ABSTRACT

EXAMINING THE ASSOCIATION BETWEEN FAMILY SAVORING AND ADOLESCENT DEPRESSION

by Joseph William Fredrick

The present study sought to validate and examine family savoring as a family socialization process and test its relation to adolescent positive emotion regulation and depression. The first two aims focused on developing an observational account of family savoring and examining whether it is distinct from additional family socialization processes (parental warmth and family expressiveness of positive emotions). The final three aims investigated: i) whether observed family savoring uniquely accounts for variance in adolescent positive emotion regulation, ii) if observed family savoring is inversely related with adolescent depression, and iii) if adolescent positive emotion regulation mediates the relation between observed family savoring and adolescent depression. Eighty-four adolescents ($M_{\text{age}}=14.01$, 60.7% girls) their primary female caregiver ($M_{\text{age}}=41.19$, 88% mothers) completed a series of questionnaires and engaged in a Plan a Day Trip interaction task. Results validated the observational account of family savoring and demonstrated that it is a related, yet distinct construct from other family socialization processes of positive affect. Furthermore, results revealed that observed maternal savoring in a future oriented task predicted higher adolescent effective positive emotion regulation which, in turn, was related to decreased adolescent depressive symptoms. These findings may inform therapists to encourage families to model appropriate strategies for regulating positive emotions through frequent discussion and attention to positive life events.
EXAMINING THE ASSOCIATION BETWEEN FAMILY SAVORING AND ADOLESCENT DEPRESSION

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Examining the Association Between Family Savoring and Adolescent Depression

Adolescence constitutes a heightened vulnerability period for the emergence of depression, with incidence rates doubling from 1-2% in childhood to 5-7% (Rohde, Lewinsohn, Klien, Seeley, & Gau, 2012; Lewinsohn, Rohde, & Seeley, 1998). Depression has been characterized as a disorder of emotion regulation with unique deficits in positive affective domains compared to other disorders (Joorman & Gotlib, 2010; Werner-Seidler, Banks, Dunn, & Moulds, 2013). Individuals with depression report greater down-regulation and less up-regulation of positive emotions (Eisner, Johnson, & Carver, 2009; Feldman, Joorman, & Johnson, 2008). Given this association between positive emotion regulation deficits and depression, it is important to understand the factors that contribute to adolescents’ regulation of positive emotions. Aspects of the family context that socialize positive emotions have been associated with reduced depression through its effect on adolescents’ positive affect (Luebbe & Bell, 2014). An additional socialization process that impacts positive affect may be capitalization, which is the act of sharing positive life events with others (Langston, 1994). Sharing positive experiences with others are related to gains in positive affect if the listener responds with interest and enthusiasm; however, these studies have exclusively used married couples and assessed prior positive experiences (Gable, Reis, Impett, & Asher, 2004; Lambert et al. 2013). Family savoring is a novel construct that addresses these limitations and refers to how families attend to and enhance positive experiences through sharing past, present, and future positive life events (Luebbe, 2009). Therefore, the current study evaluated whether family savoring is distinct from additional family socialization processes (parental warmth and family expressiveness of positive emotions) and tested its relations to adolescent positive emotion regulation and depression.

**Positive Emotions and Depression**

Emotion regulation includes conscious and non-conscious strategies in up-regulating, down-regulating, and sustaining negative and positive emotions (Thompson, 1994; Gross, 1998). However, the majority of research has focused on the regulation of negative emotions despite evidence showing negative and positive affective processes to be distinct (Larsen, 2000; Wood, Heimpel, & Micela, 2003). Fredrickson (1998) originally theorized, and demonstrated empirically (Fredrickson & Branigan, 2005), that positive emotions broaden cognition and behavior as well as build social resources. In contrast, negative emotions narrow thought-action...
responses. In an additional study, positive emotions were found to undo the lingering effects of negative emotions (Tugade & Fredrickson, 2004). Taken together, the above studies demonstrate that positive emotions provide unique benefits compared to negative emotions.

Positive emotions are especially paramount to examine in depression because it has been characterized as a disorder of emotion regulation with deficits across negative and positive affective domains (Joorman & Gotlib, 2010; Werner- Seidler, Banks, Dunn, & Moulds, 2013). Positive affect represents the experiences of joy and zest for life (Anderson & Hope, 2008), but low levels of experienced positive affect are salient across the cardinal features of depression: anhedonia and low mood (DSM-5/APA, 2013). In fact, low positive affect is posited to be a feature unique to depression that separates it from other highly comorbid disorders like anxiety (i.e., Clark & Watson’s (1991) Tripartite Model). Indeed, studies examining the tripartite model consistently find low positive affect to be uniquely associated with depression compared to anxiety (Gençöz 2002; Joiner & Lonigan, 2000). Furthermore, low positive affect is exclusively implicated in the development of depression among adolescents (Wetter & Hankin, 2009) and adults (Moffitt et al. 2007). Studies evaluating adolescent depression have found lower self reporting of positive affect and shorter observed duration of positive affect compared to controls (Forbes, Williamson, Ryan, & Dahl, 2004; Fussner, Luebbe, & Bell, 2015; Sheeber et al., 2009). These studies provide strong support for a unique function of low positive affectivity in depression.

**Positive Emotion Regulation**

Disruptions in the experience and expression of positive emotions are undeniably involved in the development and maintenance of adolescent depression. Therefore, it is imperative to examine the strategies adolescents employ to generate and maintain positive emotions and how individual differences in these processes may increase the risk for depression. The bulk of research on emotion regulation has focused on how individuals respond to negative emotions while ignoring strategies focused on positive emotions (Werner-Seidler, Banks, Dunn, & Moulds, 2013). As previously noted, typical regulation strategies are geared towards either down-regulating an emotion (i.e., experiencing less of that emotion), up-regulating (i.e., trying to amplify or intensify an emotion), or maintenance of an emotion once experienced. Within the realm of positive affect, researchers have termed down-regulation processes as dampening or minimizing, whereas up-regulating strategies have been termed as enhancement, savoring, or
positive rumination (e.g., Feldman, Joorman, & Johnson, 2008; Quoidbach, Hansenne, & Mikolajczak, 2010). Individuals with depression appear to have disruptions in each of these forms of regulation, though more research has focused on down-regulation than up-regulation strategies.

Specifically, elevated depression symptoms are associated with greater dampening strategies and suppression of positive emotions among children (Bijttebier, Raes, Vasey, & Feldman, 2012), adolescents (Nelis et al. 2016), undergraduates/young adults (Feldman, Joorman, & Johnson, 2008; Johnson, McKenzie, & McMurrich, 2008; Werner-Seidler, Banks, Dunn, & Moulds, 2013), and adults (Beblo et al. 2012; Raes, Daems, Feldman, Johnson, & Van Gucht, 2010). In a sample of late adolescents, dampening strategies were associated with the onset of depression 3 months later even when controlling for baseline depression (Raes, Smets, Nelis, & Schoofs, 2012). This prospective relation between dampening and depression was replicated in a sample of adults as well (Raes et al. 2014). Research even shows that individuals who experienced depression in the past but are not currently depressed report greater dampening of positive emotions (Eisner, Johnson, & Carverm 2009; Nelis, Holmes, & Raes 2015). Thus, although it is unclear the directionality of effects, studies suggest that individuals with, or who are prone to, depression engage in strategies to diminish the intensity of positive emotions.

Deficits in the up-regulation of positive emotions are also found in individuals with depression. Higher levels of anhedonia have been related to fewer strategies to intensity positive emotions (Werner-Seidler, Banks, Dunn, & Moulds, 2013) and less positive rumination, or using recurrent thoughts about the positive experience to up-regulate positive emotion (Nelis, Holmes, & Raes, 2015). Higher levels of depression were associated with less positive rumination among children as well (Bijttebier, Raes, Vasey, & Feldman, 2011). An additional positive emotion regulation strategy that enhances and sustains positive emotions is called savoring, which includes attending to, appreciating, and enhancing positive experiences (Bryant & Veroff, 2007). Given the inverse relation between positive affect and depression, individuals with depression may experience challenges engaging in savoring strategies. As expected, depression symptoms were associated with fewer beliefs about savoring among undergraduates in two studies (Carver & Johnson, 2009; Eisner, Johnson, Carver, 2009). In conclusion, the above studies demonstrate that depression is associated with greater down-regulation and, albeit in far fewer studies, less
up-regulation of positive emotions. One lingering question is what factors might contribute to the development (or not) of adolescents’ positive emotion regulation strategies.

**Family Context and Emotion Regulation**

Morris and colleagues proposed an influential model suggesting that a youth’s emotion regulation skills are impacted by certain aspects of the family context such as modeling parents’ responses to emotions, the parenting practices they receive, and the emotional climate of the family (Morris, Silk, Steinberg, Myers, & Robinson, 2007). The majority of research on the family context and emotion regulation has focused on childhood and has established a clear link between aspects of the family context and emotion regulation skills (Colman, Hardy, Albert, Raffaelli, & Crockett, 2006; Eisenberg, Cumberland, & Spinrad, 1998; Graziano, Keane, & Calkins, 2010). For example, mothers’ acceptance of negative emotions has been associated with children’s improved emotion regulation (Ramsden & Hubbard, 2002). Research on the family context and adolescents has received less attention because adolescents tend to spend less time with family and are more autonomous compared to younger children (Larson et al. 1996; Van Petegem, Beyers, Vansteenkiste, & Soenens, 2012). Despite these typical changes, research emphasizes the continued influence of the family on adolescents’ emotional development since this period entails normative increases in stress concomitant with development in brain regions associated with emotion regulation (Hunter et al. 2011; Steinberg, 2005; Stocker, Richmond, Rhoades, & Kiang, 2007; Yap, Allen, & Sheeber, 2007).

**Family Context and Positive Affect**

Because adolescence is a marked period for the emergence of depression (Rohde, Lewinsohn, Klien, Seeley, & Gau, 2012) and low positive affect is uniquely associated with depression (Joiner & Lonigan, 2000; Sheeber et al. 2009), it is important to examine family processes that socialize positive affect during adolescence. Although less studied than the socialization of negative affect, family socialization of positive affect has been associated with depression through certain parenting behaviors and parental responses to positive affect. For instance, lower levels of observed positive parenting behaviors were prospectively linked with elevated adolescent depression but not anxiety (Schwartz et al. 2012). Furthermore, a meta-analysis concluded that diminished parental warmth is associated with greater adolescent depression (Yap, Pilkington, Ryan, & Jorm, 2014). These studies provide support for a lack of supportive parenting behaviors in general relating to adolescent depression, and recent work has
more specifically demonstrated the importance of parental responses to their children’s expressions of positive affect. Yap, Allen, and Ladoucerur (2008) found that mothers’ observed dampening responses to adolescents’ positive affect were associated with greater adolescent depressive symptoms. Among depressed adolescents, fathers and mothers were more likely to endorse minimizing responses to adolescent positive affect compared to controls (Katz et al. 2014). These studies provide support for the direct relationship between socialization of positive affect and depression; additional work has identified the mechanisms through which this association transpires.

In Yap and colleagues’ study (2008), adolescents whose mothers punished and dampened positive affect behaviors were more likely to report maladaptive strategies for regulating negative emotions which, in turn, predicted depression. However, strategies for managing positive emotions were not examined in this study. Further research has recognized additional mediating mechanisms through which socialization processes of positive affect contribute to adolescent depression. Low levels of both parental warmth and family positive emotion expressiveness were associated with adolescent depression through reports of a lack of experienced positive affect (Luebbe & Bell, 2014); still, adolescents’ regulation of positive affect was not assessed. These studies indicate that the relation between family socialization of positive affect and depression may function through intrapersonal mechanisms; however, it remains to be tested if these socialization processes affect adolescents’ regulation of positive emotions (Katz et al. 2014). Moreover, research on the socialization of positive affect has tended to exclusively focus on the vertical effects of parent to child despite evidence showing parent-child reciprocal positive affect to be uniquely associated with child psychopathology (Thomassin & Suveg, 2014). An additional socialization process that impacts positive affect and prioritizes the reciprocal relation between both individuals may be capitalization.

**Capitalization**

Langston (1994) termed “capitalization” as the ways individuals cope with positive events and intensify positive affect through sharing these events with others. He found that expressive responses following positive events were related to greater positive affect over and above the affect associated with the event itself (Langston, 1994). Research has validated this association between sharing positive experiences with others and greater reports of positive affect (Gable, Reis, Impett, & Asher, 2004). Additionally, these studies emphasize the
importance of the listener’s response for contributing to elevated positive affect (Reis et al. 2010; Gable, Gonzaga, & Strachman, 2006). For example, Lambert et al. (2013) found that the benefits of sharing positive experiences depends on an active-constructive response, which conveys enthusiasm and interest. Recent work also finds that enthusiastic responses to positive life events are prospectively associated with increases in positive affect (Reis et al. 2010). Therefore, capitalization is a dyadic process where an individual shares a positive event and experiences gains in positive affect when the listener personally identifies with the event by expressing enthusiasm and interest (Gable & Reis, 2010).

Despite the fact that all of the mentioned studies on capitalization have focused on adults, a recent study found that adolescents’ maximizing responses to positive events predicted increases in positive affect (Gentzler, Morey, Palmer, & Yi, 2013). In this study, maximizing responses were operationalized as savoring and sharing positive events. Although this study did not specify who the listener was, it is reasonable to believe that adolescents disclose some positive events with families because they remain pivotal during this period (Hunter et al. 2011; Stocker, Richmond, & Rhoades, 2007) and positive events are often shared with loved ones (Gable, Gonzaga, & Strachman, 2006). It is therefore important to examine how families share positive experiences with one another and employ capitalizing responses such as savoring in response to that event. Although the capitalizing literature might be applicable in the context of parent-child relationships, it has been primarily studied within the realm of marital relationships. In addition, capitalization research has exclusively examined positive experiences that have already occurred; overlooking in the moment or future positive experiences. Family savoring was therefore developed to address these shortcomings by depicting the ways families share past, present, and future positive experiences and reciprocally savor these experiences (Luebbe, 2009).

**Family Savoring**

Family savoring describes how family members attend to and enhance positive experiences that are shared with one another; therefore, it is a combination of individual savoring and capitalization. Incorporating capitalization and savoring is vital given research suggesting the relation between savoring and happiness to be intensified when numerous savoring strategies are used including outward behavioral displays of positive affect and sharing with others (Quoidbach, Berry, Hansenne, Mikolajczak, 2010). In contrast to the majority of studies focusing on dampening/minimizing responses to positive affect, family savoring describes how families
enhance positive affect. Research shows that parents use numerous behavioral responses for enhancing youth positive affect (McKee, Faro, O’Leary, & Jones, 2015) and that positive family emotional processes are not simply the other end of the continuum from negative family emotional processes (Luebbe & Bell, 2014). Therefore, family savoring may be an important socialization process of positive affect because it describes how families enhance positive affect through reciprocally sharing and savoring past, present, and future positive experiences.

Family savoring may enhance youth positive affect and teach adaptive strategies for handling positive emotions which, in turn, may relate to reduced depression symptoms. This socialization process is theorized to be more specific than other forms of positive parenting given its temporal orientation (past, present, future positive experiences), its focus on responses to positive events in particular (rather than non-contingent positive expressiveness), and that it is a dyadic reciprocal process between parents and youth. To demonstrate that family savoring may be a unique form of socialization, it is imperative to demonstrate that it provides incremental predictive validity over and above other forms of parental socialization of positive affect. For example, diminished parental warmth and family expressiveness of positive emotions have been associated with elevated depression among children, adolescents, and young adults (Cooley 1992; Luebbe & Bell, 2014; McLeod, Weisz, & Wood, 2007; Yap, Pilkington, Ryan, & Jorm, 2014). Furthermore, lower observed parenting behaviors (e.g. positive affect) have been found to predict increased adolescent depression (Schwartz et al., 2012). Although family savoring is likely associated with parental warmth, family expressiveness of positive emotions, and parental positive affect, it is also posited to be a distinct construct from these socialization processes.

Current Study

The current study fills a gap in the literature by examining an additional family socialization process that is thought to impact adolescents’ positive emotion regulation and depression symptoms. Adolescence is an important developmental period to evaluate these relations given heightened rates of depression during this period (Kessler, Avenevoli, & Merikangas, 2001; Lewinsohn, Rohde, & Seeley, 1998), and existing evidence suggesting that although the parent-child relationship undergoes changes in adolescence, family socialization processes continue to affect adolescent depression (Yap, Allen, Ladoucerur, 2008; Schwartz et al. 2012). Past studies are limited, however, in that they focused on parents’ socialization effects on youth and ignored the reciprocal relationship of positive affect between parents and youth.
Family savoring describes how parents and children share and reciprocally savor positive experiences and is therefore theorized to be the ultimate socialization process of positive affect. A self-report measure of family savoring (Luebbe & Bell, 2014) exists that gathers individuals’ perceptions on how frequently their families discuss positive events, prolong positive emotions following an event, reminisce, and anticipate positive experiences. Observational measures, however, have been stressed in the literature in order to discern natural assessments of family functioning (Sheeber, Hops, & Davis, 2001; Schwartz, Sheeber, Dudgeon, & Allen, 2012). Therefore, observed family savoring was used in the current study to capture parents and adolescents’ displays of enthusiasm and elaborative responses when discussing past, present, and future positive experiences.

The first aim of the current study was to validate the observational account of family savoring by comparing it to the self-report measure of family savoring. It was hypothesized that the observational account would be moderately correlated with the self-report measure. Family savoring is proposed to be a unique socialization process compared to parental warmth and family expressiveness of positive emotions because it specifically targets positive emotion regulation strategies. Therefore, the second aim of the current study was to examine how family savoring relates to parental warmth, family expressiveness of positive emotions, and observed positive affect; it was predicted that family savoring would be moderately correlated with these socialization processes. The third aim of the current study was to identify if family savoring is associated with adolescents’ positive emotion regulation over and above additional socialization processes of positive affect. It is hypothesized that family savoring would continue to contribute unique variance to adolescents’ positive emotion regulation. Next, the fourth aim was to determine whether family savoring directly relates to adolescent depression. It was hypothesized that higher family savoring will be significantly associated with lower adolescent depression. Finally, it is theorized that family savoring will be associated with lower depression because it specifically targets adolescents’ positive emotion regulation strategies; therefore, the fifth aim of the current study was to examine whether adolescents’ positive emotion regulation mediates the association between family savoring and adolescent depression. It was hypothesized that adolescents’ positive emotion regulation will explain the association between family savoring and depression.
Method

Participants

Participants included adolescents in grades 6-12 and their primary female caregiver living near a mid-Western university. Data for the present study was used from the Time 2 portion of a larger longitudinal study. For Time 1, adolescents provided consent and completed a series of questionnaires in the local middle/high schools. Families were then sent letters describing the nature of the Time 2 portion of the study and a phone call requesting participation. Of the 237 families contacted, 16% were not eligible to participate (did not speak English or the child did not have a primary female caregiver), 22% declined and 27% were unable to be scheduled; resulting in 35% of families (n = 84) agreeing to partake in the study.

For the current study, 84 adolescents between the ages of 11 and 18 (M_age = 14.01, SD = 1.99, Girls = 60.7%) participated. Primary female caregivers identified their adolescents’ race/ethnicity as European American (79.8%), African American (8.3%), Biracial/Mixed Race (8.3%), Hispanic/Latino (2.4%), and American Indian (1.2%). The majority of primary female caregivers, who will be referred to henceforth as “mothers” (M_age = 41.19, SD = 7.66), were biological mothers (88%), with five identifying as “other” (e.g., grandmother), three as stepparent, and one as adoptive. Slightly more than half of mothers indicated that they were currently married (54%). Families reported low/middle SES with exactly half reporting less than $40,000 yearly income.

Procedure

Adolescents and mothers completed the study either in their home or in a laboratory setting located at a Midwestern University. Mothers provided consent for their own participation and their adolescents’ participation while adolescents provided assent. The present study was part of a broader study examining the influence of positive emotion socialization on adolescents’ stress hormones and internalizing symptoms. Adolescents and mothers were instructed to complete questionnaires separately in different rooms. Following this, adolescents and mothers provided four saliva samples at standardized times during the visit, engaged in a series of interaction tasks that were digitally recorded, and completed state affect forms in between interaction tasks for five discrete emotions. The present study only included data from questionnaires and the experimental tasks.
All families participated in three experimental tasks (plan a day trip, problem solving, trivia) while some families were randomized to receive an additional task (best memory) as part of a broader study. Given that the present study examined how families attend to and enhance positive experiences, behavior in the problem solving task will not be used due to limited moments of positive affect demonstrated in this conflict-laden task. Rather than calculating a composite across the remaining positive-valenced interactive tasks (plan a day trip, trivia, and best memory), the present study exclusively focused on the plan a day trip interaction task to better understand one unique positive experience as an initial step for validating and examining the observational account of family savoring.

**Plan a day trip.** Research assistants asked mothers and adolescents to plan a fun family day trip or vacation where money was not an issue for five minutes. Family members were instructed to talk about all aspects of the trip including who would go, what they would do, and how long they would stay. Examples of the day trip included a trip to another state, Disney world, flying over seas, etc. Families were also told that if they were finished talking about the daytrip, they could talk about whatever else they liked for the remainder of the five minutes.

Following completion of questionnaires, interaction tasks, and saliva samples, adolescents and female caregivers were debriefed and compensated forty dollars for their participation.

**Measures**

Adolescents and mothers completed a series of questionnaires prior to engaging in the interaction tasks.

**Adolescent Depression.** Adolescent depression was assessed using the Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al. 2000). The RCADS is a 47-item self-report questionnaire with scales corresponding to six subscales of DSM-IV anxiety and major depressive disorders: Generalized Anxiety Disorder, Obsessive Compulsive Disorder, Separation Anxiety Disorder, Social Phobia, Panic Disorder, and Major Depressive Disorder. Participants are instructed to circle the word that indicates how often that item happens to them. Sample items for major depressive disorder include, “I feel sad or empty,” “Nothing is much fun anymore,” and “I have trouble sleeping.” Responses for each item range in severity from 0 (never) to 3 (always) and are summed to produce a total score for that specific disorder. The RCADS includes 10 items that measure major depressive disorder which have demonstrated
acceptable internal consistency (Chorpita, Moffitt, & Gray, 2005), test-retest reliability (Chorpita et al. 2000), and also convergent and discriminate validity (Chorpita et al. 2000). Internal consistency in the present study was acceptable ($\alpha = .88$).

**Adolescent Positive Emotion Regulation.** Adolescent positive emotion regulation was measured with the Youth Regulation of Positive Emotions Scale (YRPES; Early, 2013). The YRPES is a 22-item self-report measure modeled after the Child’s Emotion Management Scale (CEMS: Zeman, Shipman, & Penza-Clyve, 2001). The YRPES contains three subscales: Coping (7 items), Dysregulation (7 items), and Inhibition (8 items). Youth indicate on a 1 (*hardly ever*) to 3 (*often*) Likert scale the response that best describes their behavior when feeling happy. The coping and inhibition subscale will be used to refer to positive emotion regulation because the former most aligns with effective regulation of positive emotions (Early, 2013) and the latter has been associated with depressive symptoms (e.g., dampening, Bijittebier, Raes, Vasey, & Feldman, 2012; Feldman, Joorman, & Johnson, 2008). Sample items of the coping subscale include “I feel good when I think about good times with others” and “I like to celebrate when I feel good.” Sample items of the inhibition subscale include “I get happy inside but don’t show it” and “I keep happiness to myself.” Adolescents’ effective PA regulation was operationalized as the composite score of the coping and reverse scored inhibition scale; therefore, higher scores represent greater coping and less inhibition of positive emotions. The YRPES coping and inhibition subscale have demonstrated acceptable internal consistency and adequate short test-retest reliability (Early, 2013). In the present study, internal consistency for effective PA regulation was acceptable ($\alpha = .82$).

**Maternal Warmth.** Maternal warmth was measured using the Child Report of Parent’s Behavior Inventory (Schafer, 1965). Originally a child report of parent’s behavior, the scale was adapted for mothers to report on their own parenting style. Mothers are instructed to indicate on a 1 (*not like me*) to 3 (*a lot like me*) Likert scale how much each statement is similar to their parenting style. Ten items of the emotional support scale are included to capture parental warmth, care, and sensitivity. Sample items include, “I am a person who smiles at my child very often” and “I am a person who gives my child a lot of care and attention.” The child report of parent’s behavior has demonstrated acceptable internal consistency (Schluderman & Schluderman 1970) and convergent validity (Kim Park, Garber, Ciesla, & Ellis, 2008). In addition, the modified mother report of parenting has been used and has shown acceptable
internal consistency (Luebbe & Bell, 2014). In the present study, internal consistency was acceptable (α = .84).

**Family Expressiveness of Positive Emotions.** The Family Expressiveness Questionnaire-Short Form (FEQ; Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995) is a 24-item measure that assesses the frequency of emotions expressed in the family. Mothers indicate on a 1 (*not at all frequently*) to 9 (*very frequently*) scale the frequency of that activity occurring in the family. The FEQ contains two subscales; negative family expressiveness (12 items) and positive family expressiveness (12 items). The present study included mothers’ report of the family positive expressiveness subscale. Sample items include “Telling someone how nice they look” and “Expressing deep affection or love for someone.” The family positive expressiveness subscale has demonstrated acceptable internal consistency (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). Internal consistency in the present study was acceptable (α = .91).

**Family Savoring.** The Family Savoring Inventory (FSI; Luebbe, 2009) is a 16-item self-report measure rated on a 1 (*not at all true of my family*) to 5 (*very true of my family*) likert scale. Adolescents and mothers are asked to report on how true each statement is about their family in response to good things happening in the family (a family member getting a good grade at school). Sample items included “When something good happens in my family we try to keep the good feelings going as long as possible” and “My family knows how to make the most of a good time.” A composite family savoring score will be computed as the mean of mother and adolescent report. The family savoring inventory has demonstrated excellent internal consistency and good convergent validity with adolescents and parents (Luebbe, 2009). In the present study, internal consistency for maternal (α = .96) and adolescents’ report (α = .95) was excellent.

**Observed Positive Affect.** Mothers’ and adolescents’ positive affective displays were observationally coded using the Dyadic Interaction Code System (DIC; Lunkenheimer, 2009). The DIC captures different intensities of affective displays (low negative, medium-high negative, neutral, low positive, medium-high positive) during parent-child interactions based on facial expressions, vocal tone, and body language. The DIC was revised for the current study to code affective displays during parent-adolescent interactions (see adapted manual below in Appendix A). Mothers’ and adolescents’ positive affect was calculated as the proportion of time spent in both low and medium-high positive affective displays during the interaction task. Two research
assistants coded mothers’ and adolescents’ moment to moment positive affect displays for a separate study and were blind to the current study. Research assistants coded a subset of families to assess reliability in the Plan a Day trip task, and percent agreement was adequate for mothers (Low Positive = 82%, Medium-High Positive = 95%) and adolescents (Low Positive = 82%, Medium-High Positive = 96%).

**Observed Family Savoring.** Family savoring was assessed using a coding system created by the primary investigator and modeled after capitalization and individual savoring research (see manual below in Appendix B). Individual savoring is comprised of various strategies for focusing and prolonging positive emotions including sharing with others, memory building, self-congratulation, and behavioral expressions (Bryant & Veroff, 2007). Capitalization research has emphasized the importance of active and constructive responses to partners’ positive events such as enthusiasm, interest, and positive expressiveness (Reis et al. 2010). Observational coding schemes for active and constructive responses instruct observers to rate the frequency of emotional displays, laughing, smiling, asking questions, and elaboration of positive events (Gable, Gonzaga, & Strachman, 2006). In sum, after review of these two areas of the literature it was determined that family savoring was best explained by two primary components: **enthusiasm and elaboration** in response to a dyadic partner’s expression of positive emotion.

Mothers and adolescents were coded independently on a minute to minute basis on verbal/nonverbal accounts of savoring in the Plan a Day trip task. Savoring comprised two primary components: elaboration and enthusiasm. Elaboration includes seeking out additional information, asking questions, and providing details about the vacation/day trip. A mother who scores high on elaboration may ask questions including “What would we do on the trip?” and “Where would we go?” The second part of savoring is enthusiasm. Enthusiasm is demonstrated when the adolescent and mother express interest, excitement, joy, and happiness in response to planning the trip. An adolescent showing elevated enthusiasm during the day trip task may express statements such as, “That would be awesome! I’m excited!” Savoring was coded on a 0-3 scale for each minute of each interaction minute to minute. A score of 0 indicated rare moments of enthusiasm and elaboration (adolescent/mother may laugh once). A score of 1 indicated enthusiastic and elaborative responses that happened no more than half of the minute. A score of 2 indicated elaboration or enthusiasm for the half of the minute. In addition, a 2 was provided when mothers/adolescents showed elaboration for the majority of the minute but failed
to express enthusiasm (and vice versa). Finally, a score of 3 indicated elaboration and enthusiasm for the majority of the minute.

Three research assistants initially met with the primary investigator to review the manual and observe sample videos. Following this, research assistants were trained on 25 family videos that were broken down to five batches for five weeks. At each meeting the codes were compared to the master codes (primary investigator) and videos were watched a second time if there was discrepancy in scores. After five weeks of training, reliability estimates for the Plan a Day trip were deemed acceptable (ICC for Mother Savoring=.70, ICC for Adolescent Savoring=.77) according to previous guidelines (Cicchetti, 1994). Research assistants were then instructed to code the resulting videos. One video was chosen at random each week for the primary investigator and an additional research assistant to code. Codes were then compared to the research assistants assigned for that task to ensure fidelity. Discrepancies in codes were discussed during meetings.

Mother and adolescent savoring for each task was calculated as the average score across five minutes. For each minute, research assistants were also instructed to specify whether the adolescent or mother had the opportunity to speak. If the mother or adolescent did not have the chance to speak because the other family member was talking the majority of the minute, his or her savoring score for that minute was not calculated. Therefore, scores were only averaged if the family member had the opportunity to speak within that specified minute. A composite family savoring score between mother and adolescent savoring in the Plan a Day trip task was not calculated given previous research emphasizing that each member is a unique contributor in the family. In support of past research, Thomasson and Suveg 2014 cogently argued that socialization of emotions does not transpire directly from parent to child, but rather unfolds as a reciprocal process (Bell, 1968; Thomasson & Suveg, 2014). In sum, the present analyses will display mother and adolescent observed savoring separately to better understand each members’ unique contribution to family savoring.

Results

Prior to examining hypotheses, analyses were conducted to examine the distribution of scores and to test for outliers. Descriptive statistics revealed that scores were normally distributed and within normal limits. In addition to the theoretical reasons mentioned above, preliminary analyses showed that observed mother and adolescent savoring were only slightly,
albeit significantly, correlated ($r = .28, p = .012$) providing statistical support for presenting
analyses separately for each family member. Furthermore, older adolescents ($r = .21$) and girls ($r
= .34$) reported elevated depressive symptoms. Table 1 presents intercorrelations, means, and
standard deviations among study measures.

**Aim 1: Examining the association between Self-Report and Observed Savoring**

Bivariate correlations between observed mother and adolescent savoring in the Plan a
Day Trip task and the self-report measure of family savoring were conducted to test aim 1.
Mothers and adolescents both reported on the family savoring measure and a composite was
calculated as well. Observed mother savoring in the Plan a Day Trip task was marginally
associated with mother report ($r = .19, p = .081$) and the composite measure ($r = .19, p = .098$) of
family savoring, but not as related to adolescents’ report ($r = .13, p > .05$). On the other hand,
observed adolescent savoring in the Plan a Day Trip Task was unrelated to adolescents’ report ($r
= -.11, p > .05$), mothers report ($r = .07, p > .05$) and composite measure ($r = -.04, p > .05$) of family savoring.

**Aim 2: Examining the Relation between Observed Savoring, PA duration, Parental
Warmth, and Family Expressiveness of Positive Emotions**

Aim 2 was evaluated using bivariate correlations between observed mother and
adolescent savoring, observed mother positive affect, maternal warmth, and family
expressiveness of positive emotions. As a reminder, mothers reported on both their own warmth
and perceptions of family expressiveness of positive emotions. Mothers and adolescents were
also coded on their duration of positive affect displays in the Plan a Day Trip task. As expected,
observed mother savoring was moderately, albeit marginally, correlated with maternal warmth ($r
= .20, p = .07$) and significantly correlated with family expressiveness of positive emotions ($r = .24, p = .03$) and observed mother positive affect ($r = .33, p = .003$). These results suggest that
observed mother savoring in a future-oriented task is related with maternal warmth, family
expressiveness of positive emotions, and observed positive affect expression, but is also a
distinct construct. On the other hand, observed adolescent savoring was not related to maternal

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1When a composite was calculated for mother and adolescent observed savoring, the majority of results reduced to non-significant.

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warmth ($r = .07, p > .05$) or family expressiveness of positive emotions ($r = .03, p > .05$), but was significantly correlated with observed adolescent positive affect ($r = .65, p = .00$).

Although data for the present study did not include adolescent report of maternal warmth and family expressiveness, adolescents reported on these measures during the prior time point approximately 6-10 months before the current study. Observed mother savoring in the Plan a Day trip task was not significantly correlated with either Time 1 youth report maternal warmth ($r = .18, p > .05$) or expressiveness of positive emotions ($r = .01, p > .05$). Observed adolescent savoring was again not correlated with either Time 1 report on maternal warmth ($r = -.13, p > .05$) nor expressiveness of positive emotions ($r = .08, p > .05$). Overall, observed adolescent savoring was not related to either mother or adolescent report of maternal warmth and family expressiveness of positive emotions.

**Aim 3: Investigating whether Observed Savoring predicts Adolescent Effective PA Regulation**

Multiple regression analyses were conducted to evaluate whether observed mother savoring predicted adolescent effective positive emotion regulation over and above adolescent age, gender, and ethnicity, family expressiveness of positive emotions, maternal warmth, and observed mother positive affect. These analyses included mother reported warmth and family expressiveness of positive emotions. Because multiple imputation was applied to handle missing values, unstandardized regression coefficients will be presented. Squared semi-partial correlations were calculated as a measure of effect size. As hypothesized, observed mother savoring predicted adolescent effective positive emotion regulation over and above adolescent demographics, maternal warmth, family expressiveness of positive emotions, and observed maternal PA (see Table 2 top panel). Furthermore, observed mother savoring contributed more variance ($sr^2 = .073$) to adolescent positive emotion regulation than adolescent demographics, mother report of warmth and family expressiveness of positive emotions, and observed maternal PA.

Controlling for adolescent demographics, maternal warmth, family expressiveness of positive emotions, and observed adolescent PA, observed adolescent savoring did not predict adolescent effective positive emotion regulation (see Table 2 bottom panel). As an exploratory analysis, observed mother and adolescent savoring were both entered in the same model to determine whether observed mother savoring would continue to predict adolescent’s report of
positive emotion regulation (see Table 3). Semi-partial correlations were calculated as a measure of effect size. With both in the model, observed mother savoring ($b = .16, sr^2 = .065, p = .02$) accounted for more variance compared to observed adolescent savoring ($b = -.02, sr^2 = .000, p = .88$) in relation to adolescent effective positive emotion regulation. Another interpretation of this finding is that 6.5% of the variance in adolescent effective positive emotion regulation was uniquely accounted for by mothers’ savoring in the interactive task.

**Aim 4: Evaluating the direct association between Observed Savoring and Adolescent Depression**

To evaluate aim 4, multiple regression analyses were performed separately to determine whether observed mother and adolescent savoring predicted adolescent depression over and above adolescent demographics, maternal warmth, family expressiveness of positive emotions, and observed maternal positive affect. Contrary to hypotheses, observed mother savoring did not directly predict adolescent depression (see Table 4 top panel). An additional regression analysis was conducted to examine whether observed adolescent savoring in the Plan a Day trip task predicted their depressive symptoms over and above control variables. Similar to the above result, observed adolescent savoring did not directly predict adolescent depressive symptoms (See Table 4 bottom panel).

**Aim 5: Whether Adolescent Effective PA Regulation mediates the relation between Observed Family Savoring and Adolescent Depression**

Although Baron and Kenny (1986) required the total effect of predictor on outcome to be significant in order to further investigate mediation, researchers have recently deemed this requirement unnecessary (Preacher & Hayes, 2004; Hayes 2009). Rather, an indirect effect may exist without the direct effect of predictor on outcome. Therefore, mediation was considered warranted to pursue. The PROCESS macro (Hayes, 2013) was utilized to determine whether observed maternal savoring was associated with adolescent depression indirectly through adolescent report of effective positive emotion regulation. This approach creates a sampling distribution of the indirect effects and is considered significant if the confidence interval of the indirect effect does not contain zero (Preacher, Rucker, & Hayes, 2007). Adolescent age, gender, and ethnicity, mother-reported warmth and family expressiveness of positive emotions, and observed maternal positive affect were entered as covariates.
Two approaches were employed when running mediation because the process macro cannot handle a multiple imputed data set. The first approach for testing the indirect effect was running mediation for each of the 20 imputed datasets separately. A significant indirect effect from observed maternal savoring to adolescent depression via adolescent effective PA regulation emerged for all 20 imputations controlling for covariates. Across these 20 imputations, averages and ranges for the indirect effects, standard errors, and confidence intervals were as follows: ($ab_{mean} = -1.39$; range: -1.46 to -1.22), ($SE_{mean} = .58$, range: .54 to .59), Upper CI range: -2.92 to -2.63, Lower CI range: -.56, -.39). For the second approach to test mediation, participant scores were aggregated across the imputed datasets to create a single data file. Mediation was then tested with this single file. A notable limitation of aggregating across data sets, however, is that each variable contains equal weights. In contrast, estimates produced in multiple imputation are pooled across data sets and each contribution are weighed by its standard error. For this approach, predicting adolescent depression, the indirect effect from observed mother savoring to adolescent effective positive emotion regulation was significant ($ab = -1.44$, $SE = .59$, 95% CI = [-2.91, -.49]). Taken together, these results converged to suggest that maternal savoring responses in an anticipatory task predicted higher adolescent report of effective PA regulation which, in turn, was related to lower adolescent depressive symptoms.

The indirect effect of observed adolescent savoring to adolescent depression via adolescent effective PA regulation was not warranted to pursue because recommendations require the path from predictor to mediator be significant to continue mediation analyses (Preacher & Hayes, 2004).

**Discussion**

Although recent research suggests that socialization responses to positive affect influence adolescent depression through positive affective regulatory processes (Katz et al., 2014), the present study is the first to directly examine this proposed mediation pathway. Findings provided evidence for the validity of an observational account of family savoring by comparing it to the self-report measure and additional family socialization processes. Furthermore, observed maternal savoring was uniquely related to adolescent effective PA regulation over and above adolescent demographics, maternal warmth, family expressiveness of PA, and overall PA duration. Although observed maternal savoring did not directly predict adolescent depressive symptoms, a significant indirect effect emerged through adolescent effective PA regulation. The
present study extends the literature by including a more specific socialization process of positive affect and demonstrating its unique influence on adolescent depression.

Validation of an Observational Measure of Family Savoring

One goal of the current study was to validate an observational measure of family savoring. Results revealed that observed adolescent and maternal savoring behaviors were minimally correlated to each other in the interactive task. Therefore, composites were not calculated, as doing so would have prevented interpretations of each family members’ unique contribution to this new socialization process, which has been stressed by previous researchers (Russel, Pettite, & Mize 1998; Thomasson & Suveg, 2014). Next, the observational measure of family savoring was compared to adolescents’ and mothers’ self-report of family savoring. Findings showed that observed maternal savoring in the interactive task was marginally correlated with their own report of family savoring, while the correlation between observed maternal savoring and adolescents’ report of family savoring was relatively lower and nonsignificant. On the other hand, observed adolescent savoring in the interactive task was unrelated to mothers’ or adolescents’ self-report of family savoring. Interestingly, although nonsignificant, the association between adolescents’ report of savoring and their mothers’ behavior was in the positive direction and larger than the relation to adolescents’ own behavior. Therefore, it is possible that although mothers and adolescents were instructed to report on how their family typically responds to positive experiences, the self-report measure may be most reflective of maternal savoring behaviors (though, again, these relations were very small and only marginal in significance).

The low correlations between observed maternal savoring and the self-report measure of family savoring were unexpected; however, research incorporating observational measures of capitalization among romantic adult dyads have produced similar relations. Two studies have found minimal to moderate correlations \( (r = .18 \& .31) \) between an individual’s rating of their partners’ capitalization attempts and observer ratings of the partners’ capitalization behaviors in an interactive task (Gable, Gonzaga, & Strachman, 2006; Kashdan, Ferssizidis, Farmer, Adams, & McKnight, 2013). Another potential reason for these minimal correlations in the current study is the notable difference in the temporal orientation of the self-report measure and the observed interaction. The purpose of the interactive task was to assess members’ savoring responses towards an anticipated positive experience, while the self-report measure evaluated the family’s
ability to savor past, in-the-moment, and future positive experiences, which have been considered theoretically distinct (Bryant, 2003; Bryant & Veroff, 2007). Therefore, direct comparisons between observed maternal and adolescent savoring in the future-oriented task and the anticipation subset of the family savoring self-report measure might augment these relations. Post hoc analyses were conducted to examine the relation between observed adolescent and mother savoring and the anticipation subscale of the Family Savoring Inventory (FSI), which only comprised one item. Results showed that adolescents’ report on the anticipatory subscale of the FSI was unrelated to observed adolescent and maternal savoring. However, mothers’ report on the anticipatory subscale of the FSI was significantly correlated with their own savoring in the interactive task ($r = .29, p < .01$), but unrelated to observed adolescent savoring.

Observed family savoring was also compared to similar family constructs thought to socialize positive affect. Findings demonstrated that observed maternal savoring was minimally related to maternal self-report of warmth and family expressiveness of positive emotions, although the correlation was stronger for the latter. These findings suggest that family savoring is a related, albeit distinct construct from other family processes that socialize positive affect. Furthermore, findings revealed that observed maternal savoring was more strongly related to family expressiveness of positive emotions than maternal warmth. Stronger relations among observed maternal savoring and family expressiveness of positive emotions may be partly due to the inclusion of enthusiastic responses in the savoring code (e.g., smiling, laughter, positive statements), which are evidently related to positive affective displays in the family environment. On the other hand, adolescents’ savoring behaviors were unrelated to mothers’ report of their supportive parenting behaviors or the family’s expressions of positive emotions.

Finally, observed family savoring was compared to observations of adolescent and mothers’ expressions of positive affect in the interactive task. Findings from the present study revealed that adolescent and maternal savoring behaviors were significantly related to their PA duration in the interactive task. As one of the main components of savoring includes enthusiastic displays (e.g., showing excitement, laughing, smiling), this result was not surprising because enthusiasm and positive affect expressions seemingly overlap. Notably, the relation of adolescents’ savoring scores to their general PA duration was stronger than the relation of mothers’ savoring to their PA duration. As adolescents may not yet entirely possess the ability to savor positive experiences (Bryant & Veroff, 2007), their savoring behavior may be most
reflective of general expressions of positive affect. On the other hand, mothers’ savoring is seemingly more distinct from simply expressing PA. Given that savoring behaviors were coded based on both enthusiasm and elaborations of PA, it is possible that adolescents’ scores reflect more of the former (which correlates more with general PA expression) and mothers’, more of the latter. Regardless, these findings suggest that observed adolescent savoring is most indicative of positive affect, while observed maternal savoring is similar yet distinct from mere expressions of positive affect.

Overall, findings provided evidence for the validity of the observational measurement of family savoring, yet more so for maternal savoring behaviors. Observed family savoring also appears to be related to, yet distinct from, similar processes thought to socialize positive affect (e.g. maternal warmth and family expressiveness of positive emotions). Furthermore, findings showed that observed family savoring was not necessarily represented by mere expressions of positive affect in the interactive task.

The Indirect Effect of Observed Savoring on Adolescent Depression through Adolescents’ Effective PA Regulation

Another aim of the present study was to directly examine whether socialization responses to positive affect influence adolescent depression through adolescents’ positive affective regulatory processes (Katz et al., 2014). The indirect effect of observed adolescent savoring was not evaluated because the effect of adolescent savoring behaviors on their report of effective positive emotion regulation strategies was non-significant. On the other hand, observed maternal savoring was indirectly related to adolescent depression through adolescents’ report of effective positive emotion regulation strategies. This finding is a notable contribution to the literature that has primarily focused on broad socialization processes of positive affect (e.g. maternal warmth and family expressiveness of PA) and their relation to youths’ regulation of negative emotions.

Surprisingly, observed adolescent savoring was not uniquely related to their own report of positive emotion regulation strategies. In the present study, adolescents’ savoring was observationally coded as their responses to their mothers’ displays of positive affect during their discussion of a future positive event. Adolescents’ self-report of effective positive emotion regulation strategies, on the other hand, captures responses to their own positive affective states. Although one might expect that how youth regulate their own PA would be similar to how they respond to others (e.g., co-regulation), the current findings suggest that these behaviors are
not related. A potential reason for this finding may be that adolescents’ self-reported strategies for managing their own PA reflect trait aspects of PA regulation, while adolescents’ savoring responses in the present study were context-specific (future positive life event) and focused upon an interaction with one specific individual (mothers). The inclusion of multiple positive life events and interactions with other individuals (peers, fathers) may allow for a better representation of adolescents’ PA regulatory behaviors.

On the other hand, observed maternal savoring was found to uniquely predict adolescents’ report of effective PA regulation strategies. Although there are likely several mechanisms involved in the transmission from parent to adolescent positive emotion regulation, these findings are in support of studies indicating that youth may model their parents’ own responses to emotional stimuli (Bariola, Hughes, Gullone, 2012; Morris et al., 2007; Silk, Shaw, Skuban, Oland, & Kovacs, 2006). Maternal enthusiastic and elaborative responses to an anticipated positive life event may model constructive strategies for up-regulating and maintaining positive emotions. Importantly, observed maternal savoring predicted adolescents’ PA regulation over and above general observed maternal PA expression and reported warmth and expression of PA in the family. Thus, maternal savoring appears to be a particularly potent socialization process. Consider, for instance, a mother who responds to a youths’ display of PA with a smile or other non-specific warmth compared to a mother who actively responds to positive affect by asking questions and seeking out additional information. The latter behavior appears to be a unique socializing agent with respect to how adolescent come to learn that PA is not to be inhibited and is to be appropriately expressed (i.e., coping). These findings align with research on capitalization in romantic dyads that has also found that partners’ active responses to positive life events provide further benefits than responses that are merely supportive or passive (Gable et al., 2004). In contrast to unsupportive responses to positive affect that potentially teach youth to suppress emotions (Yap et al., 2008), adolescents may model and internalize their mothers’ savoring of positive life events and subsequently engage in regulatory strategies that sustain positive emotions (e.g. coping and expressing positive emotions).

Adolescents’ effective positive emotion regulation strategies (more coping and less inhibition) were then related to fewer depressive symptomology. This finding contributes to a growing body of literature identifying relations between maladaptive responses to PA and youth depression (Feldman, Joorman, & Johnson, 2008; Nelis et al. 2016; Raes, Smets, Nelis, &
These responses that attempt to suppress positive emotions continue to inhibit the experience of positive affect, which is a unique feature in depression (Gençöz 2002; Joiner & Lonigan, 2000). Though limited, research has also found a relation between fewer strategies to maintain positive emotions and youth depression (Bijttebier, Raes, Vasey, & Feldman, 2011). Adolescents who monitor positive affective states and capitalize on opportunities to increase their duration through effective regulation strategies are likely to be shielded against depressive symptoms.

Somewhat surprisingly, neither observed adolescent nor maternal savoring were directly related to adolescent depression (whether or not mediators were included in the model). The non-significant direct relation between adolescent savoring responses and depressive symptoms aligns with a recent study finding that adolescent maximizing responses (sharing and celebrating) to positive life events were unrelated to their depressive symptoms (Gentzler, Morey, Palmer, & Yi, 2013). Though preliminary, it is possible that adolescents’ self-reported PA strategies have more influence on depression compared to actual observed PA behaviors (Yap, Allen, & Ladouceur, 2008), reflecting either a perception bias for individuals with depression who view themselves as less able to regulate experiences of PA or may simply reflect shared method variance among adolescents’ self-report of PA regulation and depression.

Findings also showed that observed maternal savoring responses was not directly related with adolescents’ report of their depressive symptomology. Again, this was surprising as it was in contrast to several studies finding a significant direct relation between a lack of positive parenting behaviors (e.g., maternal warmth, family expressiveness of PA) and youth depression (Luebbe & Bell, 2014; McLeod, Weisz, & Wood, 2007; Schwartz et al., 2012). Although contrary to hypotheses, family savoring was initially theorized to specifically target positive affective regulatory processes rather than directly influencing adolescent depression. The above studies also explored the influence of positive parenting behaviors on youth depression rather than parental socialization responses to youth PA. Indeed, a recent study found that parents of depressed youth were less likely to endorse enhancing responses to youth PA compared to parents of non-depressed youth (Katz et al., 2014), though the direct relation between these responses and youth depression was not examined. To our knowledge, there is only one study that has analyzed the relation between observed parental socialization responses to positive affect and adolescent depression (Yap, Allen, & Ladouceur, 2008). These researchers found that
observed maternal dampening responses to positive affect predicted greater adolescent depressive symptomatology, while supportive responses to positive affect were not directly related\(^2\). Though speculative, it is possible that the presence of adverse responses to positive affect directly impact adolescent depression, while the absence of supportive socialization responses (e.g., maternal savoring) exclusively functions through its effect on adolescents’ regulatory abilities.

Overall, findings showed that maternal savoring behaviors were significantly associated with adolescent depression indirectly through adolescent effective positive emotion regulation, including when controlling for adolescent demographics and additional positive affective family processes in the model. This suggests that maternal savoring in a future oriented task was uniquely associated with higher effective positive emotion regulation strategies, which, in turn, related to fewer adolescent depressive symptoms.

**Limitations and Future Directions**

Despite numerous strengths, the present study includes several limitations that are worth mentioning. Primarily, the cross-sectional nature of the data limits conclusions regarding causality, and the mediation results should be interpreted with caution. Future research would therefore benefit from employing longitudinal data to more rigorously understand whether observed savoring prospectively predicts adolescent depression via regulation of positive emotions. Second, the sole reliance on mothers did not allow us to understand the unique role of fathers in this socialization process. Given that the family savoring measure asks about how families collectively respond to positive emotions, future research should incorporate fathers or siblings to better understand their influence in this family processes. For example, previous research has shown that fathers’ socialization responses to youth PA have unique influences on youth adjustment (Katz et al., 2014; Thommason & Suveg, 2014).

The present study also exclusively examined mothers and adolescents’ savoring responses to an anticipated positive life event (e.g., family vacations). Family savoring was initially conceptualized as the ways in which families savor positive emotions derived from past, present, and future positive experiences. As research has shown that anticipating positive life

\(^2\) We attempted to code maternal and adolescent dampening responses in the interactive task, though we were unable to capture enough variance in these dampening behaviors.
events provokes greater positive emotions compared to a past event (Monfort, Stroup, & Waugh, 2015), and uncertainty related to an event intensifies positive affective states (Bar-Anan, Wilson, & Gilbert, 2009; Wilson, Centerbar, Kermer, & Gilbert, 2005), it is possible that savoring behaviors have differential consequences in a past versus future positive life event. For instance, savoring past memories may not only elevate PA, but may also provoke negative emotions pertaining to nostalgia or experiences of regret. Future research should consider examining whether savoring functions differently across these temporal orientations.

An additional limitation of the present study is the lack of generalizability across cultural groups. Research has demonstrated that cultural groups differ in emotion expressiveness, with individuals living in more independent cultural groups seeking to maximize positive emotions while those in more interdependent groups upholding a dialectic approach (balancing positive and negative emotions; Bagozzi, Wong, & Yi, 1999; Leu, Wang, & Koo, 2011). As the majority of participants in the present study were European American, future research should consider incorporating different cultural groups to advance the study of family savoring. For instance, family savoring may result in different outcomes depending on cultural values and beliefs pertaining to the benefits of positive emotions. Finally, although this is the first study to directly analyze the outcomes of family savoring, there may be several other outcomes that are worth exploring. As individual savoring strategies have been associated with a variety of subjective adjustment outcomes including self-esteem and optimism (Bryant 2003), future research should consider examining whether family savoring responses influence these measures as well.

**Clinical Implications**

Findings from the present study have important clinical implications for youth and families. Anhedonia, an inability to experience pleasure, has been identified as a key prognostic indicator for youth who may experience slower recovery from depressive symptomology (McMakin et al., 2012). In order to combat these symptoms, common treatment approaches encourage the individual to engage in pleasant activities and interactions in their environment (e.g. activity scheduling; Cuijpers, Straten, & Warmerdam, 2007). Rather than simply scheduling pleasant events, therapists may benefit from teaching youth effective positive emotion regulation strategies for responding to positive affect when planning these activities or interactions. Part of this intervention may require the assistance of important individuals in the adolescents’ life. In regards to parents, a noteworthy finding of the present study was the unique influence of
maternal savoring behaviors on adolescents’ effective positive emotion regulation strategies. Therapists may encourage families to practice discussing and proactively attending to future positive life events. Although it may be more onerous on parents, findings suggest that adolescents may benefit most from active and constructive responses from parents rather than non-specific positive reinforcement (e.g., general warmth) when positive events are shared by youth within the family. These savoring behaviors may provide a framework for promoting adolescents’ effective strategies for up-regulating and sustaining positive affective states, which may potentially counter depressive symptomology.
References


Table 1.

Means, Standard Deviations, and Correlations among study measures.

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\[M\] 14.01 .61 .20 3.65 3.95 3.80 2.73 6.80 .19 .52 1.29 1.25 2.50 6.46  
\[SD\] 1.99 .49 .40 .90 .74 .70 .30 1.38 .13 .22 .58 .61 .32 5.56  
\[Min – Max\] 11-18 0-1 0-1 1.44-5.00 1.77-5.00 2.06-4.97 1.60-3.00 2.00-8.75 .02-.65 .04-.97 .00-2.80 .00-2.60 1.85-3.00 .00-24.00  

* \(p < .05\), ** \(p < .01\).
Table 2.

**Observed Savoring Predicting Adolescent Effective PA Regulation.**

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Overall model statistics are presented from the original data set.
Table 3.

*Observed Maternal Savoring Predicting Adolescent Effective PA Regulation.*

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⁴ Overall model statistics are presented from the original data set

38
Table 4.

*Observed Savoring Directly Predicting Adolescent Depression.*

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<sup>5</sup> Overall model statistics are presented from the original data set
Figure 1. Mediation model proposing the indirect effect of observed family savoring on adolescent depression through adolescents’ effective PA regulation.
Appendix A

Dyadic Interaction Code-V2.0
Training Manual
A System for Coding Dyadic Parent-Child Interactions
Erika S. Lunkenheimer
Human Development and Family Studies
Colorado State University, 2014
Revised by Kathryn J. Mancini
Miami University of Ohio, 2015

OVERVIEW

The Dyadic Interaction Code system (DIC) is used for coding videotaped dyadic parent-child interactions. It was originally designed to code interactions between parents and young children (ages 2.5-5 years). Specifically, the DIC was designed to capture a descriptive landscape of affective displays and functional control/compliance behaviors in parent-child relationships. The current version was revised to code parent-adolescent interactions and focuses only on affective displays.

Like the Specific Affect Coding System (Gottman, 1994), the DIC is a gestalt system with the aim of integrating verbal cues, body movements, voice tone, and speech content. Because behaviors are inherently complex, it is often the case that contradictory physical and verbal behaviors occur at the same time (e.g., a mother smiles when she criticizes her child, an adolescent laughs while being oppositional). In general, verbal behaviors are given priority. Likewise, negative behaviors are given priority over positive or neutral behaviors if both occur at the same time, given that research indicates that negative behaviors carry more weight in interpersonal dynamics (e.g., Gottman, 1994; Ito, Larsen, Smith, & Cacioppo, 1998).

PARENT AND ADOLESCENT AFFECT CODES

Affect is primarily coded based on facial expression, eye contact, vocal tone, and body language. When facial expression and eye contact are not available due to camera angle, you will need to rely on vocal tone and body language to determine the correct code.

There are 5 affect codes in total, and they are the same 5 codes for parent and for adolescent. They reflect levels of intensity of affective display, not discrete emotions. However, parents and adolescents will likely show different expressions and degrees of affect that are fitting to their age/developmental stage. Therefore, the scale of emotion intensity is different for parents and children. For example, the Medium-High Positive code for parents may reflect a lower degree of intensity than the Medium-High Positive code for adolescents. Please refer to the examples below that are specific to each family member.
PARENT

Medium-High Positive

Medium-High Positive should be coded when there are any/some of the following:

1. Positive fluctuations in voice tone, such as lilts\(^6\), use of higher pitch to create an engaging or warm tone
2. Smiles that show teeth or an open mouth or appear broad/genuine, especially smiles that reach the eyes where the eyes crinkle or squint or get very big/excited
3. Laughing or chuckling
4. Warm, direct eye contact indicating affection or widened eyes indicating joy or surprise, often accompanied by a smile
5. Any instances of fairly high intensity positive affect that involve accompanying body movements (hugging, high five, pat on the back, etc.)
6. Highly validating statements (e.g., “You’re doing the best you can”, “Thank you for helping”), compliments (e.g., “Great idea!”), or team-building (e.g., “We’re in this together”)

Low Positive

Low Positive is a scaled-down version of Medium-High positive. Low Positive should be coded when there are any/some of the following:

1. Slightly positive lilts or warm tones in the parent’s voice in the absence of other signifiers of positive affect such as smiles or pats on the back
2. Smiles that are small and closed-mouth, or do not reach the parent’s eyes (do not seem to reflect genuine enjoyment or happiness)
3. Warm eye contact that conveys interest or engagement in the adolescent, but in the absence of other signifiers of positive affect such as smiles or warm voice tones
4. Low intensity validation or reassurance (e.g., “It’s okay”), agreements (e.g., “Yeah”, “That’s a good question”).

Neutral

Neutral signifies that affect is flat or not present. It is also the default when affect cannot be determined. It should be coded when there are any/some of the following:

1. No eye contact with adolescent, or direct or indirect eye contact that does not convey positive or negative emotion
2. Absence of frowns, smiles, or other warmth or negativity in facial expression – mouth will probably be a straight line
3. Vocal tone sounds relatively flat/straightforward, with few fluctuations or lilts.

\(^6\) A lilt is defined as “a characteristic rising and falling of the voice when speaking; a pleasant gentle accent; a cheerful or lively manner of speaking in which the pitch of the voice varies pleasantly”
Low Negative

Low Negative signifies that there is low-intensity negative affect present. It includes any of the following:
1. Any mild expression of irritation, annoyance, or distress, however small. Examples include a heavy sigh/exhale, rolling eyes, slight frowning or furrowed eyebrows, or putting hand on face in exasperation (e.g., rubbing eyes).
2. Any mild expression of anger. Examples include strained facial expression, slight hard edge in voice tone, a scoff, frowning, or narrowing eyes.
3. Any mild expression of sadness, however small. Examples include frowning, heavy sighs, downward looking eyes, or shrugging shoulders in apathy.
4. Any mild expression of discomfort, fear, nervousness, or anxiety, however small. Examples include sudden eye movements or darting eyes, narrowed eyes, fidgeting, quick, impatient movements, rubbing hands or other nervous, repetitive movements, or clearing throat or swallowing unnecessarily.

Medium-High Negative

Medium-High Negative should be coded when any of the following are present:
1. Any moderate or highly intense expression of irritation or annoyance. Examples include loud sighs, ignoring/stonewalling, or holding forehead in hand.
2. Any moderate or highly intense expression of anger. Examples include raising voice tone in anger, frowning, narrowing eyes, or negative teasing or mocking.
3. Any somewhat intense expression of sadness. Examples include slumped shoulders, crying, hiding face, or turning body away from adolescent.
4. Argumentative or oppositional statements including the following:
   a. Blaming (e.g., “Your room is always so messy”)
   b. Humiliation (e.g., “You’re so lazy, “You’re a pig”)
   c. Threats (e.g., “Keep it up and you’re grounded”),
   d. Oppositional questions (e.g., “How many times have I told you not to do that?”)
   e. Lecturing/patronizing (e.g., “Everyone knows how to clean a room. Why can’t you just do it?”)

ADOLESCENT

Adolescent affect codes are similar to parent affect codes, but examples are developmentally appropriate to adolescents

Medium-High Positive

Medium-High Positive should be coded when there are any/some of the following:
1. Regular positive fluctuations in voice tone, such as excited or louder speaking
2. Smiles that show teeth or an open mouth or appear broad/genuine, especially smiles that reach the eyes where the eyes crinkle or squint or get very big/excited
3. Laughing, chuckling
4. Warm, direct eye contact or eyes widened in joy or surprise, that is often accompanied by a smile
5. Any instances of fairly high intensity positive affect that involve multiple of the above or involve accompanying body movements (hugging, warmly touching/patting on the back, high fiving, etc.)
6. Highly validating statements (e.g., “Thanks for your help”) or compliments (e.g., “Cool idea!”)

**Low Positive**

Low Positive is a scaled-down version of Medium-High positive. Low Positive should be coded when there are any/some of the following:

1. Slightly positive lilts or warm tones in the adolescent’s voice in the absence of other signifiers of positive affect such as smiles or hugs
2. Smiles that are small and closed-mouth, or do not reach the adolescent’s eyes (do not seem to reflect genuine enjoyment or happiness)
3. Warm eye contact that conveys interest or engagement in the parent, but in the absence of other signifiers of positive affect such as smiles or warm voice tones
4. Low intensity validation, reassurance (e.g., “It’s okay”), agreements (e.g., “Yeah”, “That’s a good question”).

**Neutral**

Neutral signifies that the affect is flat or not present. It is the default when affect cannot be determined. It should be coded when there are any/some of the following:

1. No eye contact with parent, or direct or indirect eye contact that does not convey emotion
2. Absence of frowns, smiles, or other warmth or negativity in facial expression – mouth will probably be a straight line
3. Vocal tone sounds relatively flat/straightforward, with few fluctuations or lilts.

**Low Negative**

Low Negative signifies that there is low intensity negative affect present. Low Negative affect includes any of the following:

1. Any mild expression of irritation, annoyance, or distress, however small. Examples include a sigh/exhale, rolling eyes, slight frowning or furrowed eyebrows, or putting hand on face in mild exasperation
2. Any mild expression of anger. Examples include strained facial expression, slight hard edge in voice tone, a scoff, furrowed brow, or narrowing eyes.
3. Any mild expression of sadness, however small. Examples include frowning, heavy sighs, downward looking eyes, or shrugging shoulders in apathy.
4. Any mild expression of discomfort, fear, nervousness, or anxiety, however small. Examples include sudden eye movements or darting eyes, narrowed eyes, fidgeting, quick, impatient movements, rubbing hands or other nervous, repetitive movements, or clearing throat or swallowing unnecessarily.
Medium-High Negative

Medium-High Negative should be coded when any of the following are present:

1. Any moderate or highly intense expression of irritation or annoyance. Examples include loud sighs, ignoring/stonewalling, or holding forehead in hand.
2. Any moderate or highly intense expression of anger. Examples include raising voice tone in anger, sharp tone of voice, frowning, or negative teasing or mocking.
3. Any moderately intense expression of sadness. Examples include slumped shoulders, crying, hiding face, or turning body away from parent.
4. Oppositional statements including the following:
   a. Argumentative statements (e.g., “Nuh-uh”)
   b. Boundary challenging (e.g., “What are you going to do about it?”)
   c. Blaming
   d. Defensiveness
Appendix B

FAMILY SAVORING OBSERVATIONAL CODING MANUAL
Planning a Day Trip

For this task family members are instructed to arrange a family day trip or vacation. Money is not a constraint and families are asked to talk about the details pertaining to the trip, such as who is coming, how they will get there, how long, what will they do, etc. For example, a family might discuss a week-long trip to Disney world with the whole family. Planning a day trip examines how families savor future positive experiences.

The first part of savoring a future event is Elaboration. Elaboration includes asking questions, showing interest, and seeking out additional information about the event. For example, elaboration in planning a day trip might be when each family member provides specific details about the trip throughout the conversation. Families who score high on elaboration seek out additional information about the vacation through asking questions, carrying on the conversation, adding onto one another’s suggestions, etc. These families discuss all aspects of the vacation/trip. On the other hand, families who score low on elaboration may struggle in providing details about the trip and extending the conversation. There may be moments of silence and difficulty coming up with additional things to do. It is important to differentiate between moments of silence and thinking. Moments of silence will be when the conversation tends to dissipate and both members appear disinterested in carrying on the conversation. Thinking is a part of elaboration because the individual is contemplating different aspects of the trip.

The second part of savoring a future event is Enthusiasm. Moments of excitement may be more salient in planning a day trip, where as joy or happiness was prominent during the best memory. Families who score high on enthusiasm are excited for their upcoming trip, show lots of interest, and reciprocate one another’s positive affect. There may be outward expressions of Enthusiasm such as, “Yes that would be so fun!” or “I really wish we could go on this vacation!” Mothers/children who maintain eye contact, are engaged, smile, and appear interested score high on enthusiasm. Thinking about the aspects of the trip elicits positive emotions and it is easy to discern when each family member is showing excitement for the trip. Families who score low on enthusiasm (0/1) are disinterested in the potential vacation, bored, and not engaged. A child may score high on enthusiasm and elaboration while the parent scores low because it is clear that the child is way more interested than the parent.

Planning a day trip is coded minute by minute and separately for mother and child. The first part of the code asks if anything positive was expressed from the mother or child. When coding the child, if nothing positive (talking about memory, responding to mom) was expressed, than circle N. The same applies for the mother, if she does not say anything positive within the minute circle 0. A 0 indicates that the child/mother was thinking or did not have an opportunity to respond within that minute. Families low in savoring fail to carry on the conversation and express interest/joy/excitement about the potential vacation.
Coding- Code for each minute

**Kid Response**
Minute 1: Did the child express any positivity (starting the conversation, responding)? Y/N

**Elaborate and Enthusiasm**

0—None: There are no instances of elaboration or enthusiasm. Child appears disinterested and has a difficult time talking about the trip/vacation. The child may look at the mother once but is not engaged throughout the minute. The child does not show any signs of excitement or interest in planning a family day trip/vacation.

1—Little Elaboration and Enthusiasm: The child acknowledges his/her mother when she begins talking but shows few signs of enthusiasm and elaboration. The child shows excitement/interest a couple times during the minute but this is infrequent. The child pays attention, makes eye contact, but has a difficult time prolonging the conversation. The child may talk shortly about his/her ideas but does not spend a lot of time thinking about aspects of the trip/vacation. Elaboration and Enthusiasm happen for a few times within the minute.

2—Moderate Elaboration and Enthusiasm: A coding of 2 is given when the child reveals moderate elaboration and enthusiasm for half of the minute. The child may also show frequent elaboration (providing ideas, responding to mother) but does not express excitement or interest during the minute. The child responds to his/her mothers’ questions and talks about some of his/her own ideas but this does not happen more than half the minute. Difference between a score of 2 and 1 is that a score of 2 is provided when elaboration and enthusiasm take place for about half of the minute. Also, a 2 is given when elaboration takes place the majority of the minute but enthusiasm (smiling, interest) does not.

3—High Elaboration and Enthusiasm: A child shows elaboration and enthusiasm for more than half of the minute. The child has an easy time talking about different aspects of the trip and goes into great detail (who to bring, where to go, etc.). The child is thinking about the trip for the whole minute and is clearly excited. When his/her mother talks about the trip, the child is actively engaged and expresses excitement/interest. Child may even ask his/her mother questions. The child does not have a difficult time showing interest or prolonging the conversation for the minute.

**Parent Response**
Minute 1: Did parent express any positivity (starting the conversation, responding)? Y/N

**Elaborate and Enthusiasm**

0—None: There are no instances of elaboration or enthusiasm. The mother might say a few words about the trip/vacation but that is all. The mother may look at the child when he/she speaks but does not show any excitement for the potential trip nor provide any of her own ideas. Mother appears disinterested in the task.
1 – **Little Elaboration and Enthusiasm.** For under half of the minute, the mother may show signs of interest or enthusiasm. The mother may show excitement/interest about the trip/vacation, by smiling or saying statement such as “Yeah that would be fun” a few times during the minute. However, this is infrequent and only happens a few times during the minute. The mother may ask a couple questions or provide her own suggestions for no more than half of the minute while expressing few signs of excitement/enthusiasm.

2 – **Moderate Elaboration and Enthusiasm.** The mother reveals moderate elaboration and enthusiasm for half of the minute. The mother may show frequent enthusiasm (interest, excitement, smiling) and elaboration (providing her own ideas) but there are clear moments when the mother fails to do so. A scoring of 2 is also provided when the mother elaborates the entire conversation but does not express enthusiasm/excitement. She provides her own ideas and asks her child what they would want to do but fails to reciprocate or express any enthusiasm for the trip/vacation. The difference between a score of 2 and 1 is that a 2 is provided when enthusiasm/elaboration occurs for half of the minute or when the mother elaborates the majority of the minute but does not express enthusiasm (interest, excitement).

3—**High Elaboration and Enthusiasm:** A mother shows elaboration and enthusiasm for more than half of the minute. The mother has an easy time carrying on the conversation and appears to be thinking about it for the majority of the minute. When her child talks about different aspects of the trip, the mother actively responds and extends the conversation. It is clear that the mother is excited for the trip or is trying to show interest if her child is for the majority of the minute. The difference between a score of 3 and 2 is that a 3 is provided when the mother expresses enthusiasm (excitement/interest) and elaboration (providing details, questions) for the majority of the minute.