Rumination subtypes in relation to problematic substance use in adolescence

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1. Introduction

In adolescence, several biological and psychological factors increase youngsters’ vulnerability to adjustment problems, such as hazardous substance use. The National Survey on Drug Use and Health reported that 7.6% of the youngsters between 12 and 17 years were classified with substance dependence or abuse in the past year (Substance Abuse and Mental Health Services Administration, 2009). For prevention and intervention, it is important to investigate factors associated with an increased vulnerability to problematic substance use. The present study will focus on rumination as a vulnerability factor.

Rumination is the tendency to repetitively and passively focus on symptoms of distress and on the possible causes and consequences of these symptoms (Nolen-Hoeksema, 1991). It has been shown to play a role in the onset, severity and persistence of depressive symptoms (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Watkins, 2008). Furthermore, rumination is assumed to be a stable individual characteristic which does not decrease once the depressive symptoms are alleviated (Nolen-Hoeksema & Davis, 1999).

There is also evidence that rumination may increase the risk for maladaptive behaviors, such as problematic substance use. People high on rumination may use substances to temporarily avoid self-directed rumination (Nolen-Hoeksema, Stice, Wade, & Bohon, 2007). Consistent with this, it has been suggested that people high on private self-consciousness (which is related to rumination) may use alcohol as an attempt to ‘escape from the self’ (e.g., Hull, 1981).

More recently, Nolen-Hoeksema and Harrell (2002) found in an adult community sample that rumination was associated with alcohol problems and the tendency to use alcohol and drugs to cope with stress. Furthermore, in women, rumination significantly predicted alcohol-related problems at a 1-year follow-up. In a longitudinal study of female adolescents, rumination predicted the onset of substance abuse and future increase in substance abuse symptoms over 4 years (Nolen-Hoeksema et al., 2007). Caselli, Bortolai, Leoni, Rovetto, and Spada (2008) found that problem drinkers reported significantly more rumination than social drinkers and that rumination predicted category membership as a problem drinker and alcohol use, independently of depression. Finally, in a sample of patients following treatment, Caselli et al. (2010) found a significant association between rumination at baseline and alcohol use at follow-up, over and above baseline levels of depression and alcohol use. These results support the existence of an association between rumination and problematic substance use. However, most studies are limited to adults or female adolescents, resulting in a lack of research on rumination and onset of problematic substance use in a mixed adolescent sample.

Recently, repression researchers have started to consider rumination as a two-dimensional construct (e.g., Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Brooding refers to “a passive comparison of one's current situation with some unachieved standards” (Treynor et al., 2003, p. 256), whereas reflection comprises “a purposeful training inward to engage in cognitive problem solving to alleviate one's depressive symptoms” (p. 256). The tendency to passively or self-critically dwell on one's feelings (i.e., brooding) is associated with maladaptive coping strategies, whereas the active examination of one's emotions (i.e., reflection) is associated with adaptive coping strategies (Burwell & Shirk, 2007). Several researchers...
adolescents (see Watkins (2008) for a review) have explained the more maladaptive consequences of brooding as a result of its particularly negative thought content, characterized by self-evaluative, self-critical, and self-judgmental analyses. According to Burwell and Shirk (2007), brooding reflects a failure to disengage from stress and negative emotions, whereas reflection is related to voluntary coping aimed to change the stressor or one’s attitude toward the stressor, resulting in greater self-awareness and emotional clarity.

The two-dimensional structure has been replicated both in adult (e.g., Schoofs, Hermans, & Raes, 2010) and pre-adult samples (e.g., Burwell & Shirk, 2007; Verstraeten, Vasey, Raes, & Bijttebier, 2010). With the exception of the study of Nolen-Hoeksema et al. (2007), who investigated the association between brooding (but not reflection) and substance abuse, no studies thus far investigated the relations between rumination subtypes and problematic substance use. Research on depression, however, suggests that brooding represents the more maladaptive facet of rumination, whereas reflection is largely benign (Burwell & Shirk, 2007; Raes, 2010; Raes & Hermans, 2008; Treynor et al., 2003). The first aim of the present study is to investigate if this also holds in the domain of problematic substance use. We hypothesize that high brooding and low reflection will be related to the substance use variables.

There is clear evidence that depression is often accompanied by substance use problems (Davis, Uezato, Newell, & Frazier, 2008). However, most studies investigating associations between rumination and problematic substance use did not control for depressive symptoms. As a result, it is difficult to understand if the associations are related to high co-morbidity of depression or if rumination represents an independent vulnerability factor for substance use problems. Notable exceptions are the studies of Caselli et al. (2008, 2010) in which the association between rumination and alcohol use emerged independently of depressive symptoms. The second aim of the present study is to examine associations of rumination subtypes with problematic substance use while controlling for depressive symptoms. We hypothesize that associations will remain when controlling for depressive symptoms.

Several studies have indicated that women are more likely to ruminate than men, and that rumination partly accounts for the higher rates of depressive symptoms among women compared to men (Nolen-Hoeksema, 2004). Furthermore, several studies have investigated the moderating role of gender in the relation between rumination subtypes and depressive symptoms. Burwell and Shirk (2007) found that only brooding predicted the development of depressive symptoms over time among girls. Verstraeten et al. (2010) found that lower reflection predicted higher depressive symptoms at a 1-year follow-up among boys. With regard to problematic substance use, however, no study thus far investigated gender differences in the associations with rumination subtypes. One study (Nolen-Hoeksema & Harrell, 2002) did examine gender differences, albeit in the association between the overall level of rumination and alcohol use problems. Separate regression analyses for men and women revealed that rumination predicted alcohol-related problems at a 1-year follow up only in women. The third aim of the present study is to investigate if the associations between brooding, reflection and problematic substance use are moderated by gender. Given the inconsistent findings for depression, and the lack of studies in the substance use literature, no specific hypotheses are put forward here.

2. Method

2.1. Participants

Two hundred and sixty-two 9th trough 12th graders were recruited from two Belgian secondary schools. Of them, 17.6% (n = 46) did not consent to participating, 5.7% (n = 12) was sick on the day of testing, 0.7% (n = 3) was not traceable and the data of 0.4% (n = 1) was deleted due to unreliability. This resulted in a sample of 200 participants. Of them, 5.5% (n = 11) was removed from further analyses as they were identified as outliers (see Section 3.1). The final sample consisted of 189 participants (50.3% girls) with a mean age of 16.67 years (SD = 1.26, range 14.08–19.83).

2.2. Instruments

Rumination to negative affect/depressed mood was measured by means of the Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991). This self-report questionnaire consists of 22 items to be rated on a 4-point scale. The brooding (e.g., “Why do I always react this way?”) and reflection (e.g., “I analyze recent events to try to understand why I am depressed”) subscales, as identified by Treynor et al. (2003), are calculated by summing the five corresponding items for each subscale. Previous studies have supported the reliability and the validity of the RRS (Schoofs et al., 2010; Treynor et al., 2003).

Severity of depressive symptomatology is assessed with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). This is a 21-item self-report inventory tapping cognitive, affective and somatic depressive symptoms. For each item, participants had to rate on a 4-point scale how they felt during the past two weeks. The reliability and validity of the BDI have been demonstrated (Beck et al., 1996; Van der Does, 2002).

Alcohol consumption was assessed by means of the first three items of the Alcohol Use Disorder Identification Test (AUDIT; Saunders, Aslund, Babor, de la Fuente, & Grant, 1993). These items tap frequency of drinking, typical number of drinks consumed and number of binge drink episodes (six or more drinks). Items have to be scored on a 5-point scale and summed to calculate a total alcohol consumption score. The AUDIT has proven to be appropriate for alcohol screening of adolescents (Reinert & Allen, 2007). Furthermore, adequate reliability and validity is reported for both the original instrument and for the consumption scale used in the present study (Reinert & Allen, 2007). In a similar way, the level of drug consumption was assessed using three items of the Drug Use Disorder Identification Test (Berman, Bergman, Palmstierna, & Schlyter, 2005), tapping frequency of drug use, number of drug consumptions on a typical day and frequency of heavy use. The DUDIT was validated in a sample of heavy drug users, as well as in the general population (Berman et al., 2005) and was found to be internally consistent in several adolescent samples (e.g., Hillege, Das, & de Ruitter, 2010).

The occurrence of negative consequences as a result of alcohol and/or drug use was assessed by means of a modification of the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989), which is a popular measure of the severity of adolescent drinking problems. Participants were instructed to indicate on a 5-point scale how frequently they had experienced each negative consequence due to alcohol and/or drug use. For an example of a similar approach, see Skitch and Abela (2008). Previous research has supported the reliability and validity of the RAPI in adolescent samples (Ginzler, Garrett, Baer, & Peterson, 2007; White & Labouvie, 1989).

2.3. Procedure

Adolescents were sent home with a letter describing the aim of the study, inviting them to take part and asking parental permission to do so. The questionnaires were completed during regular school hours in one session of about two hours. The instruments were administered in a fixed order and the first author and three master students were available to answer questions.
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