

Social Disconnection and Hazardous Drinking Mediate the Link Between Perfectionistic Attitudes and Depressive Symptoms

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Published online: 16 May 2012
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Abstract According to the perfectionism social disconnection model (PSDM), perfectionism leads to social disconnection (e.g., isolation, loneliness, and alienation) which brings about depressive symptoms. The present study extended the PSDM by testing a dual-pathway mediation model wherein social disconnection and hazardous drinking were hypothesized to explain why perfectionistic attitudes (e.g., intense self-criticism, evaluative concerns, and unrealistic goal-setting) result in depressive symptoms. A sample of 216 college students participated. The present study utilized a cross-sectional design and self-report questionnaires. The hypothesized model fit the data well, with social disconnection and hazardous drinking mediating the perfectionistic attitudes-depressive symptoms link. Students high in perfectionistic attitudes report feeling isolated, lonely, and

alienated. To escape this powerful sense of not belonging, these students turn to alcohol in a self-destructive way. Suffering from the ill effects of social disconnection and hazardous drinking, students high in perfectionistic attitudes are vulnerable to depressive symptoms.

Keywords Perfectionism · Dependency · Social maladjustment · Alcohol · Depression

Depression involves a constellation of symptoms including negative thoughts, fatigue, joylessness, amotivation, sadness, and sleep difficulties. Evidence indicates depression is a quantitative, continuous dimension (Prisciandaro and Robert 2009). Consistent with this evidence, we measure depressive symptoms as lying along a continuum of severity from mild to severe.

Depressive symptoms are a prevalent, impairing, and costly health problem. In college students, depressive symptoms are linked to self-injury, infectious illnesses, healthcare costs, poor grades, social problems, and alcohol misuse (Graham et al. 2010). There is thus a strong need to improve our understanding of why college students suffer from depressive symptoms.

Among the various established contributors to depressive symptoms, perfectionism plays a central, unique role in the development and maintenance of depressive symptoms (Dunkley et al. 2003). Although studies consistently link perfectionism to depressive symptoms (Bardone-Cone et al. 2007; Bieling et al. 2004; Joiner and Schmidt 1995), little is known about *why* people high in perfectionism get depressed.

Limitations in the Existing Literature

Despite notable contributions (Rice and Van Arsdale 2010), important conceptual and methodological advances are still

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needed in research on perfectionism and depressive symptoms. For example, integrative models drawing together complementary literatures are seldom seen in studies on perfectionism and depressive symptoms. Yet such integrative models are needed, as multiple contributors are involved in depressive symptoms. Integrative models tested with multivariate statistics (e.g., path analysis) also enable researchers to simultaneously test a system of variables, thus helping to identify unique or redundant contributors to depressive symptoms.

In testing the association between perfectionism and depressive symptoms, studies also typically focus on moderation models (e.g., Hewitt et al. 1996). These models are important, since they clarify variables (e.g., academic stressors) which alter the strength of the relationship between perfectionism and depressive symptoms (Hewitt et al. 2006). However, mediation models also provide vital information. Such models highlight targets for prevention, assessment, and treatment by clarifying mechanisms responsible for the relationship between perfectionism and depressive symptoms.

Moreover, tests of incremental validity are neglected in many studies on perfectionism and depressive symptoms. Such tests are important in evaluating whether models are robust. A robust model of perfectionism and depressive symptoms should predict incremental variance in depressive symptoms beyond other established contributors to depressive symptoms.

We address the abovementioned limitations by testing and expanding the perfectionism social disconnection model (PSDM) in a sample of college students. Our study thus represents a needed contribution to research on perfectionism and depressive symptoms.

The PSDM

Perfectionistic attitudes involve stringent self-evaluation, harsh self-criticism, unrealistic goal-setting, strongly basing self-worth on achievement, and extreme fear of others' evaluations (Brown and Beck 2002). We focus on perfectionistic attitudes as this construct is a theoretically based, empirical synthesis of two salient aspects of perfectionism. The perfectionistic attitudes construct derives from a cognitive-behavioral theoretical tradition (Frost et al. 1990), and includes a central role for both cognitive distortions with perfectionistic themes (e.g., dichotomous, black-and-white thinking; "If I fail at school, then I am a total failure as a person.") and social difficulties with perfectionistic themes (e.g., social-evaluative concerns; "The fewer mistakes I make, the more other people like me."). We also draw on perfectionistic attitudes because this long-standing,

well-researched construct is robustly linked with both social difficulties and depressive symptoms (Dunkley et al. 2006).

According to the PSDM, perfectionistic attitudes generate social disconnection in the form of isolation, loneliness, and alienation (Hewitt et al. 2006). The PSDM asserts people high in perfectionistic attitudes experience a powerful sense of not belonging; indeed, the PSDM proposes a strong feeling of not being accepted by others or connected to communities (e.g., college dormitories) is central to the phenomenology of people high in perfectionistic attitudes (Sherry et al. 2008). Studies support these assertions and indicate perfectionistic attitudes are closely tied to negative social situations (e.g., hostile interactions), cognitions (e.g., seeing others as uncaring), and outcomes (e.g., romantic break-ups; Habke et al. 1999; Dunkley and Kyparissis 2008; Sherry and Hall 2009)

The PSDM also maintains perfectionistic attitudes contribute to depressive symptoms via negative social situations, cognitions, and outcomes. Studies show disturbed social functioning, including feeling isolated, lonely, and alienated, contributes to depressive symptoms (Armstrong and Oomen-Early 2009; Pettit and Joiner 2006). Indeed, acceptance by and connection to others appears vital to emotional well-being (Baumeister and Leary 1995). Building on this evidence, the PSDM asserts social disconnection mediates the relation between perfectionistic attitudes and depressive symptoms. The first test of the PSDM was congruent with this assertion, and found (low) social support mediated the perfectionism-depression relationship (Sherry et al. 2008).

Theory and evidence both suggest social (dis)connection is a salient concern for college students. Erikson viewed the process of developing intimacy with others (and avoiding isolation from others) as a challenge of social adaptation occurring in young adulthood (Erikson 1963). Behaviors typical of people high in perfectionistic attitudes (e.g., avoiding mistakes and ceaseless striving) may result in an unduly narrow set of life experiences (e.g., constant studying) where chances for developing close relationships are missed (Graham et al. 2010). Considered from this perspective, perfectionistic attitudes involve an intense form of self-absorption where perfection is sought after and dwelled upon to the exclusion of important developmental tasks such as building close relationships.

Along the same lines, Adler (Ansbacher and Ansbacher 1956) viewed well-adjusted people as participating in what he called the social interest (i.e., a feeling of community that includes cooperation with others and contributions to society). Instead of engaging in shared social tasks aimed at the common good, people high in perfectionistic attitudes appear to turn inward, ruminating about *their* perceived imperfections and rigidly pursuing *their* unrealistic goals (Flett et al. 1998). People high in perfectionistic attitudes also seem

to see others more as potential threats than as potential collaborators in shared social tasks (Sherry et al. 2007). In fact, research suggests people high in perfectionistic attitudes chronically view others as punitive and judgemental (Sherry et al. 2007). Perfectionistic attitudes are thus linked with a pattern of intensely pursuing self-focused goals and struggling to live cooperatively with others.

In sum, consistent with the PSDM, studies indicate people high in perfectionistic attitudes struggle to find a positive place in dyadic relationships and in larger communities (e.g., college campuses)—and this powerful sense of disconnection from others has depressing consequences for them. In the present research, we operationalize social disconnection using a scale assessing isolation, loneliness, and alienation (de Jong-Gierveld and van Tilburg 1990). We chose this scale since these three constructs are key indicators of social disconnection with established links to depressive symptoms (de Jong-Gierveld and van Tilburg 1990).

Expanding the PSDM to Include a Role for Hazardous Drinking

Despite promising initial support for the PSDM (Sherry et al. 2008), evidence indicates depressive symptoms are caused by multiple factors (Dunkley et al. 2003), making it unlikely social disconnection alone explains why perfectionistic attitudes are tied to depressive symptoms. Hazardous drinking is a common problem for college students with known links to perfectionism, social problems, and depressive symptoms (Flett et al. 2008; Rice and Van Arsdale 2010). In expanding the PSDM, we tested a dual-pathway mediation model (see Fig. 1) where both social disconnection and hazardous drinking explain the perfectionistic attitudes-depressive symptoms link. We refer to this model as the expanded PSDM.

Perfectionistic attitudes are differentially related to alcohol consumption (i.e., how often and how much a person drinks) and to hazardous drinking (i.e., dangerous alcohol misuse that alarms others and that results in guilt, injuries, blackouts, and irresponsibility; Flett et al. 2008; Rice and Van Arsdale 2010). Whereas perfectionistic attitudes and alcohol consumption appear unrelated, perfectionistic attitudes and hazardous drinking correlate positively (Flett et al. 2008; Rice and Van Arsdale 2010). That is, people high in perfectionistic attitudes seem no more likely to drink heavily than others, but when they do drink, they engage in hazardous behaviors with seriously negative consequences. Drawing on this research, we conceptualized hazardous drinking as centrally involved in the expanded PSDM. We also included measures of hazardous drinking and alcohol consumption in our study so as to replicate findings suggesting

perfectionistic attitudes are tied to hazardous drinking but not to alcohol consumption per se (Flett et al. 2008; Rice and Van Arsdale 2010).

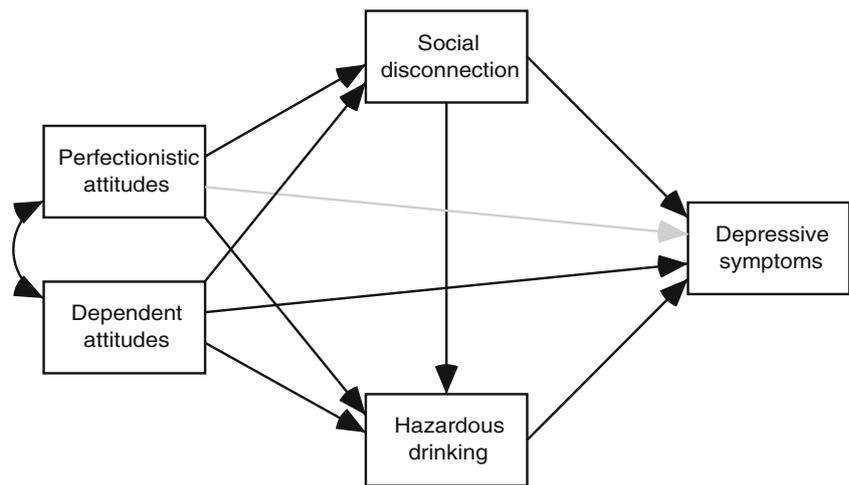
People high in perfectionistic attitudes may turn to hazardous drinking as a means of escaping intense self-rebuke and evaluative concerns (Baumeister 1991). As drinking in this manner provides only a temporary escape from perfectionistic attitudes, and leads to problems that trigger even more self-rebuke and evaluative concerns (e.g., missing class), such drinking behavior is ultimately an ineffective, depressogenic manner of dealing with perfectionistic attitudes (Heatherton and Baumeister 1991). Alcohol-related problems such as low grades or legal sanctions may be especially depressing for college students high in perfectionistic attitudes as such problems conflict with their goal of obtaining perfection. Consistent with this theory and evidence, in the present study we propose perfectionistic attitudes contribute to hazardous drinking which then result in depressive symptoms (see Fig. 1).

The expanded PSDM, as shown in Fig. 1, also asserts people high in perfectionistic attitudes may attempt to cope with distressing feelings of social disconnection through hazardous drinking. From this perspective, hazardous drinking is a maladaptive coping response brought on by the powerful sense of not belonging experienced by people high in perfectionistic attitudes. Our study thus aligns with a wider literature suggesting social tensions lead to alcohol misuse (Mohr et al. 2010). Hazardous drinking does not, however, represent an effective longer-term way of coping. In fact, hazardous drinking is linked with sadness and irritability the next day (Schuckit 2006). Overall, people high in perfectionistic attitudes appear to struggle with a chronic sense of not belonging (Hewitt et al. 2006). These people may turn to alcohol in a harmful way since they feel excluded by others, and this hazardous drinking, along with their strong sense of disconnection from others, leaves them feeling depressed.

Hypotheses Derived From the Expanded PSDM

Central Hypotheses As Fig. 1 illustrates, the expanded PSDM is a dual-pathway mediation model where (a) perfectionistic attitudes are associated with social disconnection and hazardous drinking; (b) social disconnection and hazardous drinking are associated with each other and depressive symptoms; and (c) social disconnection and hazardous drinking mediate the association between perfectionistic attitudes and depressive symptoms. Social disconnection and hazardous drinking are thus seen as explanatory mechanisms clarifying why perfectionistic attitudes contribute to depressive symptoms.

Fig. 1 Testing the expanded PSDM. Rectangles represent observed variables. The double-headed black arrow represents a correlation. Single-headed black arrows represent hypothesized direct effects. The single-headed grey arrow between perfectionistic attitudes and depressive symptoms represents the indirect effect hypothesized in the path model for the expanded PSDM. In the interest of clarity, demographic variables are not shown



Incremental Validity Drawing on prior evidence (Sherry et al. 2003), path coefficients in the expanded PSDM were hypothesized to remain significant after controlling for a known contributor to depressive symptoms: dependent attitudes (i.e., craving nurturance, pleasing others, strongly basing self-worth on others' approval, and needing admiration; Brown and Beck 2002). As dependent attitudes overlap with perfectionistic attitudes and the other variables of the expanded PSDM (Zuroff et al. 2000), we saw dependent attitudes as a potentially confounding variable to be controlled for to strictly test the expanded PSDM.

Methods

Participants

A sample of 216 college students (152 women, 63 men, and 1 undeclared) completed measures. All participants were recruited from the Department of Psychology participant pool at University of British Columbia. Participants responded to an ad inviting their participation in a study of personality traits. The participant pool was not sampled entirely or systematically. University of British Columbia is located in Vancouver (population 603,502). An estimated 37,944 undergraduates attend University of British Columbia, meaning the present study includes only a small portion of the overall student body. Participants averaged 19.10 years of age ($SD=1.69$) and 1.39 years of college education ($SD=0.71$); 70.4 % were in first-year college, 21.7 % were in second year, 5.5 % were in third year, 1.9 % were in fourth year or higher, and 0.5 % did not report their year of study in college. Participants reported living in Country for an average of 13.68 years ($SD=6.07$); 52.3 % of participants were Asian, 27.4 % were Caucasian, 9.7 % were Middle Eastern, 7.4 % were members of other ethnicities, and 3.2 % did not report their ethnicity. This sample is comparable to other student

samples recruited at University of British Columbia (Sherry and Hall 2009).

Measures

Dysfunctional Attitude Scale-Form A (DAS-A) The DAS-A (Weissman and Beck 1978), is a 26-item scale involving a 15-item perfectionistic attitudes subscale (e.g., "I should be upset if I make a mistake") and an 11-item dependent attitudes subscale (e.g., "If others dislike you, you cannot be happy"). Participants respond on a 7-point scale from 1 (*disagree*) to 7 (*agree*). Higher scores represent higher levels of the construct measured for all scales in our study. The 18-month test-retest correlations for the perfectionistic attitudes and the dependent attitudes subscales are .76 and .68, respectively (Zuroff et al. 1999). Alpha reliabilities for the DAS-A subscales are usually $>.75$ (Imber et al. 1990). Research supports the reliability and validity of the DAS-A subscales (Sherry et al. 2003). For example, neuroticism is linked to the perfectionistic attitudes ($r=.56$) and the dependent attitudes ($r=.53$) subscales (Dunkley et al. 2004).

Rasch-Type Loneliness Scale-Deprivation Subscale (RTLSDS) The RTLSDS (de Jong-Gierveld and van Tilburg 1990) is a 7-item scale assessing isolation, loneliness, and alienation (e.g., "I don't really have any friends"). Participants respond using a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The 5-month test-retest correlation for the RTLSDS is .70 (Masked author 2009). Alpha reliabilities for the RTLSDS are usually $>.80$ (de Jong-Gierveld and Kamphuis 1985). Evidence supports the reliability and validity of the RTLSDS (Shaver and Brennan 1991). For instance, the UCLA Loneliness Scale (Russell 1996) is associated with the RTLSDS ($r=.85$; Masked author 2009).

Alcohol Use Disorders Identification Test (AUDIT) The AUDIT (Saunders et al. 1993) is a 10-item scale involving a 3-item alcohol consumption subscale (e.g., “How often do you have a drink containing alcohol?”) and a 7-item hazardous drinking subscale (e.g., “Have you had a feeling of guilt or remorse after drinking?”). Participants respond on a 5-point scale from 0 (*never*) to 4 (*daily or almost daily*). The 12-month test-retest correlations for the alcohol consumption and the hazardous drinking subscales are .64 and .62, respectively (Maisto et al. 2000). Alpha reliabilities for the AUDIT subscales range from .75 to .85 (Conley and O'Hare 2006). Research supports the reliability and validity of the AUDIT subscales (Reinert and Allen 2002). For example, negative consequences arising from alcohol use (e.g., missing school) are linked to the alcohol consumption ($r=.22$) and the hazardous drinking subscales ($r=.41$; Maisto et al. 2000).

Beck Depression Inventory (BDI) The BDI (Beck et al. 1988) is a 21-item scale assessing symptoms of depression (e.g., guilt, fatigue, sadness, and anhedonia). Participants respond on a 4-point scale from 0 (*no depressive symptoms*) to 3 (*severe depressive symptoms*). The 5-week test-retest correlation for the BDI is .58 (Vohs et al. 2001). Alpha reliabilities for the BDI are typically $>.85$ (Yin and Fan 2003). Evidence supports the reliability and validity of the BDI (Beck et al. 1988). For instance, the Center for Epidemiological Studies Depression scale (Radloff 1977) is correlated with the BDI ($r=.75$; Skorikov and Vandervoort 2003).

Procedures

Our study was approved by University of British Columbia's Ethics Board. Participants offered consent by reading and signing a consent form. Research assistants answered participants' questions regarding consent. As compensation, participants received a 2.0 % bonus added to their course grade.

Data Analytic Strategy

Path analysis was used to test the path model for the expanded PSDM and bootstrap analyses were used to test the mediational hypothesis in this model. Incremental validity analyses tested whether the variables of the expanded PSDM were related to depressive symptoms and to each other beyond dependent attitudes.

Results

Descriptive Statistics

Means for all scales (see Table 1) fell within one standard deviation of means from past studies involving college students (Sherry et al. 2003; Shields et al. 2004; Weissman and Beck 1978). This suggests means from our study are generally consistent with other studies involving comparable samples. Alpha reliabilities (see Table 1) were also adequate ($\geq .76$) and congruent with other studies using these scales (Sherry et al. 2003; Shields et al. 2004; Weissman and Beck 1978).

Bivariate Correlations

As expected, (a) perfectionistic attitudes correlated with social disconnection, hazardous drinking, and depressive symptoms (but not alcohol consumption); (b) social disconnection correlated with hazardous drinking and depressive symptoms (but not alcohol consumption); and (c) hazardous drinking correlated with depressive symptoms (see Table 1). Alcohol consumption correlated with hazardous drinking (but not depressive symptoms). This pattern of correlations suggests merit in testing the path model for the expanded PSDM.

Dependent attitudes correlated with most (but not all) variables in the expanded PSDM (see Table 1), suggesting dependent attitudes are a suitable covariate. Each of the variables in the expanded PSDM correlated with one or

Table 1 Means, standard deviations, alpha reliabilities, and bivariate correlations

Variable	1	2	3	4	5	6
1. Perfectionistic attitudes	–	.68***	.47***	.02	.22***	.35***
2. Dependent attitudes		–	.27***	-.02	.06	.26***
3. Social disconnection			–	.05	.22***	.46***
4. Alcohol consumption				–	.56***	.12
5. Hazardous drinking					–	.32***
6. Depressive symptoms						–
<i>M</i>	47.50	41.93	15.53	2.89	1.32	6.97
<i>SD</i>	14.99	8.92	5.54	2.61	2.63	6.76
α	.91	.76	.84	.86	.76	.89

* $p<.05$. ** $p<.01$. *** $p<.001$.

more demographics (i.e., gender, age, year of study, years in Country, and ethnicity). These demographics were used as covariates in path analysis.

Path Analysis

Path analysis involved maximum likelihood estimation and AMOS 7.0 software (Arbuckle 2006). Model fit was evaluated with the comparative fit index (CFI), incremental fit index (IFI), and root mean square error of approximation (RMSEA) with 90 % confidence interval (90 % CI). A CFI and an IFI in the range of .95 as well as a RMSEA in the range of .05 indicate adequate model fit (Byrne 2001).

The Path Model for the Expanded PSDM

Model Testing Fit indices suggested the path model for the expanded PSDM (see Fig. 2) was well-supported: $\chi^2(21, N=216)=37.66, p=.01; \chi^2/df=1.79; CFI=.96; IFI=.97; RMSEA=.06$ (90 % CI: .03, .09). All predicted paths in Fig. 2 were significant and consistent with the expanded PSDM: (a) perfectionistic attitudes were tied to social disconnection and hazardous drinking, (b) social disconnection was tied to hazardous drinking, and (c) social disconnection and hazardous drinking were tied to depressive symptoms. Congruent with our mediational hypothesis (see Mediation analyses below), in the context of variables shown in Fig. 2, perfectionistic attitudes were unrelated to depressive symptoms.

In our study, 50 of 216 participants (23.1 %) reported they did not consume alcohol. We questioned if these abstainers may impact the fit indices for and the path coefficients in the path model for the expanded PSDM. In testing this possibility, we conducted another path analysis dropping these abstainers. This model continued to fit the data well: $\chi^2(21, N=166)=36.50, p=.02; \chi^2/df=1.74; CFI=.95;$

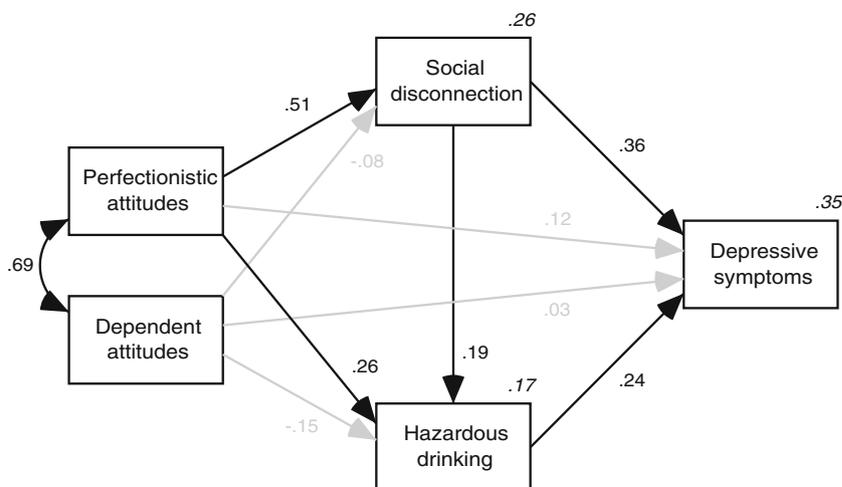
$IFI=.96; RMSEA=.07$ (90 % CI: .03, .10). Paths in this model were also virtually unchanged in terms of either their magnitude or their significance.

Mediation Analyses A significant indirect effect indicates mediation has occurred (Sherry and Hall 2009). Bootstrap analyses were used to test the significance level of the indirect effect hypothesized in the path model for the expanded PSDM (see Fig. 2). We used random sampling with replacement to generate 20,000 ($n=216$) bootstrap samples. Bootstrap samples were used to estimate bias-corrected standard errors, and associated 95 % CIs, for the indirect effect hypothesized in the path model for the expanded PSDM. If the 95 % CI for this indirect effect does not include zero, then this indirect effect is significant at $p < .05$. Bootstrap estimates suggested this indirect effect was significant: $\beta=.27, B=.13, (95\% \text{ CI: } .08, .19), \text{ and } SE=.03$. In summary, as hypothesized, the indirect effect of perfectionistic attitudes on depressive symptoms through social disconnection and hazardous drinking was significant.

Figures 3 and 4 illustrate indirect effects when controlling for dependent attitudes (see Fritz and MacKinnon 2008; MacKinnon 2008). Values in Figs. 3 and 4 were computed when both mediators (i.e., social disconnection and hazardous drinking) were included. However, in the interest of clarity, each mediator is graphed separately.

Figure 3 shows the indirect effect of perfectionistic attitudes on depressive symptoms via social disconnection when controlling for hazardous drinking and dependent attitudes. As seen in Fig. 3, for a one unit change in perfectionistic attitudes there is a predicted 0.20 unit change in social disconnection (a_1') when controlling for hazardous drinking. In Fig. 3, the slope (b_1) for social disconnection indicates that for a one unit change in social disconnection there is a predicted 0.42 unit change in depressive symptoms

Fig. 2 The double-headed black arrow represents a significant correlation (i.e., $p < .05$). Single-headed black arrows represent significant paths (i.e., $p < .05$). Single-headed grey arrows represent nonsignificant paths (i.e., $p > .05$). The single-headed grey arrow between perfectionistic attitudes and depressive symptoms represents the indirect effect hypothesized in the path model for the expanded PSDM. Path coefficients are standardized. Italicized numbers represent the proportion of variance accounted for by associated exogenous variables



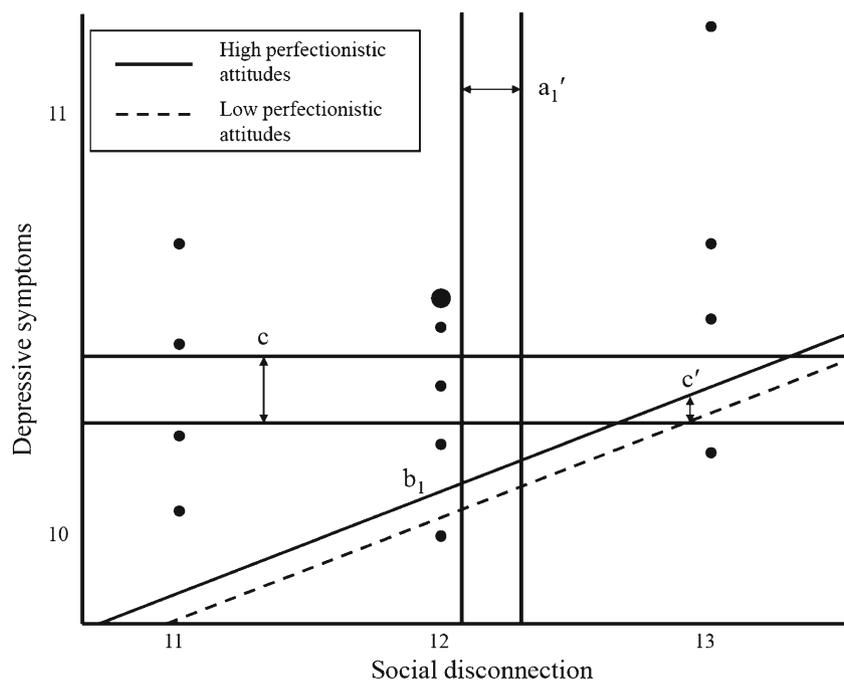


Fig. 3 A graphical representation of the relationship between social disconnection and depressive symptoms at different levels of perfectionistic attitudes when controlling for dependent attitudes and hazardous drinking (Fritz and MacKinnon 2008; MacKinnon 2008). In the interest of clarity, only a small section of the overall graph is presented. Dots represent participant scores. Larger dots represent more observations. The distance between vertical lines (a_1') represents the predicted unit change in social disconnection for a one unit change in perfectionistic attitudes. The slope (b_1) represents the linear relationship of

social disconnection with depressive symptoms at various levels of perfectionistic attitudes. The distance between horizontal lines (c) represents the predicted unit change in depressive symptoms for a one unit change in perfectionistic attitudes. The distance between adjacent parallel slopes (c') represents the predicted unit change in depressive symptoms when holding social disconnection constant. The total indirect effect is the difference between c and c' ($c - c'$)

when controlling for hazardous drinking and adjusting for the level of perfectionistic attitudes.

Figure 4 shows the indirect effect of perfectionistic attitudes on depressive symptoms via hazardous drinking when controlling for social disconnection and dependent attitudes. As seen in Fig. 4, for a one unit change in perfectionistic attitudes there is a predicted 0.06 unit change in hazardous drinking (a_2') when controlling for social disconnection. In Fig. 4, the slope (b_2) for hazardous drinking indicates that for a one unit change in hazardous drinking there is a predicted 0.56 unit change in depressive symptoms when controlling for social disconnection and adjusting for the level of perfectionistic attitudes.

Figures 3 and 4 show that for a one unit change in perfectionistic attitudes there is a predicted 0.15 unit change in depressive symptoms (c). Both Figs. 3 and 4 also show that for a one unit change in perfectionistic attitudes there is a predicted 0.03 unit change in depressive symptoms when holding hazardous drinking and social disconnection constant (c'). The total indirect effect is the difference between c and c' ($c - c'$), which is equal to 0.12 units. In sum, Figs. 3 and 4 provide a graphical representation of the indirect effects observed in our study.

Incremental Validity Perfectionistic and dependent attitudes were correlated in the hypothesized manner (see Table 1). Whereas perfectionistic attitudes were linked to social disconnection and hazardous drinking in Fig. 2, dependent attitudes were not. Dependent attitudes were also unrelated to depressive symptoms. In sum, paths in the path model for the expanded PSDM were consistent with hypotheses even after controlling for dependent attitudes.

Discussion

This study expands, tests, and supports the PSDM, a model explaining why perfectionism is linked with depressive symptoms. The path model for the expanded PSDM fit the data well and all path coefficients were as hypothesized. Bootstrap analyses supported hypotheses and indicated social disconnection and hazardous drinking are explanatory mechanisms linking perfectionistic attitudes to depressive symptoms. Perfectionistic attitudes also explained incremental variance in the variables of the expanded PSDM beyond dependent attitudes.

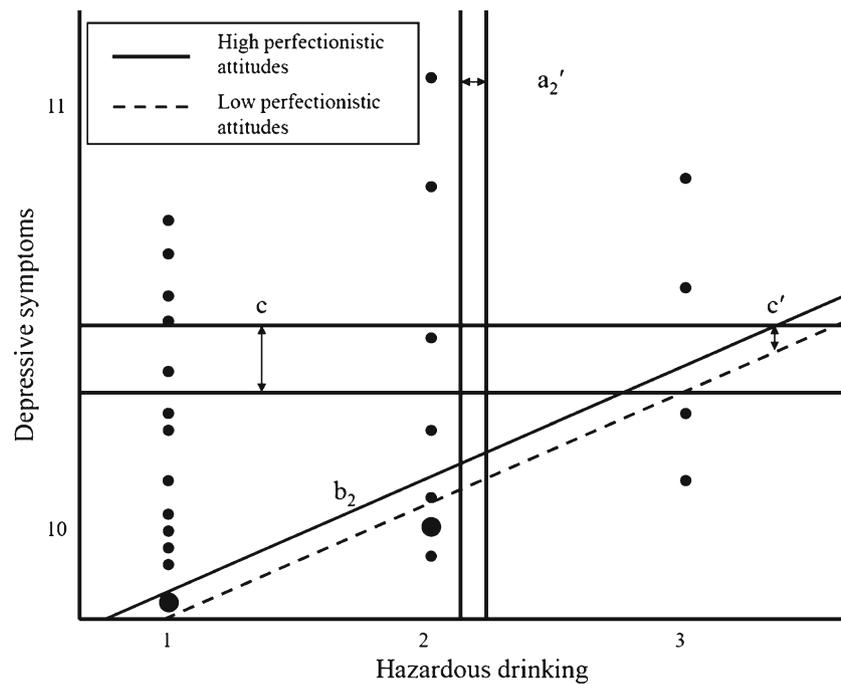


Fig. 4 A graphical representation of the relationship between hazardous drinking and depressive symptoms at different levels of perfectionistic attitudes when controlling for dependent attitudes and social disconnection (Fritz and MacKinnon 2008; MacKinnon 2008). In the interest of clarity, only a small section of the overall graph is presented. Dots represent participant scores. Larger dots represent more observations. The distance between vertical lines (a_2') represents the predicted unit change in hazardous drinking for a one unit change in perfectionistic attitudes. The slope (b_2) represents the linear relationship of

hazardous drinking with depressive symptoms at various levels of perfectionistic attitudes. The distance between horizontal lines (c) represents the predicted unit change in depressive symptoms for a one unit change in perfectionistic attitudes. The distance between adjacent parallel slopes (c') represents the predicted unit change in depressive symptoms for a one unit change in perfectionistic attitudes when holding hazardous drinking constant. The total indirect effect is the difference between c and c' ($c - c'$)

The Path Model for the Expanded PSDM

The expanded PSDM integrated perfectionistic attitudes, social disconnection, hazardous drinking, and depressive symptoms into a single, coherent model (see Fig. 2). The expanded PSDM offers a novel explanation for why people high in perfectionistic attitudes experience depressive symptoms: they feel isolated, lonely, and alienated and engage in hazardous drinking.

Congruent with the expanded PSDM, our results indicated perfectionistic attitudes were tied to depressive symptoms, and the indirect effect of perfectionistic attitudes on depressive symptoms through social disconnection and hazardous drinking was significant. The present study is thus generally consistent with our initial test of the PSDM, where social disconnection mediated the relationship between perfectionism and depressive symptoms (Sherry et al. 2008). Our study also extends past research on this emerging model (Sherry et al. 2008) by implicating hazardous drinking in the PSDM.

The social world involves frequent appraisals—including subjective perceptions of other people and social exchanges (Hewitt et al. 2006). Our results suggest when people high in perfectionistic attitudes appraise their social world, they

tend to conclude others are disinterested, rejecting, or uncaring. In fact, a sense of isolation, loneliness, and alienation seems central to the phenomenology of people high in perfectionistic attitudes (Chang et al. 2011; Hewitt et al. 2006). Perfectionistic attitudes may also involve (or promote) an imbalanced behavioral pattern where work is privileged over relationships, thereby increasing experiences of isolation (e.g., studying alone) and decreasing opportunities for intimacy (e.g., dating; Erikson 1963). Instead of cooperating and communing with others (Ansbacher and Ansbacher 1956), it appears people high in perfectionistic attitudes turn inward, living in a narrow, private world where they rigidly pursue unrealistic goals, ruminate over perceived imperfections, and strive for superiority over others (Sherry et al. 2007). Without positive connections to others or a sense of community and collaboration with others, our results also suggest people high in perfectionistic attitudes experience depressive symptoms. The present study thus complements a broader literature suggesting unsatisfying and disturbed social relationships contribute to depressive symptoms (Baumeister and Leary 1995).

As in earlier research, perfectionistic attitudes were unrelated to alcohol consumption, but positively linked to

hazardous drinking (Flett et al. 2008; Rice and Van Arsdale 2010). These results support our hypotheses and suggest that, although people high in perfectionistic attitudes are no more likely to drink heavily than others, when they do drink, problems ensue. Our study thus converges with earlier investigations suggesting people high in perfectionistic attitudes are prone to patterns of extreme, all-or-nothing behaviors where they cycle between periods of overcontrol (e.g., total abstinence from alcohol or rigid self-starvation) and undercontrol (e.g., hazardous drinking or binge eating; Flett et al. 2008; Sherry and Hall 2009).

Hazardous drinking may provide a means of temporarily escaping the harsh self-criticism and the evaluative concerns endemic to perfectionistic attitudes (Baumeister 1991). However, this coping response offers only a brief—and ultimately ineffective—way of dealing with perfectionistic attitudes. In fact, such hazardous drinking may, in the longer-term, contribute to problems triggering even more self-criticism and evaluative concerns (e.g., lower marks). Consistent with research linking social tensions to alcohol misuse (Mohr et al. 2010), our results also suggest people high in perfectionistic attitudes try to cope with their feelings of isolation, loneliness, and alienation through hazardous drinking. Struggling with a chronic sense of not belonging, people high in perfectionistic attitudes appear to turn to alcohol instead of others. As predicted by the expanded PSDM and suggested by our results, what may initially seem like a solution for people high in perfectionistic attitudes (i.e., drinking in a hazardous way to escape their perfectionism and to cope with social problems) eventually becomes a serious problem that contributes to depressive symptoms.

Incremental Validity

As hypothesized, after controlling for the potentially confounding influence of dependent attitudes, all path coefficients in the expanded PSDM remained significant. In fact, dependent attitudes were unrelated to the variables of the expanded PSDM (see Fig. 2). These results fit with evidence suggesting that, though perfectionistic attitudes and dependent attitudes both involve salient interpersonal content (Sherry et al. 2003), differences exist between these constructs, with dependent attitudes involving a needy interpersonal style (e.g., clinging to others in an attempt to obtain affection) and perfectionistic attitudes involving a defensive interpersonal style (e.g., avoiding others in order to escape from anticipated criticism; Dunkley and Kyriarissis 2008). Overall, our study meshes well with research indicating perfectionistic attitudes are a unique cognitive-personality trait that is neither redundant with nor captured by other constructs, including dependent attitudes (Sherry et al. 2003).

Limitations and Future Directions

Based on prior research (Hewitt et al. 2006), the expanded PSDM proposes a specific, unfolding sequence of events. However, different sequences are possible. Experience sampling and multi-wave longitudinal designs would help clarify questions about directionality. There is, for example, a need to strictly test if social disconnection is an antecedent, concomitant, or consequence of hazardous drinking. Furthermore, our use of a predominantly female sample raises questions about whether our results generalize to men. Many of our participants were also of Asian ethnicity, which is notable as Asians appear less likely to drink hazardously (Wall et al. 2001). Our sample may not generalize to other samples of predominantly Caucasian drinkers. Additionally, hazardous drinking may represent but one way people high in perfectionistic attitudes escape from their problems. Other means of escape need investigation (e.g., internet or marijuana misuse).

More research is also needed to understand the motives that underlie and the contexts that surround hazardous drinking among people high in perfectionistic attitudes. As an impetus for future studies, we speculate people high in perfectionistic attitudes may drink-to-cope in solitary contexts (e.g., alone at home) following negative social interactions (Rice and Van Arsdale 2010).

In the present research, perfectionism was conceptualized as perfectionistic attitudes, a unidimensional construct combining self-directed perfectionistic demands (e.g., extreme self-expectations) and perfectionistic social processes (e.g., evaluative concerns). However, other established models of perfectionism exist, including research suggesting perfectionism may be conceptualized as a multidimensional construct where self-directed perfectionistic demands are differentiated from perfectionistic social processes (Hewitt and Flett 1991). More research is thus needed to test which model of perfectionism is most relevant to the expanded PSDM.

Implications for Treatment Providers

Our research clarifies why college students experience depressive symptoms and points toward treatment targets. Considering the central role perfectionistic attitudes play in the expanded PSDM, a reduction in perfectionistic attitudes may lead to a reduction in social disconnection, hazardous drinking, and depressive symptoms. Treatment providers might use cognitive-behavioral therapy for perfectionism (Flett and Hewitt 2008) to alter perfectionism-linked cognitive errors (e.g., black-and-white thinking) and behavioral patterns (e.g., avoiding situations where imperfections may be seen) through cognitive restructuring or behavioral experiments (Flett and Hewitt 2008).

Given the key role of social disconnection in our study, interpersonal therapy should be well-suited to assisting

college students struggling with perfectionistic attitudes, social disconnection, hazardous drinking, and depressive symptoms. Interpersonal therapy involves modifying important interpersonal problems, including interpersonal disputes, losses, deficits, and transitions (Weissman et al. 2003). By improving aspects of their interpersonal functioning and by developing a caring, supportive social network, people high in perfectionistic attitudes may reduce their unhealthy involvement with alcohol and their vulnerability to depressive symptoms (Weissman et al. 2003). Interpersonal therapy may be a vehicle to assist college students in forming stable, positive relationships, forging a social identity, and integrating into college communities. That said, we concede our observations about the expanded PSDM in relation to treatment are speculative and should be viewed with caution.

Conclusions

Our study synthesizes perfectionistic attitudes, social disconnection, hazardous drinking, and depressive symptoms into the expanded PSDM, an integrative framework bringing greater clarity to our understanding of why people high in perfectionistic attitudes become depressed. Our study paints a picture of a college student high in perfectionistic attitudes who struggles greatly in connecting to others and feels isolated, lonely, and alienated. In an effort to escape this powerful sense of not belonging, s/he turns to alcohol in a hazardous, self-destructive way. Now suffering from both social disconnection and the effects of hazardous drinking, s/he becomes depressed. We believe the expanded PSDM allows us to better understand and help this student.

Acknowledgments This study was supported by grant 410-2000-1102 from the Social Sciences and Humanities Research Council of Canada (P. L. Hewitt), the H. J. Eysenck Memorial Fund Award (S. B. Sherry), and a Killam Research Professorship from the Faculty of Science at Dalhousie University (S. H. Stewart). Sarah Doucette, Nikola Hartling, and Shawnda Lanting are thanked for their research assistance.

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