The Role of Rumination in Promoting and Preventing Depression in Adolescent Girls

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Abstract

Women are twice as likely as men to become depressed and this gender difference emerges in early adolescence. One contributor to the gender difference in depression may be a greater tendency to ruminate in response to distress in females compared to males. Numerous studies of adults and a few studies of adolescents have established that rumination is a risk factor for depression and that females are more likely than males to ruminate. We briefly review these studies and the mechanisms by which rumination appears to exacerbate and prolong depression. Then we discuss how existing preventative intervention may help to reduce risk of depression by reducing the tendency to ruminate. Finally, we discuss how programs can be adapted to focus specifically on preventing the increase in depression in adolescent girls by reducing rumination.

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Any successful preventive intervention must target the important causal risk factors for the disorder that it is attempting to prevent (e.g., Kraemer et al., 2001). An identification of those risk factors that are malleable and most predictive of the disorder in question is therefore the first step in designing an effective preventive intervention. Cognitive factors have long been implicated in depression (Abramson, Alloy, Hankin, Haeffel, MacCoon, & Gibb, 2002; Beck, 1967), and have been the focus of several preventative intervention programs (Clarke et al., 2001; Gillham et al., 1995). One cognitive factor that has been strongly linked to depression is rumination, the tendency to repetitively and passively focus on symptoms of distress, and possible causes and consequences of these symptoms (Mor & Winquist, 2002; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). The content of ruminative thought in depressed people is typically negative in valence, similar to the negative thoughts that have been studied extensively in other cognitive theories. We conceptualize rumination, however, as a process of perseverative thinking about one's feelings and problems rather than in terms of the specific content of thoughts. People prone to ruminating tend to rehash negative events from the past, worry about the future, and remain fixated on their current problems without moving into active problem-solving.

A number of studies have shown that people who tend to ruminate in response to distress have longer and more severe periods of depressive symptoms and are more likely to develop major depressive disorder (see Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Moreover, women and girls are more likely to ruminate in response to distress than men or boys, and rumination has been shown to mediate the gender difference in depression in some studies

(Nolen-Hoeksema & Hilt, 2009). Thus, rumination represents a good target for preventative intervention programs for girls at risk for depression.

In this chapter, we briefly review the evidence for rumination as a risk factor for depression, and the gender differences in rumination. We then discuss how existing preventative intervention programs may affect rumination, and how new interventions specifically target ruminative tendencies. Finally, we suggest ways that preventative intervention programs can be tailored particularly for girls with a tendency to ruminate.

Rumination, Depression, and Gender

Much of the research on rumination in depression has used the Ruminative Responses Scale of the Response Styles Questionnaire (Nolen-Hoeksema & Morrow, 1991). This scale asks respondents how often they engage in each of 22 ruminative thoughts or behaviors when they feel sad, blue, or depressed. These include responses that are self-focused (e.g., "I think 'Why do I react this way?'"), symptom-focused (e.g., "I think about how hard it is to concentrate"), and focused on the possible consequences and causes of one's mood (e.g., "I think 'I won't be able to do my job if I don't snap out of this'").

Prospective longitudinal studies of adults have shown that people who engage in rumination when distressed have more prolonged periods of depression and are more likely to develop depressive disorders (Just & Alloy, 1997; Kuehner & Weber, 1999; Nolan, Roberts, & Gotlib, 1998; Nolen-Hoeksema, 2000; Nolen-Hoeksema et al., 1993, 1994; Nolen-Hoeksema, Larson, & Grayson, 1999; Roberts, Gilboa, & Gotlib, 1998; Sarin, Abela, & Auerbach, 2005; Segerstrom, Tsao, Alden, & Craske, 2000; Spasojevic & Alloy, 2001; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990). Similarly, longitudinal studies of children and adolescents find that

rumination predicts longer and more severe periods of depression (Abela, Brozina, & Haigh, 2002; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007; Schwartz & Koenig, 1996).

Rumination appears to maintain and exacerbate depression through at least three mechanisms (for a review, see Nolen-Hoeksema et al., 2008). First, rumination leads depressed people to think more negatively about the past, the present, and the future. Dysphoric participants induced to ruminate recall more negative events from the past (Lyubomirsky et al., 1998), make more negative inferences about ongoing events (Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky et al., 1999), and are more hopeless about the future (Lyubomirsky & Nolen-Hoeksema, 1995), compared to dysphoric people distracted from their ruminations. Similarly, studies using people meeting criteria for major depressive disorder have found that those induced to ruminate subsequently show more negative thinking about themselves and the future than those in comparison induction conditions (Lavender & Watkins, 2004; Rimes & Watkins, 2005). Thus, rumination exercises and enhances negative thinking, which in turn can exacerbate depression.

Second, even though depressed people often engage in rumination as an attempt to solve their problems, rumination appears to interfere with good problem-solving. Dysphoric or clinically depressed people induced to ruminate generate less effective solutions to interpersonal problems compared to those distracted from their ruminations (Donaldson & Lam, 2004; Lyubomirsky et al., 1999; Lyubomirsky & Nolen-Hoeksema, 1995; Watkins & Baracaia, 2002; Watkins & Moulds, 2005). Even when they generate reasonable solutions to problems, depressed people who ruminate lack confidence in their solutions and are more hesitant about implementing them (Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003). Thus, the problems of depressed ruminators may persist and worsen, further exacerbating their depression.

Third, people who persistently ruminate may annoy and drive away others (Schwartz & McCombs, 1995). A study of bereaved adults found that ruminators reached out for social support more than non-ruminators, but reported more friction in their social networks (Nolen-Hoeksema & Davis, 1999), and that family and friends became frustrated with their continued need to talk about their loss (Nolen-Hoeksema & Larson, 1999). In addition, rumination is associated with the tendency to assume undue responsibility for the well-being of others (Nolen-Hoeksema & Jackson, 2001), dependency, neediness (Spasojevic & Alloy, 2001), and sociotropy (Gorski & Young, 2002). People who ruminate over anger-provoking events show greater desire for revenge after an interpersonal transgression or slight (e.g., "I want to see her hurt and miserable;" McCullough et al., 1998, McCullough, Bellah, Kilpatrick, & Johnson, 2001), as well as increased aggression following a provocation (Collins & Bell, 1997). Thus, ruminators may have interpersonal styles that drive away social support, further exacerbating their tendency toward depression.

Adult women are more likely to engage in rumination than adult men (Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema et al., 1993, 1999; Nolen-Hoeksema & Larson, 1999; Roberts et al., 1998; Ziegart & Kistner, 2002), and this gender difference in rumination mediates the gender difference in depression (Nolen-Hoeksema et al., 1999; Roberts et al., 1998). In children and adolescence, gender differences in rumination are also found in studies with larger sample sizes (Grant et al., 2004; Hampel & Petermann, 2005; Hilt, McLaughlin & Nolen-Hoeksema, in prep.; Schwartz & Koenig, 1996), although not in studies with smaller sample sizes (Abela et al., 2002; Broderick & Korteland, 2004), suggesting the magnitude of the gender difference in rumination is smaller in younger age groups than in adults. Thus, girls appear to

have a somewhat greater tendency than boys to ruminate, and this gender difference may grow with age.

Rationale for Including Rumination as a Target for Prevention Programs

Given the robustness of rumination as a risk factor for depressive symptoms and major depression in youth as well as adults (e.g., (Abela, Brozina, & Haigh, 2002; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007; Schwartz & Koenig, 1996), rumination represents an excellent intervention target for prevention programs aimed at reducing the incidence of depression. While many similarly robust risk factors for adolescent depression, such as maternal depression (Hammen, 1991; Hammen & Brennan, 2003) and early pubertal onset (e.g., Ge, Conger, & Elder, 2001; Hayward, Gotlib, Schraedly, & Litt, 1999), are more difficult to target with prevention programs, rumination represents a risk factor that may be malleable and thus amenable to intervention efforts. Moreover, decreasing rumination represents a particularly important goal for preventive interventions aimed at reducing the onset of depression among female adolescents, because rumination has been demonstrated to occur more commonly among adolescent females (Grant et al., 2004; Hampel & Petermann, 2005), and to mediate the gender difference in depression in adolescents (Grant et al., 2004). As such, interventions aimed at preventing the onset of depression among adolescent females should include techniques designed to reduce engagement in rumination.

Rumination and Current Prevention Programs

The majority of preventive interventions for adolescent depression have been cognitive-behavioral in nature. The two prevention programs that have been the most thoroughly evaluated empirically and have been found to be effective are both cognitive-behavioral interventions: The "Penn Resiliency Program" (PRP; Jaycox et al., 1994; Gillham et al., 1995;

Seligman, Schulman, DeRubeis, & Holland, 1999) and the "Coping with Stress Course" (Clarke et al., 1995; Clarke et al., 2001). These interventions each include classic cognitive restructuring techniques borrowed from cognitive therapy for depression, and the PRP also includes a social problem-solving component. Classic cognitive therapy identifies core negative beliefs, dysfunctional attitudes, and the negative automatic thoughts that result from such beliefs and attitudes and attempts to replace such thoughts and beliefs with alternatives that are more functionally adaptive (Beck, Rush, Shaw, & Emery, 1979). The social problem-solving techniques used in the PRP involve a multi-step approach that includes identification of goals prior to acting, generating multiple solutions to problem situations, evaluating the positive and negative consequences of each solution, and choosing the most appropriate course of action (e.g., Gillham et al., 1995). Other prevention programs for adolescent depression, such as the "Resourceful Adolescent Program (RAP; Schochet et al., 2001) and the "Problem Solving for Life Program (PSLP; Spence, Sheffield, & Donovan, 2003)," also utilize similar cognitive-behavioral techniques.

Intervention techniques included in preventive interventions are typically adapted from effective treatments for the disorder being targeted. Consistent with this practice, the intervention techniques used in the aforementioned prevention programs form the basis of effective cognitive-behavioral therapy (CBT) for depression, including treatment of adolescent depression (e.g., Lewinsohn, Clarke, Hops, & Andrews, 1990; Clarke, DeBar, & Lewinoshn, 2003). In fact, the Coping with Stress course (Clarke et al., 1995) was adapted directly from the "Adolescent Coping with Depression Course," a CBT intervention that has been found to be effective at treating adolescent depression (Lewinsohn et al., 1990; Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999). Although rumination may be indirectly affected by cognitive

restructuring and social problem-solving, these CBT techniques do not target rumination directly. Because cognitive restructuring addresses automatic negative thoughts and beliefs, some of the *content* of ruminative thinking may be influenced by this therapeutic approach. For example, individuals who are ruminating about the causes of their dysphoria may think that they are feeling distressed because they can never do anything right. Cognitive restructuring will identify that negative thought and attempt to replace it with one that is more adaptive. However, the *process* of rumination is not necessarily affected by cognitive restructuring. Because the process of abstract self-focus on symptoms and their meaning may be what leads rumination to be depressogenic in nature (e.g., Watkins & Moulds, 2005), the impact of cognitive restructuring on rumination may not lead to an improvement in depressive symptoms that are associated with a tendency to engage in rumination. Moreover, altering a specific negative thought likely does little to prevent the occurrence of future episodes of rumination about the causes and consequences of distress, given that the content of ruminative thought, and not the process itself, is affected. Future episodes of rumination are therefore just as likely to lead to the generation of other negative thoughts and beliefs about the self. Similarly, problem-solving training may ameliorate some of the specific contents of ruminative thought. For example, an individual whose rumination includes thoughts that they can never get things done at work may be able to utilize problem-solving to develop better work habits and organization skills. But problem-solving will not likely influence the extent to which that individual is likely to ruminate about other causes or consequences of their depressive symptoms.

Given that adolescent depression programs have primarily involved cognitive restructuring and problem-solving training, rumination has not been specifically targeted in such interventions. Existing prevention programs utilizing these techniques have been demonstrated

to be effective at reducing depressive symptoms among samples of adolescents selected to be at high risk for developing depression (e.g., Clarke et al., 1995; Gillham et al., 1995; Clarke et al., 2001). However, the efficacy of current prevention programs could be greatly improved. Recent meta-analyses examining the efficacy of preventive interventions targeting adolescent depression haveconcluded that targeted/indicated prevention programs are effective but that treatment effect sizes are small and preventive effects are not maintained once the intervention ends; additionally, the results indicated that universal programs have not been effective at reducing depressive symptoms or onset of depressive episodes in study participants (Garber, Webb, & Horowitz, 2009; Merry, McDowell, Hetrick, Bur, & Muller, 2004). Moreover, no existing programs have been demonstrated to have significant preventive effects on the incidence of major depressive disorder. As such, the efficacy of prevention programs may be improved by including techniques that go beyond the cognitive restructuring and social problem-solving approaches that have formed the basis of current interventions. Specifically, inclusion of techniques targeting emotion regulation processes, particularly rumination, may lead to increased efficacy.

Intervention Techniques Targeting Rumination

Rumination has only recently become the focus of specific therapeutic techniques in interventions for depressed individuals. Watkins and colleagues (2007) have created a cognitive-behavioral treatment for depression, Rumination-Focused Cognitive-Behavioral Therapy (RFCBT), that was developed specifically to address depressive rumination as a residual symptom of depression and harbinger of future relapse. This intervention utilizes traditional CBT techniques for depression, but also includes techniques specifically targeting rumination. The first of these techniques involves a functional-analytic and contextual approach to behavioral activation (see Jacobson, Martell, & Dimidjian, 2001). This intervention technique specifically

targets rumination by attempting to improve the identification of maladaptive ruminative thoughts and their associated behaviors as well as triggers and warning-signs for rumination. Further, this intervention strategy involves identification of and engagement in "counter-rumination behaviors" (Watkins et al., 2007) that represent adaptive alternatives to rumination (e.g., relaxation, problem-solving) as well as changing environmental contingencies that maintain rumination. The second technique included in RFCBT that specifically targets rumination involves the use of directed imagery. Exercises are designed to help individuals to recall and relive past experiences in which they engaged in adaptive thinking. Specific examples provided by Watkins and colleagues (2007) of adaptive thinking experiences include being compassionate to others or being totally engrossed in an activity. The adaptive thinking occurrences that are recalled during imagery exercises are used as counter-rumination behaviors that individuals can engage in to prevent future episodes of rumination. RFCBT demonstrated initial efficacy in a group of individuals who met criteria for medication-refractory residual depression.

Kovacs and colleagues (2006) have developed an intervention for depression that specifically targets maladaptive emotion regulation strategies and responses to dysphoria that exacerbate negative mood. The intervention, Contextual Emotion Regulation Therapy (CERT) for depression, was developed for the treatment of childhood depression and is thus particularly relevant for prevention work targeting adolescent depression. CERT for depression was specifically designed to address children's self-regulation of distress and dysphoria; in particular, regulatory difficulties during periods of stress are conceptualized as direct precursors to the onset of depressive symptoms and represent the primary intervention target. The therapy focuses on identifying children's typical responses to distressing situations and categorizing them along

important dimensions (e.g., behavioral vs. social/interpersonal; adaptive vs. maladaptive). A particular emphasis is placed on identifying the contexts that elicit maladaptive management of distress.

The focus of CERT for depression involves replacing habitual maladaptive responses to distress with alternative responses from the child's own repertoire of emotion regulation responses that ameliorate negative mood (Kovacs et al., 2006). If a child does not possess an adequate reserve of adaptive responses that can be substituted for those that maintain or worsen negative mood, instruction in the use additional emotion regulation strategies occurs. Additional strategies are chosen from the category of responses that the child feels most comfortable using (e.g., cognitive strategies). Preliminary efficacy of CERT for depression was found in a pilot study examining the intervention among children with dysthymia, some of whom also met criteria for major depressive disorder. Treatment led to significant symptomatic improvement of both dysthymia and major depression for the majority of participants who completed the intervention protocol (Kovacs et al., 2006). Rumination is not specifically the focus of CERT for depression. However, given that rumination is a maladaptive response to distress that maintains and exacerbates dysphoria (e.g., Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema, Morrow, & Frederickson, 1993; Nolen-Hoeksema, Parker, & Larson, 1994; Just & Alloy, 1997), ruminative responses to depressed mood would undoubtedly be included as targets of this intervention.

Intervention techniques targeting rumination have only recently begun to appear in the depression treatment literature. The two existing treatments that include rumination as a focus of the intervention differ in important ways, including the target population (adults vs. children) and the target disorder (refractory major depression vs. dysthymia). Nonetheless, similarities in the

techniques used in these interventions are evident. Both interventions utilize the basic CBT framework that has been demonstrated to be effective at treating depression but apply the therapeutic strategies specifically to rumination, rather than to other dysfunctional thoughts, attitudes, and behaviors. For example, both treatments utilize a functional behavioral analysis approach to help the individual identify instances when they engage in rumination and the contextual triggers/antecedents of rumination episodes. Additionally, both emphasize the identification of adaptive emotion regulation strategies and behaviors that can be engaged in instead of rumination. Finally, an individualized approach is utilized such that the types of adaptive responses that have worked for the individual in the past are identified to replace rumination rather than dictating a "one-size-fits-all" approach to adaptive emotion regulation.

Including Techniques Targeting Rumination in Preventive Interventions

The intervention techniques targeting rumination used in recent treatments for depressive disorders (Kovacs, 2006; Watkins et al., 2007) provide an excellent starting point for the development of approaches that incorporate rumination as a target of preventive interventions for adolescent depression. The functional behavioral analysis approach to rumination utilized by each of these treatments represents a strategy that holds much promise for improving the efficacy of prevention programs. This traditional CBT approach aims to improve the identification of the environmental and organismic antecedents, emotional and behavioral responses, and consequences (interpersonal, health, etc.) of a specific maladaptive behavior (see Goldfried & Davison, 1994). Application of this behavioral analysis to rumination specifically could easily be incorporated into preventive interventions for adolescent depression. The general approach of functional analysis is already included in the majority of interventions that use cognitive restructuring (PRP, Coping with Stress Course, etc.), meaning that the groundwork for using this

therapeutic strategy is already in place. The only necessary change to such existing interventions would involve incorporating rumination as a specific target of this therapeutic technique. This would require inclusion of psychoeducation regarding rumination, its consequences, and methods for identifying rumination episodes. Similar to the approach used by Watkins and colleagues (2007), the goals of this technique include improved identification of moments of self-focus on feelings of dysphoria and their associated causes and consequences, identification of the triggers and contexts in which rumination occurs, and improved awareness of the consequences of rumination. These goals are rooted firmly within a contextual approach in which importance is placed on understanding the environmental and social contingencies that are associated with rumination. Furthermore, the development of planned alternatives to replace rumination, chosen from the individual's repertoire of existing adaptive behaviors and mood management techniques, represents a critical goal of this approach. This final goal likely requires the use of other techniques (discussed below) to identify adaptive behaviors and emotion regulation strategies that can be used as alternatives to engagement in rumination.

Behavioral activation intervention strategies represent another avenue for targeting rumination specifically in preventive interventions. Behavioral activation has been demonstrated to be an effective strategy for treating major depression (e.g., Jacobson et al., 1996; Jacobson et al., 2001), and may also ameliorate rumination (see Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Moreover, recent intervention work has utilized this approach for targeting rumination specifically (Watkins et al., 2007). Additionally, behavioral activation may serve to prevent the onset of depressive symptoms both by increasing positive reinforcement and reducing avoidance patterns *and* by helping individuals to generate adaptive behaviors that can be substituted for rumination, representing the final goal of the functional behavior analysis/behavior change

strategies described above. However, preventive interventions for adolescent depression have largely not included behavioral activation components. Current approaches to behavioral activation involve increasing both short-term positive reinforcement, by distracting individuals from negative moods with engagement in positive activities identified to be functional and enjoyable for the individuals, and long-term reinforcement, by helping individuals to break maladaptive avoidance patterns and to solve problems in their lives by generating alternative coping methods (Jacobson et al., 1996; Jacobson et al, 2001). Behavioral activation represents a feasible approach to use in prevention programs for adolescents. This approach entails, first, psychoeducation regarding the cycle between depressed mood, lowered activation/engagement, and subsequently worsened mood. Generation of adaptive and enjoyable behaviors for individual participants follows, with a particular emphasis on activities being goal-directed (e.g., going to a movie with friends to increase social support) rather than mood-directed (e.g., going to a movie to feel less depressed; see Jacobson et al., 2001). Finally, a focus on incorporating positive activities into individual participants' lives in a way that will prevent depression rather than random, non-scheduled engagement in activities should be emphasized. For example, engagement in activities that are thought to be universally pleasurable (e.g., watching a favorite movie) may not necessarily have preventive effects for depressed mood. Rather, engagement in activities identified to be related to depressed mood for the individual participant is preferable (e.g., calling a friend when feeling lonely or isolated).

Rumination Intervention Strategies Targeting Females

The previously discussed intervention strategies represent approaches that are equally applicable to male and female adolescents. Because they target rumination, these techniques may be more effective at preventing depression for females than for males, but they are not

exclusively applicable to females. In addition to these strategies, several intervention techniques that target female-specific risk factors related to rumination, co-rumination and body dissatisfaction, are discussed.

Co-rumination represents another potential target for preventive interventions aimed specifically at female adolescents. Co-rumination is a variant of depressive rumination that occurs in dyadic relationships. Specifically, co-rumination involves extensive discussion and perseveration on problems, repeated speculation about problems, and focus on the negative feelings associated with problems in the context of conversations between friends or acquaintances (Rose, 2002). Co-rumination has been demonstrated to occur more often in female versus male friendships, particularly among adolescents, and to be related to concurrent increased closeness and positive friendship quality as well as increased symptoms of anxiety and depression (Rose, 2006). Moreover, longitudinal evidence suggests the co-rumination leads to increased symptoms of depression and anxiety only among female friends (Rose, Carlson, & Walker, 2007), indicating that this risk factor for internalizing problems is gender-specific. As such, co-rumination among female friends represents another important intervention target for prevention programs.

Targeting co-rumination among friends represents another potentially effective strategy for preventing depression onset among female adolescents; however, intervention techniques targeting co-rumination are absent in the treatment literature. As such, the possible strategies suggested for reducing co-rumination are preliminary in nature. Co-rumination, unlike depressive rumination, is associated with both positive and negative outcomes. Although risk for internalizing symptoms is increased among females who engage in this behavior, co-rumination also leads to improved friendship quality and closeness. Techniques targeting this construct

should thus aim to maintain the positive consequences of co-rumination while eliminating the deleterious ones. Maintaining the positive social adjustment outcomes associated with co-rumination represents an important goal given the important of peer relationships during adolescence (e.g., Buhrmester & Furman, 1987; Larson & Richards, 1991; Eccles, 1999), and given the importance of social support deficits as a risk factor for the development of depression during this time period (e.g., Lewinsohn et al., 1994). The first step in reducing co-rumination likely involves psychoeducation regarding the negative effects of this behavior. Further directed examination of the specific aspects of co-rumination that are associated with positive social adjustment, such as self-disclosure (Camarena, Sarigiani, & Peterson, 1990) and social support (e.g., DuBois et al., 2002), may help adolescents identify the active ingredients that lead to positive social outcomes but do not require engagement in co-rumination per se. Identification of methods that maintain self-disclosure and social support in dyadic relationships but do not involve repetitive focus on problems and negative feelings should also be encouraged. Another strategy that may ameliorate co-rumination involves problem-solving training. If active problem-solving occurs between members of the dyad to attempt to solve the problems that are the focus of co-rumination, discussion of problems may be continued in an adaptive way. Encouragement of engagement in active problem-solving, using traditionally effective approaches (e.g., Gillham et al., 1995) instead of repetitive speculation with no subsequent attempts to solve the problem thus represents another potentially effective strategy for reducing co-rumination.

A final intervention approach that may be helpful in preventing depression among adolescent females involves reducing rumination triggered by body-image concerns and body dissatisfaction. Body dissatisfaction in adolescence has been prospectively associated with the

development of depressive symptoms over time among females (e.g., Graber, Brooks-Gunn, Paikoff, & Warren, 1994; Stice, Hayward, Cameron, Killen, & Taylor, 2000; Stice & Bearman, 2001). Body dissatisfaction also likely represents both a trigger for ruminative thoughts (e.g., negative mood triggered by body dissatisfaction may lead to rumination specifically about shape and weight concerns) and an identified cause of dysphoria during ruminative episodes (e.g., an adolescent ruminating about the causes of negative mood may identify body dissatisfaction as the culprit). Recent evidence suggests that symptoms of bulimia, including shape and weight concerns, prospectively predict increases in rumination among adolescent females (Nolen-Hoeksema, Stice, Wade, & Bohon, 2007). Rumination was also associated with the development of bulimic symptoms over time in this study suggesting that body image concerns and rumination are strongly associated with one another, as well as with the development of depression, among adolescent females (Nolen-Hoeksema et al., 2007). As such, targeting body dissatisfaction in female-specific preventive interventions will likely lead to reductions in rumination as well as depressive symptoms. A dissonance preventive intervention, in which participants engage in exercises critiquing the thin ideal, has been shown to be effective at reducing body dissatisfaction and eating pathology in randomized trials (Stice, Chase, Stormer, & Appel, 2001; Matusek, Wendt, & Wiseman, 2004; Stice, Trost, & Chase, 2003). Utilization of these intervention procedures, outlined in detail elsewhere (Stice, Mazotti, Weibel, & Agras, 2000; Stice et al., 2001), will likely improve the efficacy of preventive interventions for adolescent depression among females. Moreover, targeting body dissatisfaction along with rumination will likely increase the spectrum of pathology (e.g., depression, eating disorders) affected by such interventions. Given the expense associated with implementation of prevention programs, bundling intervention techniques that are applicable to more than one type of

psychopathology will help to broaden the impact and justify the costs associated with prevention programs.

Conclusions

Rumination appears to be an important target for programs designed to prevent depression in adolescent girls. Existing cognitive-behavioral interventions may reduce rumination somewhat, but newer programs specifically targeting rumination hold promise of reducing this maladaptive mood-regulation response even further. These new programs could be further adapted to focus specifically on behaviors and issues pertinent to adolescent girls, including co-rumination among friends and rumination about body image.

The reduction of depression risk in adolescent girls is a critical focus for future research and public health policy. Depression is the leading cause of disease-related disability among women across the world today (Murray & Lopez, 1996). The upsurge in depression for females occurs in early adolescence (Twenge & Nolen-Hoeksema, 2002). If we can prevent this upsurge, we can save women from lifetimes of recurrent depressive episodes, improving their lives substantially, and the lives of those around them.

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