

The Relationship between Perfectionism and Preventive Health Behaviours:
The Mediating Role of Self-Concealment

Charlotte Williams and Mark Cropley

Abstract

If perfectionists avoid engaging in preventive health behaviours they may be putting their long-term health and wellbeing at risk. Correlational analyses based on a sample of 370 university students identified maladaptive perfectionism to be associated with decreased levels of; engagement in preventive health behaviours, life satisfaction and wellbeing and increased levels of self-concealment and psychological distress. Adaptive perfectionism was associated with higher levels of engagement in preventive health behaviours. Self-concealment was identified as a partial mediator in the relationship between maladaptive perfectionism and both engagement in preventive health behaviours and psychological distress. Implications of the findings are discussed.

Keywords: Maladaptive and adaptive perfectionism, preventive health behaviours, self-concealment.

Introduction

A striking increase in research concerned with perfectionism coupled with the development of two multidimensional methods of assessment (Frost et al, 1990; Hewitt and Flett, 1991a) has greatly enhanced our understanding of the perfectionism construct, however there still remains a lack of consensus regarding how to define and conceptualise this particular personality trait. Many authors have investigated and supported a two factor model, encompassing positive/adaptive/healthy elements as well as negative/maladaptive/unhealthy ones (e.g. Adkins and Parker, 1996; Blankstein and Dunkley, 2002; Enns and Cox, 1999; Frost et al., 1993; Hill et al., 1997; Rheume et al., 2000; Terry-Short et al., 1995; Rice et al., 1998; Slade, 1982; Slade and Owens, 1998; Slaney et al., 2002; Stumpf and Parker, 2000).

Adaptive perfectionism, believed to be driven by a desire for success (Hamachek, 1978) has been characterised by a high level of organisation, high personal standards, conscientiousness and a desire to achieve personal goals (Slade and Owens, 1998). Adaptive perfectionists (when compared to maladaptive perfectionists) are believed to ruminate less, be less susceptible to negative affectivity and engage in fewer self-critical evaluations in appraisal situations (Beiling et al., 2004; Enns et al., 2001; Rheume et al., 2000). A crucial difference between the two types of perfectionists, according to Hamachek (1978) is the fact that although they may set themselves extraordinarily high standards, adaptive perfectionists are flexible enough to allow for occasional mistakes and ultimately derive a real sense of satisfaction from their efforts. Conversely, maladaptive perfectionism is believed to be driven by an intense fear of failure (Hamachek, 1978) and has been associated with negative psychological functioning (Blatt, 1995; Chang, 2003; Flett and Hewitt, 2002; Shafran and Mansell, 2001). Maladaptive perfectionism has also been linked with the desire to conceal

negative information relating to the self (Frost et al., 1995; Frost et al., 1997). Such a need to conceal mistakes and imperfections may have the potential to exacerbate and perpetuate stress responses (Flett and Hewitt, 2002). Self-concealment may be particularly detrimental to health because of the additional effort required in actively withholding sensitive and potentially embarrassing information from others (Kahn and Hessling, 2001). A secondary problem may be that it prevents the development of more adaptive coping strategies such as utilising social support (Kawamura and Frost, 2004).

Research has identified a direct relationship between perfectionism and physical health (Hadjistavropoulos et al., 2007; Molnar., 2006) and extreme forms of perfectionism have been related to a wide variety of negative health outcomes (both physical and psychological) including; anxiety (Antony et al., 1998; Flett et al., 1989), substance abuse (Pacht, 1984), chronic pain (Liebman, 1978), coronary heart disease (Pacht, 1984), depression (Blatt, 1995; Chang, 2000; Enns and Cox, 1999; Frost et al., 1990; Frost et al., 1993; Hewitt and Flett, 1991b; Kawamura et al., 2001; Pacht, 1984), eating disorders (Fairburn et al., 1999; Pacht, 1984), Obsessive Compulsive Disorder (Antony et al., 1998; Pacht, 1984), Chronic Fatigue Syndrome (Deary and Chalder, 2010), increased fatigue following a period of stress (Dittner et al., 2010), greater sickness impact in patients with ulcerative colitis and Crohn's disease (Flett et al., 2011), increased risk of mortality in diabetic older adults (Fry and Debats, 2011), suicide (Burns, 1980; Hewitt et al., 1992) and as an antecedent of athletic burnout (Hill and Appleton, 2011).

Despite extensive research emphasising the negative/maladaptive/unhealthy aspects of the perfectionism construct, a small body of research has proposed a link between adaptive perfectionism and possible benefits to health and wellbeing. Fry and Debats (2009) have identified conscientiousness (often considered to be one of the adaptive qualities associated

with perfectionism) to be “enabling”, having a protective function in terms of health and wellbeing and perfectionism and neuroticism to be “disabling”, resulting in a more detrimental effect on health. Additionally, high levels of self-oriented perfectionism (considered to represent the more adaptive perfectionism traits) have been found to be health promoting and linked to a reduced risk of mortality (Fry and Debats, 2011).

Research into the area of personality and health has informed the study of perfectionism as a key personality variable related to various health outcomes. Two important mechanisms have been suggested that may be involved in the relationship between perfectionism and health.

Firstly perfectionism may influence health via a stress pathway in which personality variables may affect both the exposure to and reactivity to stress (Segerstrom and Smith, 2006).

According to Flett and Hewitt (2002) perfectionism is likely to be involved in the generation, anticipation, perpetuation and enhancement of stress. The second mechanism is via health related behaviours (health promotion and health risk behaviours) whereby personality variables may influence the desire to engage in such behaviours. Socially prescribed perfectionism (believed to be associated with the more negative traits of perfectionism) has been associated with lower engagement in such behaviours and higher levels of organisation (considered to be a positive attribute of perfectionism) to be associated with increased health behaviours (Chang et al., 2008). Conversely Molnar et al., (2012) propose that the positive attributes associated with perfectionism may be associated with lower engagement in health behaviours as self-oriented perfectionists may possess a particular approach to work that prohibits the desire to engage in health promoting behaviours.

To date, research has not addressed the steps taken by perfectionists to look after their health and wellbeing, and whether these vary according to whether maladaptive or adaptive traits are more prevalent. Such information could be vital for health professionals in helping protect

extreme perfectionists from the negative health outcomes often associated with perfectionism. The present study seeks to address this gap in the literature by investigating how frequently perfectionists engage in preventive health behaviours (designed to be health promoting and health risk reducing). Identifying the types and frequencies of such behaviours and the accompanying associations with type of perfectionism (adaptive/maladaptive) may help us understand why some perfectionists stay healthy and others do not. It is hypothesised that higher levels of maladaptive perfectionism will be associated with lower engagement and conversely higher levels of adaptive perfectionism will be related to greater engagement in preventive health behaviours (hypothesis 1).

Previous research has identified self-concealment as a mediator in the relationship between maladaptive perfectionism and psychological distress (Kawamura and Frost, 2004). The present study seeks to provide evidence for the relationship between perfectionism (adaptive and maladaptive) and self-concealment, as well as, self-concealment and engagement in preventive health behaviours (hypothesis 2). Additionally the purpose of this study is to expand on previous research by identifying the mediating role of self-concealment in both the relationship between maladaptive perfectionism and psychological distress as well as maladaptive perfectionism and engagement in preventive health behaviours (hypothesis 3).

Finally, the variables of psychological distress, life satisfaction and wellbeing will be considered. It is predicted that maladaptive perfectionism and self-concealment will be associated with elevated levels of psychological distress and reduced levels of both life satisfaction and wellbeing. Adaptive perfectionism is hypothesised to be associated with lower psychological distress and increased life satisfaction and wellbeing (hypothesis 4).

Method

Participants and Procedure

Participants were students at the University of Surrey, recruited through an email advertisement circulated to all students. Of the final sample ($N=370$), 287 (77%) were women and 83 were men (23%). Their mean age was 26.72 years ($SD = 9.4$). Of the sample, 44% were undergraduate students ($n = 164$) and 51% were postgraduate students ($n = 188$), the remaining 5% ($n = 18$) did not specify level of study. Participants completed an online questionnaire.

Measures

Perfectionism

To assess adaptive and maladaptive perfectionism, four of the subscales of the Frost Multidimensional Perfectionism Scale (FMPS, Frost et al., 1990) were used. For adaptive perfectionism, the subscales of Personal Standards (7 items) and Organisation (6 items) were summed to form a total adaptive perfectionism score (ADAPT-PERF). The use of these two subscales to represent a measure of adaptive perfectionism has been supported by previous research, showing good internal reliability, Cronbach's alpha, 0.88 (Harris et al., 2008). For maladaptive perfectionism, the Concern over Mistakes (CM) and Doubts about Actions (DA) subscales have been utilised and summed to form a total maladaptive perfectionism score (MAL-PERF). The use of these two subscales to represent a measure of maladaptive perfectionism has been extensively supported in the research literature (Dunn et al., 2006; Frost et al., 1990; Harris et al., 2008; Wei et al., 2004). Cronbach's alpha for the two subscales combined has been found to be 0.87 (Harris et al., 2008).

Self-Concealment

The Self-Concealment Scale (SCS; Larson and Chastain, 1990) was used to assess self-concealment. The scale consists of ten items addressing an individual's desire to conceal negative personal information. Participants are asked to rate their agreement with a statement on a five point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). A total score is then derived, with high scores denoting a greater tendency to self-conceal. The scale has been shown to be reliable, with favourable test-retest and interim reliability. Internal consistency has been reported to be good, $\alpha = 0.83$ (Larson and Chastain, 1990). The scale is generally considered to be a valid means of assessing the tendency to conceal personal information.

Engagement in Preventive Health Behaviours

This questionnaire was designed for the present study and is an adaptation of the General Preventive Behaviours Checklist (Amir, 1987). It requires respondents to rate on a three point scale the frequency with which they carry out a range of preventive health behaviours. Areas addressed include diet, exercise, avoidance of harmful substances such as cigarettes and alcohol, social interaction, work, and emotional well-being. Responses were summed to form a total engagement score with higher scores indicating a greater amount of engagement in preventive health behaviours.

Psychological Distress

The Hopkins Symptom Checklist-21 can be described as a general measure of psychological distress and was utilised to assess general psychological and symptom distress (HSCL-21;

Green et al., 1988). This measure gauges the respondent's current experience of somatic, performance and general distress. The scale consists of 21 items scored on a four point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). A high score overall, denotes a higher degree of psychological distress. The scale has good internal reliability ($\alpha = 0.90$; Green et al., 1988) and has adequate test-retest reliability, construct and concurrent validity (Deane et al., 1992). The use of this scale as a valid and reliable method of assessing psychological distress has been supported in the research literature (Harari et al., 2005; Komiya et al., 2000).

Life satisfaction

To assess life satisfaction, the Satisfaction With Life Scale (SWLS; Diener et al., 1985) was used. This consists of five items rated on a seven point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores denote greater life satisfaction. An encouraging level of reliability and internal consistency has been found, Cronbach's alpha, 0.87 (Diener et al., 1985). In terms of validity, the scale correlates moderately well with other subjective well-being scales (Pavot et al., 1991).

Wellbeing

To provide a measure of general well-being the WHO-5 Well-Being index (Bech et al., 1996) was employed. It covers the following areas; positive mood, vitality and general interest. Each of the five items is rated on a six point Likert scale from 0 (not present) to 5 (constantly present). A total score is derived from summing the five items. Findings suggest good reliability and validity, Cronbach's alpha = 0.82, (De Wit et al., 2007).

The research design for the present study was primarily correlational. Mediation analyses were also carried out to determine the importance of self-concealment in the relationship between maladaptive perfectionism and engagement in preventive health behaviours and maladaptive perfectionism and psychological distress.

Results

General demographic information is displayed in Table 1.

INSERT TABLE 1 ABOUT HERE

Correlational Analyses

As predicted a significant negative association was found between maladaptive perfectionism and engagement in preventive health behaviours ($r = -0.33, p < 0.01$) suggesting that those participants scoring highly on the negative aspects of perfectionism engaged less in behaviours that could potentially benefit their health. A small yet significant correlation was found for adaptive perfectionism and engagement in preventive health behaviours ($r = 0.25, p < 0.01$) suggesting those participants scoring highly on the more adaptive elements of perfectionism may be more inclined to take preventive steps as far as health behaviours are concerned (hypothesis 1).

For perfectionism and self-concealment, a positive association was observed between maladaptive perfectionism and self-concealment, ($r = 0.47, p < 0.01$), although, adaptive perfectionism and self-concealment were shown to be uncorrelated. This may suggest that self-concealment is a factor present predominantly in maladaptive perfectionism and not

perfectionism per se. When the relationship between self-concealment and engagement was examined, an inverse relationship was found ($r = -0.35, p < 0.01$) suggesting as self-concealment increases, there is a corresponding decrease in engagement in preventive health behaviours, (hypothesis 2).

Addressing the relationship between perfectionism (adaptive and maladaptive) and psychological distress, no relationship was observed for adaptive perfectionism, although a significant positive correlation was observed for maladaptive perfectionism ($r = 0.53, p < 0.01$). Such findings support previous research linking the negative aspects of perfectionism with greater psychological distress. As expected and in support of earlier work, self-concealment and psychological distress were positively correlated ($r = 0.49, p < 0.01$). In consideration of the relationships between perfectionism, life-satisfaction and well-being, maladaptive perfectionism was associated with lower levels of both variables ($r = -0.38, p < 0.01$ and $r = -0.44, p < 0.01$ respectively). No relationship was observed between adaptive perfectionism and either life-satisfaction or well-being. Similar to maladaptive perfectionism, self-concealment was also associated with diminished levels of both life-satisfaction and well-being, $r = -0.36, p < 0.01$ and $r = -0.36, p < 0.01$ respectively, (hypothesis 4).

Mediation Analyses

Mediation (hypothesis 3) was tested according to the method outlined by Baron and Kenny (1986) and the significance of the indirect effect calculated using the Sobel Test (Sobel, 1982). Self-concealment was found to be a partial mediator in the relationships between maladaptive perfectionism and engagement in preventive health behaviours ($z = -4.091$, Step 1, $B = -.300, p < .001$; Step 3, $B = -.195, p < 0.001$) and maladaptive perfectionism and psychological distress ($z = 5.395$, Step 1, $B = .557, p < .001$; Step 3, $B = .423, p < .001$). In both cases the regression coefficients were not reduced sufficiently to suggest full mediation.

Discussion

Adaptive perfectionism was found to be associated with higher levels of engagement in preventive health behaviours, supporting research by Chang et al (2008), however, no relationships were observed between adaptive perfectionism, psychological distress, life satisfaction and wellbeing. Adaptive perfectionism was also shown to be unrelated to self-concealment. Aside from a higher level of engagement in preventive health behaviour, these results show no apparent benefits to possessing adaptive rather than maladaptive perfectionism traits, i.e. no associated increase in life-satisfaction and wellbeing or identifiable decrease in psychological distress. It would be interesting for future studies to investigate whether a lack of a desire to self-conceal may provide adaptive perfectionists with a type of ‘psychological buffer’ that could potentially protect them from the more harmful maladaptive traits of perfectionism.

Maladaptive perfectionism was found to be associated with lower levels of engagement, higher levels of self-concealment, and lower levels of both life-satisfaction and wellbeing. Perhaps maladaptive perfectionists prefer to avoid engaging in preventive health behaviours because they may draw attention to their “imperfections”, something that perfectionists tend to strive to keep hidden (Hewitt et al., 2003). Another possibility might be that maladaptive perfectionists are more inclined to engage in self-handicapping behaviours such as avoidance, procrastination and over-committing (Kearns et al., 2007) which in turn affect engagement in preventive health behaviours. Such behaviours are thought to have an inherent appeal to perfectionists who are likely to feel they have a lot to lose in evaluative situations. It would be useful for future research to investigate the association between perfectionism and self-handicapping in relation to health behaviours. With regard to maladaptive perfectionism being associated with a higher level of psychological distress, research in the area of preventive health suggests that psychological distress may affect the likelihood of engaging

in various health promoting activities such as attending for health screenings (Lieferman and Pheley, 2006), adhering to preventive health care guidelines (Thorpe et al., 2006) and delaying routine health examinations (Witt et al., 2009). A tendency to self-conceal has also been associated with a reluctance to seek professional help for personal difficulties (Cepeda-Benito and Short, 1998; Kelly and Achter, 1995).

When considering the mediating influence of self-concealment in the relationships between maladaptive perfectionism and engagement in preventive health behaviours and maladaptive perfectionism and psychological distress, self-concealment was identified as a partial mediator. Despite not fully supporting the mediation hypotheses, this study does demonstrate that self-concealment may be an important variable when considering the health implications and consequences of being a maladaptive perfectionist. Elevated levels of both maladaptive perfectionism and self-concealment may represent an increased vulnerability towards both psychological and physical problems and be a toxic combination as far as health and wellbeing are concerned. The relationship between perfectionism and self-concealment and the impact of both these factors on health and wellbeing requires further investigation.

In summary the present study proposes that maladaptive perfectionists may be putting their immediate and long-term health and wellbeing at risk. Specifically; (i) As maladaptive perfectionism increases there seems to be a corresponding decline in engagement in preventive health behaviours. Engaging in such behaviours is considered to be an important way of reducing the risks of developing various illnesses and chronic conditions such as heart disease, cancer and diabetes, (ii) maladaptive perfectionism seems to be linked to high levels of self-concealment which itself has been associated with various unfavourable health outcomes, (iii) maladaptive perfectionism has consistently been associated with higher levels of psychological distress, which has the potential to lead to various psychological and

physical difficulties and finally (iv) maladaptive perfectionism has been related to lower levels of life-satisfaction and well-being.

There is still relatively little research that has addressed the long-term psychological and physical consequences of being a maladaptive perfectionist. Recent studies have begun to identify the potentially damaging effects of being highly perfectionistic (Fry and Debats, 2009, 2011). Longitudinal studies that aim to investigate the long-term impact of both the adaptive and maladaptive aspects perfectionism in relation to health and wellbeing would be beneficial. Such findings may provide valuable information in the field of health psychology in terms of treating and managing the psychological and physical needs of extreme perfectionists.

Limitations with the present study include a reliance on self-report data and a cross sectional sample restricted to University students which makes generalisations problematic. Future studies may benefit from utilising objectively verifiable performance measures Sherry et al., (2010), as well as comparing the health practices of maladaptive, adaptive and non-perfectionists over an extended time period. Another limitation reflects a conceptual difficulty. The present study utilises the conceptualisation supported by Frost et al (1990) and defends the use of a maladaptive/adaptive split to define perfectionism. What has to be remembered is that extreme forms of perfectionism may be characterised by elevated levels of both adaptive and maladaptive traits (Slade and Owens, 1998) and that the coexistence of both positive and negative traits may, in itself, have particular health implications. Another limitation is the method used to assess engagement in preventive health behaviours. The measure utilised provided an aggregate score derived from a number of distinct health behaviours and a more valid means of assessment may be to look at these behaviours separately. Additionally, this measure was limited to addressing more traditional ways of

looking after one's health and wellbeing, and may have overlooked alternative methods e.g. mindfulness, meditation, yoga, kinesiology and homeopathy.

Conclusion

The present study has aimed to extend previous research in the field of perfectionism and health by highlighting a need to address whether maladaptive perfectionists, do indeed represent a high risk group in terms of their health and wellbeing and whether the associated tendency to self-conceal adds to this vulnerability. Additionally the intention was to identify any apparent advantages (in terms of health and wellbeing) to being an adaptive perfectionist. Previous research has focussed on identifying the negative side of perfectionism, however, little has been done to examine what perfectionists actually do to look after their health and wellbeing. Longitudinal studies designed to gain insight into potential strategies that may be utilised by perfectionists to engage/not engage in preventive health practices would be beneficial as well as qualitative studies looking in more detail at the development of health beliefs and possible barriers to engaging/not engaging. It may also be useful to examine the relationship between perfectionism and stress in relation to engagement in preventive health behaviours. Such information would enable health professionals to gain a more comprehensive understanding of the way highly perfectionistic individuals view and make decisions about how to manage their own health and wellbeing.

References

- Adkins KK and Parker W (1996) Perfectionism and suicidal preoccupation. *Journal of Personality* 64(2): 529-543.
- Amir D (1987) Preventive behaviour and health status among the elderly. *Psychology and Health* 1(4): 353-377.
- Antony MM, Purdon CL, Huta V and Swinson RP (1998) Dimensions of perfectionism across the anxiety disorders. *Behaviour, Research and Therapy* 36(12): 1143-1154.
- Baron RM and Kenny DA (1986) The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology* 51(6): 1173-1182.
- Bech P, Gudex C and Staehr Johansen K (1996) The WHO (ten) well-being index: Validation in diabetes. *Psychotherapy and Psychosomatics* 65(4): 183-190.
- Bieling PJ, Israeli AL and Antony MM (2004) Is perfectionism good, bad or both? Examining models of the perfectionism construct. *Personality and Individual Differences* 36(6): 1373-1385.
- Blankstein KR and Dunkley DM (2002). Evaluative concerns, self-critical, and personal standards of perfectionism: A structural equation modelling strategy. In: Flett GL, Hewitt PL (eds) *Perfectionism: Theory, Research, and Treatment*, Washington, DC: American Psychological Association, 285-315.
- Blatt SJ (1995) The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist* 50(12): 1003-1020.

Burns DD (1980) The perfectionist's script for self-defeat. *Psychology Today* November: 34-52.

Cepeda-Benito A and Short P (1998) Self-concealment, avoidance of psychological services and the perceived likelihood of seeking professional help. *Journal of Counseling Psychology* 45(1): 58-64.

Chang EC (2000) Perfectionism as a predictor of positive and negative psychological outcomes: Examining a mediation model in younger and older adults. *Journal of Counseling Psychology* 47(1): 18-26.

Chang EC (2003) On the perfectibility of the individual: Going beyond the dialectic of good versus evil. In: Chang EC, Sanna LJ (eds), *Virtue, Vice and Personality: The Complexity of Behaviour*, Washington, DC: American Psychological Association, 125-144.

Chang EC, Ivezaj V, Downey CA, Kashima Y and Morady AR (2008) Complexities of measuring perfectionism: Three popular perfectionism measures and their relations with eating disturbances and health behaviours in a female college sample. *Eating Behaviors* 9(1): 102-110.

Deane FP, Leathem and Spicer (1992) Clinical norms, reliability and validity of the Hopkins Symptom Checklist-21. *Australian Journal of Psychology* 44(1): 21-25

Deary V and Chalder T (2010) Personality and perfectionism in chronic fatigue syndrome: A closer look. *Psychology and Health* 25(4): 465-475.

de Wit M, Pouver F, Gemke RJJ, Delemarre-van de Waal HA and Snoek FJ (2007) Validation of the who-5 wellbeing index (WHO-5) in adolescents with type 1 diabetes. *Diabetes Care* 30(8): 2003-2006.

Diener E, Emmons RA, Larson RJ and Griffin S (1985) The satisfaction with life scale.

Journal of Personality Assessment 49: 71-75.

Dittner AJ, Rimes K and Thorpe S (2010) Negative perfectionism increases the risk of fatigue following a period of stress. *Psychology and Health* 26(3): 253-268.

Dunn JC, Whelton WJ and Sharpe D (2006) Maladaptive perfectionism, hassles, coping and psychological distress in university professors. *Journal of Counseling Psychology* 53(4): 511-523.

Enns MW and Cox BJ (1999) Perfectionism and depression symptom severity in major depressive disorder. *Behaviour Research and Therapy* 37(8): 783-794.

Enns MW, Cox BJ, Sareen J and Freeman P (2001) Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education* 35(11): 1034-1042.

Fairburn CJ, Shafran R and Cooper Z (1999) A cognitive-behavioural theory of anorexia nervosa. *Behaviour Research and Therapy* 37(1): 1-13.

Flett GL and Hewitt PL (2002) Perfectionism and stress processes in psychopathology. In: Flett GL, Hewitt PL (eds) *Perfectionism: Theory, Research, and Treatment*, Washington, DC: American Psychological Association, 225-284.

Flett GL, Hewitt PL and Dyck DG (1989) Self-oriented perfectionism, neuroticism and anxiety. *Personality and Individual Differences* 10(7): 731-735.

Flett GL, Baricza C, Gupta A, Hewitt PL and Endler NS (2011) Perfectionism, psychosocial impact and coping with irritable bowel disease: A study of patients with Crohn's disease and ulcerative colitis. *Journal of Health Psychology* 16(4): 561-571.

Frost RO, Marten P, Lahart C and Rosenblade R (1990) The dimensions of perfectionism.

Cognitive Therapy and Research 14(5): 449-468.

Frost RO, Heimberg RG, Holt CS, Mattia JI and Neubauer AL (1993) A comparison of two measures of perfectionism. *Personality and Individual Differences* 14(1): 119-126.

Frost RO, Trepanier KL, Brown EJ, Heimberg RG, Juster HR, Makris GS and Leung AW (1997) Self-monitoring of mistakes among subjects high and low in perfectionism concern over mistakes. *Cognitive Therapy and Research* 21(2): 209-222.

Frost RO, Turcotte TA, Heimberg RG, Mattia JI, Holt CS and Hope DAJ (1995) Reactions to mistakes among subjects high and low in perfectionistic concern over mistakes. *Cognitive Therapy and Research* 19(2): 195-205.

Fry PS and Debats DL (2009) Perfectionism and the five-factor personality traits as predictors of mortality in older adults. *Journal of Health Psychology* 14(4): 513-524.

Fry PS and Debats DL (2011) Perfectionism and other related trait measures as predictors of mortality in diabetic older adults: A six and a half year longitudinal study. *Journal of Health Psychology* 17(7): 1058-1070.

Green DE, Walkey FH, McCormick IA and Taylor AJW (1988) Development and evaluation of a 21-item version of the Hopkins symptom checklist with New Zealand and United States respondents. *Australian Journal of Psychology* 40(1): 61-70.

Hadjistavropoulos H, Dash H, Hadjistavropoulos T and Sullivan TL (2007) Recurrent pain among university students: Contributions of self-efficacy and perfectionism to the pain experience. *Personality and Individual Differences* 42(6): 1081-1091.

Hamachek DE (1978) Psychodynamics of normal and neurotic perfectionism. *Psychology* 15(1): 27-33.

Harari MJ, Waehler CA and Rogers JR (2005) An empirical investigation of a theoretically-based measure of perceived wellness. *Journal of Counseling Psychology* 52(1): 93-103.

Harris PW, Pepper CM and Maack DJ (2008) The relationship between maladaptive perfectionism and depressive symptoms: The mediating role of rumination. *Personality and Individual Differences* 44(1): 150-160.

Hewitt PL and Flett GL (1991a) Perfectionism in the self and social contexts: Conceptualisation, assessment and association with psychopathology. *Journal of Personality and Social Psychology* 60(3): 456-470.

Hewitt PL and Flett GL (1991b) Dimensions of perfectionism in unipolar depression. *Journal of Abnormal Psychology* 100(1): 98-101.

Hewitt PL, Flett GL, Sherry SB, Habke M, Parkin M, Lam RW, McMurtry B, Ediger E, Fairlie P and Stein MB (2003) The interpersonal expression of perfectionism: Perfectionistic self-presentation and psychological distress. *Journal of Personality and Social Psychology* 84 (6): 1303-1325.

Hewitt PL, Flett GL and Turnball-Donovan W (1992) Perfectionism and suicide potential. *British Journal of Clinical Psychology* 31(2): 181-190.

Hill AP and Appleton PR (2011) The predictive ability of the frequency of perfectionistic cognitions, self-oriented perfectionism and socially prescribed perfectionism in relation to symptoms of burnout in youth rugby players. *Journal of Sports Science* 29(7):695-703.

Running head: PERFECTIONISM, ENGAGEMENT IN PREVENTIVE HEALTH BEHAVIOURS AND SELF-CONCEALMENT

Hill RW, McIntire K and Bacherach VR (1997) Perfectionism and the big five factors.

Journal of Social Behaviour and Personality 12(1): 1-15.

Kahn JH and Hessling RM (2001) Measuring the tendency to conceal versus disclose psychological distress. *Journal of Social and Clinical Psychology* 20(1): 41-65.

Kawamura KY and Frost RO (2004) Self-concealment as a mediator in the relationship between perfectionism and psychological distress. *Cognitive Therapy and Research* 28(2): 183-191.

Kawamura KY, Hunt SL, Frost RO and DiBartolo P (2001) Perfectionism, anxiety and depression: Are the relationships independent? *Cognitive Therapy and Research* 25(3):291-301.

Kearns H, Forbes A and Gardiner M (2007) A cognitive-behavioural coaching intervention for the treatment of perfectionism and self-handicapping in a non-clinical population. *Behaviour Change* 24(3): 157-172.

Kelly AE and Achter JA (1995) Self-concealment and attitudes towards counselling in university students. *Journal of Counseling Psychology* 42(1): 40-46.

Komiya N, Good GE and Sherrod NB (2000) Emotional openness as a predictor of college students' attitudes towards seeking psychological help. *Journal of Counseling Psychology* 47(1): 138-143.

Larson DG and Chastain RL (1990) Self-concealment: Conceptualisation, measurement and health implications. *Journal of Social and Clinical Psychology* 9(4): 439-455.

Liebman WM (1978) Recurrent abdominal pain in children: A retrospective study of 119 patients. *Clinical Paediatrics* 17: 149-153.

Leiferman JA and Pheley AM (2006) The effect of mental distress on women's preventive health behaviours. *American Journal of Health Promotion* 20(3): 196-199.

Molnar DS, Reker DL, Culp NA, Sadava SW and DeCourville NH (2006) A mediated model of perfectionism, affect and physical health. *Journal of Research into Personality* 40(5): 482-500.

Molnar DS, Sadava SW, Flett GL and Colautti J (2012) Perfectionism and health: A mediated analysis of the roles of stress, social support and health related behaviours. *Psychology and Health* 27(7): 846-864.

Pacht A (1984) Reflections on perfectionism. *American Psychologist* 39(4): 386-390.

Pavot WG, Diener E, Colvin CR and Sandvik E (1991) Further validation of the satisfaction with life scale: Evidence for the cross-method convergence of well-being measures. *Journal of Personality Assessment* 57(1): 149-161.

Rheaume J, Freeston MH, Ladouceur R, Bouchard C, Gallant L, Talbot F and Vallieres A (2000) Functional and dysfunctional perfectionists: Are they different on compulsive-like behaviours? *Behaviour Research and Therapy* 38(2):119-128.

Rice KG, Ashby JS and Slaney RB (1998) Self-esteem as a mediator between perfections and depression: A structural equation analysis. *Journal of Counseling Psychology* 45(3): 304-314.

Segerstrom SC and Smith TW (2006) Physiological pathways from personality to health: The cardiovascular and immune systems. In: Vollrath ME (eds) *Handbook of Personality and Health*, Chichester, West Sussex: John Wiley and Sons, Ltd, 175-194.

Sherry SB, Hewitt PL, Sherry DL, Flett GL and Graham AR (2010) Perfectionism dimensions and research productivity in psychology professors: Implications for understanding the (mal)adaptiveness of perfectionism. *Canadian Journal of Behavioural Science* 42(4): 273-283.

Shafran R and Mansell W (2001) Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review* 21(6): 876-906.

Slade, P. D. (1982). Towards a functional analysis of anorexia nervosa and bulimia nervosa. *British Journal of Clinical Psychology* 21(3): 167-179.

Slade PD and Owens RG (1998) A dual process model of perfectionism based on reinforcement theory. *Behaviour Modification* 22(3): 372-390.

Slaney RB, Rice KG and Ashby JS (2002) A programmatic approach to measuring perfectionism: The almost perfect scales. In: Flett GL, Hewitt PL (eds) *Perfectionism: Theory, Research, and Treatment*. Washington, DC: American Psychological Association, 63-88.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology* 13:290-312.

Stumpf H and Parker WD (2000) A hierarchical structural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences* 28(5): 837-852.

Terry-Short LA, Owens RG, Slade PD and Dewey ME (1995) Positive and negative perfectionism. *Personality and Individual Differences* 18(5): 663-668.

Thorpe JM, Kalinowski CT, Patterson ME and Sleath BL (2006) Psychological distress as a barrier to preventive care in community-dwelling elderly in the United States. *Medical Care* 44(2): 187-191.

Running head: PERFECTIONISM, ENGAGEMENT IN PREVENTIVE HEALTH
BEHAVIOURS AND SELF-CONCEALMENT

Wei M, Mallinckrodt B, Russell DW and Abraham WT (2004) Maladaptive perfectionism as a mediator and moderator between adult attachment and depressive mood. *Journal of Counseling Psychology* 51(2): 201-212.

Witt WP, Kahn R, Fortuna L, Winickoff J, Kuhlthau K, Pirraglia PA and Ferris T (2009) Psychological distress as a barrier to preventive healthcare among U.S women. *Journal of Primary Prevention* 30(5): 531-547.

TABLES

Table 1

Sample Demographics, Means, Standard Deviations and Reliabilities for all Major Variables

	n	(%)		
Age				
18-29	267	(72.2)		
30-39	56	(15.1)		
40-49	33	(8.9)		
50-59	11	(3)		
60+	3	(0.8)		
Marital Status				
Single	269	(70.3)		
Living with partner	31	(8.4)		
Married	66	(17.8)		
Separated	8	(2.2)		
Divorced	5	(1.4)		
Level of Study				
Undergraduate	164	(44)		
Postgraduate	188	(51)		
Not specified	18	(5)		
Variables	(M)	(SD)	(α)	
ADAPT-PERF (PS and O)	45.42	8.41	0.88	
MAL-PERF (CM and DA)	34.90	9.12	0.89	
Self-Concealment (SCS)	27.96	8.74	0.89	
Engagement in Preventive Health Behaviour	31.9	8.30	0.84	
Psychological Distress (HSCL-21)	37.55	9.88	0.90	
Well-being (WHO-5)	12.55	6.96	0.87	
Life-Satisfaction (SWLS)	22.14	6.96	0.88	

