Perfectionistic self-presentation predicts social anxiety using daily diary methods

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ABSTRACT

Perfectionistic self-presentation is thought to confer risk for social anxiety. Although this relationship is thought to occur dynamically from moment-to-moment, no research has yet tested this relationship using experience sampling methods. The present study stringently tested whether perfectionistic self-presentation predicted social anxiety beyond several important covariates using a 21-day experience sampling design. A sample of 165 undergraduates (75.6% women) completed a series of questionnaires each day for 21 days using palm pilots. Generalizability theory and multilevel factor analyses suggested daily measures of perfectionistic self-presentation, social anxiety, perfectionism cognitions, and depressed mood evidence within-subjects and between-subjects variability, can be measured reliably, and represent distinct factors, allowing hypothesis testing. Multilevel regressions showed perfectionistic self-presentation predicted social anxiety at the between-subjects and within-subjects levels, even when controlling for socially prescribed perfectionism, perfectionism cognitions, and depressed mood. Overall, perfectionistic self-presentation emerged as a robust predictor of daily social anxiety, clearly extending prior cross-sectional research on this topic. By understanding how perfectionism operates from day-to-day, we can better understand the processes that give rise to social anxiety, and ultimately how to devise more effective ways to help people suffering from social anxiety.

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1. Introduction

Social anxiety involves a fear of social or performance situations–particularly with unfamiliar people or when being evaluated–and is distinct from related constructs such as shyness, depression, and specific phobia (Beidel & Turner, 2007). Schlenker and Leary's (1982) self-presentational model of social anxiety explains the conditions where people experience social anxiety. These authors proposed social anxiety arises when people are motivated to make a perfect impression on others, doubt their ability to make a perfect impression, and imagine unpleasant evaluations from other people in response to that failure. When all these components are present, a person experiences social anxiety. These components are also found in Clark's (2005) cognitive model, which proposes social anxiety is maintained by cognitions activated in social situations, including self-doubt and the belief that all imperfections must be concealed to avoid negative evaluations from others. Thus, theory suggests a self-presentational style

that involves concealing perceived imperfections from others may be a key factor in social anxiety.

1.1. Perfectionism and social anxiety

Perfectionistic self-presentation is a public expression of perfectionism comprised of three dimensions: perfectionistic self-promotion (proclaiming and displaying perfection), nondisplay of imperfection (concealing imperfect behaviours and concern with the potential consequences of being imperfect), and nondisclosure of imperfection (avoiding verbal admissions of imperfection; Hewitt et al., 2003). Of these dimensions, nondisplay of imperfection more closely maps onto extant theory (Schlenker & Leary, 1982) because this construct includes concern with the negative consequences of failing to appear perfect (e.g., "I thought failing at something would be awful if people know about it"). In contrast, perfectionistic self-promotion involves a more narcissistic, self-aggrandizing personality style (e.g., "I strive to look perfect to others") and nondisclosure of imperfection tends to focus simply on the avoidance of verbal admissions of imperfection without reference to consequences (e.g., "I try to keep faults to myself"), making both subscales less directly relevant to social anxiety. Moreover, of these three dimensions, nondisplay of imperfection emerges as one of the most consistent predictors of social anxiety

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in student samples, even when controlling for trait perfectionism (Flett, Coulter, & Hewitt, 2012; Hewitt et al., 2003). Nondisplay of imperfection is also strongly associated with other negative mood states, suggesting it is important to control for depressed mood (Hewitt et al., 2003; Mackinnon & Sherry, 2012; Mushquash & Sherry, 2012). Thus, we focus primarily on nondisplay of imperfection, rather than the other two subscales.

Perfectionism cognitions are a private expression of perfectionism which reflects the frequency of automatic thoughts involving themes of perfection (Flett, Hewitt, Blankstein, & Gray, 1998). Although perfectionism cognitions predict generalized anxiety and general distress beyond trait perfectionism (Flett, Hewitt, Whelan, & Martin, 2007; Flett, Hewitt et al., 2012; Flett et al., 1998), this construct has not been examined in relation to social anxiety specifically. Nonetheless, perfectionistic cognitions are operationalized as a self-oriented (rather than socially-oriented) form of perfectionism. Assuming Schlenker and Leary's (1982) theory holds, we might expect perfectionism cognitions to be a less robust predictor of social anxiety than nondisplay of imperfection, as people high in perfectionistic cognitions are less concerned with social consequences of making mistakes in public.

While perfectionistic self-presentation and perfectionism cognitions are posited to be more *state*-like, situational features of perfectionism, Hewitt and Flett (1991) outline three features of perfectionism thought to be relatively stable personality traits: socially prescribed perfectionism (perceiving that others demand perfection), self-oriented perfectionism (demanding perfection of oneself), and other-oriented perfectionism (demanding perfection of others). Socially prescribed perfectionism taps a more interpersonal, public form of perfectionism posited to be fundamental to the experience of social anxiety and positively predicts social anxiety in student samples (Alden, Bieling, & Wallace, 1994; Flett, Coulter, et al., 2012; Flett, Hewitt, & De Rosa, 1996; Hewitt et al., 2003). It is also linked to other negative mood states, again suggesting the importance of controlling for depressed mood (Hewitt & Flett, 1991). Other-oriented and self-oriented perfectionism are inconsistently related, or unrelated, to social anxiety in student samples (Alden et al., 1994; Flett, Coulter, et al., 2012).

1.2. Rationale and hypotheses

Based on prior theory (Clark, 2005; Shlenker & Leary, 1982), we proposed perfectionistic self-presentation–specifically, nondisplay of imperfection – would be a more robust predictor of social anxiety than perfectionistic cognitions, depressed mood, or baseline socially prescribed perfectionism.

Perfectionistic self-presentation and perfectionism cognitions are conceptualized as more state-like features of perfectionism (Flett et al., 1998; Hewitt et al., 2003). However, little research has examined these constructs longitudinally (c.f., Mackinnon & Sherry, 2012; Mushquash & Sherry, 2012), and no studies have examined both of these constructs from day-to-day alongside social anxiety. The supposition that these measures have state-like variability is largely untested. Reliance on cross-sectional methodology undermines the ability to reliably measure constructs because such methods fail to account for error introduced by daily variability (Cranford et al., 2006). Our study addressed these shortcomings by measuring perfectionism, depressed mood, and social anxiety using a daily diary method across 21 days. Drawing on past research (Cranford et al., 2006), our first hypothesis was:

H1. Perfectionism cognitions, perfectionism self-presentation, social anxiety, and depressed mood would contain a mixture of trait-like stability and state-like daily variability, and would be reliably measured using daily methods.

Cross-sectional research asking participants to report over longer periods (e.g., "the past several years") limits our ability to examine processes occurring within a given day. Given prior theory (Schlenker & Leary, 1982), and available cross-sectional evidence linking perfectionistic self-presentation to social anxiety (Hewitt et al., 2003), we predicted state perfectionistic self-presentation would be a strong predictor of social anxiety from day-to-day. Perfectionistic self-presentation is also positively correlated with negative mood states (Hewitt et al., 2003). Some authors have suggested the relationship between perfectionism and social anxiety will disappear once controlling for general distress (Frost, Glossner, & Maxner, 2010). Although socially prescribed perfectionism predicts social anxiety even when controlling for depression (Flett et al., 1996), it remains unknown if perfectionistic self-presentation predicts social anxiety beyond depressed mood. It makes sense to include perfectionistic self-presentation, perfectionism cognitions, and baseline socially prescribed perfectionism in a simultaneous analysis to see if perfectionistic self-presentation can predict social anxiety beyond correlated perfectionism variables. Thus, our second hypothesis was:

H2. Perfectionistic self-presentation would predict social anxiety beyond depressed mood, perfectionism cognitions, and baseline socially prescribed perfectionism at the between-subjects and within-subjects levels.

2. Methods

2.1. Participants

Participants had to meet eligibility criteria necessary for a larger research project. All participants were postsecondary students who had consumed alcohol at least four times in the past month. A sample of 174 participants was recruited; 9 were omitted from analyses because they did not complete baseline measures ($n = 1$), or because they did not complete any daily measures ($n = 8$). The final sample consisted of 165 participants who were predominantly women (75.6%), white (84.8%), and relatively young ($M = 20.75$, $SD = 3.31$ years).

2.2. Materials

2.2.1. Daily perfectionistic self-presentation
Based on factor analytic evidence from Hewitt et al. (2003), we selected three items (Table 2) with the highest factor loadings on the nondisplay of imperfection subscale of the Perfectionistic Self-Presentation Scale. We used this 3-item short form to reduce participant burden. These items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). These items were a reliable daily measure ($\alpha = .97$) in prior research (Mushquash & Sherry, 2012).

2.2.2. Daily social anxiety
Participants indicated their level of daily social anxiety using seven items (Table 2) rated on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). Kashdan and Steger (2006) developed this scale, and found it to have good reliability as a daily measure ($\alpha = .91$).

2.2.3. Daily depressed mood
Participants indicated the extent to which each of three words (sad, depressed, blue) described their daily mood on a scale from 0 (*not at all*) to 5 (*extremely*). Alpha reliabilities ranged from .86 to .92 in prior diary research (Grant, Stewart, & Mohr, 2009).

Table 1
Variance components for daily measures.

Source of variance	Perfectionism cognitions	% Overall variance	Perfectionistic self-presentation	% Overall variance	Social anxiety	% Overall variance	Depressed mood	% Overall variance
Person	0.912	62.15	1.83	59.34	0.376	44.26	0.224	29.85
Day	0	0.00	0.004	0.13	0	0.00	0	0.02
Item	0.007	0.51	0.003	0.10	0.005	0.55	0.002	0.21
Person-by-day	0.229	15.63	0.495	16.08	0.196	23.00	0.29	38.63
Person-by-item	0.073	4.98	0.159	5.17	0.04	4.67	0.028	3.75
Day-by-item	0.001	0.07	0	0.00	0	0.00	0.001	0.11
Error	0.244	16.66	0.59	19.17	0.234	27.51	0.206	27.43
Total	1.47	100.00	3.08	100.00	0.85	100.00	0.75	100.00
R_{1F}	0.92		0.91		0.83		0.77	
R_{KF}	0.99		0.99		0.99		0.99	
R_C	0.74		0.72		0.85		0.81	

Note: Person = variance due to between-persons differences across all days and items; day = variance due to differences between days across all persons and items; item = variance due to responses to scale items across all persons and days; person-by-day = variance due to between-persons differences at different days across all items; person-by-item = variance due to between-persons differences in responses to scale items across all days; day-by-item = variance due to differences between days in responses to scale items across all persons; error = person × day × item interaction plus random error (unknown sources of variance). R_{1F}, R_{1KF}, and R_C are forms of reliability (Cranford et al., 2006).

2.2.4. Daily perfectionism cognitions

Based on factor analytic evidence from Flett et al. (1998), we selected three items with the highest factor loadings on the Perfectionistic Cognitions Inventory to represent daily perfectionism cognitions (Table 2). These items were rated on a scale from 0 (*not at all*) to 4 (*all of the time*).

2.2.5. Baseline socially prescribed perfectionism

The short-form socially prescribed perfectionism scale (Cox, Enns, & Clara, 2002) is a 5-item subscale of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale. Each item ("My family expects me to be perfect") is rated on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*) using the timeframe "over the past several years." Research supports the reliability ($\alpha > .80$) and factorial validity of this subscale in undergraduates (Mackinnon & Sherry, 2012).

2.3. Procedure

Participants were recruited using the psychology department participant pool or campus advertisements. Participants first came to the lab where they completed informed consent, baseline measures, and learned how to use their palm pilot. Participants took palm pilots home for 21 days, and completed daily questionnaires each day. Daily measures were programmed on palm pilots (Dell Axim X51) using customized software designed by Fusient Corp. Palm pilots prompted participants to complete questionnaires at random times between 14:00 and 16:00 each day for 21 days. On each daily questionnaire, participants were asked to report on their thoughts and feelings "since their last entry." Participants were sent weekly reminder e-mails to encourage compliance. After 21 days, participants returned to the lab for debriefing and compensation($10 or one credit point for completing the introductory session, $30 or three credit points for completing the palm pilot portion, and a $50 bonus if they completed >85% of daily questionnaires).

3. Results

3.1. Missing data and protocol compliance

Daily diary data contained 2171 usable daily reports, meaning 62.7% of all possible reports were usable. This is a below average compliance rate, but still within a normal range compared to other

Table 2
Standardized factor loadings for multilevel factor analysis with four within-subjects and four between-subjects factors.

Items	Factor loadings							
	Between-subjects				Within-subjects			
	1	2	3	4	1	2	3	4
Depressed mood								
Sad	**.76**	.26	.02	−.01	**.76**	.04	−.01	.02
Depressed	**.81**	.15	.03	.03	**.84**	.02	.02	−.01
Blue	**.80**	−.05	−.02	.22	**.86**	−.02	.01	.02
Social anxiety								
I worried about what other people thought of me	.02	**.89**	.11	−.02	.01	**.80**	.02	−.00
I was afraid other people noticed my shortcomings	−.02	**.88**	.04	.10	−.01	**.84**	.04	.02
I was afraid that others did not approve of me	−.05	**.96**	.02	.04	.02	**.89**	.04	−.05
I was worried that I would say or do the wrong things	−.01	**.81**	−.02	.21	−.03	**.89**	−.03	.04
When I was talking to someone, I was worried about what they were thinking of me	.01	**.89**	.01	.03	−.01	**.83**	.10	.02
I felt uncomfortable and embarrassed when I was the center of attention	.12	**.80**	−.08	.04	.06	**.67**	−.02	.06
I found it hard to interact with people	.27	**.80**	.01	−.15	.21	**.62**	−.01	−.01
Perfectionism cognitions								
I expect to be perfect	.01	.03	**.95**	−.04	−.00	.01	**.87**	−.01
I should be perfect	−.02	.04	**.94**	.03	.00	.03	**.92**	−.01
My work should be flawless	.01	−.04	**.88**	.10	.01	−.02	**.80**	.07
Perfectionistic self-presentation								
I thought that failing at something is awful if other people know about it	.06	.00	.22	**.74**	.03	−.00	.20	**.70**
I thought it would be awful if I made a fool of myself in front of others	.01	.04	.04	**.92**	.01	−.01	−.01	**.94**
I was concerned about making errors in public	−.00	.10	.00	**.87**	−.02	.16	.00	**.75**

diary studies (Morren, van Dulmen, Ouwerkerk, & Bensing, 2009). The 140 reports completed outside the scheduled window (but on the scheduled day) were retained. On average, participants completed 13.16 (SD = 5.87) daily reports, ranging from 1 to 21. One participant (0.6%) provided only one daily report. Response rates decreased in a linear fashion across 21 days, from 86.7% (Day 1) to 48.5% (Day 21). Day was included as a covariate in multilevel regression analyses to meet the missing at random assumption. Missing data were handled by aggregating data across 21 days and using the mean value for each participant (means, standard deviations, and between-subjects correlations), or maximum likelihood estimation (all other analyses). When data are missing at random (and the auxiliary variable which predicts missing data is included), maximum likelihood estimation provides relatively unbiased parameter estimates for up to 50% missing data (Collins, Schafer, & Kam, 2001).

3.2. Data analytic strategy

Following Cranford et al. (2006), we used generalizability theory to decompose the variance of daily variables and to calculate reliability estimates. Using VARCOMP procedures in SPSS 20.0, we decomposed variance into person, day, item, person-by-day, person-by-item, day-by-item, and error variability. Person, day, and item variability were treated as random. Generalizability theory analysis tested whether there was significant daily variability in variables, and whether these variables were reliably measured.

Total scores for scales were calculated by summing all items in the measure and dividing by the number of items. Means, standard deviations, and bivariate correlations were calculated and reported at the between-subjects level by taking the average of each variable across 21 days. Bivariate correlations were also reported at the within-subjects level using Mplus 7.0.

To assess the factorial validity of daily measures, we conducted multilevel exploratory factor analyses (Roesch et al., 2010) using geomin rotation in Mplus7.0. We used all items from perfectionism cognitions, perfectionistic self-presentation, social anxiety, and depressed mood in these analyses. We examined within-subjects and between-subjects factor structures, as factor structures are not always identical at both levels (Roesch et al., 2010). A well-fitting model was defined by a confirmatory fit index (CFI) around .95, a root mean square of approximation (RMSEA) around .05, a standardized root mean square residual (SRMR) around .08, and factor loadings >.40 (Kline, 2005). To determine the best-fitting model, we used a ΔCFI of .01 or greater as our model selection criterion (Cheung & Rensvold, 2002).

Hypotheses were tested with two-level multilevel regressions using the GENLINMIXED procedure in SPSS 20.0, with days (within-subjects) nested within people (between-subjects). We specified random intercepts and random slopes, except for the slope for "day of study," which was fixed. Within-subjects results allowed us to assess day-to-day variation. Between-subjects results assessed overall relationships when variables are aggregated by calculating the mean for each participant across 21 days. Baseline socially prescribed perfectionism was measured only once, and was included as a between-subjects covariate. Within-subjects predictors were group-mean centered to reduce collinearity (Preacher, Zyphur, & Zhang, 2010).

Daily variables were positively skewed. To account for non-normality, we used a minimum norm quadratic unbiased estimator (MINQUE(1)) for generalizability theory analyses and robust estimates of standard errors for multilevel factor analysis and regressions. Because adjacent residuals in repeated measures data are usually correlated across measurement occasions, we specified an AR(1) correlated error structure in multilevel regression analyses.

3.3. Generalizability theory analyses

For all four daily variables (Table 1), the largest proportion of variance was explained by person variability (30% [depressed mood] to 62% [perfectionism cognitions]), suggesting there are stable, trait-like, between-person differences across all days and items. The next largest proportion of variance across all variables was explained by person-by-day variability (16% [perfectionism cognitions] to 39% [depressed mood]), suggesting there are substantial between-person differences from day-to-day, across all items. Overall, results suggested daily variables have aspects of stable, trait-like individual differences and state-like features that vary from day-to-day, with some variables (perfectionism cognitions, perfectionistic self-presentation) emerging as more trait-like than others (social anxiety, depressed mood).

Various reliability coefficients were calculated (Cranford et al., 2006). R_{F1} is equivalent to calculating Cronbach's alpha for each of the 21 days separately, and taking the average. R_{F1} values were moderate to high for all variables (.77–.92) suggesting adequate reliability. RR_{KF} values were high for all variables (.99), suggesting mean values calculated by averaging across 21 days are highly reliable. R_C values were adequate (.72–.85), indicating acceptable within-subjects reliability for measuring changes from day-to-day.

3.4. Multilevel exploratory factor analyses

We conducted multilevel exploratory factor analyses entering all daily questionnaire items simultaneously. A model with four within-subjects factors and four between-subjects factors was the best-fitting model. This model fit the data well, $\chi^2(124)$ = 312.74, p < .001, CFI = .988, RMSEA = .021, SRMR (within/between) = .006/.008. Factor loadings suggested each item loaded substantially (.67–.96) onto its respective factor with minimal cross-loadings (Table 2). Factors were inter-correlated with medium to large effect sizes at within-subjects (.32–.62) and between-subjects (.36–.72) levels. In sum, variables were strongly intercorrelated, but have distinct factor structures (model fit deteriorates if fewer factors are extracted), supporting factorial validity.

3.5. Means, standard deviations and correlations

Means, standard deviations, and correlations are in Table 3. Variables were positively intercorrelated with medium to large effect sizes at between-subjects (rs from .24 to .79) and within-subjects levels (rs from .30 to .62).

3.6. Multilevel regression

We conducted multilevel regression analyses with daily perfectionistic self-presentation, daily perfectionism cognitions, daily depressed mood, baseline socially prescribed perfectionism, and day predicting social anxiety (Table 4). Between-subjects results showed only aggregated perfectionistic self-presentation significantly predicted social anxiety (ps < .001) when controlling for all other variables. Within-subjects results showed perfectionistic self-presentation, perfectionism cognitions, and depressed mood (but not day of study) significantly predicted social anxiety. As hypothesized, perfectionistic self-presentation significantly predicted social anxiety beyond covariates.

4. Discussion

Daily measures had elements of trait-like individual differences and state-like features that varied from day-to-day. Perfectionism variables were more trait-like, depressed mood was more state-

Table 3
Means, standard deviations, and bivariate correlations.

	1	2	3	4	5	M	SD
1. Perfectionism cognitions	1	.62	.43	.30		1.27	1.00
2. Perfectionistic self-presentation	.72	1	.62	.38		2.66	1.43
3. Social anxiety	.52	.75	1	.55		0.58	0.65
4. Depressed mood	.44	.57	.68	1		0.48	0.52
5. Baseline socially prescribed perfectionism	.52	.45	.36	.24	1	3.52	1.42

Note: Correlations below the diagonal indicate between-subjects correlations ($N = 165$ participants). Correlations above the diagonal indicate within-subjects correlations ($N = 2171$ daily reports). Baseline socially-prescribed perfectionism was measured only at the between-subjects level, and cannot be correlated with within-subjects variables. All correlations are $p < .001$.

Table 4
Multilevel regression with perfectionistic self-presentation and covariates predicting social anxiety.

	Predicting social anxiety $B(SE)$
Between-subjects	
Intercept	−0.34 (.07)**
Perfectionistic self-presentation$_{mean}$	0.24 (0.04)*
Perfectionistic cognitions$_{mean}$	−0.04 (0.04)
Depressed mood$_{mean}$	0.51 (0.10)
Baseline socially prescribed perfectionism	0.03 (0.02)
Within-subjects	
Perfectionistic self-presentation	0.16 (0.02)***
Perfectionistic cognitions	0.11 (0.03)***
Depressed mood	0.23 (0.03)***
Day of study	0.00 (0.002)

The subscript "mean" refers to versions of variables which were created by calculating a single mean value for each participant across all 21 days.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

like, and social anxiety fell somewhere in between. This supports research suggesting perfectionism is relatively enduring and trait-like (Hewitt & Flett, 1991). However, perfectionism cognitions and perfectionistic self-presentation still varied from day-to-day. All daily measures were measured reliably. The present study is a clear methodological improvement over cross-sectional work. In cross-sectional studies, traditional estimates of reliability will be artificially inflated, and effect sizes will be attenuated (increasing Type II error) because daily variability is treated as noise (Cranford et al., 2006). Factor analysis supported the four-factor structure for perfectionism cognitions, perfectionistic self-presentation, social anxiety, and depressed mood at within- and between-subjects levels. This factor analysis suggests relationships observed in the multilevel regression are not simply because daily measures are isometric.

As hypothesized, perfectionistic self-presentation predicted social anxiety when controlling for baseline socially prescribed perfectionism, perfectionism cognitions and depressed mood. At the between-subjects level, variables can be interpreted as more trait-like, enduring features of personality. This is the portion of the variance that remains stable over time. Between-subjects results showed that only aggregated perfectionistic self-presentation predicted aggregated social anxiety. Perfectionistic self-presentation appears key to understanding the personality of the chronically socially anxious person.

At the within-subjects level, variables can be interpreted as more dynamic, state-like features of personality. This is the portion of variance that varies from day-to-day. Perfectionistic self-presentation, perfectionism cognitions, and depressed mood each predicted unique variance in social anxiety within a given day. In sum, results supported the incremental validity of perfectionistic self-presentation, while also suggesting a role for comorbid depressed mood and more private features of daily perfectionism (perfectionism cognitions), in predicting the experience of social anxiety from day-to-day.

Social anxiety arises if three conditions are met: people are motivated to make a perfect impression; people doubt they will be able to make a perfect impression; and they believe failing to make a perfect impression will have negative consequences (Schlenker & Leary, 1982). A person high in nondisplay of imperfection is more likely to believe there are negative consequences for failing, and is more motivated to present a positive impression to other people. Moreover, it is likely impossible to conceal all one's perceived imperfections, so people high in nondisplay of imperfection might reasonably doubt their ability to make a perfect impression. Thus, nondisplay of imperfection is thought to confer risk for social anxiety. Moreover, the constant self-monitoring needed to maintain a "perfect" public persona is thought to maintain social anxiety even in situations where evaluation from others is unlikely (Clark, 2005). Though people may engage in perfectionistic self-presentation in an effort to protect themselves from negative evaluation, this strategy often backfires by generating social anxiety. It is difficult—and potentially anxiety-provoking—to maintain a false façade of perfection. Ironically, the intense self-consciousness associated with feelings of social anxiety involves a tendency to perceive negative evaluations from neutral situations, and may also lead to actual negative evaluation from others due to unpracticed social skills (Beidel & Turner, 2007; Clark, 2005).

4.1. Limitations and future directions

Our study was limited by a homogenous undergraduate sample, which limits generalizability. Future research might use a clinical sample of individuals with social phobia. The study also had a relatively low daily response rate; though maximum likelihood approaches are one of the most effective procedures for dealing with up to 50% missing data (Collins et al., 2001), missing data nonetheless introduces some bias. Future research might work towards improving participant compliance by using palm pilots (or smart phones) less prone to technical failings, developing a greater rapport with participants, and reducing participant burden. The low daily response rate made lagged analyses predicting next-day social anxiety unviable; in the present dataset, lagged analyses would exclude more than 50% of cases, which would introduce an unacceptable amount of bias. Thus, directionality cannot be determined because perfectionistic self-presentation did not temporally precede social anxiety. Socially prescribed perfectionism was measured only at baseline, which limits how it can be incorporated into analyses. Socially prescribed perfectionism may be a less robust predictor of social anxiety because single-occasion measures have reduced reliability (Cranford et al., 2006). Future research might include socially prescribed perfectionism as a daily variable to facilitate comparison with daily perfectionistic self-presentation. Our study did not measure other-oriented or self-oriented perfectionism. Though research suggests these variables are largely unrelated to social anxiety (Alden et al., 1994), future research might test this hypothesis with daily-diary methods.

4.2. Conclusions

Our study demonstrated that daily nondisplay of imperfection is a robust predictor of social anxiety. Our study significantly extends cross-sectional work on nondisplay of imperfection (Hewitt et al., 2003), and is the first paper to decompose the variance of

nondisplay of imperfection and perfectionism cognitions into trait-like and state-like components. Although constructs are often thought of as purely "traits" or "states," work with daily diary approaches often reveals that our measurement tools are capturing elements of both with a single measure. We believe the use of daily measures and multilevel models will lead to increased understanding of the ways perfectionism predicts negative mood states, such as social anxiety. By understanding how perfectionism operates from day-to-day, we can develop greater understanding of the processes that give rise to social anxiety, and ultimately develop better interventions to help people suffering from social anxiety.

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