Perfectionism, Maladaptive Self-presentation and Suicide Ideation in Male Retirees
Abstract

Perfectionism is a multifaceted trait that can be conceptualized by three distinguished dimensions: Self-oriented Perfectionism, Other-oriented perfectionism and Socially Prescribed Perfectionism. Perfectionists engage in maladaptive self-presentation styles, such as self-promotion, nondisplay and nondisclosure to maintain their appeared perfection. Previous research has established the association between trait perfectionism and suicide behaviors. I would suggest that perfectionistic male retirees would be particularly vulnerable to suicide ideation due to stress brought by retirement and a lack of social support caused by perfectionists’ nondisclosure tendencies. I investigated whether and how trait and self-presentational components of perfectionism predict suicide ideation following retirement. A total of 92 mentally and physically healthy male retirees completed measures of perfectionism, self-worth and suicide ideation at Time 1 before their retirement, and measures of nondisclosure, relationship specific worry, perceived stress and suicide ideation at Time 2 five months later. The results showed that socially prescribed perfectionism and all three perfectionistic self-presentational components were strongly correlated with depression, hopelessness, subjective sense of alienation and perceived stress. Mediation analysis suggested that the socially prescribed perfectionism indirectly led to suicide ideation through nondisclosure then subjective social disconnection, $d = .002$ with CI.95 = [.0004, .01]. A moderated mediation model revealed that the indirect pathway of suicide ideation was enhanced by contingency self-worth from others’ approval and subjective stress, $d = .0029$ with CI.95 = [.0001, .01]. That is, for retirees who felt that others demanded perfection from them, the more they based their self-worth on others’ approval, the more they tended to engage in nondisclosure, which led to subjective sense of alienation. Consequentially, subjectively disconnected retirees with higher levels of stress are more likely to develop suicide ideation compared to retirees with lower levels of stress. Interventions that promote help seeking behaviors could be critical in suicide prevention among male retirees.
Suicide is a significant problem in the United States. Heron et al. (2008) reported that suicide was the 11th leading cause of death in the United States in 2006, accounting for 33,300 deaths. The suicide rate among male seniors are exceptionally high: black men experience the second suicide peak at old age whereas suicide rate of white men peaks at the oldest group over 45 per 100,000 per year, almost four times the nation's overall age adjusted rate of 11.5 per 100,000 per year (Conwell, Orden, & Caine, 2011). Case controlled studies have established several significant suicide risk factors such as physical illness (Juurlink, Herrmann, Szalai, Kopp, & Redelmeier, 2004), cognitive deficit (Dombrovski et al., 2008), mental illness (Waern, Rubenowitz, & Wilhelmson, 2003), and especially mood disorder (Conwell et al., 2009). Because of the somewhat slow progress in this area, researchers are urged to go beyond medical models and consider integrative models that address interpersonal factors (Prinstein, 2008).

Past and present theorists have postulated the disruption in interpersonal relationship as a suicide risk factor (Baumeister & Leary, 1995; Joiner, 2005; Van Orden et al., 2010). Studies using psychological autopsy have demonstrated that impaired interpersonal relationship often precedes suicide (e.g., Miller, 1977). Case controlled studies also provide support for the relationship between impairment in interpersonal relationship and suicide behavior (Duberstein, Conwell, Conner, Eberly, Evinger, & Caine, 2004; Rubenowitz, Waern, Wilhelmson, & Allebeck, 2001). There is also evidence suggesting that a lack of interpersonal interaction increases suicide risk beyond physical and mental risk factors (Beautrais, 2002).

Perfectionism has been linked to suicide because of its interpersonal nature. Baumeister (1990) proposed that suicide is sought as a mean to escape overwhelming distress caused by a perfectionist’s inability to fulfill extremely high standard that others seemingly demand. Hewitt and Flett (1993a; 2002) proposed that perfectionism could create, enhance and prolong
interpersonal stressors that lead to severe maladjustment such as suicide potential. Most recently, Hewitt and colleagues (2006) have established perfectionism as interpersonal risk factor of suicide in a model that incorporates the interpersonal components of perfectionism, impairment of social relationship and suicide behavior, known as the Perfectionism Social Disconnection Model (PSDM).

**Perfectionism**

There is general consensus that perfectionism is a multidimensional personality construct and several models have been proposed to capture perfectionism (e.g., Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991b; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Our model emphasises on the interpersonal underpinning of perfectionism and we describe perfectionism as dispositional traits (Hewitt & Flett, 1991b), interpersonal presentational styles (Hewitt et al., 2003) and cognitive components (Flett, Hewitt, Blankstein, & Gray, 1998). Perfectionism traits reflect the need to be perfect and consist of self-oriented perfectionism (SOP, i.e., demand perfection of self), other-oriented perfectionism (OOP, i.e., demand perfection of others), and socially prescribed perfectionism (SPP, i.e., perceive that others demand perfection of oneself). Since perfection cannot be achieved, perfectionists tend to engage in Perfectionistic Self Presentation (PSP) in an attempt to appear perfect. PSP includes three distinct interpersonal facets: perfectionistic self-promotion (i.e., actively promote one’s supposed perfection), nondisplay of imperfection (i.e., avoid displaying one’s imperfection), and nondisclosure of imperfection (i.e., avoid disclosing one’s imperfection; Hewitt et al., 2003).

Studies have shown that the trait perfectionism and self-presentational styles are independent and differentially associated with various kinds of distress and disorders such as low level of social self-esteem (Flett, Hewitt, & De Rosa, 1996), social anxiety (Nepon, Flett, Hewitt,
Perfectionism, Maladaptive Self-presentation and Suicide Ideation in Male Retirees

& Molnar, 2011), depressive symptoms (Sherry, Law, Hewitt, Flett, & Besser 2008), and eating disorder symptoms (McGee, Hewitt, Sherry, Parkin, & Flett, 2005). The most severe outcome of perfectionism is suicide and literature has shown strong association between SPP, but not SOP or OOP, and suicide outcomes (O’Connor, 2007). For example, there is strong correlational evidence that SPP is associated with suicide ideation (Dean & Range, 1996; Hewitt, Flett, & Weber 1994; Hewitt, Newton, Flett, & Callender, 1997). Similarly, Klibert, Langhinrichsen-Rohling, & Saito (2005) showed that SPP was positively correlated with suicidality irrespective of method of assessment. Furthermore, SPP predicted unique variance of suicide threat and suicide intention over and beyond hopelessness and depression (Hewitt, Flett, & Turnbulldonovan, 1992; Dean, Range, & Goggin, 1996). In terms of suicide attempts, Hunter and O’Connor (2003) found that SPP predicted parasuicides above and beyond the effects of hopelessness, depression and anxiety. Finally, adult inpatients with alcoholism that made serious suicide attempt were marked with elevated levels of SPP and low levels of OOP (Hewitt, Norton, Flett, Callender, & Cowan, 1998).

The Perfectionism Social Disconnection Model

Although the evidence of maladaptive nature of trait and self-presentation perfectionism has been accumulating, a comprehensive theory is needed to account for mechanisms by which trait perfectionism manifests itself into maladaptive outcomes. Hewitt and Flett (2002) proposed that perfectionism could interact with environmental stressors and lead to psychological distress through stress enhancement, stress anticipation, stress generation and stress perpetuation. These ideas were extended into the Perfectionism Social Disconnection Model (PSDM, Hewitt et al., 2006). According to the PSDM, individuals with excessive interpersonal perfectionism are motivated by excessive needs to be connected and belong with others. However, socially
prescribed perfectionists exhibit interpersonal hostility (Habke & Flynn, 2002; Hewitt et al., 2003) and this interpersonal aggressiveness creates difficulties in establishing and maintaining social relationships and leads to objective social disconnection (i.e., the perfectionistic individual is not liked or cared for by others). In addition, socially prescribed perfectionists are characterized by their interpersonal sensitivity (Hewitt & Flett, 1991). Because of their insecure attachment (Chen et al., 2012), excessive neediness (Sherry et al., 2003) and sensitivity to criticism; (Gilbert, Durrant, & McEwan, 2006), socially prescribed perfectionists could misinterpret the environment and develop feelings of alienation and subjective social disconnection (i.e., the perfectionistic individual feels rejected and excluded). As a result of both objective and subjective interpersonal disconnection, perfectionistic individuals are likely to experience psychological distress such as social anxiety, depressive symptoms, and suicidal ideation (Baumeister & Leary, 1995).

There have not been many direct tests of this relatively new model, though there is some indirect evidence. For example, socially prescribed perfectionism and the three PSP facets, but not self-oriented perfectionism, are associated with fear of negative evaluation (Flett et al., 1996), excessive sensitivity to criticism (Gilbert, Durrant, & McEwan, 2006), and dependent attitudes, such as need for admiration and desire to please others (Hewitt et al., 2003; Sherry, Hewitt, Flett, & Harvey, 2003). In addition, there is evidence that interpersonal components of perfectionism are associated with interpersonal problems and problematic relationships that affects social connection. For example, Habke and Flynn (2002) showed that students with elevated SPP fall in the hostile dominant quadrant of the interpersonal circumplex as do the PSP facets for men. Women high in PSP tend to fall in the hostile submissive quadrant (Hewitt et al., 2001). Also, Flett, Hewitt, Garshowitz, & Martin (1997) showed that SPP was associated with negative social
interactions including overt criticisms, lack of recognition and betrayal of others. More directly, Hewitt et al. (2008) showed that clinicians who had conducted initial clinical interviews with patients, disliked patients with higher levels of the PSP facets more than patients with lower levels of PSP. Lastly, there is certainly long standing support for the link between social disconnection and suicide tendency (see Heinrich & Gullone, 2006). For example, Joiner (2005) proposed that social disconnection and a lack of belongingness are important in producing suicidal behavior. Also, Levi-Bes et al., (2008) demonstrated that subjective social disconnection caused by a lack of self-disclosure to intimate others is associated with compromised coping capacity, and seriousness of the suicide attempts. Moreover, Levi-Bes et al., (in press) utilized path analysis to show that subjective sense of social disconnection such as loneliness and sense of alienation mediated the paths between both anxious and avoidant attachment patterns and suicide lethality.

In a more direct test of the objective social disconnection part of the PSDM, Nepon et al., (2011) found that the relationship between nondisplay of imperfection and depressive symptoms were mediated by negative social feedback suggesting that nondisplay of imperfection may have led to objective social animosity which then produced depressive symptoms. Similarly, there is evidence that although SPP and PSP facets are motivated by excessive need to belong and fear of rejection, others seem to be able to see through the façade and as a result, dislike the perfectionists (Hewitt et al., 2008). Moreover, Roxborough et al., (2012) showed that a marker of objective social disconnection (i.e., being bullied) mediated the relationship between nondisplay of imperfection and suicide potential. In terms of subjective social disconnection part of the model, Sherry et al., (2008) showed that the relationship between SPP and depression symptoms in a university student sample was mediated by perceived social support suggesting that
individuals high in SPP believed they received less social support resulting in increased depression symptoms. Similarly, Roxborough et al., (2012) found in a sample of adolescent psychiatric patients that a marker of subject social disconnection (i.e., social hopelessness) mediated the relationship between all facets of PSP and suicide ideation suggesting that, in adolescents, PSP may have led to subjective social disconnection which then produced suicide ideation.

Present Study

The purpose of current study is two-fold: first, we wish to test and expand the validity of the PSDM in relation to suicide ideation with a community sample consists of recent male retirees. Second, we hope to take a closer look within the PSDM and study detailed pathways through which SPP leads to suicide ideation. Most research of the PSDM utilized either college students sample or psychiatric sample. Such samples are adequate in model testing but have several drawbacks. For example, the effect size derived from student samples tend to differ from non-student sample and the relatively low risk of the student sample could make the findings less generalizable (Peterson, 2001). The psychiatric sample offers insights in the high risk population, but relationship between suicide ideation and social factors cannot be studied in isolation since mental illness is also a major compounding risk factor (Juurlink et al., 2004; Waern et al., 2003). Such methodological difficulties could be resolved by using a sample of high-risk, non-clinical sample. To study the relationship between perfectionism, social stressors and suicide ideation, we recruited recent retirees because retirement process could be potentially stressful (Solinge, 2008). We restricted participation to males due to their elevated suicide risk compared to their female counterpart (Conwell et al., 2011; Coren & Hewitt, 1999). Retirees with other major suicide risks, such as mental or physical illness, were excluded so the interpersonal factors
could be isolated and tested in relation with perfectionism and suicide ideation. This use of male retiree sample not only could expand the validity and generalizability of the PSDM, but also has potential to shed some light on the exceptional high suicide rate of male seniors. In order to test the subjective portion of the PSDM, we utilized a two-wave design to assess the relationships concurrently and longitudinally and the latter will allow detection of change in the outcomes as well as an appropriate temporal test of the meditational model (Baron & Kenny, 1986). We hypothesized that SPP at time 1 will lead to subjective feeling of social disconnection at time 2, which then leads to concurrent suicide ideation (Figure 1).

The overall model places emphasis on individual trait (i.e., SPP) and cognitive characteristic (i.e., interpersonal sensitivity) in leading to subjective social disconnection (Hewitt et al., 2006). We wanted to take a closer look at the pathway between SPP and subjective social disconnection because it is not entirely clear how individuals’ characteristics might lead to subjective feeling of disconnection. In an effort to emphasize the interaction between individual and his or her surrounding environment, we propose that PSP-nondisclosure, an interpersonal behaviour style, as the mediating step between SPP and subjective social disconnection (Figure 2). By definition, failure to disclose to intimate others could be considered as a self-initiated action of social disconnection between the individual and his or her environment. Such model also enjoys support from literature. For example, there is a strong correlational evidence suggesting SPP is associated with PSP-nondisclosure (Hewitt et al., 2003) and failure to disclose is closely associated with social alienation and feeling of loneliness (Levi et al., in press). Chen and her colleagues (2012) directly showed that nondisclosure mediated the relationship between insecure attachment style, which is closely associated with SPP (Rice & Mirzadeh, 2000), and subjective social disconnection.
Contingence self-worth from others’ approval was proposed as the moderator for the relationship between SPP and nondisclosure. In the PSDM, both SPP and nondisclosure are theorized to be motivated by powerful and excessive interpersonal need to be accepted and approved of (Hewitt et al., 2006). Empirical study showed that dependent attitude, such as basing self-worth on others’ approval, was positively correlated with SPP in psychiatric patients and university students (Sherry, Hewitt, Flett, & Harvey, 2003). Since SPP is related to interpersonal sensitivity such as heightened reaction to criticism (Gilbert et al., 2006) and evaluative concerns, perfectionism is strongly associated with contingent self-worth (Sturman, Flett, Hewitt, & Rudolph, 2008), we speculated that contingent self-worth from others’ approval moderate the relationship between SPP and nondisclosure (Figure 3, a path). That is, for perfectionists who perceive others demand perfection of themselves, the more they based their self-worth on others’ opinion, the less they will disclose their shortcomings in an attempt to protect the sensitive and fragile self.

Subjective stress was proposed as the moderator for the relationship between subjective social disconnection and suicide ideation. Adjustment to the loss of the work role and the social ties during retirement process is stressful (Solinge, 2008), and retirees who feel lonely and sense of alienation could be especially vulnerable to these social stressors due to diminished social support (Levi et al., 2008), passive coping strategies (Cacioppo et al., 2000a) and heightened stress reactivity (Cacioppo et al., 2002a). Thus, stress could interact with subjective feelings of social disconnection in leading to suicide ideation (Figure 3, b2 path). That is, subjectively social-disconnected people who experience high levels of stress are more likely to develop suicide ideation compared to the same people with low levels of stress.
To recap, the theoretical model predicts that:

1) Subjective social disconnection mediates the relationship between SPP at time1 and suicide ideation at time2 (Figure1).

2) The relationship between SPP and suicide ideation is theorized to be mediated through nondisclosure then subjective social disconnection (Figure 2).

3) The relationship between socially prescribed perfectionism and nondisclosure is hypothesized to depend on contingence of self-worth from others’ approval whereas the relationship between subjective social disconnection and suicide ideation is hypothesized to depend on the level of perceived stress (Figure 3). Thus the indirect effect of SPP on suicide ideation is conditional on the level of contingence self-worth and perceived stress.

**Method**

**Participants**

The initial sample was composed of 90 male retirees recruited from metro Vancouver area. The age of the participants ranged from 43 to 80 ($M = 59.65, SD = 5.17$). The sample was composed of 71 Whites (78.8%), 6 Asians (6.6%), and 13 people (14.4%) who did not specify their ethnicity. Seventy-two (82.2%) participants were married; five (5.6%) were single; seven (7.8%) were separated or divorced; two (2.2%) were widowed, and two (2.2%) did not report their marital status. The highest education levels of participants are high school (14%), technology school (17%), university (45%), and graduate or professional school (24%). The majority of the participants reported voluntary retirement (73%). There were no significant differences between retirees who voluntarily retired and retirees who were forced into retirement in terms of age, education level, perfectionism, and suicide ideation.
Perfectionism, Maladaptive Self-presentation and Suicide Ideation in Male Retirees

Measures

*Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991b).* The MPS is a 45-item instrument that contains three subscales that measure self-oriented, other-oriented, and socially prescribed perfectionism. Each subscale contains 15 items, which are scored on a 7-point Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree”. The scores of individual subscale range from 15 to 105 and high scores indicate elevated perfectionism. The reliability, validity and multidimensionality of the MPS have been demonstrated in both clinical and non-clinical samples (Enns & Cox, 2002; Hewitt & Flett, 2004).

*Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al., 2003).* The PSPS is a 27-item instrument that contains three subscales measuring self-promotion, nondisplay of imperfection, and nondisclosure of imperfection. The self-promotion and nondisplay subscale each contains 10 items and the nondisclosure subscale contains 7 items. All items are scored on a 7-point Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree”. The scores of self-promotion and nondisplay subscale range from 10 to 70 and the score of nondisclosure subscale range from 7 to 49. In general, high scores indicate elevated levels of perfectionistic self-presentation. The reliability and validity of PSPS has been documented (Hewitt et al., 2003).

*Worry Domains Questionnaire (WDQ; Tallis, Eysenck, & Mathews, 1992).* The WDQ is a 25-item scale that measures domain specific worries (e.g. relationship, work incompetence, and lack of confidence etc.). The relationship sub-scale is used as an indicator for subjective social disconnection since the subscale taps into feelings of loneliness and subjective worry about interpersonal relationship. The scale was designed for use on a nonclinical adult population and the reliability and validity of the subscale has been documented (Rijsoort, Emmelkamp, & Vervaeke, 1999).
Scale for Suicide Ideation (SSI; Beck, Steer, & Ranieri, 1988). The SSI is a 19-item scale that measures themes such as wish to die, thought of active and passive attempt, frequency and attitude toward ideation, capacity and planning, and final acts. Total score is the sum of all 19 items and can range from 0 (low ideation) to 38 (high ideation). SSI is a widely used suicide measurement and several studies have documented its reliability and validity (Beck, Kovacs, & Weissman, 1979; Clum & Curtin, 1993).

Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS is a 14-item self-report measure of nonspecific perceived stress. All items are scored on a 5-point Likert scale ranging from 0 “never” to 4 “very often”. Seven items are reverse scored and individual items are summed to calculate final score with higher scores reflecting greater perceived stress. PSS is a widely used measure and several studies have supported its reliability and validity (Cohen et al, 1983; Hewitt, Flett, & Mosher, 1992).

Contingencies of Self-Worth (CSW; Crocker, Luhtanen, Cooper, & Bouvrette, 2003). The CSW is a 35-item self-report measure that contains seven domain specific sub-scales such as “others’ approval”, “appearance”, “competition”, “academic competence”, “family support”, “virtue”, and “god’s love”. Others’ approval subscale is used to measure self-worth derived from approval and acceptance of others. All five items within the subscale are scored on a 7-point Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree”. Three items are reverse scored and individual items are summed to calculate final score with higher scores reflecting greater contingency of self-worth based on others’ view of the self. The reliability and validity of the subscale has been demonstrated (Crocker et al., 2003).
Perfectionism, Maladaptive Self-presentation and Suicide Ideation in Male Retirees

Procedure

Based on power analysis, 71 participants are needed to achieve power of 0.8 with 5% type I error rate if bias corrected bootstrapping is used to carry out mediational analysis with medium effect size for both a path and b path (Fritz & MacKinnon, 2007; Preacher & Hayes, 2008). Therefore, assuming it is possible to retain 70% of the sample recruited at Time 1, at least 101 participants are needed at Time 1 to achieve reasonable statistical power for the mediational analysis with longitudinal data.

118 recently retired male retirees were initially recruited through newspaper advertisement; Participants were mailed the MPS and SSI, and a consent form indicating that retirees who retired due to physical or mental illness were not eligible for the study. A total of 94 packages were returned; 4 participants later decided not to participate, leaving a total of 90 participants. Five months later, the participants were sent the PSPS, WDQ, CSW, PSS and SSI. A total of 75 packages were returned and four packages were dropped due to excessive missing data, leaving a total of 71 participants for both time1 and time2. Participants who completed both Time1 and Time2 packages received $15.00 honorarium for their participation.

Data Analysis Strategies

Missing data was handled by conservative list-wise deletion since the missing at random (MAR) requirement for multiple imputations (MI) was not fully met (Sterne et. al., 2009). In order to test the moderation effects of perceived stress and self-worth derived from others’ approval, regression analyses were used to calculate the standardized simple slope and t statistics. Bootstrapping procedures were used to construct confidence intervals of standardized effect size.

---

1 The 15 participants who didn’t complete Time 2 measures did not differ from the 71 participants who completed the Time 2 measures in terms of demographic variables, perfectionism traits or suicide ideation.
since standardized regression coefficients are not normally distributed (Kelley, 2005).

Bootstrapping resamples the original data with replacement to create 19999 bootstrap samples; statistics of interest were computed for each bootstrap sample and an empirical confidence interval was constructed based on all available resamples. The ratio of the obtained indirect effect to the maximum possible indirect effect was computed following procedure listed by Preacher and Kelley (2011). This effect size was only calculated for simple mediation in Figure 1 since no viable procedure is available for chain mediation or moderated mediation.

To examine the conditioned mediation model, we followed the path analysis procedures outlined in Preacher, Rucker, and Hayes (2007; note that the present model conforms to Model 4 in Figure 2). This method was chosen in an attempt to estimate effect size of mediational relationship beyond qualitative description (Rucker, Preacher, Tormala, & Petty, 2011). The point estimates of conditional effect sizes were calculated by multiplying standardized coefficients of both a path, b1path, and b2 path under all possible conditions. Confidence intervals were constructed by bootstrapping with accelerated bias correction method (Cheung, 2009). Suicide ideation at Time1 was controlled for all analysis for suicide ideation at Time 2. Age was statistically controlled in b path since longitudinal study with large sample size suggested that age was related to suicide ideation (Kuo, Gallo, & Tien, 2001). R is used for all statistical computations.

Results

Means, standard deviations, coefficients alpha, and zero-order correlations are presented in Table 1. Means and standard deviations approximated past studies that utilized the MPS (Hewitt & Flett, 1991b), PSPS (Hewitt et al., 2003), and CSW (Crocker et al., 2003). However, the mean of PSS (M = 16.94, SD = 9.61) was lower than reported by Cohen et al. (1983) for two
college student samples (M = 23.18 and 23.67) and for a community sample (M = 25.0). The mean SSI at Time 1 and Time 2 were 0 and 0.1 respectively, which were substantially lower than other community sample (M = 2.43) consisted of older adults (e.g., Miller, Segal, & Coolidge, 2001). Coefficients alpha ranged from .53 to .93. Both SSI at Time 1 and Time 2 had lower coefficients alpha than in previous research (Beck et al., 1988). Finally, after adjusting significance level for multiple comparisons (Holm, 1979), SPP was significantly correlated with nondisclosure, perceived stress, and relationship specific worry. In addition, Perceived stress and relationship specific worry were significantly correlated with suicide ideation at Time 2 (r = .41, p < .01; r = .50, p < .01 respectively).

Mediational Analyses

Consistent with our hypothesis, the relationship between SPP and suicide ideation was mediated by relationship specific worry, standardized indirect effect size $d = .01$ with CI$_{95} = [.002, .022]$. In other words, one standard unit change in SPP led to an average .01 standard deviation increase in suicide ideation through relationship specific worries. The ratio of the obtained indirect effect to the maximum possible indirect effect was calculated, $\kappa^2 = .221$ (Figure 4) with 95% CI [.092, .440]. Since the confidence interval excluded .09, a medium indirect effect size was achieved (Preacher & Kelley, 2011). In addition, the indirect effect of SPP on suicide ideation through nondisclosure then relationship specific worry was significant, $d = 0.002$ with CI$_{95} = [.0004, .01]$. That is, one standard unit change in SPP led to an average .002 standard deviation increase in suicide ideation through nondisclosure then relationship specific worries.

Moderated Mediation Analyses

---

2 500 bootstrap re-samples were used to construct the confidence interval via percentile bootstrapping.
Consistent with the expectation, the relationship between socially prescribed perfectionism and none-disclosure was significantly moderated by amount of self-worth derived from others’ approval, interaction $b^* = .31$ with CI$_{95} = [.07, .48]$, $t(66) = 3.81$, $p < .001$. For participants one standard deviation above the mean of contingency of self-worth, there was a strong relationship between socially prescribed perfectionism and nondisclosure, $b^* = .69$ with CI$_{95} = [.51, .89]$, $t(66) = 5.82$, $p < .001$. For participants on the mean level of contingency of self-worth, there was a moderate relationship between socially prescribed perfectionism and nondisclosure, $b^* = .38$ with CI$_{95} = [.19, .60]$, $t(66) = 3.90$, $p < .001$. In contrast, for participants one standard deviation below the mean of contingency of self-worth there was a non-significant relationship between socially prescribed perfectionism and nondisclosure, $b^* = .07$ with CI$_{95} = [-.21, .50]$, $t(66) = .54$, $p > .05$. Figure 5 provides a graphical representation of this interaction.

The association between relationship specific worry and suicide ideation was significantly moderated by perceived stress while controlling for SPP and nondisclosure, interaction $b^* = .23$ with CI$_{95} = [-.06, .91]$, $t(64) = 2.36$, $p < .05$. For participants one standard deviation above the mean of perceived stress, there was a significant relationship between relationship specific worry and suicide ideation, $b^* = .41$ with CI$_{95} = [.01, 1.11]$, $t(64) = 2.87$, $p < .01$. In contrast, for participants on average level of perceived stress there was a non-significant relationship between nondisclosure and suicide ideation, $b^* = .18$ with CI$_{95} = [.06, .99]$, $t(64) = 1.08$, $p > .05$. For participants one standard deviation below the mean of perceived stress there was a non-significant relationship between nondisclosure and suicide ideation, $b^* = -.05$ with CI$_{95} = [-.66, 1.14]$, $t(64) = -.02$, $p > .05$. Regression diagnosis discovered the existence of moderate multicollinearity, $5 < VIF_{PSS}, VIF_{nda} < 10$. This multicollinearity could explain the
discrepancy between t statistics and empirically constructed confidence intervals. Figure 6 provides a graphical representation of this interaction.

Since self-worth moderates the relationship between SPP and nondisclosure (path a in Figure 3) and perceived stress moderates the association between relationship specific worry and suicide ideation while controlling for SPP and nondisclosure (path b2 in Figure 3), the magnitude of the indirect effect depends on the levels of both self-worth and perceived stress. For participants one standard deviation above the mean level of contingency of self-worth and one standard deviation above the mean level of perceived stress, the indirect effect of SPP on suicide ideation through nondisclosure then relationship specific worry was significant, \( d = .003 \) with CI\textsubscript{95} = [.001, .01]. For participants on the mean level of contingency of self-worth and one standard deviation above the mean level of perceived stress, the indirect effect was also significant, \( d = .0016 \) with CI\textsubscript{95} = [.001, .006]. In contrast, the indirect effects were not significant in all other conditions (Table 2). In sum, indirect effect was only significant when perceived stress is one standard deviation above the mean. As contingency self-worth from others’ approval increases, the magnitude of the indirect effect increases significantly. None of the other PSP facets mediated this relationship in all conditions.

**Discussion**

The results provided strong support for the Perfectionism Social Disconnection Model. The standardized indirect effect size in the chain mediation model is relatively small but significant. The small effect size has to be interpreted in the content of small sample size and inherited multicollinearity caused by strongly correlated predictor variables. By employing path analysis, we demonstrated that trait perfectionism indirectly led to suicide ideation through
Perfectionistic self-presentation and subjective sense of social disconnection. That is, by concealing shortcomings, perfectionists’ attempt to connect with others ironically leads to a subjective sense of disconnection. This disconnection, especially when combined with external stress, in turn leads to suicide ideation.

The retirees in our sample were mentally and physically healthy, and they scored low on distress measures compared to other community sample. However, perfectionism elevated their suicide ideation significantly in merely five months. The increased stress and distress level also makes the retirement process challenging. If resource allows, interventions need to focus on the cause of retirement maladjustment, namely trait perfectionism, instead of symptoms. The community could also establish outreach programs to encourage help seeking behaviours among stressed male retirees, especially retirees who are reluctant to seek help due to their perfectionism tendencies.
References


Conceptualization, assessment, and association with psychopathology. *Journal of personality and social psychology, 60*(3), 456–70.

Toronto, ON: Multi-Health Systems Inc.


Table 1

Means, Standard Deviations, Coefficients Alpha, and Zero-Order Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>SOP</th>
<th>OOP</th>
<th>SPP</th>
<th>SP</th>
<th>DSPY</th>
<th>DISC</th>
<th>WDQ</th>
<th>CSW</th>
<th>PSS</th>
<th>SSI1</th>
<th>SSI2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP</td>
<td>--</td>
<td>0.77*</td>
<td>0.69*</td>
<td>0.67*</td>
<td>0.48**</td>
<td>0.50**</td>
<td>0.30</td>
<td>0.19</td>
<td>0.26</td>
<td>--</td>
<td>0.16</td>
</tr>
<tr>
<td>OOP</td>
<td>--</td>
<td>0.54**</td>
<td>0.55**</td>
<td>0.38*</td>
<td>0.38*</td>
<td>0.31</td>
<td>0.19</td>
<td>0.24</td>
<td>--</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>SPP</td>
<td>--</td>
<td>0.52**</td>
<td>0.52**</td>
<td>0.48**</td>
<td>0.44**</td>
<td>0.20</td>
<td>0.41*</td>
<td>--</td>
<td>0.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>--</td>
<td>0.79**</td>
<td>0.79**</td>
<td>0.40*</td>
<td>0.35**</td>
<td>0.36*</td>
<td>--</td>
<td>0.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSPY</td>
<td>--</td>
<td>0.78**</td>
<td>0.50**</td>
<td>0.50**</td>
<td>0.59**</td>
<td>--</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISC</td>
<td>--</td>
<td>0.45**</td>
<td>0.29</td>
<td>0.49**</td>
<td>--</td>
<td>0.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WDQ</td>
<td>--</td>
<td>0.26</td>
<td>0.63**</td>
<td>--</td>
<td>0.50**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSW</td>
<td>--</td>
<td>0.35*</td>
<td>--</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSS</td>
<td>--</td>
<td>--</td>
<td>0.41**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>60.17</td>
<td>51.14</td>
<td>44.08</td>
<td>35.76</td>
<td>35.37</td>
<td>21.65</td>
<td>7.32</td>
<td>4.33</td>
<td>16.94</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>SD</td>
<td>16.99</td>
<td>11.75</td>
<td>12.88</td>
<td>12.96</td>
<td>12.19</td>
<td>7.64</td>
<td>3.09</td>
<td>1.18</td>
<td>9.61</td>
<td>0</td>
<td>0.45</td>
</tr>
<tr>
<td>α</td>
<td>0.91</td>
<td>0.80</td>
<td>0.85</td>
<td>0.91</td>
<td>0.89</td>
<td>0.84</td>
<td>0.85</td>
<td>0.74</td>
<td>0.93</td>
<td>N/A</td>
<td>0.56</td>
</tr>
</tbody>
</table>

Note. * p < .05. ** p < .01. Significance levels are adjusted for multiple testing (Holm, 1979).

SOP = self-oriented perfectionism; OOP = other-oriented perfectionism; SPP = socially prescribed perfectionism; SP = self-promotion; DSPY = nondisplay; DISC = nondisclosure; SSI = suicide ideation; WDQ = worry domain questionnaire, relationship; CSW = contingency of self-worth, others’ approval; PSS = perceived stress. M = means; SD = standard deviations; α = coefficients alpha.
Table 2

*Moderated Mediation Analysis and Confidence Interval*

<table>
<thead>
<tr>
<th>CSW (a path)</th>
<th>PSS (b2 path)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>.95 CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High</td>
<td>.0029</td>
<td>.0027</td>
<td>[.0001, .0104]*</td>
</tr>
<tr>
<td>Medium</td>
<td>High</td>
<td>.0013</td>
<td>.0016</td>
<td>[-.0003, .0084]</td>
</tr>
<tr>
<td>Low</td>
<td>High</td>
<td>.0003</td>
<td>.0030</td>
<td>[-.0061, .0066]</td>
</tr>
<tr>
<td>High</td>
<td>Medium</td>
<td>.0015</td>
<td>.0016</td>
<td>[.0001, .0060]*</td>
</tr>
<tr>
<td>Medium</td>
<td>Medium</td>
<td>.0007</td>
<td>.0009</td>
<td>[-.0002, .0048]</td>
</tr>
<tr>
<td>Low</td>
<td>Medium</td>
<td>.0002</td>
<td>.0018</td>
<td>[-.0036, .0037]</td>
</tr>
<tr>
<td>High</td>
<td>Low</td>
<td>.0003</td>
<td>.0011</td>
<td>[-.0009, .0041]</td>
</tr>
<tr>
<td>Medium</td>
<td>Low</td>
<td>.0001</td>
<td>.0005</td>
<td>[-.0002, .0029]</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
<td>.0000</td>
<td>.0001</td>
<td>[-.0025, .0012]</td>
</tr>
</tbody>
</table>

Note. * Confidence interval does not cross zero. The estimates are standardized indirect effect size. High = +1 SD, Medium = mean, Low = -1 SD.
Figure 1. Theoretical Model for Subjective Social Disconnection

Subjective Disconnection

Socially Prescribed Perfectionism  
Suicide Ideation

*Figure 1. Subjective Social Disconnection Mediating Relationship between Social Prescribed Perfectionism and Suicide Ideation.*

Figure 2. Theoretical Model for Two-Step Mediation

Nondisclosure

Socially Prescribed Perfectionism  
Suicide Ideation

*Figure 2. The Chain Mediation Model Being Tested. The Link Between Socially Prescribed Perfectionism and Suicide Ideation Is Mediated through Nondisclosure then Subjective Social Disconnection.*
Figure 3. The Moderated Mediation Model Being Tested. The link between Socially Prescribed Perfectionism and Suicide Ideation is mediated through Nondisclosure then Subjective Social Disconnection. Path a is moderated by Contingency Self-worth from Others’ Approval and Path b2 is moderated by Perceived Stress.
Figure 4. Effect Size for Mediation Analysis

\[ \text{max possible } c = 0.0351 \]
\[ \text{observed } c = 0.0064 \]
\[ \text{observed } c' = -0.0016 \]
\[ ab = 0.008 \]

*Figure 4*. Ratio between achieved indirect effect and maximum indirect effect. Graph generated by R syntax developed by Kelly 2011.
Figure 5. Simple Slope Analysis for Path a

Self-worth as a Moderator of MPS

Figure 5. Simple Slopes for the Interaction between Socially Prescribed Perfectionism and Contingence Self-Worth in Predicting Nondisclosure.
Figure 6. Simple Slope Analysis for Path b2

Figure 6. Simple Slopes for the Interaction between Relationship Specific Worry and Perceived Stress in Predicting Suicide Ideation.