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A Person-Oriented Approach to Multidimensional Perfectionism: Perfectionism Profiles in Health and Well-Being

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Abstract:	Advances in understanding of the perfectionism construct have been limited by an almost exclusive reliance on a variable-centered approach. This study utilized a person-oriented approach to examine Hewitt and Flett's (1991) conceptualization of multidimensional perfectionism in relation to health and well-being. Levels of conscientiousness, extraversion, and neuroticism were also assessed. Cluster analyses were employed to examine within-person configurations of self-oriented, other-oriented, and socially prescribed perfectionism in university students (n = 538) and adults with chronic illness (n = 773). Five unique configurations were found in both samples and three clusters replicated across samples. "Extreme perfectionists" with high scores across all perfectionism dimensions reported relatively poor physical health, psychological health, psychosocial resources, and well-being along with elevated neuroticism and conscientiousness. A group distinguished by elevated socially prescribed perfectionism also reported relatively poorer outcomes along with elevated neuroticism and lower conscientiousness. In contrast, "non-perfectionists" reported relatively elevated levels of health and well-being. These profiles differed in their links with health and well-being even after taking into account key differences in conscientiousness and neuroticism. Our results illustrate the importance of employing a person-oriented approach to the study of multidimensional perfectionism, especially as it relates to physical health, mental health, and subjective well-being.

Abstract

Advances in understanding of the perfectionism construct have been limited by an almost exclusive reliance on a variable-centered approach. This study utilized a person-oriented approach to examine Hewitt and Flett's (1991) conceptualization of multidimensional perfectionism in relation to health and well-being. Levels of conscientiousness, extraversion, and neuroticism were also assessed. Cluster analyses were employed to examine within-person configurations of self-oriented, other-oriented, and socially prescribed perfectionism in university students (n = 538) and adults with chronic illness (n = 773). Five unique configurations were found in both samples and three clusters replicated across samples. "Extreme perfectionists" with high scores across all perfectionism dimensions reported relatively poor physical health, psychological health, psychosocial resources, and well-being along with elevated neuroticism and conscientiousness. A group distinguished by elevated socially prescribed perfectionism also reported relatively poorer outcomes along with elevated neuroticism and lower conscientiousness. In contrast, "non-perfectionists" reported relatively elevated levels of health and well-being. These profiles differed in their links with health and well-being even after taking into account key differences in conscientiousness and neuroticism. Our results illustrate the importance of employing a person-oriented approach to the study of multidimensional perfectionism, especially as it relates to physical health, mental health, and subjective well-being.

KEY WORDS: Perfectionism, Health, Well-Being, Stress, Person-Centered, Neuroticism

Research on the antecedents, nature, and consequences of perfectionism continues to identify many challenges for people who need to be perfect, with extensive research demonstrating that perfectionism takes a toll on health and well-being (Egan, Wade, & Shafran, 2011; Flett, Hewitt, & Heisel, 2014; Molnar et al., 2017; Sirois & Molnar, 2016). For example, Fry and Debats (2009) found in a seven-year longitudinal study that trait perfectionism dimensions predicted earlier mortality. Moreover, this association held despite taking into account other broad personality traits (i.e., neuroticism, conscientiousness, and optimism).

To date, the vast majority of investigations have examined perfectionism from a variable-centered perspective with perfectionism dimensions being studied as individual factors. The current research is the one of the few studies that adopts a different approach – namely, a person-centered perspective to understanding perfectionism and how it is implicated in health and well-being.

Researchers largely agree that trait perfectionism is multidimensional, and comprised of two higher-order factors: Perfectionistic strivings, which involves the proclivity to strive toward excessively high personal standards and to require absolute perfection from the self; and perfectionistic concerns, which refers to having extraordinarily high standards, accompanied by extremely punitive self-appraisals, excessive preoccupations with others' evaluations, and a general incapacity to achieve satisfaction even when standards have been met (Sirois & Molnar, 2017). Another important facet of trait perfectionism that requires consideration to gain a full comprehension of perfectionistic behavior is other-oriented perfectionism (OOP; Hewitt & Flett, 1991). People with high OOP are highly critical and demand perfection from others.

There is a growing appreciation for the usefulness of considering the heterogeneity that exists among "perfectionists". Indeed, both the tripartite model of perfectionism (Rice & Ashby, 2007) and the 2 X 2 model of perfectionism (Gaudreau & Thompson 2010) support examining

within-person configurations. According to the tripartite model, there are three subtypes of perfectionists: "adaptive perfectionists" with high levels of perfectionistic strivings and low levels of perfectionistic concerns; "maladaptive perfectionists," with high levels of both perfectionistic strivings and concerns; and "non-perfectionists," who are low on perfectionistic strivings and concerns (Rice & Ashby, 2007). Alternatively, the 2 X 2 model posits four subtypes of perfectionists: pure perfectionistic concerns (high on perfectionistic concerns, low on perfectionistic strivings), pure perfectionistic strivings (high on perfectionistic strivings, low on perfectionistic concerns), mixed perfectionism (high on both perfectionistic strivings and concerns), and nonperfectionism (low on perfectionistic strivings and concerns) (Gaudreau & Thompson, 2010). A primary difference between these models is that the 2 X 2 model hypothesizes that high perfectionistic concerns coupled with low perfectionistic strivings represent the most deleterious combination, whereas the tripartite model postulates that high levels of both perfectionistic strivings and concerns are the most detrimental.

The relatively few investigations that have used person-centered techniques to identify types of perfectionists typically provide important and unique information (e.g., Lundh, Saboonchi, & Wangby, 2008; Smith, Saklofske, Yan, & Sherry, 2016). For instance, employing latent profile analyses, Pacewicz, Gotwals, and Blanton (2018) identified three perfectionistic subtypes among college athletes: a group with high levels of both perfectionistic strivings and concerns, a group of people only high on perfectionistic strivings, and a nonperfectionistic group. In line with the tripartite model, their results indicated that those high on both perfectionistic strivings and concerns reported the highest levels of burnout and more maladaptive coping strategies. Sirois et al. (2019) also found among people with fibromyalgia and control participants that those characterized by higher levels of both perfectionistic strivings and concerns reported the poorest health and well-being.

At present, the three trait dimensions postulated by Hewitt and Flett (1991) (i.e., self-oriented perfectionism (SOP; reflecting perfectionistic strivings), socially prescribed perfectionism (SPP; reflecting perfectionistic concerns), and OOP have not been evaluated extensively from a person-centered perspective despite theory and research indicating the need to consider combinations of these dimensions (e.g., Gaudreau & Verner-Filion, 2012). The first person-centered research using the Hewitt-Flett framework was conducted by Herman, Trotter, Reinke, and Ialongo (2011). Their results were complicated because they used a unique version of the Child-Adolescent Perfectionism Scale (CAPS) that included SPP but also two SOP factors rather than one unidimensional factor. Also, the CAPS does not measure OOP. Analyses identified a high self-striving perfectionism group, a high perfectionism group with elevations on all three factors, a non-perfectionism group, and a group with low scores on the self-striving factor. The group with elevations on all CAPS subscales were among the worst off across almost all indicators when participants were re-assessed five years later. Although this study yielded insights and identified nuances involving perfectionism that simply would not have emerged from a variable-centered approach, this work was limited because the replicability of the four classes was not examined.

Another relevant investigation was conducted by Sironic and Reeve (2015). They assessed 938 adolescents with the CAPS, the Frost Multidimensional Perfectionism Scale, and the Almost Perfect Scale – Revised. They identified six profiles, including three profiles characterized by elevated levels of perfectionism. Unfortunately, the replicability of these results was not evaluated. This research was still quite informative, as it identified two maladaptive perfectionism groups and it was established that at least 3 out of 10 adolescents have some form of maladaptive perfectionism.

The current study goes beyond the earlier person-centered investigations in several key

respects. First, to our knowledge, it is the first study to examine perfectionism types with all three dimensions from the Hewitt-Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991) (i.e., SOP, SPP, and OOP). Second, the current research more fully evaluates whether perfectionism clusters are relatively maladaptive or adaptive by including an extensive battery of measures that tap stress, psychosocial resources (i.e., social support), physical health, psychological health, and subjective well-being. Third, the current study focused on two relatively large and disparate samples - upper-year undergraduate students and community adults with chronic health complaints - to examine the generalizability and replicability of the findings. A chronic illness sample was included in light of theory and evidence illustrating the importance of perfectionism in chronic illness (e.g., Molnar & Sirois, 2016; Sirois et al., 2019). Finally, key higher-order personality traits (neuroticism, conscientiousness, and extraversion) were included to test whether perfectionism provided incremental explanatory power beyond these traits. This was especially important given that neuroticism and conscientiousness have been linked to perfectionism, health, and well-being (Roberts, Walton, & Bogg, 2005; Watson & Pennebaker, 1989).

Method

Participants and Procedure

For both samples, cases with missing data on 20 percent or more of the study variables were removed.

Students *(N* = 539) from a Southern Ontario university were recruited to complete a web-based questionnaire. Respondents were paid $20. The average respondent was 22.38 years old *(SD* = 0.87) and 78% were women.

A total of 775 participants (Mean age = 48.9 years, SD = 10.95, 93.5% female) with chronic illness were recruited through a URL link posted on online support groups and on

relevant chronic illness websites (e.g., fibromyalgia, chronic fatigue syndrome, diabetes, arthritis, asthma, cardiovascular disease, intestinal problems, men's health issues). The most prevalent chronic illnesses were fibromyalgia (78%), chronic fatigue syndrome (50%), and arthritis (42%). Participants reported experiencing multiple chronic health conditions; the average participant reporting experiencing three *(SD* = 1.7) chronic health conditions for approximately seven years *(SD* = 3.0). Most participants were American (63%), or Canadian (24%), with the remaining participants from the U.K., Australia, and other countries. Overall, 24% completed their Bachelor's degree or while 17% had some college or university education. Also, 37% were on disability (37%) whereas 22% were employed full-time.

Measures

The measures described below were administered to participants in each sample.

*Perfectionism***.** Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HFMPS) has three 15-item subscales. The *self-oriented perfectionism* subscale (SOP) measures the extent to which individuals strive and demand perfection of themselves (α = .91 students; α = .92 chronically ill). The *other-oriented perfectionism* subscale (OOP) measures the tendency to demand that others are perfect (α = .73 students; α = .83 chronically ill). The *socially prescribed perfectionism* subscale (SPP) measures the perception that others have imposed perfectionism demands on the self (α = .85 students; α = .88 chronically ill). The HFMPS subscales have demonstrated adequate reliability and validity in clinical and non-clinical samples (Hewitt & Flett, 1991, 2004).

Subjective Well-Being (SWB). The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) has five items that assess global cognitive evaluations of one's life. The SWLS has demonstrated good validity and reliability (α = .90 students; α = .88 chronically ill) (Pavot & Diener, 1993; 2008).

The Positive and Negative Affect Schedule (PANAS: Watson, Clark, & Tellegen, 1988) is a well-validated 20-item scale that requires participants to rate their experience of 10 positive (e.g., alert, excited, interested) (α = .89 students & chronically ill) and 10 negative emotions/feelings (e.g., distressed, guilty, jittery) (α = .87 students; α = .91 chronically ill) in general.

After recoding negative affect so that higher scores reflected less negativity, a composite SWB score was computed by standardizing and averaging life satisfaction, positive affect, and the recoded negative affect scores (α = .73 students; α = .69 chronically ill). Higher scores indicate higher SWB.

Psychological health. Depression was assessed using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), which is a 20-item self-report scale of depressive symptomatology within the previous week. It is widely used in chronically ill populations (α = .92) and student samples (α = .93) (Hann, Winter, & Jacobsen, 1999).

Physical health. Self-reported physical health was assessed with the four physical health subscales of the Short Form-36v1 Health Survey (Ware et al., 1993). The subscales include physical functioning (ten items), role physical (four items), bodily pain (two items), and general health (five items). After recoding negatively phrased items, raw scores on each subscale were transformed to yield scores on a 0 to 100 scale. A composite physical health score was computed by standardizing and averaging the subscale scores. (α = .77 students; α = .66 chronically ill) Higher values indicate better physical health. The SF-36vl has sound psychometric properties (Ware et al., 1993).

Psychosocial Resources. Social support was measured with The Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983), which includes six items that measure social support network size (α = .93 students, α = .92 chronically ill) and six items

tapping social support satisfaction (α = .90 students, α = .95 chronically ill). Higher scores indicate larger perceived support networks and greater satisfaction with the availability of social support, respectively.

Personality. The 40-item 'Mini-Markers' measure of the Five-Factor Model (FFM) developed by Saucier (1994) were utilized to assess extraversion (α = .83 students; α = .82 chronically ill), neuroticism (α = .80 students & chronically ill), and conscientiousness (α = .80 students; α = .82 chronically ill). Each factor was assessed with eight items.

Perceived stress. Two items created for the present study assessed perceived stress. The first item, "On average, how often do you become stressed and tense in a one-week period?", was rated along a 5-point scale ranging from 0 (*never*) to 4 (*everyday*). The second item asked, "Would you describe your life in general as: 3 = *very stressful,* 2 = *fairly stressful* or 1 = *not at all stressful.*" Items were standardized and averaged to form a composite measure. Higher scores indicate greater perceived stress (r = .51, students, r = 57 chronically ill).

Statistical Analyses

A hierarchical cluster analysis utilizing Ward's procedure (squared Euclidian distances between participants) was conducted on SOP, OOP, and SPP to determine the perfectionism profiles. All calculations were conducted using SPSS for Windows, Version 20. The same six-stage approach described in Busseri, Sadava, Molnar, and DeCourville (2009; see pp. 169-170 for details) was utilized to identify the best cluster solutions within each sample. This approach reflects a well-established procedure drawn from existing person-oriented research on personality (e.g., Asendorpf, 2003).

We assessed whether the clusters differed with respect to relevant demographics, health and well-being, psychosocial resources, and perceived stress. Chi-square tests assessed differences among the clusters when the dependent variables were categorical (e.g., respondent's

sex). To control for high Type I error rate, multivariate analysis of variance (MANOVA) with Bonferroni pairwise comparisons was conducted to assess differences among the clusters when multiple constructs measured on a continuous scale were the dependent measures (e.g., physical and psychological health, and SWB). Differences among the clusters were evaluated with univariate analysis of variance (ANOVA). Analysis of covariance (ANCOVA) assessed differences among the clusters after accounting for the effects of higher-order personality factors.

Results

Cluster Analyses

Cluster analytic procedures are quite sensitive to outliers. Accordingly, one student participant and two from the chronic illness sample were first removed because they were multivariate outliers. Results for each sample from the within-sample and across-sample replicability analyses are presented in Table 1, as are the amounts of explained variance in the perfectionism components. Four solutions were found in the student sample that met the combined criteria of 60% of total explained variance or greater and a kappa of .60 or greater (Asendorpf, Borkeneau, Ostendorf, & Van Aken, 2001; Busseri et al., 2009): the 5-, 6-, 8- and 9-cluster solutions. In the sample of adults with chronic illness, five solutions met both criteria: the 4-, 5-, 6-, 7-, and 8-cluster solutions. Overall, results revealed that the five-cluster solution was the best fitting solution based on within-sample replicability assessments. Moreover, not only was the five cluster solution consistent within each sample, it was also the most parsimonious solution that made the most conceptual sense. Results from discriminant function analyses further supported a five-cluster solution with 98% of the students and 97% of adults with chronic illness being correctly classified.

Cluster profiles

Regarding the student sample, relative to the other clusters, Cluster 1 (high SPP; 27% of the sample) included moderate scores on SOP and OOP and high (standardized) mean levels of SPP (see Table 2). Cluster 2 (high SOP and high OOP; 20%) was characterized by high mean levels of both SOP and OOP, and moderate levels of SPP. Cluster 3 (26%) was referred to as "low SPP", as it was characterized by moderate levels of SOP and OOP, but who reported low mean levels of SPP. Cluster 4 was labeled "extreme perfectionism" (14%) due to high mean levels on all three perfectionism components relative to the other clusters. Cluster 5 (13%) had low mean levels on all three perfectionism components and was referred to as "non-perfectionism".

Three of the five clusters were comparable across samples. Regarding the chronic illness sample, tantamount to the student sample, Cluster 1 (high SPP; 22% of the sample) was characterized by high mean levels of SPP, yet moderate mean levels of SOP and OOP. Cluster 4 (18%) was again labeled "extreme perfectionism" due to high mean levels on all three perfectionism dimensions. Akin to the student sample, Cluster 5 (non-perfectionism; 14%) had low mean levels on all perfectionism dimensions. The remaining two clusters were unique to the adults with chronic illness. Cluster 2 (low SOP; 26%) was characterized by moderate OOP and SPP and low SOP. Cluster 3 (20%) resembled Cluster 3 in the student sample (i.e., moderate levels of OOP and low levels of SPP), yet was distinguished by high mean SOP levels. Thus, Cluster 3 for these adults was labeled "high SOP, low SPP".

Cluster comparisons - Student sample

Demographics. The clusters did not differ in terms of the distribution of men and women in each cluster ($\chi^2_{(4)} = 5.85$, $p = .21$). Thus, comparisons were not conducted.

Personality. Table 3 shows that the clusters varied significantly in terms of broader

personality dimensions. There was a significant multivariate effect (Wilks' $\lambda = .82$, $F_{(12,1405.19)} = 9.34$, $p < .001$, $\eta^2 = .07$), and the clusters differed in conscientiousness ($F_{(4,533)} = 10.88$, $p < .001$, $\eta^2 = .08$), neuroticism ($F_{(4,533)} = 14.90$, $p < .001$, $\eta^2 = .10$), and extraversion ($F_{(4,533)} = 2.68$, $p = .03$, $\eta^2 = .02$).

As shown in Table 3, there were no meaningful differences among the clusters in extraversion. The "high SPP" cluster had the lowest levels of conscientiousness relative to the other clusters and was similar to the "non-perfectionism" cluster. Conversely, the "high SOP and high OOP" cluster appeared to have high levels of conscientiousness. The "extreme perfectionism" cluster had significantly higher neuroticism relative to the "high SOP and high OOP" cluster, the "low SPP" cluster, and the "non-perfectionism" cluster. However, the "extreme perfectionism" cluster did not differ from the "high SPP" cluster with regard to neuroticism. The "high SPP" cluster had significantly higher neuroticism compared to the "low SPP" and "non-perfectionism" clusters.

Health and well-being. A multivariate effect was obtained when comparing the clusters on physical health, depressive symptomatology, and SWB (Wilks' $\lambda = .83$, $F_{(12,1368.15)} = 8.57$, $p < .001$, $\eta^2 = .06$). The clusters differed significantly in physical health ($F_{(4,519)} = 7.30$, $p < .001$, $\eta^2 = .05$), depressive symptomatology ($F_{(4,519)} = 21.87$, $p < .001$, $\eta^2 = .14$), and SWB ($F_{(4,519)} = 18.96$, $p < .001$, $\eta^2 = .13$). Overall, the effects of perfectionism were less robust for physical health versus the other dependent variables. The "extreme perfectionism" cluster was characterized by the poorest health and well-being compared to most other clusters, with the exception of the "high SPP" cluster, which reported comparable levels of health (see Table 3). The "high SPP" cluster reported poorer health than the "low SPP" cluster. Interestingly, the "high SOP and high OOP" cluster reported levels of health and well-being that were comparable to the clusters

characterized by either moderate or low perfectionism, suggesting that SOP and OOP may not be pathological when not accompanied by high SPP, at least in terms of the current indicators.

A MANCOVA testing the incremental predictive utility of perfectionism in terms of health and well-being indicated that extraversion (Wilks' $\lambda = .81$, $F_{(3,514)} = 39.53$, $p < .001$, $\eta^2 = .19$), conscientiousness (Wilks' $\lambda = .93$, $F_{(3,514)} = 12.49$, $p < .001$, $\eta^2 = .07$), neuroticism (Wilks' $\lambda = .74$, $F_{(3,514)} = 59.00$, $p < .001$, $\eta^2 = .26$), and perfectionism cluster (Wilks' $\lambda = .90$, $F_{(12,1360.21)} = 4.70$, $p < .001$, $\eta^2 = .04$) each were associated with the combined dependent variables. The clusters differed significantly in physical health ($F_{(4,516)} = 2.99$, $p = .02$, $\eta^2 = .02$), depressive symptomatology ($F_{(4,516)} = 10.20$, $p < .001$, $\eta^2 = .07$), and SWB ($F_{(4,516)} = 8.05$, $p < .001$, $\eta^2 = .06$) after accounting for the effects of personality traits.

As shown in Table 3, the "extreme perfectionism" cluster experienced the poorest health relative to the other clusters. However, this "extreme perfectionism" cluster differed from only the "low SPP" cluster after accounting for the effects of the three personality factors. Table 3 shows that the "high SPP" and the "extreme perfectionism" clusters reported the poorest psychological health relative to the other clusters, but did not differ from one another. Finally, the "high SOP and high OOP" cluster reported higher levels of SWB compared to the "extreme perfectionism" cluster and the "high SPP" cluster after taking into account the broader personality traits.

Psychosocial resources. A test of whether the clusters differed in psychosocial resources was significant (Wilks' $\lambda = .92$, $F_{(8,1064)} = 5.68$, $p < .001$, $\eta^2 = .04$). The clusters were different from one another in terms of both size ($F_{(4,533)} = 7.30$, $p < .001$, $\eta^2 = .05$), and satisfaction ($F_{(4,533)} = 8.85$, $p < .001$, $\eta^2 = .06$). The "high SPP" cluster reported having less available social support than the "low SPP" cluster while the "extreme perfectionism" cluster reported having less available

social support compared to the "high SOP and high OOP" and "low SPP" clusters (see Table 3). The "high SPP" cluster also reported lower social support satisfaction compared to the "high SOP and high OOP" and "low SPP" clusters, while the "extreme perfectionism" cluster reported lower social support satisfaction compared to all but the "high SPP" cluster.

A MANCOVA of the incremental predictive utility of perfectionism in terms of social support with regard to broader personality traits indicated that extraversion (Wilks' $\lambda = .93$, $F_{(2,529)} = 20.49$, $p < .001$, $\eta^2 = .07$), neuroticism (Wilks' $\lambda = .94$, $F_{(2,529)} = 16.97$, $p < .001$, $\eta^2 = .06$), and perfectionism cluster (Wilks' $\lambda = .96$, $F_{(8,1058)} = 2.72$, $p = .006$, $\eta^2 = .02$) were associated with the combined dependent variables. Conscientiousness was not associated with social support (Wilks' $\lambda = .99$, $F_{(2,529)} = .38$, $p = .68$, $\eta^2 = .001$). While the clusters were found to be different in terms of both social network size ($F_{(4,530)} = 3.00$, $p = .02$, $\eta^2 = .02$) and satisfaction with social support ($F_{(4,530)} = 3.80$, $p = .01$, $\eta^2 = .03$), Bonferroni pairwise comparisons yielded no meaningful differences with regard to size of social support network. However, the "extreme perfectionism cluster" reported less social support satisfaction than the "high SOP and high OOP" and "low SPP" clusters (see Table 3).

Perceived stress. The clusters differed significantly in perceived stress ($F_{(4,533)} = 20.43$, $p < .001$, $\eta^2 = .13$). The "extreme perfectionism" cluster reported significantly higher perceived stress compared to all other clusters, whereas the "non-perfectionism" cluster reported lower stress compared to all other clusters, with the exception of the "low SPP" cluster (see Table 3). Finally, while the "high SPP" cluster participants did report higher perceived stress compared to those in the "non-perfectionism" cluster, they did report lower stress compared to those in the "extreme perfectionism" cluster.

An ANCOVA testing the incremental predictive utility of perfectionism with regard to perceived stress found that extraversion ($F_{(1,530)} = 5.61$, $p = .02$, $\eta^2 = .01$), conscientiousness ($F_{(1,530)} = 4.28$, $p = .04$, $\eta^2 = .01$), and neuroticism ($F_{(1,530)} = 99.17$, $p < .001$, $\eta^2 = .16$) were each associated with perceived stress. The effects of broader personality traits were accounted for yet the clusters still differed in perceived stress ($F_{(4,530)} = 8.92$, $p < .001$, $\eta^2 = .06$), with the "extreme perfectionism" cluster reporting the highest levels of perceived stress relative to the other clusters (see Table 3).

Cluster comparisons - Chronic illness sample

Demographics. The clusters differed in household income ($F_{(4,768)} = 2.80$, $p = .025$, $\eta^2 = .01$), but the pairwise differences were not substantial (see Table 4). The clusters differed on age ($F_{(4,768)} = 4.78$, $p = .001$, $\eta^2 = .02$). Participants in the "non-perfectionism" cluster were significantly older than those in the "high SPP", "extreme perfectionism", and "high SOP" clusters (see Table 4).

Personality. There was a multivariate effect when testing for differences in extraversion, conscientiousness, and neuroticism (Wilks' $\lambda = .81$, $F_{(12,2026.94)} = 14.46$, $p < .001$, $\eta^2 = .07$), with univariate differences in extraversion ($F_{(4,768)} = 7.42$, $p < .001$, $\eta^2 = .04$), conscientiousness ($F_{(4,768)} = 10.20$, $p < .001$, $\eta^2 = .05$) and neuroticism ($F_{(4,768)} = 24.12$, $p < .001$, $\eta^2 = .11$). As shown in Table 4, the "non-perfectionism" cluster had higher levels of extraversion than the "high SPP" and the "high SOP and low SPP" clusters, and the "high SPP" cluster had lower levels of extraversion than the "low SOP" cluster. The "high SOP and low SPP" cluster had the highest levels of conscientiousness relative to the other clusters, but did not differ from the" extreme perfectionism" cluster. The "extreme perfectionism" cluster had higher conscientiousness than the "high SPP" and "low SOP" clusters and it had the comparatively highest neuroticism levels.

The "high SPP" cluster reported higher neuroticism compared to the "low SOP" and "non-perfectionism" clusters, but lower levels than the "extreme perfectionism" cluster. Finally, the "non-perfectionism" cluster reported the lowest neuroticism levels.

Health and well-being. A MANOVA confirmed that the clusters differed in physical health, distress, and SWB (Wilks' $\lambda = .83$, $F_{(12,2620.94)} = 12.55$, $p < .001$, $\eta^2 = .06$). Specifically, the clusters differed in physical health ($F_{(4,768)} = 6.68$, $p < .001$, $\eta^2 = .03$), depressive symptomatology ($F_{(4,768)} = 34.57$, $p < .001$, $\eta^2 = .15$), and SWB ($F_{(4,768)} = 16.56$, $p < .001$, $\eta^2 = .08$). As shown in Table 4, the pattern of results was quite similar for physical health, depressive symptomatology, and SWB; those in the "high SPP" and "extreme perfectionism" clusters reported significantly worse health and well-being versus those in the "low SOP" and "high SOP, low SPP" clusters, while the "high SPP" and "extreme perfectionism" clusters did not differ from one another. The "non-perfectionism" cluster reported the best psychological health relative to the other clusters, with higher levels of SWB compared to the "high SPP" and the "extreme perfectionism" clusters.

A MANCOVA revealed a significant multivariate effect of cluster on the combined dependent variables of health, distress, and well-being (Wilks' $\lambda = .89$, $F_{(12,2019)} = 7.41$, $p < .001$, $\eta^2 = .04$). Extraversion (Wilks' $\lambda = .93$, $F_{(3,763)} = 20.62$, $p < .001$, $\eta^2 = .08$), conscientiousness (Wilks' $\lambda = .97$, $F_{(3,763)} = 9.17$, $p < .001$, $\eta^2 = .04$), and neuroticism (Wilks' $\lambda = .76$, $F_{(3,763)} = 79.22$, $p < .001$, $\eta^2 = .24$) each were associated with the combined dependent variables. Specifically, the clusters differed in physical health ($F_{(4,765)} = 4.47$, $p = .001$, $\eta^2 = .02$), depressive symptomatology ($F_{(4,765)} = 17.37$, $p < .001$, $\eta^2 = .08$), and SWB ($F_{(4,765)} = 4.75$, $p = .001$, $\eta^2 = .02$).

Table 4 shows that the overall pattern of pairwise results changed very little after accounting for broader personality traits in the model, with a few exceptions. The results

concerning SWB revealed that while the "high SPP" cluster still experienced poorer SWB versus the remaining clusters (with the exception of the "extreme perfectionism" cluster), the "extreme perfectionism" cluster was no longer different from any cluster, presumably because neuroticism had been considered and the "extreme perfectionism" cluster reported the highest neuroticism levels.

Psychosocial resources. A test of whether the clusters differed in psychosocial resources was statistically significant (Wilks' $\lambda = .86$, $F_{(8,1534.00)} = 14.72$, $p < .001$, $\eta^2 = .07$). Specifically, the clusters differed in both size of social support network ($F_{(4,768)} = 24.64$, $p < .001$, $\eta^2 = .11$) and satisfaction with social support ($F_{(4,768)} = 20.79$, $p < .001$, $\eta^2 = .10$). The "high SPP" and the "extreme perfectionism" clusters did not differ from one another and reported having the least social support available to them. The "non-perfectionism" cluster, relative to all other clusters, reported having the largest social support networks (see Table 4).

The MANCOVA testing differences in psychosocial resources revealed a significant multivariate effect of cluster on the combined dependent variables (Wilks' $\lambda = .91$, $F_{(8,1528)} = 9.37$, $p < .001$, $\eta^2 = .05$). Furthermore, extraversion (Wilks' $\lambda = .98$, $F_{(2,764)} = 6.21$, $p = .002$, $\eta^2 = .02$) and neuroticism (Wilks' $\lambda = .94$, $F_{(2,764)} = 23.47$, $p < .001$, $\eta^2 = .06$) each were associated with the combined dependent variables, while conscientiousness (Wilks' $\lambda = .99$, $F_{(2,764)} = .61$, $p = .55$, $\eta^2 = .002$) was not. Specifically, the clusters differed in social support network size ($F_{(4,765)} = 14.14$, $p < .001$, $\eta^2 = .07$) and satisfaction with social support ($F_{(4,765)} = 12.76$, $p < .001$, $\eta^2 = .06$).

The "high SPP" cluster reported lower levels of available social support compared to the remaining clusters, with the exception of the "extreme perfectionism" cluster from which it did not differ. The "extreme perfectionism" cluster reported lower available social support compared

to the "high SOP, low SPP" and "non-perfectionism" clusters. In addition, the "non-perfectionism" cluster reported higher levels of available social support than the "low SOP" cluster. The "high SPP" cluster also reported the lowest levels of social support satisfaction relative to the other clusters. The "extreme perfectionism" cluster reported lower levels of satisfaction with social support in comparison to the "high SOP, low SPP" cluster (see Table 4).

Perceived stress. An ANOVA evaluating differences in perceived stress was statistically significant ($F_{(4,768)} = 21.70$, $p < .001$, $\eta^2 = .10$). The "high SPP" and "extreme perfectionism" clusters had the highest levels of perceived stress compared to the remaining clusters and the "non-perfectionism" cluster reported less perceived stress than the "high SOP and low SPP" cluster. An ANCOVA of the incremental predictive utility of perfectionism found that neuroticism ($F_{(1,765)} = 134.88$, $p < .001$, $\eta^2 = .15$) was associated with perceived stress, whereas extraversion ($F_{(1,765)} = .47$, $p = .50$, $\eta^2 = .001$) and conscientiousness ($F_{(1,765)} = .02$, $p = .90$, $\eta^2 = .00$) were not. Importantly, the clusters still differed in perceived stress ($F_{(4,765)} = 10.47$, $p < .001$, $\eta^2 = .05$), such that the "high SPP" cluster reported the highest stress levels relative to the other clusters (see Table 4).

Discussion

To our knowledge, the current work represents the first attempt to apply a person-centered approach to all three trait perfectionism dimensions that comprise Hewitt and Flett's (1991) multidimensional perfectionism model. Collectively, our findings support previous studies showing the value of a person-centered approach and the need to consider qualitative distinctions among types of perfectionists when the focus is on the individual person. Thus, patterns of perfectionism should be considered when trying to fully understand certain perfectionists and the nature of the perfectionism construct itself. These patterns are associated

with broad trait dimensions, but go well beyond individual differences in conscientiousness, extraverison, and neuroticism.

One general conclusion that can be derived from this work is that perfectionism is highly problematic when it involves high scores across all three trait dimensions or if it involves an substantial elevation on socially prescribed perfectionism, but not self-oriented or other-oriented perfectionism. Also, while scores on the three dimensions tend to be intercorrelated, distinct patterns are clearly evident at the person-centered level.

We found some clear commonalities across our samples. Indeed, a five-cluster solution was best for both samples and three of the five clusters involved patterns that were quite similar across samples. The analyses confirmed the presence of a group of extreme perfectionists with high scores on all HFMPS dimensions and a group of non-perfectionists with low scores across all dimensions. Each sample also had a group distinguished by marked evaluations of SPP and low to moderate scores on the other two dimensions. However, unique clusters specific to either the student sample or chronic illness sample also emerged. We identified a unique group of students with low SPP, while in the chronically ill participants, there was a group that also had low SPP accompanied by elevated SOP. The other cluster identified among students was characterized by high levels of SOP and OOP; there was no comparable cluster among the chronically ill.

Several conclusions can be drawn from these data. First, extreme perfectionism is quite prevalent. Overall, 14.1% of students (about 1 in 7) and 17.6% of chronically ill patients (more than 1 in 6) have exceptionally high levels of personal and interpersonal trait perfectionism. While the sheer prevalence of "extreme perfectionists" is noteworthy, perhaps most striking is the sheer magnitude of the obtained perfectionism levels. Mean scores in these extreme groups were typically two or more standards deviations from established norms and at a level that is

found commonly among people with clinical disorders such as anorexia nervosa (see Hewitt & Flett, 2004). One implication of our results is that when extreme perfectionists are exposed to treatment interventions designed to decrease perfectionism, even fairly substantial reductions may still leave levels of perfectionism at elevated levels and targeting one perfectionism dimension may still leave dangerously high levels of other perfectionism dimensions.

The other striking finding is the large number of participants in either group who were elevated solely in SPP. Overall, 27.5% of the students and 22.3% of the chronically ill people had exceptionally high SPP levels that were not accompanied by high levels of the other perfectionism trait dimensions. The finding that about one in four participants were distinguished by high levels of SPP is alarming given the many negative correlates of SPP. The identification of this group has clear and potentially important implications for developmental accounts seeking to understand the origins of perfectionism. Flett, Hewitt, Oliver, and Macdonald (2002) noted that a subset of individuals exposed to SPP will be reactive and oppositional, while others exposed to comparable pressures will incorporate social pressures to be perfect into their own goals, motives, and self-views. Our results suggest that a large proportion of people do not internalize external pressures by adjusting their personal standards. According to Flett et al. (2002), several factors likely contribute to whether SPP becomes reflected subsequently in high levels of SOP, including temperament, capabilities, the presence of a parent who models SOP, and the desire to get approval and meet expectations.

The current findings indicate that there is substantial clinical significance attached to being someone who is high in only SPP. In and of itself, SPP was very prevalent and very deleterious. This raises the issue of whether the apparent prevalence of high levels of SPP among a large proportion of students and adults with chronic illness is an indicator of a growing public health problem. Lahey (2009) effectively advanced the argument that neuroticism has public

health significance and many of these same arguments seem applicable to SPP, especially given meta-analytic evidence suggesting that levels of trait perfectionism, including SPP, are increasing over time (see Curran & Hill, 2019).

Regarding our analyses of stress, psychosocial resources, physical health, mental health, and well-being, a comparable pattern was found across the outcome measures and across the two samples. Clearly, the worst off individuals were those who were either high in only SPP or on all three perfectionism dimensions. These findings accord well with the tripartite model of perfectionism and with findings from other studies (e.g., Pacewicz et al., 2018; Sirois et al., 2019) demonstrating that elevated levels of all trait perfectionism dimensions are associated with poorer health and well-being.

One important implication of our findings is that exceptionally high SOP levels are clearly not beneficial if accompanied by exceptionally high levels of OOP and SPP. In contrast, the participants who were more adjusted were those students who were elevated in both SOP and OOP, but who were not high in SPP, as well as the patients with chronic illness who were elevated only on SOP. Our analyses indicated that these individuals actually fared relatively well in comparative terms, versus the extreme perfectionists, based on reported mean levels of physical and mental well-being. This set of findings should be welcomed by those who endorse the notion of "adaptive perfectionism" because SOP in the absence of elevated SPP did not appear to be particularly problematic. Any conclusions here must be qualified, however, by research clearly illustrating the negative consequences of SOP such as suicidal ideation and suicide (Smith et al., 2018) and earlier mortality (Fry & Debats, 2009). It may be that the original claims made by Hewitt and Flett (1993) still apply. That is, according to a diathesis-stress framework, it is when perfectionists experience uncontrollable stressors that they are particularly

at risk; perfectionism may be less problematic when life is manageable, predictable, and controllable to a certain extent.

Finally, the other general caution that should be noted here is that the current findings are limited by relying on self-report data and this could be especially pertinent when seeking to understand narcissistic perfectionists. These people may seem quite adaptive, in part as a reflection of their inflated self-esteem, but still be highly prone to subsequent psychological problems if they encounter achievement setbacks or start to experience the difficult interpersonal relationships that can come from being overly demanding and hypercritical of other people.

In summary, the current findings demonstrated the utility of a person-centered approach that focused on profiles of trait perfectionism dimensions. Analyses established the presence of distinct perfectionism profiles and showed that they are largely replicable across samples. Moreover, these profiles differed in their links with health and well-being even after taking into account related differences in key elements of the five-factor personality model. According to the current findings, at the level of the individual, it is not enough to know that a person is a perfectionist. This person could high in all three HFMPS dimensions or they could be high primarily in SPP or they could have a combination of high SOP and OOP. These data signal the need for a differentiated approach when considering the developmental origins of perfectionism and when designing preventions and interventions for perfectionists with psychological problems and physical challenges.

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Table 1

Amount of Explained Variance and Cluster Replicability Results for Each Sample

Solution	Within-Sample		Across-Sample
	Mean Kappa	Explained Variance	Kappa for original versus "borrowed" start values
Student Sample			
2 clusters	.99	.37	.99
3 clusters	.70	.48	.67
4 clusters	.62	.56	.68
5 clusters	.73	.62	.35
6 clusters	.69	.67	.52
7 clusters	.58	.70	.49
8 clusters	.65	.72	.67
9 clusters	.72	.74	.82
10 clusters	.55	.76	.53
Sample of Adults with Chronic Illness			
2 clusters	1.00	.42	1.00
3 clusters	.91	.55	.99
4 clusters	.79	.62	1.00
5 clusters	.91	.67	.47
6 clusters	.68	.71	.63
7 clusters	.70	.74	.71
8 clusters	.61	.76	.57
9 clusters	.58	.78	.60
10 clusters	.46	.79	.52

Table 2

Descriptives by Sample for the Five-Cluster Solution

	Label	SOP		OOP		SPP		
Student Sample		M	SD	M	SD	M	SD	Size
Cluster 1	High SPP	62.40	10.31	57.75	6.96	60.94	6.74	148
Cluster 2	High SOP & High OOP	82.60	9.56	68.78	6.41	51.92	7.26	105
Cluster 3	Low SPP	68.17	10.20	56.41	5.71	43.20	6.52	140
Cluster 4	Extreme Perfectionism	86.65	8.41	66.30	8.25	72.80	6.24	76
Cluster 5	Non-Perfectionism	50.33	10.16	44.87	7.10	40.39	8.93	69
Total Sample		69.72	15.28	59.11	9.98	53.60	12.94	538
Sample of Adults with Chronic Illness								
Cluster 1	High SPP	74.29	12.47	51.14	9.22	70.07	9.99	172
Cluster 2	Low SOP	51.87	8.13	52.93	7.50	48.72	8.45	204
Cluster 3	High SOP & Low SPP	77.43	9.55	54.86	9.06	43.72	8.38	153
Cluster 4	Extreme Perfectionism	88.50	9.07	73.37	9.81	68.86	12.55	136
Cluster 5	Non-Perfectionism	41.91	11.64	36.07	7.66	33.66	9.28	108
Total Sample		66.97	19.14	54.15	13.71	53.92	16.64	773

Table 3

Cluster Comparisons for the Student Sample

Comparison Variables	High SPP	High SOP & High OOP	Low SPP	Extreme Perfectionism	Non-Perfectionism
Sex (% female)	76	70	82	80	72
Extraversion	-.12	.16	.13	-.22	-.01
Conscientiousness	$-.37_{a}$	$.31_{b}$	$.15_{b,c}$	$.22_{b,c}$	$-.23_{a,c}$
Neuroticism	$.20_{a,c}$	$-.03_{b,c}$	$-.30_{b}$	$.57_{a}$	$-.40_{b}$
Physical health	$-.19_{a,c}$	$.16_{b,c}$	$.23_{b}$	$-.41_{a}$	$.12_{b,c}$
Depressive symptomatology	$.33_{a}$	$-.25_{b}$	$-.36_{b}$	$.62_{a}$	$-.32_{b}$
SWB	$-.40_{a}$	$.34_{b}$	$.35_{b}$	$-.40_{a}$	$.19_{b}$
SSQN	$-.16_{b,c}$	$.17_{a,c}$	$.27_{a}$	$-.38_{b}$	$-.03_{a,b,c}$
SSQS	$-.20_{a,c}$	$.18_{b}$	$.23_{b}$	$-.44_{a}$	$.17_{b,c}$
Perceived stress	$.06_{b}$	$-.03_{b}$	$-.25_{b,c}$	$.79_{a}$	$-.46_{c}$
Comparisons after accounting for broad personality traits					
Physical health	$-.08_{a,b}$	$.08_{a,b}$	$.14_{a}$	$-.30_{b}$	$.08_{a,b}$
Depressive symptomatology	$.18_{a}$	$-.15_{b}$	$-.21_{b}$	$.39_{a}$	$-.21_{b}$
SWB	$-.22_{a}$	$.22_{b,c}$	$.16_{b,c,d}$	$-.13_{a,d}$	$.06_{a,c,d}$
SSQN	-.09	.13	.17	-.20	-.12
SSQS	$-.12_{a,b}$	$.13_{b}$	$.14_{b}$	$-.30_{a}$	$.11_{a,b}$
Perceived stress	$.00_{b}$	$-.03_{b}$	$-.13_{b}$	$.53_{a}$	$-.28_{b}$

Note. SWB = subjective well-being; SSQN = size of social support network; SSQS = satisfaction with social support network.

Note. Standardized group means are displayed. Within rows, means with different subscripts denote statistically different pairwise comparisons.

Table 4

Cluster Comparisons for the Sample of Adults with Chronic Illness

Comparison Variables	High SPP	Low SOP	High SOP & Low SPP	Extreme Perfectionism	Non-Perfectionism
Age	$-.12_{a}$	$.05_{a,b}$	$-.10_{a}$	$-.09_{a}$	$.35_{b}$
Household Income	-.10	-.08	.09	.21	-.07
Extraversion	$-.29_{a}$	$.12_{b,c}$	$-.04_{a,c}$	$-.01_{a,b,c}$	$.32_{b}$
Conscientiousness	$-.24_{a,c}$	$-.17_{a,c}$	$.37_{b}$	$.14_{b,d}$	$-.01_{a,c,d}$
Neuroticism	$.19_{a,f}$	$-.13_{b,g}$	$-.09_{c,f,g}$	$.53_{d}$	$-.59_{e}$
Physical Health	$-.21_{a}$	$.14_{b}$	$.23_{b}$	$-.21_{a}$	$.02_{a,b}$
Depressive Symptomatology	$.52_{a}$	$-.24_{b}$	$-.18_{b}$	$.37_{a}$	$-.58_{c}$
SWB	$-.40_{a}$	$.11_{b}$	$.20_{b}$	$-.21_{a}$	$.42_{b}$
SSQN	$-.40_{a}$	$.04_{b}$	$.24_{b}$	$-.29_{a}$	$.60_{c}$
SSQS	$-.46_{a}$	$.11_{b}$	$.27_{b}$	$-.21_{a}$	$.41_{b}$
Perceived Stress	$.44_{a}$	$-.24_{b,c}$	$-.09_{b}$	$.27_{a}$	$-.45_{c}$
Comparisons after accounting for broad personality traits					
Physical Health	$-.17_{a}$	$.14_{b,c}$	$.18_{b,d}$	$-.15_{a,c}$	$-.05_{a,b,c,d}$
Depressive Symptomatology	$.37_{a}$	$-.19_{b}$	$-.11_{b}$	$.17_{a}$	$-.30_{b}$
SWB	$-.22_{a}$	$.05_{b}$	$.11_{b}$	$.01_{a,b}$	$.08_{b}$
SSQN	$-.33_{a}$	$-.00_{c,d}$	$.22_{b,d}$	$-.18_{a,c}$	$.44_{b}$
SSQS	$-.40_{a}$	$.06_{b}$	$.26_{b,c,d}$	$-.08_{c}$	$.25_{b,c,d}$
Perceived Stress	$.35_{a}$	$-.18_{b}$	$-.06_{b}$	$.05_{b}$	$-.20_{b}$

Note. SWB = subjective well-being; SSQN = size of social support network; SSQS = satisfaction with social support network.

Note. Standardized group means are displayed. Within rows, means with different subscripts denote statistically different pairwise comparisons.

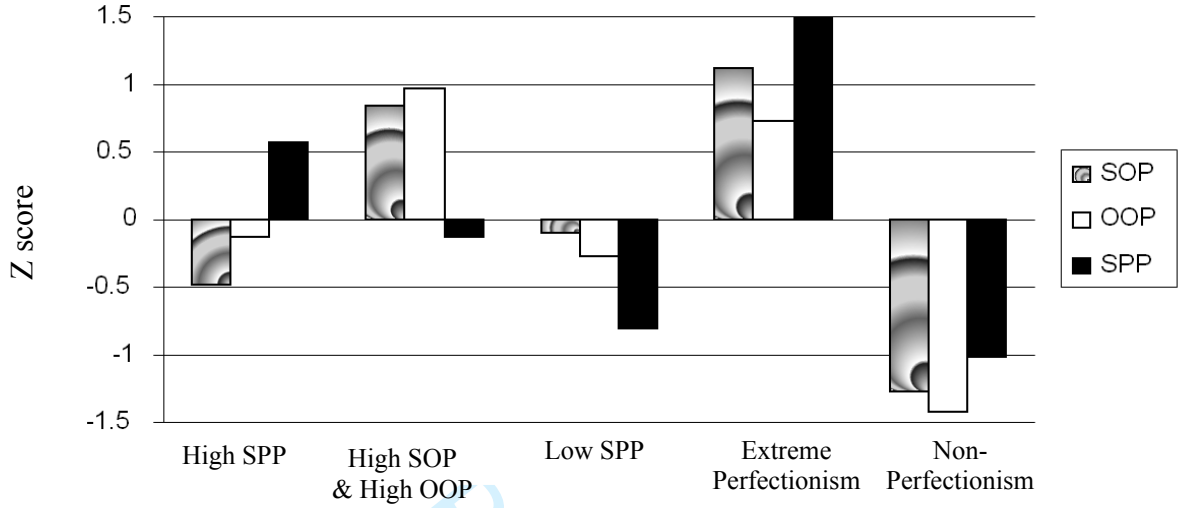

Figure 1. Five-cluster solution of perfectionism for students.

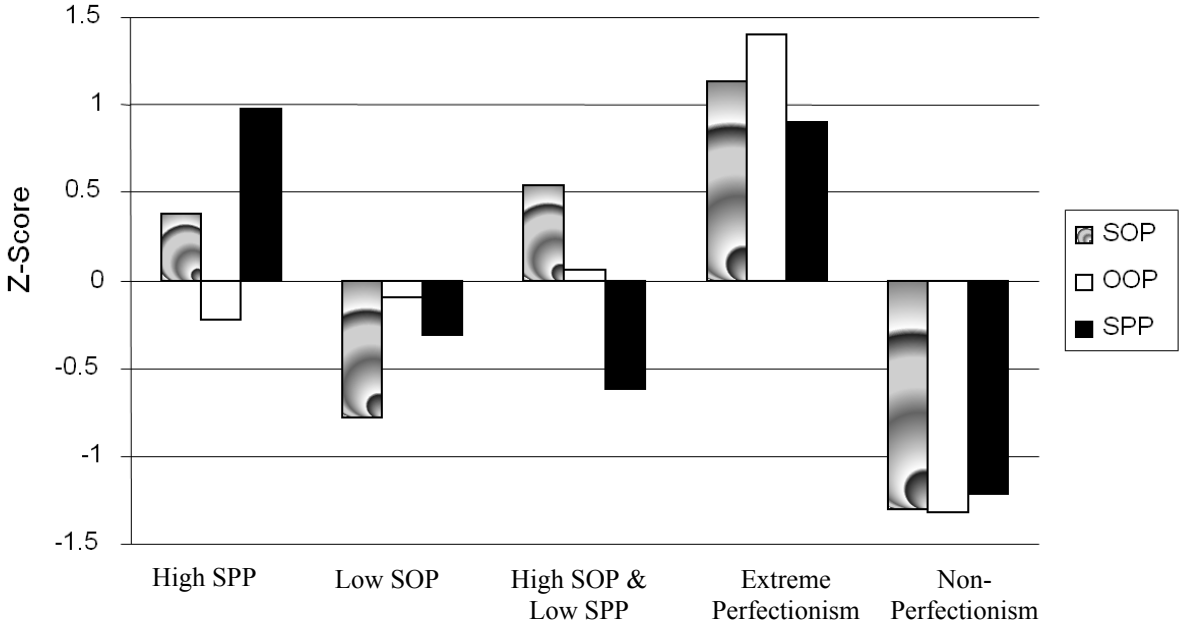

Figure 2. Five-cluster solution of perfectionism for adults with chronic illness.