding the specific target was unsuccessful in altering the form of these behaviors.

Given the high correlations between paired relational and social identifier factors, and the significant increase in measure length required to incorporate the identifiers (i.e., a 30-item rather than 15-item measure), it was determined that these items would not be included in the final measure. Overall, the analyses suggested that engagement in the core aggressive behaviors, regardless of clear social or relational targets, are especially important in measurement and appeared to capture most of the variance in the model. However, future research should examine if items with clear social and relational aggression identifiers, specifically for ignoring and gossiping behaviors, have distinct implications for development. For example, it would be beneficial to examine if aggressive behaviors that are clearly relationally aggressive are differentially related to poor outcomes as compared to behaviors that are clearly socially aggressive. This distinction between desiring to harm social status (i.e., Cairns' social aggression) versus interpersonal relationships (i.e., relational aggression) may also be difficult to determine from the aggressor's point of view in a retrospective manner. As such, it may be beneficial to examine relational and social subtypes by utilizing alternative techniques to self-report (e.g., observation).

Measurement Invariance

Although measurement invariance (i.e., the same factor structure across groups) is a prerequisite to examining group differences (Brown, 2004), no measures of indirect, social, or relational aggression developed for adults have tested this. Results in this study (sample 2) suggested strong measurement invariance across gender and educational status (i.e., currently enrolled in college versus not enrolled; currently enrolled in college and/or at least a bachelor's degree versus not in college and no degree at the bachelor's level or above). Therefore, mean differences across these groups can be validly assessed. This is an important strength of the RSAAM as it suggests that this measure is a useful and valid assessment tool for groups not commonly assessed in social and relational aggression research (e.g., men; those who never attended college; older emerging adults that have graduated from college) as well as the more commonly studied groups (e.g., women; college students).

Internal and Test-Retest Reliability

The internal consistency for each of the three subscales was strong (sample 3; i.e., alpha coefficients above .85) (Cortina, 1993) and the test-retest reliability indicated high stability (Cohen, 1992) of measurement over two weeks. Taken together, the internal consistency and test-retest reliability of the RSAAM suggest that this is a reliable measure of these behaviors in emerging adults.

Relations to Developmental Correlates

The structural model investigating the relations between the Ignoring, Gossip, and Relational Manipulation factors and the developmental correlates of interest yielded

interesting findings. Specifically, the Relational Manipulation factor was related to higher levels of depressive symptoms and relational/social victimization whereas the Ignoring and Gossip factors were not significantly related to either of the developmental correlates. Thus, not only are clear relationally manipulative behaviors distinct from ignoring and gossiping behaviors, but they are differentially related to poorer functioning.

There are several plausible reasons that relational manipulation is uniquely related to poorer functioning in adulthood. First, perhaps these relationally manipulative behaviors (e.g., “Tried to break up or end someone’s romantic relationship”) are more difficult to execute in a way that is undetectable or in which innocence is easily feigned (i.e., in an indirect manner; Coyne et al., 2006). As research suggests that directly aggressive acts carry a higher risk as they may incur retaliation (Björkqvist et al., 1992), perhaps relationally manipulative individuals experience more problems with peers (e.g., victimization) and therefore experience more symptomatology (e.g., depression) as a result. However, as modality was not able to be clearly determined in the current study, future research should explicitly ask adults the manner in which they engage in these behaviors (i.e., direct or indirect) in order to explore if the mode of the behaviors helps explain the unique developmental correlates of this factor.

Second, perhaps these relationally manipulative behaviors are less normative than ignoring and gossiping behaviors. For example, research has suggested that gossip is a normative feature of communication and social development and can be related to perceptions of intimacy (Gottman & Mettetal, 1986). However, it should be noted that the gossiping behaviors investigated in the current study were *aggressive* in nature. This is an important distinction from communication science research, which includes things like,

“‘idle talk’ and ‘chit chat’ about daily life,” (Foster, 2004, p. 80) in definitions of gossip. Therefore, it still remains to be determined if aggressive gossip is a normative, and therefore more socially acceptable, behavior in adulthood. Similarly, perhaps ignoring behaviors are also seen as more acceptable behavior and incur less retaliation from peers than relational manipulation. Salient socializers of behavior (e.g., teachers) often encourage the use of ignoring in young children as a skill for handling challenging social situations (e.g., conflict); as such, these ignoring behaviors may be adopted into the socially acceptable repertoire of behavior at a young age. Although more research is needed in this area, an inspection of the subscale means (range 1– 5) in sample 3 indicated that ignoring was most commonly used ($M = 2.73$), followed by gossip ($M = 2.35$) and relational manipulation ($M = 1.70$). Results of an ANOVA with repeated measures with a Greenhouse-Geisser correction indicated that the subscale means were statistically different [$F(1.89, 192.69) = 71.66, p < .001$]. Post hoc tests using a Bonferroni correction confirmed that ignoring was reported more frequently than gossip ($p < .001$) and relational manipulation ($p < .001$). Gossip was reported more frequently than relational manipulation ($p < .001$).

Strengths and Limitations

The current study included a number of strengths that contribute to a greater understanding of the socially and relationally aggressive behaviors of emerging adults. First, this was the first study to evaluate the definitions of relational and social aggression and rigorously code all existing adult self-report items of indirect, relational, and social aggression according to these theoretical definitions. Without this rigorous coding, the

ambiguity in form of many items would not have been discovered. Additionally, without this coding, the fact that most of the items on the Relational Manipulation factor were drawn from the small set of items coded as distinctly relationally aggressive would have escaped attention. Second, the current study did not simply rely on previous measures of social, relational, and indirect aggression in adulthood but also utilized qualitative responses from Nelson et al. (2008). This approach ensured that we captured a wide breadth of emerging adult behaviors that may have been missed in established measures due to methodological issues in their development (see Developmental Considerations for Emerging Adults section). Third, the RSAAM was developed through a series of rigorous methodological stages using three independent samples. Fourth, the current study utilized advanced statistical methodology to determine the factor structure (e.g., EFAs, CFAs), establish measurement invariance, explore reliability, and provide initial support for validity (e.g., relation to developmental correlates).

Fifth, the current study utilized data from emerging adults to determine the final items for the RSAAM. This approach ensures that we can be confident that the behaviors selected were most relevant for emerging adults rather than assuming, for example, that the behaviors in adolescence are similar in emerging adulthood (e.g., Crothers et al., 2008). Sixth, the current study was designed to include a diverse sample (e.g., educational attainment, gender) of emerging adults that reflect the heterogeneity characteristic of this developmental period (Arnett, 2000). Most research to date has examined socially and relationally aggressive behaviors in college students; however, the development of this measure using a diverse group of emerging adults opens the door to future research exploring these behaviors in less commonly studied groups of emerging

adults. In fact, the measurement invariance of the RSAAM across multiple groups suggests that this is a valid measure for a number of subpopulations of emerging adults as well as for men and women.

The current study was also limited in several important ways. First, although all samples very closely mirrored the current racial composition of the United States population (U.S. Census Bureau, 2015), they were primarily Caucasian (i.e., 69.86% - 75.99%). Future research is needed to determine the full generalizability and measurement invariance of the RSAAM with more diverse individuals. Second, all aggression items and developmental correlates were reported by a single reporter, introducing the potential of shared method variance. Future research would benefit from examining how self-reported aggression is related to the developmental correlates as reported from other sources (e.g., observation, clinical interview). Furthermore, research should seek to provide more evidence for construct validity by comparing the convergence of self-reported social/relational aggression and other-reported social/relational aggression.

Third, the current study was cross-sectional in nature, limiting conclusions about directionality concerning the developmental correlates. Although conjecture was made regarding the directionality of these relations based on past theory (e.g., aggressive behaviors precede depressive symptoms; Werner & Crick, 1999), the findings from the current study need to be confirmed in a longitudinal study. Future research would also benefit from exploring the mediational pathways through which some of these maladaptive correlates (e.g., victimization) further predict other outcomes (e.g., depressive symptoms). Fourth, the current study only included a small number of

developmental correlates and future research should seek to explore how the subscales from the final model are related to other important developmental outcomes. For example, past research has found that engagement in relational aggression is positively related to popularity in the peer group but inversely related to likeability (see Murray-Close et al., 2016 for a review). Given the factor structure of the final model and the emergence of a Relational Manipulation factor, it is possible that relational manipulation is distinctly related to higher popularity and lower likeability; however, this remains to be investigated and is a fruitful area for future work. Fifth, as differential relations have been found between these developmental correlates and aggressive behaviors in past research when gender was considered, moderation by gender should also be explored.

Sixth, although self-reported aggression provides important information about emerging adults' social behavior, a similar version is also needed to measure victimization. An important next step will be to develop a victim version of this measure using the same techniques reported in the current study. Seventh, the instructions for completing the measure were designed to elicit reporting on both proactive (i.e., goal-directed and deliberate) and reactive (i.e., defensive or retaliatory; Crick et al., 1996) functions of aggression (i.e., "...when you are trying to be mean to, get back at, or get something you want from a friend/colleague/peer."). Research indicates that these functions of aggression are distinct (see Murray-Close et al., 2016) and are differentially associated with levels of peer victimization (e.g., Poulin & Boivin, 2000) and internalizing problems (e.g., Mathieson & Crick, 2010). An important next step for the continued development of the RSAAM will be to develop and test the utility of subscales that specify proactive and reactive functions. Eighth, the items from the current study

were specifically selected to reflect *peer*-directed relational and social aggression. Past research has emphasized the importance of investigating this class of behaviors enacted against romantic partners (i.e., romantic relational aggression), especially in emerging adulthood (e.g., Murray-Close, 2011). A future direction for the development of the RSAAM will be to develop items that are enacted against romantic partners in order to achieve a more comprehensive measure of aggressive behaviors in emerging adulthood.

Conclusions

The current study utilized rigorous theoretical, methodological, and statistical techniques to develop a measure of social and relational aggression: the RSAAM. The newly developed measure displayed strong psychometric properties and was invariant across gender and educational groups. Overall, the results of the current study suggest that purely relationally manipulative behaviors are distinct from other, related behaviors (e.g., gossip, ignoring) and are also differentially related to developmental correlates. Archer and Coyne (2005) noted, “there are very few differences between indirect, relational, and social aggression in terms of the actions involved, their development, sex differences, and consequences” (p. 225) and, for the most part, the findings from this study were congruent with this logic. However, the differences that do exist between purely relationally aggressive behaviors and related behaviors, such as gossip and ignoring, *do* appear important in terms of defining the factor structure of these items and relating to developmental correlates. Therefore, perhaps it is time to move away from broad theoretical definitions of relational and social aggression and instead focus on the specific aggressive behaviors being enacted. More work is needed to understand the

distinction between ignoring, gossip, and relationally manipulative behaviors in emerging adulthood and other age groups, but the creation of the RSAAM provides an important first step toward understanding these behaviors in emerging adults.

Table 1

Demographic Characteristics of Sample Participants

	Sample 1	Sample 2	Sample 3
	<i>M (SD)</i> or Percentage <i>N</i> = 279	<i>M (SD)</i> or Percentage <i>N</i> = 282	<i>M (SD)</i> or Percentage <i>N</i> = 103
Age	25.71 (2.71)	25.44 (2.68)	25.26(2.94)
Gender (% women)	52.33%	51.77%	49.51%
Race/ Ethnicity			
White	75.99%	69.86%	69.90%
Black or African- American	12.19%	12.77%	10.68%
Asian	5.73%	7.09%	7.77%
Hispanic or Latino(a)	4.30%	7.44%	9.71%
American Indian or Alaska Native	0.36%	1.06%	0.97%
Other	1.43%	1.42%	0.97%
Currently Enrolled in College (undergraduate)			
Community College	6.81%	6.38%	4.85%
Technical College	0.36%	1.06%	1.94%
2-year	2.87%	3.90%	4.85%
University/College			
4-year	15.41%	17.38%	23.30%
University/College			
Educational Attainment			
Some High School	0.72%	1.77%	4.85%
High School	38.35%	42.91%	47.57%
Associate's Degree	19.35%	18.79%	15.53%
Bachelor's Degree	32.62%	28.72%	26.21%
Master's Degree	6.45%	5.32%	4.85%
Doctorate	0.72%	0.35%	0.97%
Employment Status			
Full-time	51.25%	54.26%	51.45%
Part-time	27.96%	19.50%	23.30%
Unemployed	19.00%	22.34%	23.30%
Income			
Less than \$10,000	16.49%	17.73%	17.48%
\$11,000 - \$40,000	49.10%	44.68%	51.46%
\$41,000 - \$70,000	24.01%	26.60%	21.36%
\$71,000 - \$100,000	5.02%	5.31%	6.80%
\$101,000 - \$150,000	1.08%	2.48%	0.97%
\$151,000 - \$250,000	0.72%	0.35%	0.97%
\$251,000 or more	0.36%	0%	0%

Table 2

Aggression Measures and Subscales Selected for Inclusion

Measure	Scale	# Items	Subscales	Example Item
The Adult Indirect Aggression Scale- Aggressor Version (ISA-A; Forrest et al., 2005)	5-point	25	Social Exclusionary Malicious Humor Guilt Induction	“Purposefully left them out of activities” “Intentionally embarrassed them in public” “Used their feelings to coerce them”
The Adult Interpersonal Aggression Inventory (AIAI; Schober, Björkqvist, & Somppi, 2009)	5-point	14	Indirect Aggression Non-Verbal Direct Aggression	“When provoked by, or angry with another person, have you told stories about them which would damage their reputation?” “When somebody has made you angry or provoked you, have you given them dirty looks just to let them know you don’t want their friendship or company?”
Antisocial Behavior Questionnaire (STAB; Burt & Donnellan, 2009)	5-point	11	Social Aggression	“Revealed someone’s secrets when angry with him/her”
The Richardson Conflict Response Questionnaire (RCRQ; Green et al., 1996; Richardson & Green, 2003)	4-point	10	Indirect Aggression	“Spread rumors about them”
The Self-Report of Aggression & Social Behavior Measure (SRASBM; Morales & Crick, 1999)	7-point	11	Relational Aggression	“I have threatened to share private information about my friends with other people in order to get them to comply with my wishes”
Underwood’s Social Aggression (Galen & Underwood, 1997)	5-point	3	Underwood’s Social Aggression	“Give others dirty looks to hurt others’ feelings, embarrass them, or make them feel left out”
Young Adult Social Behavior Scale (YASB; Crothers et al., 2009)	5-point	10	Indirect Social Aggression Direct Relational Aggression	“I contribute to the rumor mill at school/work or with my friends and family” “When I am angry with a friend, I have threatened to sever the relationship in hopes that the person will comply with my wishes”

Table 3

Brief Summary of Coding Categories and Descriptions

Category	Description
Form	
Cairns' Social Aggression	Behaviors meant to manipulate group acceptance and/or social status
Relational Aggression	Behaviors that harm others through damage (or the threat of damage) to relationships or friendships
Underwood's Social Aggression	Overt bodily gestures intended to exclude, alienate, or embarrass others
Modality	
Indirect	Covert and/or non-confrontational behaviors
Direct	Overt and/or confrontational behaviors

Table 4

Original Items Utilized for Coding

	Measure
Withheld information from them that the rest of the group is let in on	AIAS
Purposefully left them out of activities	AIAS
Made other people not talk to them	AIAS
Excluded them from a group	AIAS
Used private in-jokes to exclude them	AIAS
Spread rumors about them	AIAS
Made them feel that they don't fit in	AIAS
Stopped talking to them	AIAS
Omitted them from conversations on purpose	AIAS
Turned other people against them	AIAS
Used sarcasm to insult them	AIAS
Made negative comments about their physical appearance	AIAS
Imitated them in front of others	AIAS
Played a nasty practical joke on them	AIAS
Done something to try and make them look stupid	AIAS
Intentionally embarrassed them around others	AIAS
Made fun of them in public	AIAS
Called them names	AIAS
Criticized them in public	AIAS
Used my relationship with them to try and get them to change a decision	AIAS
Tried to influence them by making them feel guilty	AIAS
Used their feelings to coerce them	AIAS
Used emotional blackmail on them	AIAS
Pretended to be hurt and/or angry with them to make them feel bad about him/herself	AIAS
Put undue pressure on them	AIAS
When somebody has spread nasty gossip about you, just to teach them a lesson or to defend yourself, have you done the same to them?	AIAI
When provoked by, or angry with a particular individual, have you told your friend not to associate with the individual in order to protect your friend(s) from the individual?	AIAI
When provoked by, or angry with another person, have you ever spread negative insinuations to humiliate them?	AIAI
When provoked by, or angry with another person, have you told stories about them which would damage their reputation?	AIAI
When provoked by, or angry with another person, have you told stories about them so that they would be humiliated?	AIAI
When provoked by, or angry with another person, have you bitched about them?	AIAI
When provoked by, or angry with another person, have you made insulting comments about their private life?	AIAI
When provoked by or angry with another person, have you disclosed private details about their private life?	AIAI
When provoked by, or angry with another person, have you told stories about them which would get him/her into trouble?	AIAI
When your friend has needed your help because a rival was spreading rumors about your friend, have you spread rumors or gossip about the rival to defend your friend's reputation?	AIAI
When somebody has made you angry or provoked you, have you given them dirty looks just to let them know you don't want their friendship or company?	AIAI

When somebody has made you angry or annoyed you, have you turned your back on them and walked away just to let him/ her know you don't want their friendship or company?	AIAI
When somebody has made you angry, have you ignored them while they were speaking to you just to let him/her know you don't want their friendship or company?	AIAI
When somebody has made you angry, have you purposely limited the conversation to a few words in order to let them know you don't want their friendship or company?	AIAI
Blamed others	
Tried to hurt someone's feelings	ABQ
Made fun of someone behind his/her back	ABQ
Excluded someone from group activities when angry with him/her	ABQ
Intentionally damaged someone's reputation	ABQ
Tried to turn others against someone when angry with him/her	ABQ
Gave someone the silent treatment when angry with him/her	ABQ
Called someone names behind his/her back	ABQ
Revealed someone's secrets when angry with him/her	ABQ
Was rude toward others	ABQ
Made negative comments about other's appearance	ABQ
Spread rumors	
Spread rumors	RCRQ
Made up stories to get them in trouble	RCRQ
Made negative comments about their appearance to someone else	RCRQ
Took something that belonged to them	RCRQ
Told others not to associate with them	RCRQ
Gathered other friends to my side	RCRQ
Destroyed or damaged something of theirs	RCRQ
Told others about the matter	RCRQ
Called them names behind their back	RCRQ
Gossiped behind their back	RCRQ
My friends know that I will think less of them if they do not do what I want them to do	
When I want something from a friend of mine, I act "cold" or indifferent towards them until I get what I want	SRASBM
I have threatened to share private information about my friends with other people in order to get them to comply with my wishes	SRASBM
I have spread rumors about a person just to be mean	SRASBM
I have intentionally ignored a person until they gave me my way about something	SRASBM
When I am not invited to do something with a group of people, I will exclude those people from future activities	SRASBM
When I have been angry at, or jealous of someone, I have tried to damage that person's reputation by gossiping about him/her or by passing on negative information about him/her to other people	SRASBM
When someone does something that makes me angry, I try to embarrass that person or make them look stupid in front of his/her friends	SRASBM
When I have been mad at a friend, I have flirted with his/her romantic partner	SRASBM
When I am mad at a person, I try to make sure s/he is excluded from group activities (going to the movies or to a bar)	SRASBM
When someone hurts my feelings, I intentionally ignore them	SRASBM
Give others dirty looks to hurt others' feelings, embarrass them, or make them feel left out	
Give others dirty looks to hurt others' feelings, embarrass them, or make them feel left out	USAI
Roll eyes in order to hurt others' feelings, embarrass them, or make them feel left out	USAI
Use non-verbal gestures to hurt others' feelings, embarrass them, or make them feel left out	USAI

When I do not like someone's personality, I derive a certain degree of pleasure when a friend listens to and agrees to my assessment of the person's personality	YASB
I contribute to the rumor mill at school/work or with my friends and family	YASB
I break a friend's confidentiality to have a good story to tell	YASB
I confront people in public to achieve maximum damage	YASB
I have attempted to steal a rival's friend	YASB
When I am angry with someone, that person is often the last person to know. I will talk to others first	YASB
When I am frustrated with my partner/colleague/friend, I give that person the silent treatment	YASB
I criticize people who are close to me	YASB
I intentionally exclude friends from activities to make a point with them	YASB
When I am angry with a friend, I have threatened to sever the relationship in hopes that the person will comply with my wishes	YASB
Talked bad about someone to a person you know that person was romantically interested in	Nelson
Tried to break up someone's romantic relationship	Nelson

Note. The Adult Indirect Aggression Scale- Aggressor Version. AIAI = The Adult Interpersonal Aggression Inventory. ABQ = Antisocial Behavior Questionnaire. RCRQ = The Richardson Conflict Response Questionnaire. SRASBM = The Self-Report of Aggression and Social Behavior Measure. USAI = Underwood's Social Aggression items. YASB = Young Adult Social Behavior Scale. Nelson = items developed from Nelson et al. (2008) study. Items with a strikethrough were not considered for inclusion. Please see Results section for rationale.

Table 5

Item Revisions Made to Items Included in EFA

Original Item	Item Revision
Purposefully left them out of activities	Purposely left someone out of activities (e.g., going to the movies or a bar)
Excluded them from a group	Excluded someone from a group
Used private in-jokes to exclude them	Used private in-jokes to exclude someone
Stopped talking to them	Stopped talking to someone on purpose
Omitted them from conversations on purpose	Left someone out of conversations on purpose
When somebody has made you angry, have you purposely limited the conversation to a few words in order to let them know you don't want their friendship or company?	Limited a conversation to a few words on purpose
Gave someone the silent treatment when angry with him/her	Gave someone the silent treatment
When someone hurts my feelings, I intentionally ignore them	Ignored someone on purpose
Made other people not talk to them	Made other people not talk to someone
Turned other people against them	Turned other people against someone
Told others not to associate with them	Told other people not to associate with someone
Gathered other friends to my side	Not revised
Attempted to steal a rival's friend.	Not revised
Spread rumors about them	Spread rumors about someone
When provoked by, or angry with another person, have you told stories about them which would damage their reputation?	Told mean or unflattering stories about someone
When provoked by, or angry with another person, have you made insulting comments about their private life?	Made mean comments about someone's private life to other people
When provoked by or angry with another person, have you disclosed private details about their private life?	Shared details about someone's private life with other people
Gossiped behind their back	Gossiped about someone
Made negative comments about their physical appearance	Said mean things about how someone looks behind their back
Imitated them in front of others	Imitated someone in front of others
Played a nasty practical joke on them	Played a nasty practical joke on someone
Done something to try and make them look stupid	Tried to make someone look stupid
Intentionally embarrassed them around others	Embarrassed someone around other people on purpose
Made fun of them in public	Made fun of someone in public
Made fun of someone behind his/her back	Made fun of someone behind their back
Called someone names behind his/her back	Called someone names behind their back
Withheld information from them that the rest of the group is let in on	Kept information from someone that I told the rest of the group
Pretended to be hurt and/or angry with them to make them feel bad about him/herself	Pretended to be hurt and/or angry with someone
When I am angry with a friend, threatened to sever the relationship in hopes that the person will comply with my wishes	Threatened to end my relationship with someone

When I want something from a friend of mine, I act “cold” or indifferent towards them until I get what I want.	Acted “cold” or indifferent (i.e., not interested) towards someone
I have threatened to share private information about my friends with other people in order to get them to comply with my wishes	Threatened to share private information (i.e., secrets) about someone with other people
When somebody has made you angry or annoyed you, have you turned your back on them and walked away just to let him/her know you don’t want their friendship or company?	Turned my back on someone and walked away
Give others dirty looks to hurt others’ feelings, embarrass them, or make them feel left out	Gave someone dirty looks
Roll eyes in order to hurt others’ feelings, embarrass them, or make them feel left out	Rolled my eyes
Use non-verbal gestures to hurt others’ feelings, embarrass them, or make them feel left out	Used non-verbal gestures
When provoked by, or angry with another person, have you bitched about them?	Bitched about someone behind their back
When I have been mad at a friend, I have flirted with his/her romantic partner.	Flirted with someone’s boyfriend or girlfriend
Tried to break up someone's romantic relationship	Tried to break up or end someone’s romantic relationship
Talked bad about someone to a person you know that person was romantically interested in	Talked bad about someone to a person they had a crush on
Criticized them in public	Criticized (i.e., pointed out the faults of) someone in public

Note. See Results section for rationale for revising items.

Table 6

Exploratory Factor Analysis: Sample 1

		Ignoring Factor	Gossip Factor	Relational Factor
AG4	Stopped talking to someone on purpose	0.71	-0.01	0.21
AG5	Gave someone the silent treatment	0.66	0.00	0.20
AG6	Ignored someone on purpose	0.72	0.21	0.00
AG8	Limited a conversation to a few words on purpose	0.66	0.12	0.02
AG31	Acted "cold" or indifferent (i.e., not interested) towards someone	0.61	0.25	-0.02
AG15	Made mean comments about someone's private life to other people	0.01	0.75	0.02
AG16	Gossiped about someone	0.00	0.85	-0.19
AG17	Shared details about someone's private life with other people	-0.01	0.69	0.06
AG24	Made fun of someone behind their back	0.00	0.85	-0.01
AG25	Called someone names behind their back	0.06	0.74	0.03
AG10	Told other people not to associate with someone	-0.06	0.27	0.61
AG28	Attempted to steal a rival's friend	-0.02	0.01	0.81
AG33	Flirted with someone's boyfriend or girlfriend	0.06	0.05	0.67
AG34	Tried to break up or end someone's romantic relationship	0.01	-0.09	0.89
AG35	Talked bad about someone to a person they had a crush on	0.07	0.00	0.86

Table 7

Confirmatory Factor Analysis: Sample 2

		Ignoring Factor	Gossip Factor	Relational Factor
AG4	Stopped talking to someone on purpose	0.75		
AG5	Gave someone the silent treatment	0.75		
AG6	Ignored someone on purpose	0.78		
AG8	Limited a conversation to a few words on purpose	0.70		
AG31	Acted "cold" or indifferent (i.e., not interested) towards someone	0.73		
AG15	Made mean comments about someone's private life to other people		0.77	
AG16	Gossiped about someone		0.74	
AG17	Shared details about someone's private life with other people		0.75	
AG24	Made fun of someone behind their back		0.83	
AG25	Called someone names behind their back		0.82	
AG10	Told other people not to associate with someone			0.81
AG28	Attempted to steal a rival's friend			0.81
AG33	Flirted with someone's boyfriend or girlfriend			0.74
AG34	Tried to break up or end someone's romantic relationship			0.85
AG35	Talked bad about someone to a person they had a crush on			0.85

Note. Factor loadings are all fully standardized and significant at $p < .001$

Table 8

Model Comparisons for Invariance Testing: Sample 2

Invariance Test	χ^2	<i>df</i>	χ^2_{diff}	Δdf	Nested χ^2 significance	RMSEA (90% CI)	SRMR	CFI	TLI
Gender									
Single Group: Men	132.29**	87				.06 (.04 - .08)	.05	.95	.94
Single Group: Women	151.53**	87				.07 (.05 - .09)	.06	.94	.92
Configural Metric	283.59**	174				.07 (.05 - .08)	.05	.94	.93
Scalar	294.00**	186	9.52	12	<i>p</i> = .69	.06 (.05 - .08)	.06	.94	.93
	310.55**	198	15.91	12	<i>p</i> = .20	.06 (.05 - .07)	.06	.94	.94
Enrolled in college vs. not enrolled in college									
Single Group: Enrolled	147.92**	87				.09 (.07 - .12)	.06	.92	.90
Single Group: Not Enrolled	166.82**	87				.07 (.05 - .08)	.05	.93	.92
Configural Metric	316.63**	174				.08 (.06 - .09)	.05	.93	.91
Scalar	332.82**	186	15.45	12	<i>p</i> = .22	.08 (.06 - .09)	.06	.92	.91
	340.51**	198	5.08	12	<i>p</i> = .96	.07 (.06 - .08)	.06	.93	.92
Enrolled in college/ bachelor's degree vs. not enrolled and no bachelor's degree									
Single Group: Enrolled/ bachelor's degree	144.78**	87				.06 (.05 - .08)	.05	.95	.94
Single Group: Not Enrolled and no bachelor's degree	152.48**	87				.08 (.06 - .10)	.06	.91	.90
Configural Metric	297.29**	174				.07 (.06 - .08)	.05	.94	.92
Scalar	309.85**	186	12.01	12	<i>p</i> = .45	.07 (.06 - .08)	.06	.93	.93
	322.48**	198	10.62	12	<i>p</i> = .56	.07 (.05 - .08)	.06	.93	.93

Note. χ^2_{diff} , nested χ^2 difference; RMSEA, root mean square error of approximation; 90% CI, 90% confidence interval for RMSEA; SRMR, standardized root mean square residual; CFI, comparative fit index; TLI, Tucker-Lewis Index. ** *p* < .001.

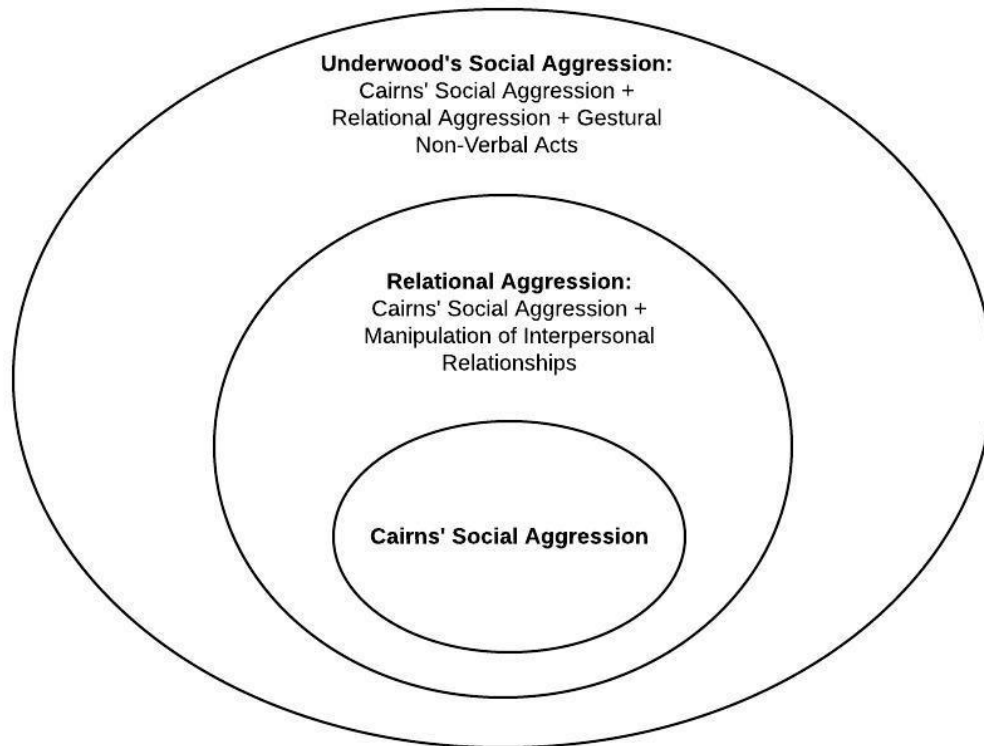


Figure 1. Graphical representation of nesting of definitions of relational and social aggression.

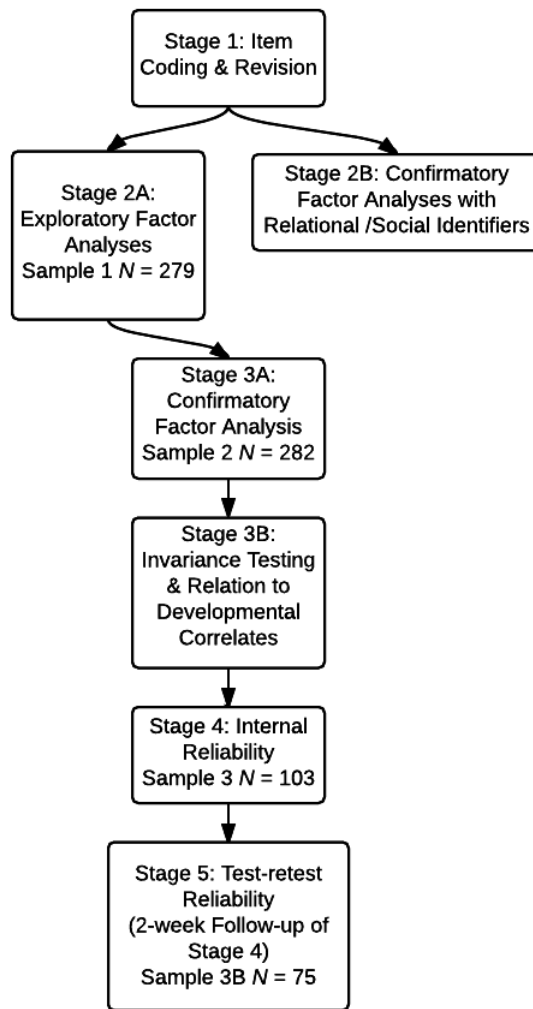


Figure 2. Flow chart of the stages of measure development.

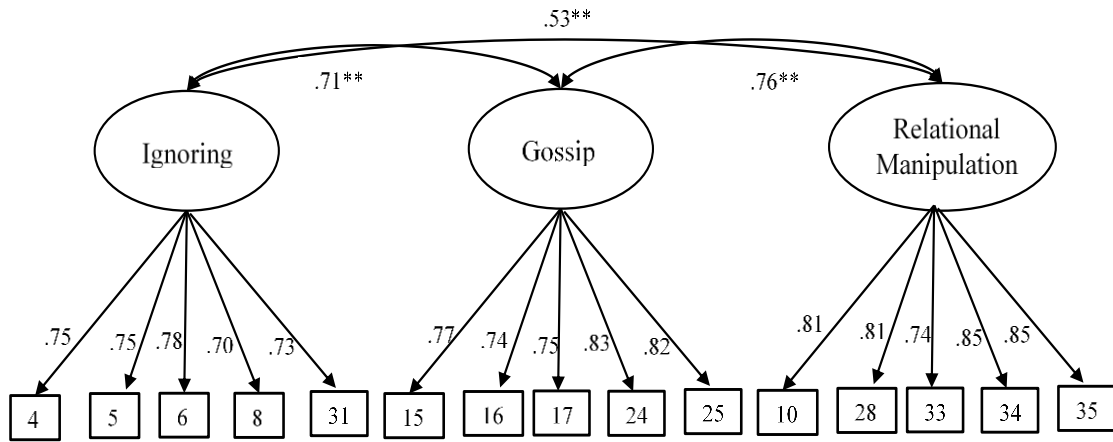


Figure 3. Final CFA model. All factor loadings are fully standardized and significant at $p < .001$. $\chi^2(87) = 179.34$, $p < .001$, RMSEA = 0.06 (90% CI = 0.05 – 0.07), SRMR = 0.04, TLI = 0.94, CFI = 0.95.

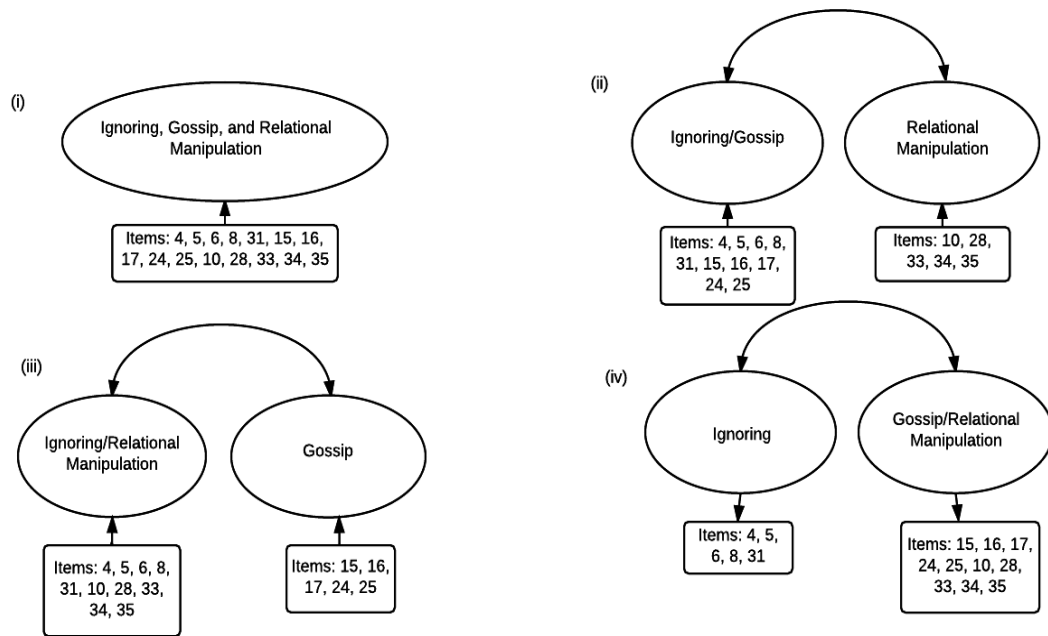


Figure 4. Nested models for comparisons to final three-factor EFA model.

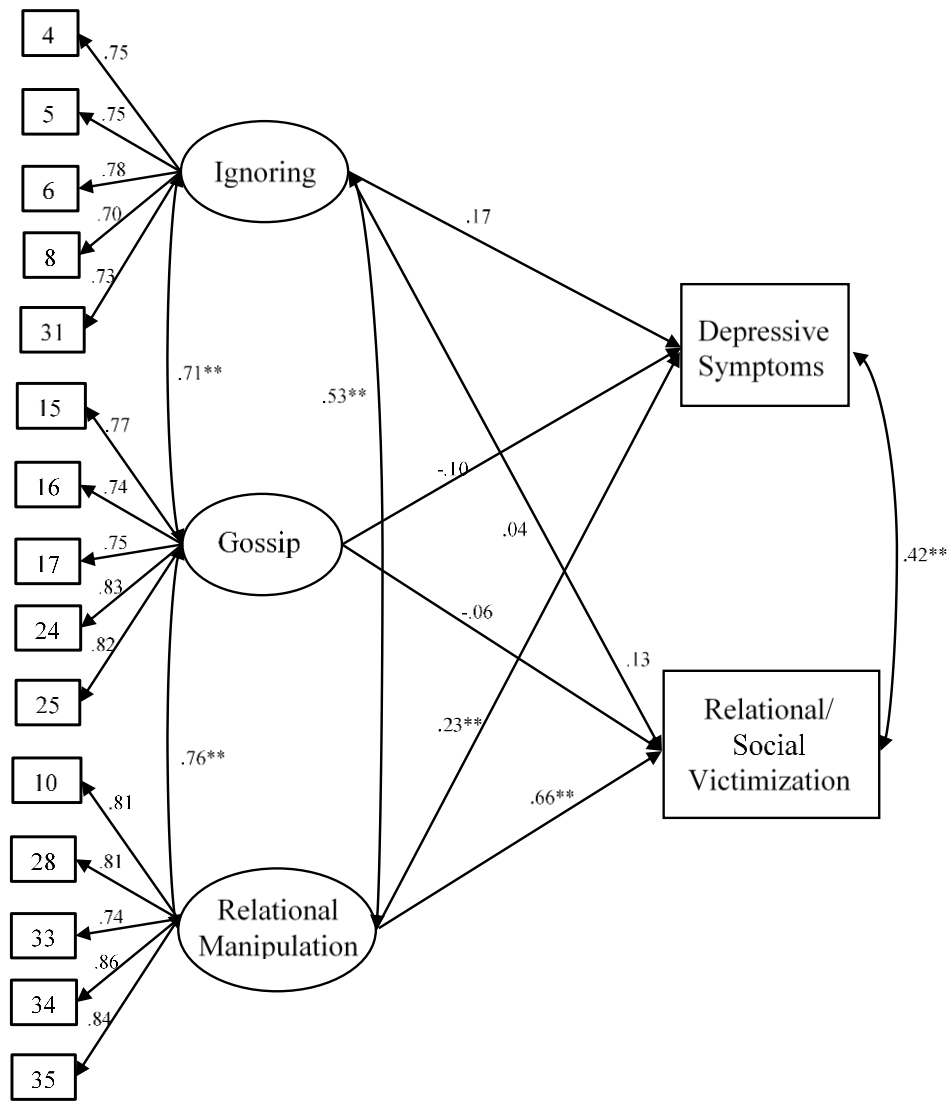


Figure 5. SEM model with developmental correlates. All factor loadings are fully standardized and significant at $p < .001$. Structural paths are all fully standardized. $\chi^2(111) = 204.97$, $p < .001$, RMSEA = 0.06 (90% CI = 0.04 – 0.07), SRMR = 0.04, TLI = 0.94, CFI = 0.95.

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Appendices

Appendix A

Aggression Items Administered to Samples 1 and 2

Instructions: Please read each statement and think about how frequently you engage in each behavior, when you are trying to be mean to, get back at, or to get something you want from a friend/colleague/peer. Mark how often you engage in each behavior **now and over the last year.**

Never	Rarely	Occasionally	Often	Very Often
1	2	3	4	5

1. Purposely left someone out of activities (e.g., going to the movies or a bar)
2. Excluded someone from a group
3. Used private in-jokes to exclude someone
4. Stopped talking to someone on purpose
5. Gave someone the silent treatment
6. Ignored someone on purpose
7. Left someone out of conversations on purpose
8. Limited a conversation to a few words on purpose
9. Turned others against someone
10. Told other people not to associate with someone
11. Gathered other friends to your side
12. Made other people not talk to someone
13. Spread rumors about someone
14. Told mean or unflattering stories about someone
15. Made mean comments about someone's private life to other people
16. Gossiped about someone
17. Shared details about someone's private life with other people
18. Said mean things about how someone looks behind their back
19. Imitated someone in front of others
20. Played a nasty practical joke on someone
21. Tried to make someone look stupid
22. Embarrassed someone around other people on purpose
23. Made fun of someone in public
24. Made fun of someone behind their back
25. Called someone names behind their back
26. Criticized (i.e., pointed out the faults of) someone in public
27. Kept information from someone that you told the rest of the group

28. Attempted to steal a rival's friend
29. Pretended to be hurt and/or angry with someone
30. Threatened to end your relationship with someone
31. Acted "cold" or indifferent (i.e., not interested) towards someone
32. Threatened to share private information (i.e., secrets) about someone with other people
33. Flirted with someone's boyfriend or girlfriend
34. Tried to break up or end someone's romantic relationship
35. Talked bad about someone to a person they had a crush on
36. Bitched about someone behind their back
37. *Note: item 37 was excluded due to unintentional redundancy*
38. Turned my back on someone and walked away
39. Gave someone dirty looks
40. Rolled my eyes
41. Used non-verbal gestures

Appendix B

The Relational/Social Aggression in Adulthood Measure (RSAAM)

Instructions: Please read each statement and think about how frequently you engage in each behavior, when you are trying to be mean to, get back at, or get something you want from a friend/colleague/peer. Mark how often you engage in each behavior **now and over the last year**.

	Never	Rarely	Occasionally	Often	Very Often
1. Stopped talking to someone on purpose	1	2	3	4	5
2. Attempted to steal a rival's friend	1	2	3	4	5
3. Made mean comments about someone's private life to other people	1	2	3	4	5
4. Limited a conversation to a few words on purpose	1	2	3	4	5
5. Tried to break up or end someone's romantic relationship	1	2	3	4	5
6. Made fun of someone behind their back	1	2	3	4	5
7. Gave someone the silent treatment	1	2	3	4	5
8. Flirted with someone's boyfriend or girlfriend	1	2	3	4	5
9. Shared details about someone's private life with other people	1	2	3	4	5
10. Acted "cold" or indifferent (i.e., not interested) towards someone	1	2	3	4	5
11. Talked bad about someone to a person they had a crush on	1	2	3	4	5
12. Called someone names behind their back	1	2	3	4	5
13. Ignored someone on purpose	1	2	3	4	5
14. Gossiped about someone	1	2	3	4	5
15. Told other people not to associate with someone	1	2	3	4	5

For Scoring:

- Ignoring: item 1, item 4, item 7, item 10, item 13
- Gossip: item 3, item 6, item 9, item 12, item 14
- Relational Manipulation: item 2, item 5, item 8, item 11, item 15

Appendix C

Reading Grade Level Analysis

Website source: <https://readability-score.com/>

According to readability-score.com, “A grade level (based on the USA education system) is equivalent to the number of years of education a person has had. A score of around 10-12 is roughly the reading level on completion of high school. Text to be read by the general public should aim for a grade level of around 8.”

For the current study, the Flesch-Kincaid Grade Level analysis (Kincaid, Fishburne, Rogers, & Chissom, 1975) was used to calculate grade level.

	Flesch-Kincaid Grade Level
1. Stopped talking to someone on purpose	4.5
2. Attempted to steal a rival's friend	4.5
3. Made mean comments about someone's private life to other people	8.4
4. Limited a conversation to a few words on purpose	7.6
5. Tried to break up or end someone's romantic relationship	8.9
6. Made fun of someone behind their back	2.3
7. Gave someone the silent treatment	5.2
8. Flirted with someone's boyfriend or girlfriend	8.4
9. Shared details about someone's private life with other people	8.9
10. Acted “cold” or indifferent (i.e., not interested) towards someone	8.1
11. Talked bad about someone to a person they had a crush on	4.8
12. Called someone names behind their back	2.5
13. Ignored someone on purpose	6.6
14. Gossiped about someone	8.2
15. Told other people not to associate with someone	8.2