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Latent self-oriented and socially prescribed perfectionism: Tests of factorial, convergent, and discriminant validity using self- and informant reports

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ABSTRACT

Using latent variables for self-oriented perfectionism (i.e., demanding perfection of oneself) and socially prescribed perfectionism (i.e., perceiving others are demanding perfection of oneself) has advantages. However, few studies have specifically examined the psychometric properties of these latent variables. The present study addresses this shortcoming by testing the factorial, convergent, and discriminant validity of self-oriented and socially prescribed perfectionism latent variables using self- and informant reports. It was hypothesized that (a) the factor structure of the self-oriented and socially prescribed perfectionism latent variables would be supported, (b) self- and informant reports would moderately converge, and (c) the self-oriented and socially prescribed perfectionism latent variables would be discriminable. A sample of 242 undergraduate women and 378 informants (218 mothers, 160 fathers) was recruited. Undergraduate women completed self-reports, and mothers and fathers completed informant reports. Results were consistent with hypotheses, thereby supporting (a) the factorial validity of the self-oriented and socially prescribed latent variables using self- and informant reports, (b) the convergent validity of the self-oriented and socially prescribed latent variables via moderately to strongly correlated self- and informant reports, and (c) the discriminant validity of the self-oriented and socially prescribed perfectionism latent variables. Findings suggest research using these latent variables is warranted.

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1. Introduction

Most researchers view perfectionism as a multidimensional construct and a number of useful models and measures exist (e.g., Dunkley, Zuroff, & Blankstein, 2003; Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). Across various models, intrapersonal and interpersonal dimensions of perfectionism are consistently recognized and differentiated (e.g., Frost et al., 1990; Hewitt & Flett, 1991). This distinction is key to Hewitt and Flett's (1991) model of perfectionism involving self-oriented perfectionism (i.e., demanding perfection of oneself), and socially prescribed perfectionism (i.e., perceiving others are demanding perfection of oneself). Self-oriented and socially prescribed perfectionism are differentially linked to negative outcomes. For example, self-oriented perfectionism is associated with achievement stressors and anorexia nervosa, and socially prescribed perfectionism is associated with interpersonal problems, depression, and binge eating (Bardone-Cone, 2007; Graham et al., 2010; Sherry & Hall, 2009). Other-oriented perfectionism (i.e., demanding perfection of others) is studied less often, and is often unrelated to negative outcomes for the self (Hewitt & Flett, 1991; Hewitt, Flett, Besser, Sherry, &

McGee, 2003). Thus, we focus on self-oriented and socially prescribed perfectionism in the present study.

Advances in data analytic techniques (e.g., structural equation modeling) have led researchers to combine Hewitt and Flett's (1991) measures of self-oriented and socially prescribed perfectionism with other similar measures to create self-oriented and socially prescribed perfectionism latent variables (e.g., Dunkley et al., 2003; Mackinnon & Sherry, 2012; McGrath et al., 2012; Sherry & Hall, 2009). Although terminology varies across studies (e.g., McGrath et al. refer to the self-oriented perfectionism latent variable as perfectionistic strivings), the underlying constructs (and indicator variables) are similar. Terminology in the present study is consistent with Hewitt and Flett's (1991) original perfectionism model.

Though researchers are using self-oriented and socially prescribed perfectionism latent variables (e.g., Mushquash & Sherry, 2012), studies specifically testing the psychometric properties of these latent variables are rare. Researchers have typically tested the predictive validity of perfectionism latent variables (e.g., McGrath et al., 2012), before establishing their factorial, convergent, and discriminant validity. In the present study, we address this gap in knowledge by testing the factorial, convergent, and discriminant validity of self-oriented and socially prescribed perfectionism latent variables using self- and informant reports

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in a sample of undergraduate women, their mothers, and their fathers. Such research is important as it will provide a stronger psychometric foundation upon which future studies can build. Future studies may want to adopt a latent variable approach to measuring perfectionism because latent variables (a) use several indicator variables to create a more valid and reliable estimates, (b) take measurement error associated with each indicator variable into account, and (c) allow testing of more complex models including multiple predictor, mediating, and criterion variables (Byrne, 2001).

Perfectionism research, including research validating existing measures, relies heavily on self-reports. This approach is based in part on the assumption that individuals provide the richest source of information on themselves (Paulhus & Vazire, 2007). Though informative, self-reports are criticized for being biased or inaccurate due to respondents' defensive orientations (e.g., causing them to censor aspects of their personality), respondents' self-presentational styles (e.g., responding in a socially desirable manner), or blind spots in respondents' self-perceptions (Paulhus, 2002; Vazire & Carlson, 2011). These biases may be particularly prominent for people high in perfectionism who have a tendency to conceal their imperfections (Hewitt et al., 2003; Mackinnon & Sherry, 2012). Supplementing self-reports with informant reports, as in the present study, is one potential way to address the biases and inaccuracies often accompanying self-reports (Vazire, 2006).

Informant reports typically involve knowledgeable significant others (e.g., parents, friends, or spouses) reporting on a target participant's personality. Only a few perfectionism studies use

informant reports (i.e., Flett, Besser, & Hewitt, 2005; Hewitt & Flett, 1991; Vieth & Trull, 1999). Hewitt and Flett (1991) had significant others (e.g., friends) complete informant ratings of participants' self-oriented and socially prescribed perfectionism and found these ratings correlated moderately to strongly with participants' own self-reports. In Vieth and Trull (1999), mothers and fathers completed informant rating of their daughters' perfectionism. They found mothers' and fathers' informant reports correlated moderately with daughters' self-reports of self-oriented perfectionism. Only mothers' informant reports correlated moderately and significantly with daughters' self-reports of socially prescribed perfectionism; fathers' informant reports and daughters' self-reports of socially prescribed perfectionism were not significantly correlated. Finally, in Flett et al. (2005), participants' self-reports of self-oriented and socially prescribed perfectionism were moderately correlated with their best friends' informant reports.

While these three studies are promising, additional research is needed to address their shortcomings. For instance, Hewitt and Flett's (1991) sample was small ($N = 25$) and little information was reported about the informants and the nature of their relationships with the participants. In addition, the reliability of the informant reports was not stated. Moreover, existing studies using informant reports only assess the convergence between observed indicators (i.e., single measures) of self-oriented and socially prescribed perfectionism. Latent variables are widely believed to provide more accurate estimates of construct convergence (Kline, 2005), meaning existing studies may not have optimally gauged

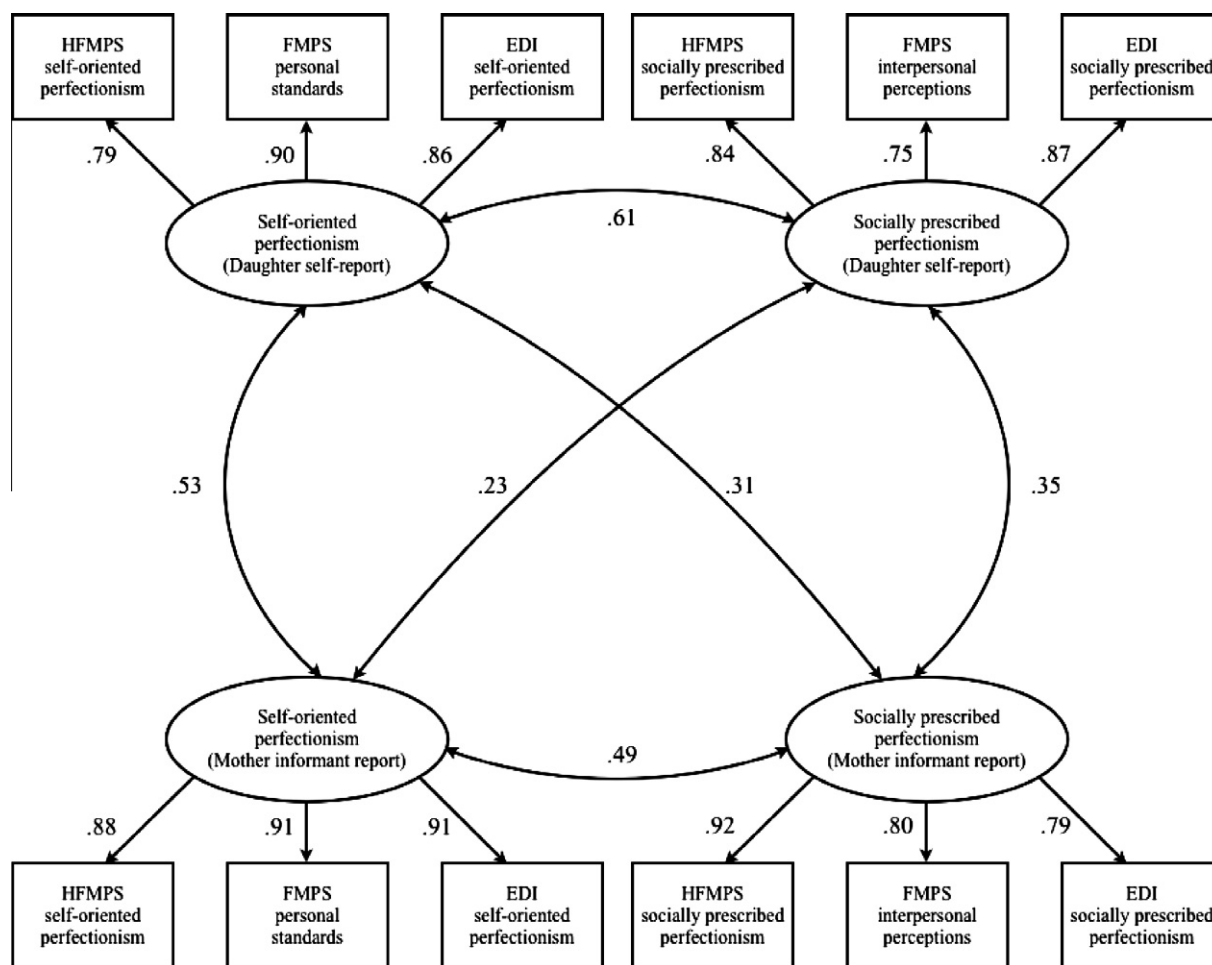


Fig. 1. Measurement model for mother–daughter dyads. Ovals represent latent variables. Rectangles represent manifest indicators. Single-headed arrows represent paths for factor loadings. Double-headed arrows represent correlations. Values are standardized. Significant paths are black ($p < .01$). HFMPs = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; FMPS = Frost et al.'s (1990) Multidimensional Perfectionism Scale; EDI = Garner et al.'s (1983) Eating Disorder Inventory.

the degree of overlap between self- and informant reports. Hence, research testing the psychometric properties of perfectionism latent variables involving a large, well-characterized sample of informants who know participants will advance understanding of the perfectionism construct.

The present study involves undergraduate women as target participants who report on their own self-oriented and socially prescribed perfectionism, and mothers and fathers who report on their daughters' self-oriented and socially prescribed perfectionism. Parents are frequently used as informants for younger children, yet few researchers use parents as informants for emerging adults (i.e., individuals aged 18–25 who are transitioning from adolescence to young adulthood; Arnett, 2000). Despite increasing independence, emerging adults continue to rely on their parents (e.g., for financial and emotional support). Parents are also familiar with their daughters across many contexts, both public and private, where daughters' personality might be observed. Thus, parents are relevant and important informants for undergraduate women.

1.1. Hypotheses

Building on past research supporting Hewitt and Flett's (1991) model of self-oriented and socially prescribed perfectionism (Mackinnon & Sherry, 2012; McGrath et al., 2012; Mushquash & Sherry, 2012; Sherry & Hall, 2009), we proposed a factor structure

involving three manifest indicators of self-oriented perfectionism and three manifest indicators of socially prescribed perfectionism (see Figs. 1 and 2). We hypothesized the proposed factor structure will fit the data well in mother–daughter dyads (see Fig. 1) and in father–daughter dyads (see Fig. 2) as indicated by adequate fit indices, significant correlations between latent variables, and significant and substantial factor loadings for manifest indicators of each latent variable. Moreover, we expected the factor structure for the self-oriented and socially prescribed perfectionism latent variables will be supported when assessed with daughters' self-reports, mothers' informant reports, and fathers' informant reports, thereby providing evidence of factorial validity. Based on data suggesting self- and informant reports of perfectionism correlate moderately (i.e., r in the range of .3; Cohen, 1992; Flett et al., 2005; Hewitt & Flett, 1991; Vieth & Trull, 1999), we hypothesized daughters' self-reported perfectionism (both self-oriented and socially prescribed) would moderately correlate with mothers' and fathers' informant reports of daughters' perfectionism, thereby supporting the convergent validity of the self-oriented and socially prescribed perfectionism latent variables. Lastly, building on evidence that self-oriented and socially prescribed perfectionism are unique (Sherry, Hewitt, Sherry, Flett, & Graham, 2010), we expected these variables will be meaningfully distinct, thereby supporting the discriminant validity of the self-oriented and socially prescribed perfectionism latent variables.

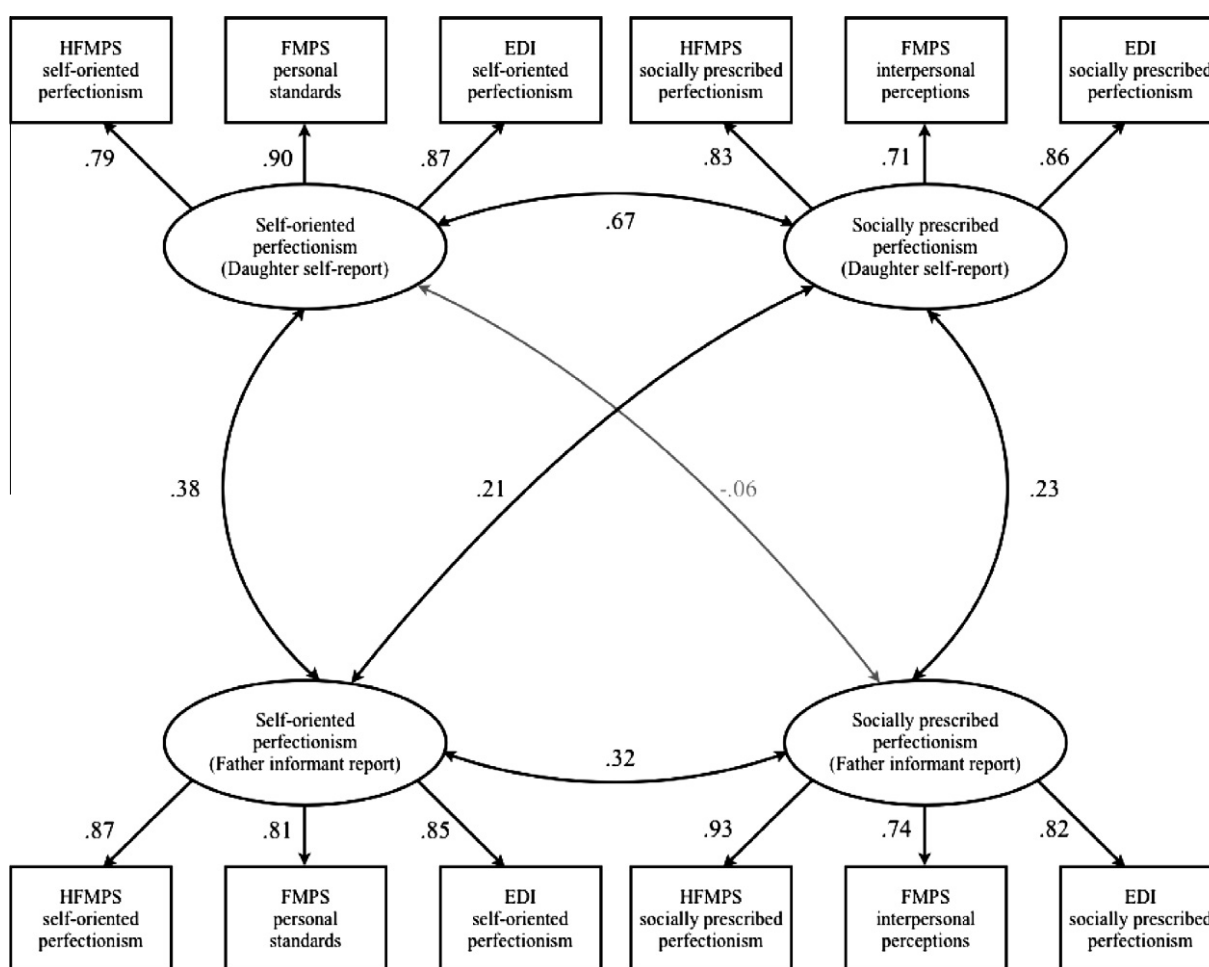


Fig. 2. Measurement model for father–daughter dyads. Ovals represent latent variables. Rectangles represent manifest indicators. Single-headed arrows represent paths for factor loadings. Double-headed arrows represent correlations. Values are standardized. Significant paths are black ($p < .05$). Nonsignificant paths are grey. HFMPs = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; FMPS = Frost et al.'s (1990) Multidimensional Perfectionism Scale; EDI = Garner et al.'s (1983) Eating Disorder Inventory.

2. Method

2.1. Participants

A convenience sample of 242 undergraduate women was recruited from a mid-sized, public university in Eastern Canada. Participants were recruited via flyers and the Department of Psychology participant pool. On average, participants were 20.10 years old ($SD = 2.90$). Most were Caucasian (89.3%) and born in Canada (92.6%). In total, 218 mothers and 160 fathers participated.

The mothers were, on average, 50.05 years old ($SD = 4.92$) and the majority were Caucasian (90.4%) and born in Canada (84.4%). On average, mothers and daughters saw each other face-to-face 2.51 days per week ($SD = 3.02$); spoke on the phone 3.67 days per week ($SD = 2.27$); texted each other 3.98 days per week ($SD = 2.60$); and emailed each other 2.33 days per week ($SD = 4.29$). Mothers reported being involved in their daughters' lives for an average of 20.17 years ($SD = 3.20$) and 21.2% of daughters lived with their mothers. The remaining daughters lived in the same province (29.5%) or country (45.0%) as their mothers, with few living in a different country (3.7%) or not indicating their proximity to their mother (0.6%).

The fathers were on average 52.33 years old ($SD = 6.81$) and the majority were Caucasian (92.5%) and born in Canada (83.1%). On average, fathers and daughters saw each other face-to-face 2.75 days per week ($SD = 2.87$); spoke on the phone 2.93 days per week ($SD = 2.29$); texted each other 2.91 days per week ($SD = 2.57$); and emailed each other 1.62 days per week ($SD = 1.49$). Fathers were involved in their daughters' lives for an average of 19.83 years ($SD = 2.38$) and 18.3% of daughters lived with their fathers. The rest lived in the same province (31.4%) or country (45.3%), with few living in a different country (5.0%).

2.2. Measures

2.2.1. Self-reports

Following McGrath et al. (2012) and Mushquash and Sherry (2012), we measured self-oriented perfectionism with a 5-item short-form of the self-oriented perfectionism subscale from Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HFMPs; e.g., "One of my goals is to be perfect in everything I do"), a 4-item short-form of the personal standards subscale from Frost et al.'s (1990) Multidimensional Perfectionism Scale (FMPS; e.g., "I expect higher performance in my tasks than most people"), and a 4-item modified form of the self-oriented perfectionism subscale from Garner, Olmstead, and Polivy's (1983) Eating Disorders Inventory (EDI; e.g., "I must do things perfectly or not do them at all"; see McGrath et al., 2012). Studies support the reliability and validity of these subscales (Mackinnon & Sherry, 2012).

As in Mushquash and Sherry (2012) and Sherry and Hall (2009), we measured socially prescribed perfectionism with a 5-item short-form from the HFMPs socially prescribed perfectionism subscale (e.g., "The better I do, the better I am expected to do"), a 4-item modified version of the parental perceptions subscale of the FMPS (e.g., "I never feel like I can meet others' expectations; see Sherry & Hall, 2009), and a 4-item modified version of the socially prescribed perfectionism subscale of the EDI (e.g., "It often feels as if people make excessive demands of me"). Items of FMPS and EDI subscales were modified to reflect broader interpersonal content (e.g., "I never felt like I could meet my parents' expectations" was modified to "I never feel like I can meet others' expectations"; see Sherry & Hall, 2009, p. 695). As such, the parental perceptions subscale was renamed the interpersonal perceptions subscale. Studies support the reliability and validity of these subscales (Dunkley et al., 2003; McGrath et al., 2012; Sherry & Hall, 2009).

Scales from the HFMPs are rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Scales from the FMPS are rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Scales from the EDI are rated on a 6-point scale from 1 (*never*) to 6 (*always*).

2.2.2. Informant reports

Informant reports of self-oriented perfectionism and socially prescribed perfectionism were assessed with modified versions of the self-oriented and socially prescribed perfectionism scales mentioned above. Self-report items (e.g., "One of my goals is to be perfect in everything I do") were modified into informant report items (e.g., "One of my daughter's goals is to be perfect in everything she does"). The number of items and the responses options were identical for self- and informant reports.

2.3. Procedure

A university ethics review board approved our study. Undergraduate women responded to an advertisement inviting them to participate in a research study on personality. Each undergraduate woman was required to have at least one parent participate. A parent was defined as any adult who had been or was in a caretaking role in the undergraduate's life. Most informants were biological parents (96.8% of mothers and 94.4% of fathers); however, we also included adoptive parents, stepparents, grandparents and other guardians who were identified by undergraduate women as their female parent or caregiver.

Undergraduate women attended a lab appointment where they provided informed consent, which included permission to contact their parents. Then undergraduate women completed demographics and self-report measures of self-oriented and socially prescribed perfectionism. Parents were emailed a link to an online consent form. Upon consenting, parents were directed to an online survey which assessed demographics and informant report measures of self-oriented and socially prescribed perfectionism. After completing our study, the undergraduate women were debriefed and compensated with their choice of (a) \$25 or (b) \$10 and three bonus points towards a psychology course grade. For participating, parents were entered into a draw for a \$50 gift certificate.

2.4. Data analytic plan

We calculated descriptive statistics for all variables. Confirmatory factor analysis tested the measurement model, including the factor structure for self- and informant reports of self-oriented and socially prescribed perfectionism. We assessed the convergent validity of self- and informant reports of self-oriented and socially prescribed perfectionism by conducting latent correlations. Lastly, we used discriminant validity analyses to test if self-oriented and socially prescribed perfectionism are distinct and discriminable variables.

3. Results

3.1. Descriptive statistics

Across all measures, missing data was minimal for self-reports (0–0.8%), mothers' informant reports (0.5–2.3%), and fathers' informant reports (1.3–2.5%). We used full information maximum likelihood estimation in AMOS 7.0 to handle missing data. Means, standard deviations, and alpha reliabilities for all scales are in Table 1. Values for self-reports are consistent with research involving similar samples (Mackinnon & Sherry, 2012; McGrath et al., 2012; Sherry & Hall, 2009). Alpha reliabilities support the

Table 1
Means, standard deviations, and alpha reliabilities.

	Daughter self-report			Mother informant report			Father informant report		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Self-oriented perfectionism									
HFMPs self-oriented perfectionism	23.50	6.21	.88	22.65	8.14	.95	23.31	7.56	.94
FMPS personal standards	13.06	4.13	.87	12.70	4.01	.85	12.87	3.80	.83
EDI self-oriented perfectionism	14.50	4.72	.85	13.43	4.75	.87	13.66	4.33	.82
Socially prescribed perfectionism									
HFMPs socially prescribed perfectionism	18.85	6.80	.84	14.71	8.22	.93	14.58	7.66	.92
FMPS interpersonal perceptions	9.07	3.51	.79	8.15	4.17	.91	7.99	4.02	.91
EDI socially prescribed perfectionism	12.96	4.22	.80	11.21	4.18	.83	11.04	3.88	.78

Note: HFMPs = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; FMPS = Frost et al.'s (1990) Multidimensional Perfectionism Scale; EDI = Garner et al.'s (1983) Eating Disorder Inventory.

reliability of our self- and informant report measures. Using a series of independent-samples *t* tests, we compared means from mothers' informant reports to means from fathers' informant reports across each measure. We found no statistically significant differences between mothers' and fathers' informant reports across all measures ($ps > .05$). We did not compare means from self-reports to means from mothers' and fathers' informant reports as these values are derived from different measures (i.e., self- versus informant versions of each scale), and are not directly comparable.

3.2. Confirmatory factor analysis

We used confirmatory factor analysis in AMOS 7.0 to test the hypothesized models (see Figs. 1 and 2). Latent variables were allowed to freely covary and each involved three manifest indicators. Corresponding error terms for each measure were correlated (e.g., daughters' error terms for HFMPs self-oriented perfectionism subscale and daughters' HFMPs socially prescribed perfectionism subscale were correlated). Adequate model fit is suggested by a chi-square/*df* ratio (χ^2/df) around 2, a comparative fit index (CFI) $> .95$, and a root-mean-square error of approximation (RMSEA) around .08. RMSEA values are reported with 90% confidence intervals (90% CIs). We used the Akaike information criterion (AIC) for model comparisons.

Our model involving mother–daughter dyads (Fig. 1), fit the data well: χ^2 (42, $N = 218$) = 117.82, $p < .001$; $\chi^2/df = 2.81$; CFI = .96; RMSEA = .09 (90% CI: .07, .11). Our model involving father–daughter dyads (Fig. 2), also fit the data well: χ^2 (42, $N = 160$) = 87.15, $p < .001$; $\chi^2/df = 2.08$; CFI = .96; RMSEA = .08 (90% CI: .06, .11). In both models, standardized factor loadings for self- and informant indicators of latent variables were substantial and significant ($p < .001$; see Figs. 1 and 2). These results indicate the self-oriented and socially prescribed latent variables (self- and informant versions) are adequately measured by their respective observed indicators, thereby supporting the factorial validity of these variables.

Latent variables of self- and informant reports of self-oriented and socially prescribed perfectionism were significantly correlated (see Figs. 1 and 2). That is, daughters' self-reports of their own self-oriented and socially prescribed perfectionism correlated moderately to strongly with parents' reports of their daughters' self-oriented and socially prescribed perfectionism. Daughters' self-reported self-oriented perfectionism was also significantly correlated with mothers' informant report of daughters' socially prescribed perfectionism; this path was nonsignificant in father–daughter dyads. Daughters' self-reported socially prescribed perfectionism was significantly correlated with both mothers' and fathers' informant reports of daughters' self-oriented perfectionism. Overall, these latent correlations support the convergent

validity of self- and informant reports of the self-oriented and socially prescribed perfectionism latent variables.

We tested the discriminant validity of the self-oriented and socially prescribed perfectionism latent variables using model comparisons. We compared the model in Fig. 1 (Model 1) to a modified version (Model 2) where daughters' self-reported self-oriented and socially prescribed perfectionism were treated as identical by fixing the latent correlation to 1.0 (Kline, 2005). We also compared Model 1 to a second modified version (Model 3) where mothers' informant reports of daughters' self-oriented and socially prescribed perfectionism were treated as identical. Likewise, we compared the model in Fig. 2 (Model 4) to a modified version (Model 5) where daughters' self-reported self-oriented and socially prescribed perfectionism were treated as identical. We also compared Model 4 to a second modified version (Model 6) where fathers' informant reports of daughters' self-oriented and socially prescribed perfectionism were treated as identical. Smaller AIC values indicate better model fit and parsimony (Byrne, 2001). AIC differences of four or more provide strong evidence of model superiority (Burnham & Anderson, 2002). AIC values indicated Model 1 (AIC = 213.87) is superior to Model 2 (AIC = 267.31) and Model 3 (AIC = 257.05), and Model 4 (AIC = 183.15) is superior to Model 5 (AIC = 230.98) and Model 6 (AIC = 191.63). Though self-oriented and socially prescribed perfectionism were highly correlated (see Figs. 1 and 2), our results suggest they are meaningfully distinct, supporting the discriminant validity of these latent variables.

4. Discussion

Latent perfectionism variables are increasingly used because they provide more valid and reliable estimates and allow researchers to integrate models and measures of perfectionism (e.g., Frost et al., 1990; Garner et al., 1983; Hewitt & Flett, 1991). However, without evidence these latent variables (e.g., the self-oriented and socially prescribed perfectionism latent variables) are psychometrically sound, research cannot confidently progress and use of these latent variables is questionable. Understanding the factorial, convergent, and discriminant validity of self-oriented and socially prescribed perfectionism latent variables is an important first step before researchers study the predictive validity of these variables. Using self- and informant reports, the present study complements and extends research on self-oriented and socially prescribed perfectionism latent variables by testing and supporting their factorial, convergent, and discriminant validity.

The present study is informative as it integrates formerly disparate models and measures of perfectionism (e.g., Frost et al., 1990; Garner et al., 1983; Hewitt & Flett, 1991) into one model involving self-oriented and socially prescribed perfectionism latent

variables. Our results involving self-reports are consistent with studies supporting the factor structure of self-oriented and socially prescribed perfectionism latent variables (e.g., McGrath et al., 2012; Mushquash & Sherry, 2012; Sherry & Hall, 2009). Our findings also show this factor structure is observable across multiple informants (i.e., mothers and fathers), thereby improving our confidence in the factorial validity of the model. Moreover, unlike research involving perfectionism latent variables with only two observed indicators (e.g., Dunkley et al., 2003) or with contentious observed indicators of perfectionism (e.g., organization; Clara, Cox, & Enns, 2007), the self-oriented and socially prescribed perfectionism latent variables supported here involve three similar and converging observed indicators that are consistent with the widely held definition of these constructs (see Hewitt & Flett, 1991). In addition, the factor structure in the present study also provides compelling evidence that self-oriented and socially prescribed perfectionism are highly overlapping and likely co-occur. That is, as indicated by participants' self-reports and parents' informant reports, individuals who demand perfection of themselves are also likely to experience perceptions that others demand perfection of them.

Results show moderate to strong associations between self- and informant reports of self-oriented and socially prescribed perfectionism latent variables, thus supporting their convergent validity. These findings are consistent with evidence from studies linking self- and informant reports of self-oriented and socially prescribed perfectionism measured using observed indicators (Flett et al., 2005; Hewitt & Flett, 1991; Vieth & Trull, 1999). Obtaining information from self- and informant reports may offer a more comprehensive and thorough picture of the participants' perfectionism. Our evidence suggesting that parents are aware of, and reliably report on, their daughters' perfectionistic tendencies provides support for the view that perfectionism is prominent in interpersonal contexts (Hewitt & Flett, 1991). Similar to Vieth and Trull (1999), our results also suggest that daughters' self-reports correspond more strongly with mothers' informant reports than with fathers' informant reports. This greater correspondence may be related to daughters having closer relationships with their mothers or to daughters spending more time with their mothers as opposed to their fathers. More research is needed to test these speculations.

The present study replicates and extends findings representing perfectionism as a multidimensional construct involving both intrapersonal and interpersonal dimensions (Hewitt & Flett, 1991; Sherry et al., 2010). Results of our discriminant validity analyses support a model of perfectionism involving self-oriented and socially prescribed perfectionism as two closely related, but distinct, perfectionism dimensions. While both dimensions of perfectionism involve perfectionistic demands being placed on daughters, where these demands originate (within the self or within others) seems to differentiate these variables (Hewitt & Flett, 1991).

Despite its strengths, the present study does have limitations. Using informant reports helps address biases accompanying self-report data. However, informants may possess their own biases (e.g., parents representing their children in an overly positive way), which may affect their reports. Moreover, informants in our study were mothers and fathers identified by their daughters as willing to participate. Daughters may have only provided contact information for parents who they believed would represent them positively. In addition, although parents may know their daughters across many domains there may also be information parents do not know. Future research would benefit from randomly selecting informants from participants' social networks to avoid influences attributable to target participants' informant selection. Finally, we recruited a convenience sample of undergraduate women and their parents. This represents a limitation

of the present study and may limit the generalizability of our findings.

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