Behaviour Research and Therapy 112 (2019) 18–27

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

Self-critical perfectionism, experiential avoidance, and depressive and anxious symptoms over two years: A three-wave longitudinal study

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ARTICLE INFO

Keywords:
Perfectionism
Self-criticism
Experiential avoidance
Depression
Anxiety
Neuroticism

ABSTRACT

This three-wave longitudinal study examined the relations among perfectionism, experiential avoidance, and depressive and anxious symptoms over two years. Community adults (N = 173) completed self-report questionnaires assessing two higher-order perfectionism dimensions (self-critical [SC], personal standards [PS]), neuroticism, experiential avoidance, and depressive and anxious symptoms at Time 1, Time 2 one year later, and Time 3 two years later. Cross-lagged path analyses demonstrated that SC perfectionism predicted increases in experiential avoidance from Time 1 to Time 2 and again from Time 2 to Time 3. Experiential avoidance predicted increases in both depressive and anxious symptoms from Time 1 to Time 2 and again from Time 2 to Time 3. Time 2 experiential avoidance mediated the relation between Time 1 SC perfectionism and both depressive and anxious symptoms over two years, controlling for the effects of Time 1 neuroticism and prior symptom levels. Experiential avoidance did not mediate the relations between PS perfectionism and depressive/anxious symptoms over two years. These findings highlight the importance of targeting experiential avoidance in reducing vulnerability to depressive and anxious symptoms over the long-term in individuals with higher SC perfectionism.

1. Introduction

Over the past three decades, research has demonstrated that perfectionism is an important transdiagnostic vulnerability factor for a variety of negative outcomes, including depressive and anxious symptoms (see Egan, Wade, & Shafran, 2011; Flett & Hewitt, 2002; Smith et al., 2016; Smith, Vidovic, Sherry, Stewart, & Saklofske, 2018). Studies have established perfectionism as a multidimensional construct consisting of two higher-order dimensions, which we refer to as personal standards (PS) perfectionism and self-critical (SC) perfectionism. PS perfectionism entails the setting of and striving for excessively high standards and goals for the self. SC perfectionism involves constant and harsh self-scrutiny and critical self-evaluation of one's own behavior, and continuous worry about others' approval, criticism, and expectations (see Dunkley, Zuroff, & Blankstein, 2003). Previous research has established that, in contrast to PS perfectionism, SC perfectionism is more consistently related to negative outcomes such as depressive and anxious symptoms (see Dunkley, Blankstein, Masheb, & Grilo., 2006; Stoeber & Otto, 2006). Further, several studies have shown that SC perfectionism is a vulnerability factor for depressive and anxious symptoms over time (e.g., Mandel, Dunkley, & Moroz, 2015; for reviews see Smith et al., 2016; Smith et al., 2018). The SC perfectionism dimension has also been found to have a negative impact on the therapeutic process in addition to treatment outcomes (see Blatt & Zuroff, 2005; Kannan & Levitt, 2013). However, the mechanisms that mediate the relation between SC perfectionism and depressive and anxious symptoms are not well-understood. The present study examined the experiential avoidance facet of psychological inflexibility as a mediator of the relation between SC perfectionism and depressive and anxious symptoms over two years.

1.1. SC perfectionism, experiential avoidance, and depressive and anxious symptoms

Psychological inflexibility might help explain the vulnerability of individuals with higher SC perfectionism to depressive and anxious symptoms. A broader construct of the model of psychopathology described by Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), psychological inflexibility refers to the inability to adapt to challenging situations and to modify one's perspective and behavior in response to the changing demands of the environment (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Experiential

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https://doi.org/10.1016/j.brat.2018.11.006
Received 1 May 2018; Received in revised form 24 October 2018; Accepted 11 November 2018
Available online 13 November 2018
0005-7967/

avoidance is one facet of psychological inflexibility that involves the unwillingness to remain in contact with aversive private experiences, including bodily sensations, emotions, thoughts, memories, and behavioural predispositions (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Hayes et al. (1996) refer to experiential avoidance as a maladaptive strategy that often leads to actions that are inconsistent with one's goals and values. In contrast to experiential avoidance, acceptance is one facet of psychological flexibility that is demonstrated through a willingness to experience unwanted private events in order to persist in goal directed behavior based on one's chosen values (Hayes et al., 2006). Experiential avoidance has received increasing attention as a generalized vulnerability factor, and has been shown to be a fundamental aspect of mental health that cuts across many of the negative outcomes associated with SC perfectionism including depressive symptoms, anxiety, and general psychological ill-health (Kashdan, Barrios, Forsyth, & Steger, 2006; Kashdan & Rottenberg, 2010).

The notions of inflexibility and avoidance have been widely discussed in descriptions and features of maladaptive perfectionism, suggesting a possible relationship between self-critical perfectionism and experiential avoidance. Individuals with higher SC perfectionism often acquire dysfunctional attitudes stemming from childhood experiences. These self-critical evaluative concerns have been theorized to develop in childhood in environments of disapproval, inconsistent approval, and/or conditional approval based on unreasonably high parental expectations, in combination with a harsh and punitive parenting style (e.g., Blatt, 1995; Flett, Hewitt, Oliver, & Macdonald, 2002, pp. 89–132; Hamachek, 1978). Such environments have been shown to foster doubt and uncertainty that any effort is ever good enough, and a sense of self-worth that is contingent on performance (e.g., Blatt & Homann, 1992).

These dysfunctional attitudes lead to a conceptualization of the self as being flawed, imperfect, and not good enough. When individuals with higher SC perfectionism become attached to the content of these self-descriptions, they are likely to elicit more frequent experiences about the perceived discrepancy between their actual self and ideal self (Flett, Hewitt, Blankstein, & Gray, 1998; Horney, 1950). For instance, Horney (1950) described how the use of should statements (e.g., “I should be perfect”, “I should have done better”) maintain this discrepancy, which may hinder the individual from flexibly observing and allowing these experiences to occur in order to obtain useful perspectives in guiding action. Given that individuals with greater SC perfectionism display chronic concerns about personal failure, loss of control, and perceived criticism, they tend to be reactive to any thought, image, or memory that activates these themes (Dunkley, Mandel, & Ma, 2014). This may contribute to preoccupations about needing to avoid situations and internal events that would reinforce such fears and negative conceptualizations of the self, possibly hindering the potential for attitudes of self-acceptance and self-compassion in the present moment.

Over time, individuals with higher SC perfectionism may develop tendencies towards experiential avoidance by becoming increasingly focused on the avoidance, suppression, or control of distressing negative self-referential thoughts and feelings. This is consistent with theory suggesting that individuals with higher SC perfectionism demonstrate a desire to escape from unpleasant and distressing emotional states and engage in experiential avoidance to cope with their negative self-awareness (Heatherton & Baumeister, 1991; Santanello & Gardner, 2007). As such, these individuals are theorized to make attempts to avoid distress, self-critical thoughts, and opportunities for failure, and may give up or move away from the pursuit of important goals, instead of persisting or changing behavior in the service of chosen values (Hayes et al., 2006; Santanello & Gardner, 2007).

Overall, experiential avoidance might be a central construct in understanding the development, maintenance, and treatment of psychopathology for individuals with higher SC perfectionism. A number of mediation studies looking at the relation between SC perfectionism and a variety of negative outcomes have found preliminary support for the mediating role of experiential avoidance (Moroz & Dunkley, 2015; Santanello & Gardner, 2007) as well as other specific forms of avoidance, such as avoidant coping (Dunkley et al., 2003; 2016) and procrastination (see Sirois, Molnar, & Hirsch, 2017). However, many of these previous mediation studies have the shortcoming of being cross-sectional, which precludes drawing causal inferences. Examining these relations longitudinally is essential given that experiential avoidance and other forms of thought suppression and avoidance have been shown to produce short-term reductions in distress, but to produce harmful effects in the longer-term (Hayes et al., 1996; Wenzlaff & Wegner, 2000). This may be because attempts to control or avoid distressing internal experiences might actually increase and prolong these unwanted feelings and thoughts (Wenzlaff & Wegner, 2000). Yet, no study has provided a test of the theory of the longer-term negative impact of experiential avoidance in relation to higher SC perfectionism.

1.2. Differentiating self-critical perfectionism and experiential avoidance from neuroticism

Theoretical writings have described SC perfectionism as a specific neurotic style that is focused on issues of self-control, self-worth, and social avoidance (e.g., Blatt, 1995; Hamachek, 1978). Neuroticism is a broader personality vulnerability dimension that refers to a general dispositional tendency to experience higher levels of negative emotional states, such as depression and anxiety (e.g., Costa & McCrae, 1992). Barlow's unified protocol for transdiagnostic treatment of emotional disorders (see Barlow, Allen, & Choate, 2016) emphasizes neuroticism as an important target to reduce distress and vulnerability. As SC perfectionism and neuroticism are strongly related, there is a need to demonstrate the incremental validity of SC perfectionism over and above broader personality traits such as neuroticism (see Enns & Cox, 1997; Smith et al., 2016; Zuroff, Mongrain, & Santor, 2004). In addition, given that neuroticism has been found to be strongly associated with experiential avoidance (e.g., Latzman & Masuda, 2013), further investigation of the discriminant validity of measures of experiential avoidance from neuroticism is warranted (Rochefort, Baldwin, & Chmielewski, 2018). Previous studies have distinguished measures of SC from neuroticism by demonstrating unique relations with PS perfectionism, negative interpersonal characteristics (e.g., lower agreeableness, negative social interactions), avoidant coping, and depressive symptoms (e.g., Dunkley, Blankstein, & Berg, 2012; Dunkley, Mandel, et al., 2014; see Smith et al., 2016; Zuroff et al., 2004 for reviews). Research is needed to further distinguish SC perfectionism from neuroticism in relation to experiential avoidance.

1.3. The present study aims and hypotheses

The present study was the first to investigate the longitudinal relationships among SC perfectionism, experiential avoidance, and depression and anxiety symptoms over time. We employed a three-wave cross-lagged longitudinal design over two years to examine experiential avoidance as a mediator in the relation between SC perfectionism and depressive and anxious symptoms, while controlling for the effects of Time 1 neuroticism. Multiple waves of data are recommended for testing mediational processes given the types of biases seen in cross-sectional analyses of longitudinal mediation (Maxwell & Cole, 2007). A multiwave longitudinal design in combination with a cross-lagged data analysis strategy allows for stronger causal inferences, as it takes into account temporal precedence while allowing for competing explanations, such as the possibility of reciprocal relations (Burkholder & Harlow, 2003). For instance, an argument could be made that greater experiential avoidance further increases the likelihood of failure experiences, which might contribute to increases in SC perfectionism over time. Furthermore, we examined the potential deleterious or “scar” effects of depressive and anxious symptoms on SC perfectionism and experiential avoidance over time (Rice & Aldea, 2006).

Based on the theory and previous findings described above, the

present study hypothesized SC perfectionism as a vulnerability factor, where SC perfectionism confers increased risk for experiential avoidance and depressive and anxious symptoms (see Egan et al., 2011). Specifically, we used outcomes based on the tripartite model of depression and anxiety (Clark & Watson, 1991; Watson, 2009), and examined symptoms specific to depression (i.e., anhedonia) and anxiety (i.e., anxious arousal) in two models. We hypothesized predictive relations between SC perfectionism and experiential avoidance, and experiential avoidance and symptom outcomes, while controlling for the effects of each variable at previous time points. Further and of greatest interest, we hypothesized that Time 2 experiential avoidance would mediate the relation between Time 1 SC perfectionism and Time 3 specific symptoms of depression and anxiety, while controlling for the effects of Time 1 neuroticism and previous symptom levels. As the two higher-order perfectionism dimensions are strongly correlated, we also tested our models with PS perfectionism in order to differentiate the effects of SC from PS perfectionism. We hypothesized that the study's models would be more specifically related to SC perfectionism, consistent with previous findings that have shown SC perfectionism to be more maladaptive than PS perfectionism (Dunkley, Blankstein, Masheb, & Grilo, 2006). The present study might have important clinical implications as many emerging therapeutic strategies employ self-acceptance and nonjudgmental mindfulness techniques with the goal of reducing experiential avoidance to diminish symptom severity. Given that individuals with higher SC perfectionism have exhibited poor outcomes in psychotherapy treatment for depression (Blatt & Zuroff, 2005), the findings from the current study might point to experiential avoidance as an important mediating mechanism that could be targeted to reduce the depressive and anxious symptoms experienced by these individuals.

2. Method

2.1. Participants

The present study presents analyses of the same sample of 210 community adults used in a previous study of the Time 1 measures (see Moroz & Dunkley, 2015). The current sample includes 192 English- and French-speaking employed, community adults, recruited through newspaper, bulletin, and internet advertisements in order to obtain a representative community sample from a bilingual North American city. One hundred eighteen participants (81 female, 37 male) completed the English version of the questionnaires, and 74 participants (45 female, 29 male) completed the French version of the questionnaires. The mean age of the sample at Time 1 was 40.10 years (SD = 14.23). Participants were largely of European descent (69.3%), with 8.3% Asian, 7.3% South American, 4.7% African, 3.6% East Indian, 2.6% Middle Eastern, 0.5% Aboriginal, and 3.6% identified as either multiethnic or unspecified.

2.2. Procedure

The study involved completion of a package of self-report questionnaires at three separate time points. Participants completed measures of perfectionism, experiential avoidance, neuroticism, and depressive and anxious symptoms at Time 1, and completed the measures of perfectionism, experiential avoidance, and depressive and anxious symptoms at Time 2 approximately one year from baseline (M = 11.84 months, SD = 0.91 months) and at Time 3 approximately two years from baseline (M = 23.61 months, SD = 0.71 months). Questionnaires took approximately 1.5–2 h to complete in in-lab sessions. Participants were compensated $25 to complete the questionnaires at each time point.

2.3. Measures

2.3.1. SC and PS perfectionism

SC and PS perfectionism latent factors were derived from selected scales from the short form versions of the Frost Multidimensional Perfectionism Scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990), the Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991), the Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976), and the Revised Almost Perfect Scale (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Although the full version of perfectionism questionnaires were completed at Time 1, only the brief version items were used to be consistent with the short form (SF) versions of the FMPS (Cox, Enns, & Clara, 2002), the HMPS (Hewitt, Habke, Lee-Baggley, Sherry, & Flett, 2008), the APS-R (Rice, Richardson, & Tueller, 2014), and the DEQ (Rudich, Lerman, Gurevich, Weksler, & Shahar, 2008) that were administered at Time 2 and 3. Based on previous factor analytic findings (Dunkley et al., 2014; see Stoeber & Otto, 2006, for a review), SC perfectionism was indicated by the 5-item FMPS-SF concern over mistakes subscale (e.g., If I fail at work/school, I am a failure as a person"), the 5-item HMPS-SF socially prescribed perfectionism subscale (e.g., "Although they may not show it, other people get very upset with me when I slip up"), the 4-item APS-R-SF discrepancy subscale (e.g., "Doing my best never seems to be enough"), and the 6-item DEQ-SF self-criticism subscale (e.g., "I tend to be very critical of myself"). PS perfectionism was indicated by the 5-item FMPS-SF personal standards subscale (e.g., "I set higher goals than most people"), the 5-item HMPS-SF self-oriented perfectionism subscale (e.g., "I strive to be as perfect as I can be"), and the 4-item APS-R-SF high standards subscale (e.g., "I expect the best from myself").

Reliability and validity for the short-form subscales of the FMPS, HMPS, APS-R, and DEQ have been previously established with coefficient alphas ranging from 0.73 to 0.87 (see Cox et al., 2002; Rice et al., 2014; Rudich et al., 2008). Coefficient alphas in the present study for FMPS-SF concern over mistakes, HMPS-SF socially prescribed perfectionism, APS-R-SF discrepancy, DEQ-SF self-criticism, FMPS-SF personal standards, HMPS-SF self-oriented perfectionism, and APS-R-SF high standards ranged from 0.74 to 0.90 across Time 1, Time 2, and Time 3. Standardized factor loadings for the SC and PS perfectionism indicators have previously ranged from 0.66 to 0.90 for the indicators of SC perfectionism and from 0.83 to 0.88 for the indicators of PS perfectionism (Dunkley, Ma, et al., 2014). Studies have supported the convergent and discriminant validity of higher-order perfectionism dimensions in hypothesized relations with other personality measures and psychological (mal)adjustment (e.g., Dunkley et al., 2003; Dunkley, Ma, et al., 2014; see; Stoeber & Otto, 2006).

2.3.2. Experiential avoidance

Experiential avoidance was measured using the Acceptance and Action Questionnaire-II (AAQ-II; Bond, Hayes, et al., 2011). The AAQ-II is a widely used measure of experiential avoidance and was created in an attempt to address the poor psychometric properties of the original AAQ (Bond et al., 2011). The AAQ-II includes seven items (e.g., "I'm afraid of my feelings", "Worries get in the way of my success") measured on a 1 (never true) to 5 (always true) scale. The AAQ-II has good internal consistency (mean alpha coefficient of 0.84) and stable psychometric properties including 3- and 12-month test-retest reliability of 0.81 and 0.79, respectively, as well as adequate convergent, incremental, and discriminant validity (Bond et al., 2011). Internal consistencies for the current study were 0.88, 0.88, 0.89 at Time 1, Time 2, and Time 3, respectively (see Table 1).

2.3.3. Depressive and anxious symptoms

Depressive and anxious symptoms were measured using the Mood and Anxiety Symptom Questionnaire Short Form (MASQ; Watson & Clark, 1991). The MASQ is a 62-item self-report questionnaire that includes four separate scales. Two of the four scales encompass the

Table 1
Bivariate correlations, means, standard deviations, and internal consistencies for measures of self-critical perfectionism, experiential avoidance, anhedonic depression, and anxious arousal.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Time 1													
1. SC perf.	–												
2. Neuroticism	.73***	.87											
3. Exp. Avoidance	.66***	.72***	.88										
4. Anhedonic Dep.	.55***	.57***	.47***	.91									
5. Anxious Arousl	.32***	.42***	.42***	.27***	.84								
Time 2													
6. SC perf.	.92***	.66***	.58***	.49***	.35***	–							
7. Exp. Avoidance	.61***	.58***	.79***	.45***	.37***	.65***	.88						
8. Anhedonic Dep.	.44***	.54***	.55***	.46***	.23**	.49***	.58***	.92					
9. Anxious Arousl	.20*	.25**	.28***	.16*	.47***	.32***	.44***	.33***	.91				
Time 3													
10. SC perf.	.84***	.63***	.54***	.52***	.28***	.86***	.56***	.39***	.22**	–			
11. Exp. Avoidance	.60***	.60***	.69***	.46***	.32***	.62***	.76***	.52***	.34***	.72***	.89		
12. Anhedonic Dep.	.40***	.48***	.48***	.42***	.18*	.37***	.48***	.57***	.21**	.51***	.65***	.93	
13. Anxious Arousl	.28***	.35***	.40***	.23**	.60***	.26**	.45***	.28***	.63***	.29***	.42***	.37***	.89
M	–	33.1	47.6	55.8	23.1	–	50.1	56.5	23.8	–	48.6	58.0	23.8
SD	–	9.4	11.4	13.6	6.69	–	11.3	14.5	9.0	–	12.2	15.5	8.1

Note. $n = 192$.
SC perf. = Self-critical perfectionism. Exp. = Experiential. Dep. = Depression. Arousl = Arousal.
Cronbach alphas are presented in bold on the diagonal.
*$p < .05$; ** $p < .01$; *** $p < .001$.

general aspects of depressive and anxious symptoms, which are referred to as 'general distress depressive symptoms' (GDD; 12 items; e.g., "Felt pessimistic about the future") and 'general distress anxious symptoms' (GDA; 11 items; e.g., "Was unable to relax"). The other two scales focus more on the specific aspects of depression and anxiety. These two measures are referred to as anhedonic depression (AD; 22 items; e.g., "Felt like it took extra effort to get started") and anxious arousal (AA; 17 items; e.g., "Was trembling or shaking"). Acceptable internal consistency and good convergent and discriminant validity has been found for the MASQ scales (Watson et al., 1995). As the general symptoms subscales (GDD, GDA) are strongly correlated with AD and AA (e.g., Watson et al., 1995), we used the AD and AA subscales as outcomes to capture the unique aspects of depression and anxiety. The coefficient alphas for AD and AA in the current study ranged from 0.84 to 0.93 across Time 1, Time 2, and Time 3 (see Table 1).

2.3.4. Neuroticism

Neuroticism was assessed at Time 1 using the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992). The NEO-FFI is a 60-item self-report questionnaire that assesses the five-factor model of personality, including the 12-item neuroticism domain scale (e.g., "I often feel tense and jittery", "Sometimes I feel completely worthless"). Costa and McCrae (1992) reported extensive evidence supporting the internal consistency and temporal stability of the neuroticism scale, and the alpha coefficient for the current study was 0.87 at Time 1. The convergent and discriminant validity has been exhibited in expected relations with other personality measures and psychological (mal)adjustment (see Costa & McCrae, 1992).

Questionnaire packages were available in both English and French given that the population was bilingual. French versions of the FMPS (Rhéaume et al., 1994), HMPS (Labrecque, Stephenson, Boivin, & Marchand, 1998), DEQ (Boucher, Cyr, & Fortin, 2006), and APS-R (Kyparissis, Pierre, Goldsmith, & Dunkley, 2006) were administered to the French participants in this study. The French translations of the perfectionism measures have been found to have similar internal consistencies and validity as the original English versions (see Dunkley, Blankstein, et al., 2012). Waintraub, Delalleau, Lavergne, and Bertrand's (1997) French translation of the MASQ was administered to the community adults completing the study in French. The French version of the MASQ has demonstrated comparable internal consistencies and validity as the original English version (see Dunkley, Blankstein, et al., 2012). Experiential avoidance was measured using a French translation of the AAQ-II (Monestès, Villatte, Mouras, Loas, & Bond, 2009) that demonstrates good internal consistency (Cronbach alphas .76–0.82), test-retest reliability, and validity that are also comparable to the original English measure. A validated French translation of the NEO-FFI (Rolland & Petot, 1998) was administered to French-speaking participants. The French NEO-FFI was found to be largely equivalent to the original English language version (Rolland, Parker, & Stumpf, 1998; see; Dunkley et al., 2014; Dunkley, Blankstein, et al., 2012).

2.4. Model testing

Structural equation modeling was performed using Analysis of Momentary Structure 5.0 (AMOS Version 5.0; Arbuckle, 2003) to test the longitudinal cross-lagged effects between SC perfectionism, experiential avoidance, and symptoms of depression and anxiety. Cross-lagged analyses allow for the simultaneous exploration of cross-lagged effects, specifically, the vulnerability effect that SC perfectionism demonstrates in relation to depressive and anxious symptoms through experiential avoidance as well as any reciprocal relations among these variables over time. By using a cross-lagged modeling technique, the pattern of effects is conceptually replicated at each time point. The current study used cross-lagged analysis to attempt to identify causal predominance, which occurs when one variable influences other variables without the additional reciprocal influence (Burkholder & Harlow, 2003).

Two separate models were tested with each of anhedonic depression and anxious arousal. In each model, Time 1 SC perfectionism predicted experiential avoidance and AD/AA at Time 2, Time 1 experiential avoidance predicted SC perfectionism and AD/AA at Time 2, and Time 1 AD/AA predicted SC perfectionism and experiential avoidance at Time 2. Subsequently, Time 2 SC perfectionism predicted experiential avoidance and AD/AA at Time 3, Time 2 experiential avoidance predicted SC perfectionism and AD/AA at Time 3, and Time 2 AD/AA predicted SC perfectionism and experiential avoidance at Time 3. Time 1 neuroticism was included as a covariate with the other Time 1 variables, and predicted Time 2 and Time 3 SC perfectionism, experiential avoidance, and AD/AA. We also controlled for first-order

autoregressive paths (i.e., stability paths from Time 1 to Time 2 and from Time 2 to Time 3 for all variables) and second-order autoregressive paths (i.e., stability paths from Time 1 to Time 3 for all variables; Geiser, 2013), as well as correlations between residuals of the SC perfectionism latent factor, experiential avoidance, and AD/AA, within Time 2 and Time 3, respectively. The residuals of each of the four indicators of SC perfectionism were allowed to correlate across time points.

Consistent with Hoyle and Panter's (1995) recommendations, we considered multiple indexes to evaluate model fit. We considered the ratio of the chi-square value to the degrees of freedom in the model (absolute fit), with ratios in the range of 2 to 1 suggesting better fitting models (see Carmines & McIver, 1981). We also considered the incremental-fit index (IFI; Bollen, 1989; incremental fit), and the comparative-fit index (CFI; Bentler, 1990; incremental fit), with values 0.90 or over indicating better fitting models (see Hoyle & Panter, 1995). In addition, we considered the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990; parsimony-adjusted fit), with values of 0.08 or less indicating adequate fit (Browne & Cudeck, 1993). For each of the AD and AA models, we compared two submodels to test whether the cross-lagged effects were time invariant. In Models 1.1 and 2.1 the six cross-lagged paths were constrained to be equal across time (i.e., fixed), whereas in Models 1.2 and 2.2 the cross-lagged paths were unconstrained (i.e., free to vary). Model comparison was based on three criteria of changes in fit indices: $\Delta\chi^2$ significant at $p < .05$, $\Delta CFI \geq -0.010$, and $\Delta RMSEA \geq 0.015$ (Chen, 2007; Cheung & Rensvold, 2002). If the constrained model does not differ from the unconstrained model based on these criteria, the constrained model is preferred as a more parsimonious model.

Indirect effects were tested using the Monte Carlo Method (see MacKinnon, Lockwood, & Williams, 2004; Preacher & Selig, 2012) for assessing mediation. We used Selig and Preacher's (2008) web-based utility to generate and run R code for simulating the sample distribution of an indirect effect. Unstandardized path estimates, asymptotic covariance estimates, a 95% confidence level, and 20,000 bootstrap samples created by randomly sampling and replacing the original data were entered to compute confidence intervals (CI). If the CI did not include zero, the indirect effect was considered statistically significant at the $p < .05$ level.

3. Results

3.1. Descriptive statistics

Out of the 192 participants, 173 participants completed all three time points, 6 participants completed Time 1 and Time 2 measures, and 13 participants completed Time 1 and Time 3 measures. The full information maximum likelihood (FIML) robust estimator in Amos version 5.0 was used to handle missing data, as this method provides less biased estimates relative to other methods for handling missing data (see Schlomer, Bauman, & Card, 2010). Table 1 reports the means, standard deviations, intercorrelations, and internal consistencies of the SC perfectionism, neuroticism, experiential avoidance, anhedonic depression, and anxious arousal variables. Since the present sample was a subset of an original sample of 210 participants, *T* tests were performed comparing the means of the Time 1 perfectionism, neuroticism, experiential avoidance, and outcome variables. Results from the six *T* tests revealed that there were no significant differences between the current study's subsample of 192 participants and the additional 18 participants from the original sample. We also conducted independent samples *T* tests for each variable (i.e., SC and PS perfectionism, neuroticism, experiential avoidance, AD, AA) at each time point to compare means between those who completed the measures in English (n = 118) versus French (n = 74). Of the 16 *T* tests, no mean differences were found between participants who completed the measures in English compared to those who completed the measures in French.

Amos 5.0 was used to estimate intercorrelations among two latent factors (SC and PS perfectionism) and four measured variables (experiential avoidance, neuroticism, anhedonic depression, anxious arousal). As shown in Table 1, test–retest correlations ranged from 0.42 to 0.92, supporting reliability. SC perfectionism, neuroticism, and experiential avoidance were strongly intercorrelated, and exhibited moderate to strong positive intercorrelations with anhedonic depression and anxious arousal within and across time points. SC perfectionism also exhibited moderate to strong positive intercorrelations with PS perfectionism within time points (rs from 0.45 to 0.55). In contrast to SC, PS perfectionism exhibited weak, negligible, or inverse correlations with neuroticism (rs from −0.05 to 0.03), experiential avoidance (rs from −0.03 to 0.07), anhedonic depression (rs from −0.19 to 0.05), and anxious arousal (rs from −0.06 to 0.11), both within and between time points.

3.2. Cross-lagged analyses

To examine the longitudinal relationships between SC perfectionism, experiential avoidance, and symptoms of depression and anxiety, we tested two autoregressive cross-lagged models composed of Time 1, Time 2, and Time 3 SC perfectionism, experiential avoidance, and each of the two outcome measures (i.e., anhedonic depression, anxious arousal), with Time 1 neuroticism as a covariate.

3.2.1. SC perfectionism, experiential avoidance, and anhedonic depression model

We tested cross-lagged effects between SC perfectionism, experiential avoidance, and anhedonic depression, with Time 1 neuroticism as a covariate. The time-invariant Model 1.1 with the six cross-lagged paths constrained to be equal across time had acceptable fit indices: χ^2 (114, N = 192) = 161.22, $p < .01$; $\chi^2/df = 1.41$; IFI = 0.98; CFI = 0.98; RMSEA = 0.047. Comparing Model 1.1 with the time-variant Model 1.2, where the six cross-lagged paths were free to vary, did not result in a significant difference (χ^2_{diff} (6, N = 192) = 2.95, *ns*; ΔCFI = 0.00; ΔRMSEA = −0.002), demonstrating that both models fit the data equally well. Therefore, the time-invariant Model 1.1 was retained as the final model as it represents the more parsimonious model.

Fig. 1 displays Model 1.1, with only the estimates of significant paths shown. The nonsignificant paths were estimated and retained in the model, but the estimates were omitted from the figure only for presentational clarity and are reported below instead. All standardized factor loadings for the SC perfectionism latent factor were significant ($p < .001$), and ranged from 0.74 to 0.80 for FMPS-SF concern over mistakes, 0.64 to 0.67 for HMPS-SF socially-prescribed perfectionism, 0.79 to 0.86 for APS-R-SF discrepancy, and 0.77 to 0.81 for DEQ-SF self-criticism across time points. All first order autoregressive paths for each of SC perfectionism, experiential avoidance, and AD were significant, as well as the second order autoregressive path from Time 1 SC perfectionism to Time 3 SC perfectionism, whereas the second order autoregressive paths for experiential avoidance ($\beta = 0.12$) and AD ($\beta = 0.07$) were nonsignificant. Time 1 neuroticism significantly predicted increases in Time 2 AD only, and demonstrated nonsignificant relations with Time 2 ($\beta = 0.02$) and Time 3 ($\beta = 0.04$) SC perfectionism, Time 2 ($\beta = -0.09$) and Time 3 ($\beta = 0.11$) experiential avoidance, and Time 3 AD ($\beta = 0.15$).

Cross-lagged results demonstrated that Time 1 SC perfectionism predicted increases in Time 2 experiential avoidance, and Time 2 SC perfectionism predicted increases in Time 3 experiential avoidance, controlling for the autoregressive effects of experiential avoidance and AD as well as the effects of Time 1 neuroticism. Results also revealed that Time 1 experiential avoidance predicted increases in Time 2 AD, and Time 2 experiential avoidance predicted increases in Time 3 AD, controlling for the autoregressive effects of AD and the effects of Time 1 neuroticism. While the significant cross-lagged effects are small, they are meaningful when predicting relative changes in longitudinal

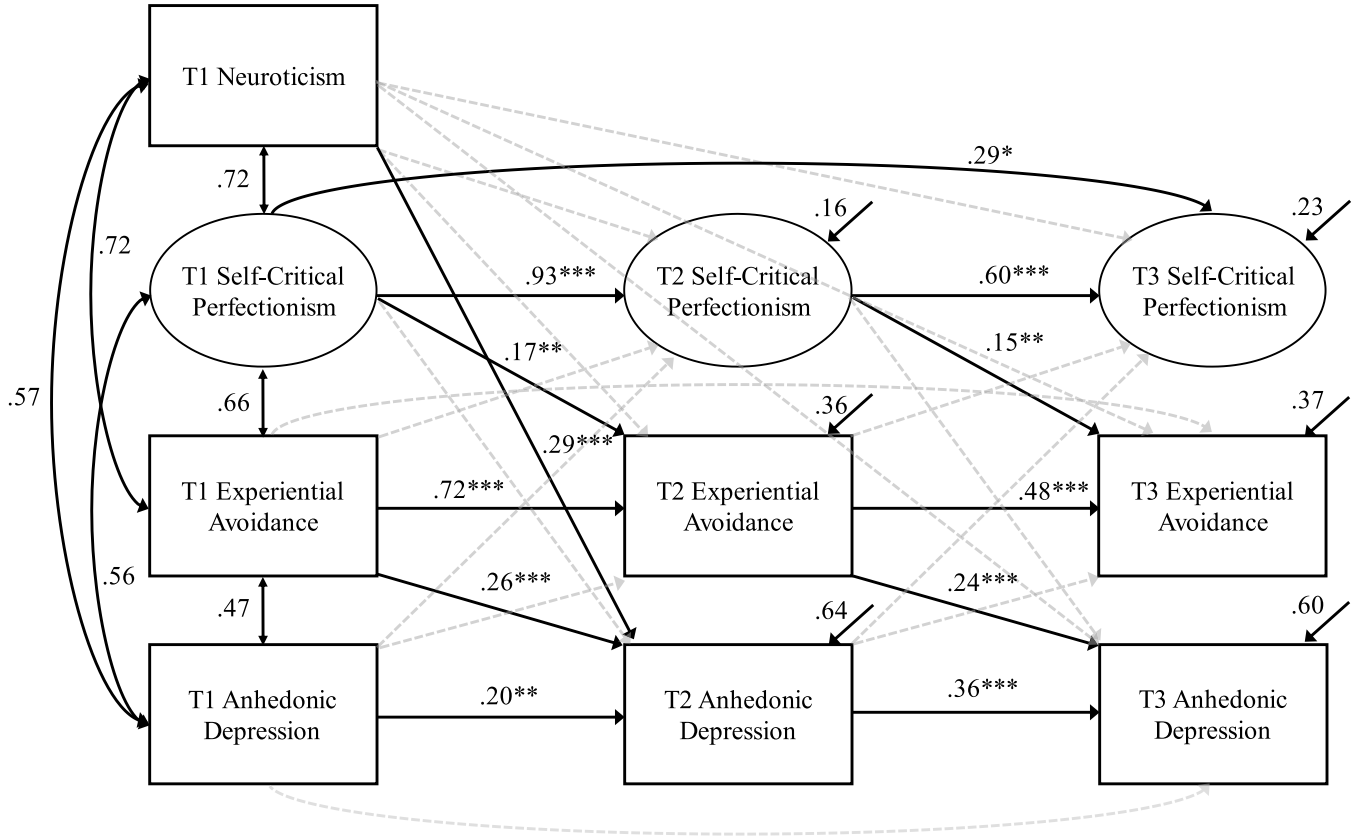

Fig. 1. Cross-lagged analyses involving self-critical perfectionism, experiential avoidance, and anhedonic depression (AD) over Time 1 (T1), Time 2 (T2), and Time 3 (T3), and Time 1 neuroticism. For presentational clarity, significant paths and estimates are displayed in solid black and nonsignificant paths ($p > .05$) are displayed in dashed gray without estimates. Correlations between exogenous variables are significant ($p < .001$) and represented by double-headed arrows. Autoregressive paths are represented by horizontal arrows and cross-lagged paths are represented by diagonal arrows. *Note.* * $p < .05$; ** $p < .01$; *** $p < .001$.

autoregressive models, because controlling for autoregressive paths removes a great amount of the variance to be predicted in the outcome variables (see Adachi & Willoughby, 2015). Of most interest, the relation between Time 1 SC perfectionism and Time 3 AD was mediated by Time 2 experiential avoidance. The 95% CI supported the significance of the indirect effect of Time 1 SC perfectionism to Time 3 AD through Time 2 experiential avoidance (CI = 0.036, 0.252). Nonsignificant paths from Time 1 SC perfectionism to Time 2 AD ($\beta = -0.07$) and from Time 2 SC perfectionism to Time 3 AD ($\beta = -0.06$) demonstrated that SC perfectionism did not directly predict increases in AD over two years.

Nonsignificant paths from Time 1 experiential avoidance ($\beta = -0.03$) and Time 1 AD ($\beta = -0.03$) to Time 2 SC perfectionism and from Time 2 experiential avoidance ($\beta = -0.02$) and Time 2 AD ($\beta = -0.02$) to Time 3 SC perfectionism demonstrated that these variables did not predict increases in SC perfectionism over two years, controlling for the autoregressive effects of SC perfectionism over time. Nonsignificant paths from Time 1 AD to Time 2 experiential avoidance ($\beta = 0.06$) and from Time 2 AD to Time 3 experiential avoidance ($\beta = 0.05$) demonstrated that AD did not predict increases in experiential avoidance over two years.

3.2.2. SC perfectionism, experiential avoidance, and anxious arousal model

Next, we tested a second model with SC perfectionism, experiential avoidance, and anxious arousal, with Time 1 neuroticism as a covariate. The time-invariant Model 2.1 had the following acceptable fit indices: χ^2 (114, N = 192) = 170.83, $p < .001$; $\chi^2/df = 1.50$; IFI = 0.98; CFI = 0.98; RMSEA = 0.051. Comparing Model 2.1 with the time-variant Model 2.2 did not result in a significant difference (χ^2_{diff} (6, N = 192) = 4.83, *ns*; ΔCFI = 0.00; ΔRMSEA = −0.002), demonstrating that both models fit the data equally well. Therefore, the time-invariant Model 2.1 was retained as the final model because it was more parsimonious.

Fig. 2 displays Model 2.1, with only the estimates of significant paths shown. The nonsignificant paths were estimated and retained in the model, but the estimates were omitted from the figure only for presentational clarity and are reported below instead. All first order autoregressive paths for each of SC perfectionism, experiential avoidance, and AA were significant, as well as the second order autoregressive path from Time 1 AA to Time 3 AA, whereas the second order autoregressive paths for SC perfectionism ($\beta = 0.30$) and experiential avoidance ($\beta = 0.14$) were nonsignificant. Time 1 neuroticism demonstrated nonsignificant relations with Time 2 ($\beta = 0.02$) and Time 3 ($\beta = 0.04$) SC perfectionism, Time 2 ($\beta = -0.08$) and Time 3 ($\beta = 0.13$) experiential avoidance, and Time 2 ($\beta = 0.04$) and Time 3 ($\beta = 0.07$) AA.

Cross-lagged results demonstrated that Time 1 SC perfectionism predicted increases in Time 2 experiential avoidance, and Time 2 SC perfectionism predicted increases in Time 3 experiential avoidance, controlling for the autoregressive effects of experiential avoidance and AA as well as the effects of Time 1 neuroticism. Results also revealed that Time 1 experiential avoidance predicted increases in Time 2 AA, and that Time 2 experiential avoidance predicted increases in Time 3 AA, controlling for the autoregressive effects of AA as well as the effects of Time 1 neuroticism. Of most interest, the relation between Time 1 SC perfectionism and Time 3 AA was mediated by Time 2 experiential avoidance (see Fig. 2). The 95% CI supported the significance of the indirect effect of Time 1 SC perfectionism to Time 3 AA through Time 2 experiential avoidance (CI = 0.006, 0.097). Nonsignificant paths from Time 1 SC perfectionism to Time 2 AA ($\beta = -0.10$) and from Time 2 SC

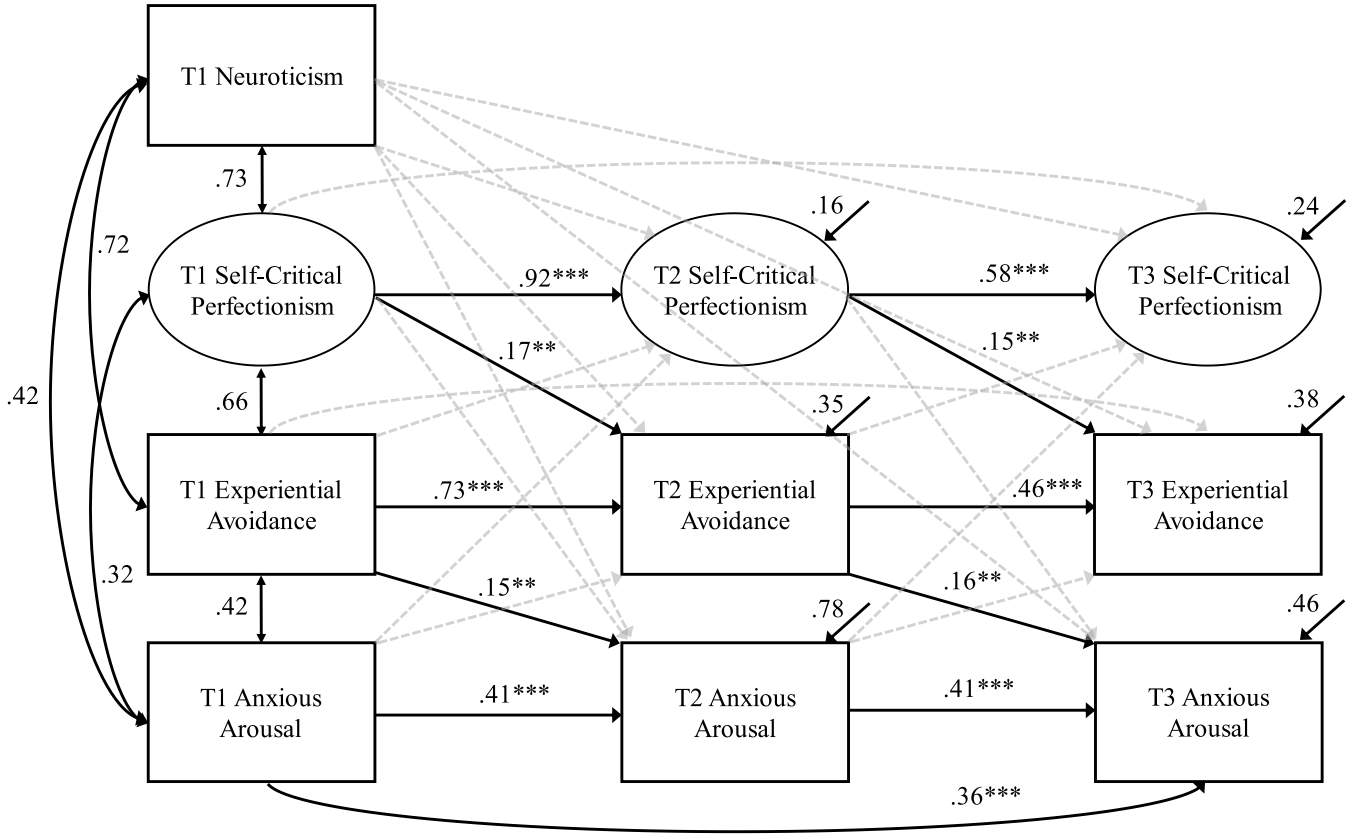

Fig. 2. Cross-lagged analyses involving self-critical perfectionism, experiential avoidance, and anxious arousal (AA) over Time 1 (T1), Time 2 (T2), and Time 3 (T3), and Time 1 neuroticism. For presentational clarity, significant paths and estimates are displayed in solid black and nonsignificant paths ($p > .05$) are displayed in dashed gray without estimates. Correlations between exogenous variables are significant ($p < .001$) and represented by double-headed arrows. Autoregressive paths are represented by horizontal arrows and cross-lagged paths are represented by diagonal arrows. *Note.* * $p < .05$; ** $p < .01$; *** $p < .001$.

perfectionism to Time 3 AA ($\beta = -0.11$) demonstrated that SC perfectionism did not directly predict increases in AA over two years.

Nonsignificant paths from Time 1 experiential avoidance ($\beta = -0.05$) and Time 1 AA ($\beta = 0.02$) to Time 2 SC perfectionism and from Time 2 experiential avoidance ($\beta = -0.04$) and Time 2 AA ($\beta = 0.02$) to Time 3 SC perfectionism demonstrated that these variables did not predict increases in SC perfectionism over two years, controlling for the autoregressive effects of SC perfectionism over time. Nonsignificant paths from Time 1 AA to Time 2 experiential avoidance ($\beta = 0.03$) and from Time 2 AA to Time 3 experiential avoidance ($\beta = 0.04$) demonstrated that AA did not predict increases in experiential avoidance over two years.

3.3. Supplementary analyses

We conducted the same cross-lagged path analyses with the PS perfectionism latent factor entered in the model instead of SC perfectionism. The full results of the supplementary analyses are reported in the online supplement. All standardized factor loadings for the PS perfectionism latent factor were significant ($p < .001$), and ranged from 0.89 to 0.90 for FMPS-SR personal standards, 0.76 to 0.79 for HMPS-SF self-oriented perfectionism, and from 0.88 to 0.91 for APS-R-SF high standards across time points. PS perfectionism was not related to experiential avoidance and outcome measures from Time 1 to Time 2, nor from Time 2 to Time 3. In addition, the indirect effects from Time 1 PS perfectionism to Time 3 AD/AA, respectively, through Time 2 experiential avoidance were all non-significant (CI = −0.008, 0.101; CI = −0.005, 0.029).

4. Discussion

The present three-wave, longitudinal study substantially advanced previous cross-sectional studies demonstrating experiential avoidance as a mediator of the relation between SC perfectionism and distress outcomes (e.g., Moroz & Dunkley, 2015; Santanello & Gardner, 2007). Our results demonstrated that experiential avoidance mediated the relation between SC perfectionism and both symptoms of depression and anxiety over a 2-year period, controlling for the effects of Time 1 neuroticism.

Our longitudinal cross-lagged results demonstrated that SC perfectionism predicted increases in experiential avoidance from both Time 1 to Time 2 and Time 2 to Time 3, while controlling for previous levels of neuroticism and symptom outcomes (see Figs. 1 and 2). Though SC perfectionism and neuroticism are closely related, these findings suggest that experiential avoidance is a unique maladaptive characteristic associated with SC perfectionism, in addition to other forms of avoidance (i.e., avoidant coping), negative interpersonal characteristics, and depressive symptoms (e.g., Dunkley, Ma, et al., 2014, Dunkley et al., 2014; see Smith et al., 2016; Zuroff et al., 2004 for reviews). This is in line with notions that individuals with higher SC perfectionism make attempts to avoid or escape from aversive self-awareness as it serves to diminish the negative impact of their harsh self-critical evaluations and concerns about negative perceptions by others (Heatherton & Baumeister, 1991; Santanello & Gardner, 2007). One possible explanation for why experiential avoidance might increase from year to year in individuals with higher SC perfectionism is that they may experience short-term relief of distress (Hayes et al., 1996), ultimately reinforcing their experiential avoidance over time.

Furthermore, experiential avoidance predicted increases in

anhedonic depressive symptoms (Fig. 1) and anxious arousal (Fig. 2) from both Time 1 to Time 2 and Time 2 to Time 3, respectively, while controlling for Time 1 neuroticism. This finding builds on previous research that conceptualizes experiential avoidance as a generalized vulnerability factor that confers transdiagnostic risk (Kashdan et al., 2006). Further, though experiential avoidance and neuroticism are strongly related, our results demonstrate that the effects of experiential avoidance, as measured by the AAQ-II, cannot be simply thought of in terms of neuroticism. Our findings are consistent with notions that attempts to control or avoid distressing internal experiences often increase and prolong these unwanted feelings and thoughts, leading to further distress over time (Wenzlaff & Wegner, 2000). Furthermore, these results suggest that what we resist or attempt to avoid has the paradoxical effect of not only maintaining symptom levels but producing increased distress and symptoms in the longer-term. This might be because non-acceptance of distress may derail an individual from adapting to situational demands and instead to concentrate efforts on the experiential avoidance of their distress, leading to greater experiences of symptoms of depression and anxiety (Hayes et al., 2006).

The current study's design also allowed for the examination of potential reciprocal relations or “scar” effects of depressive and anxious symptoms on subsequent SC perfectionism and experiential avoidance. Our results did not find support for scarring effects, which conceptualizes changes in personality traits as being a consequence of preexisting symptoms, as depressive and anxious symptoms did not predict changes in perfectionism or experiential avoidance over time. This finding is consistent with research that supports SC perfectionism and experiential avoidance as vulnerability factors (e.g., Hawley, Ho, Zuroff, & Blatt, 2006; Kashdan et al., 2006; Rice & Aldea, 2006).

In contrast to SC perfectionism, PS perfectionism was not significantly related to neuroticism, experiential avoidance, and depressive and anxious symptoms. This is consistent with previous research highlighting that SC perfectionism represents the more maladaptive dimension of perfectionism (see Dunkley et al., 2006; Stoeber & Otto, 2006). This finding suggests that having high personal standards does not individually contribute to greater experiential avoidance. Rather, it is the negative self-evaluative features of higher SC perfectionism that appear to perpetuate experiential avoidance over time.

Overall, the results from the present longitudinal study demonstrate a crucial test of the theory that avoidance and suppression strategies have harmful effects in the longer-term for individuals with higher SC perfectionism. The results provide compelling support for the notion that individuals with higher SC perfectionism are more vulnerable to depressive and anxious symptoms because of their unique tendency to engage in experiential avoidance. These findings help explain why these individuals are vulnerable to both depression and anxiety as they make attempts to avoid depressive symptoms characterized by themes of defeat, helplessness, and withdrawal, as well as anxious symptoms related to fears of criticism, judgment, and rejection from others (Cantazaro & Wei, 2010; Dunkley et al., 2012). Thus, their experiential avoidance and maladaptive strategies of dealing with their depressive and anxious symptoms, in turn, seem to exacerbate them over time.

4.1. Clinical implications

The results from the current study have important clinical implications as research has shown that individuals with higher SC perfectionism demonstrate a poor response to traditional treatments targeting depressive and anxious symptoms (Blatt & Zuroff, 2005; Kannan & Levitt, 2013). Additionally, addressing individuals' perfectionism directly in therapy may be met with resistance (Lundh, 2004). Our findings indicate that employing interventions aimed at decreasing experiential avoidance may be particularly beneficial for individuals with greater SC perfectionism in reducing symptoms over time. Third-wave therapies, such as Acceptance and Commitment Therapy (ACT; Hayes et al., 1999) as well as Dialectical Behavior Therapy (DBT; Linehan, 1993), teach individuals to abandon attempts to control or avoid thoughts and feelings, and instead to observe inner experiences nonjudgmentally and accept them as they are, while changing behavioural responses in constructive and values-driven ways. The strategies employed in ACT and DBT, such as mindfulness and distress tolerance techniques and acceptance-based strategies, might help individuals with greater SC perfectionism to develop more self-acceptance, without necessarily confronting the individuals' perfectionistic beliefs directly.

4.2. Limitations and future directions

Although the present methodology offered advances over previous studies, limitations of this study should be addressed and areas for future research should be discussed. Experiential avoidance was measured using the AAQ-II, which has been criticized for being closely related to distress measures (Wolgast, 2014). It would be of interest to replicate these findings with the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011), which has been recommended as a more promising measure of experiential avoidance than the AAQ-II (Rochefort et al., 2018; Wolgast, 2014). Additionally, the present study focused on the examination of experiential avoidance, which represents one facet of psychological inflexibility. It would be important for future research to examine other dimensions of the broader construct of psychological inflexibility (e.g., cognitive fusion, focus on past and future) and other relevant constructs (e.g., anxiety sensitivity, intolerance of uncertainty) to be tested against experiential avoidance in the same study. Further, this study's findings are based on self-report questionnaires and therefore susceptible to recall biases and distortions inherent in this type of methodology. It would be beneficial to replicate these findings using repeated-measures methodology with less retrospection, such as daily diaries or an experience sampling method (see Dunkley et al., 2012). Given that our study consisted of nonclinical community adults, it is important to examine the generalizability of our findings to clinical samples. Future studies would benefit from examining the relations among SC perfectionism, experiential avoidance, and negative outcomes in clinical samples (e.g., individuals with clinical depression, GAD, or eating disorders). It would also be of interest to test whether specific third wave psychotherapies (e.g., Acceptance and Commitment Therapy, Dialectical Behavior Therapy, Mindfulness-Based Cognitive Therapy) would be effective in the treatment of depression and anxiety in individuals with greater SC perfectionism.

5. Conclusions

In conclusion, the present findings demonstrate the importance of experiential avoidance as a mediator in the relationship between SC perfectionism and symptoms of depression and anxious over time. This longitudinal study illustrated that higher SC perfectionism coupled with greater experiential avoidance accounted for increases in symptoms of depression and anxiety over 2 years, while controlling for neuroticism and previous symptom levels. These findings highlight the potential for acceptance and distress tolerance interventions aimed at decreasing experiential avoidance to be useful in symptom reduction in individuals with higher SC perfectionism.

Funding

This research was supported by a Social Sciences and Humanities Research Council of Canada Doctoral Fellowship (#752-2012-1110) awarded to the first author and a SSHRC Insight Grant (#435-2012-0925) and Fonds de la Recherche en Santé du Québec Bourses de Chercheurs-Boursiers (#15978) awarded to the second author. The authors gratefully acknowledge Shauna Solomon-Krakus, Amanda Shaw, Alexandra Ghelerter, and Tara Magill for their efforts in the data collection. The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.brat.2018.11.006.

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