The relationship between perfectionism, agency, and communion: A longitudinal mixed methods analysis

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ABSTRACT

Theory suggests perfectionists are inordinately motivated by agentic concerns (status, power, achievement, and self-mastery) and have deficits in communal domains (friendship, support, togetherness, and mutual dialogue). Emerging adults transitioning to university participated in a 2-wave, 130-day longitudinal design with quantitative and qualitative components. Participants completed questionnaire measures of perfectionism, and themes of agency and communion were coded from autobiographical narratives. Perfectionism was positively correlated with agency (especially status/victory subthemes) and uncorrelated with communion. Perfectionistic concerns and perfectionism cognitions were the most consistent correlates of agency across waves. Results support assertions that perfectionists are concerned with performance, self-control, dominance, and being recognized for achievements. Hypotheses regarding communion were unsupported, suggesting a need to develop coding schemes focused on social disconnection.

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1. Introduction

Personality traits refer to temporally stable attributes and behavioural tendencies that remain consistent across contexts. Though definitions and terminology vary, most theoretical models of personality incorporate personality traits (McAdams & Pals, 2006; McCrae & Costa, 1999). Though personality traits are quite stable (McCrae & Costa, 1999), there are other aspects of people which *do* change, and *do* depend on context. To develop a full understanding of people, more dynamic aspects of personality are also important. There is less agreement on how to define and name this level of personality. Consistent with McAdams and Pals (2006), we prefer "characteristic adaptations," and define characteristic adaptations as the wide variety of cognitive and behavioural strategies used to deal with the everyday demands of life. Though theorists disagree on definitions and terminology, most agree personality traits are insufficient to fully know a person. Narrative identity is proposed as a third level of personality by McAdams and Pals (2006). Narrative identity is idiographic, and includes autobiographical stories which provide people with personal meaning, identity, unity and purpose. Research using mixed methods designs has identified aspects of a person's autobiographical narrative which can be quantified, such as agency, communion and personal growth (Bauer & McAdams, 2004; McAdams et al., 2006). Evidence also suggests these quantifiable aspects of narrative identity are tied to personality traits and characteristic adaptations (McAdams et al., 2004).

Based on this broad three-level framework, we tested the links among perfectionistic traits, perfectionistic (mal)adaptations, and narrative identity using a longitudinal, mixed methods design. To our knowledge, no quantitative research has tested the link between perfectionism and narrative identity, though a few qualitative studies exist (e.g., Merrell, Hannah, Van Arsdale, Buman, & Rice, 2011). Theory (Blatt, 2008) suggests perfectionists are inordinately motivated by agentic concerns (status, power, achievement, and self-mastery) and have deficits in communal domains (friendship, support, togetherness, and mutual dialogue). The present study focuses on the relationships among perfectionism, agency, and communion.

Though there is some disagreement on measurement and terminology, there is broad consensus on two higher-order dimensions of perfectionism (Cox, Enns, & Clara, 2002; Dunkley, Blankstein, Masheb, & Grilo, 2006; Stoeber & Otto, 2006). We use the term *perfectionistic concerns* to describe a constellation of traits which includes doubts about personal abilities, extreme concern over mistakes and being evaluated, and strong negative reactions to perceived failure. We use the term *perfectionistic strivings* to

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describe a personality trait which includes rigidly demanding perfection of oneself and unrealistically high personal standards.[1] Evidence suggests perfectionistic concerns and strivings have strong test–retest reliability and influence behaviour and emotions across contexts, consistent with their conceptualization as personality traits (Graham et al., 2010; Hewitt & Flett, 1991).

Perfectionism cognitions focus on the frequency of automatic thoughts involving themes of performance-related perfection (e.g., "I have to be the best;" "I need to do better;" "I should be doing more") over the past week (Flett, Hewitt, Blankstein, & Gray, 1998). Flett, Hewitt, Whelan, and Martin (2007) define perfectionism cognitions as a characteristic adaptation, by describing them as "more 'state-like' than existing trait measures, and [reflecting] the fact that automatic thoughts, relative to dysfunctional attitudes and other personality vulnerabilities, are believed to have more of a surface level and situation-specific nature" (p. 257). Consistent with this conceptualization, test–retest reliabilities tend to be somewhat lower than those observed with perfectionistic concerns (Flett et al., 1998). Perfectionism cognitions are thought to arise when participants high in perfectionistic concerns sense a discrepancy between their actual performance and their idealized unrealistic standards for their own performance (Flett et al., 1998). Perfectionism cognitions may be seen as a cognitive, state-like manifestation of perfectionism that contains elements of both perfectionistic concerns and strivings.

Although there is a rich case history of perfectionistic people in popular and clinical literatures (Blatt, 1995), there is little systematic work on how perfectionism manifests in autobiographical narratives. Blatt (2008) discusses how perfectionism arises from an exaggerated focus on self-definition (agentic concerns, such as identity, achievement and autonomy), at the expense of relatedness (communal concerns, such as love, caring, and closeness to others). Thus, we review the qualitative literature on perfectionism, paying attention to themes of agency and communion to see if we might reasonably expect to see this exaggerated focus on agency at the expense of communion in the autobiographical narratives of perfectionists.

Slaney and Ashby (1996) recruited a sample of 37 people who self-nominated or were nominated by others as "perfectionists." Participants described themes of high standards, achievement, and performance as central to perfectionism, though themes of distress and relationship conflict were also present. Merrell et al. (2011) recruited a sample of 14 university students classified as maladaptive perfectionists using a cutoff score of 42 on the discrepancies subscale of the Almost Perfect Scale–Revised (Rice & Ashby, 2007). Participants wrote a series of essays about their "very deepest thoughts and feelings about stress, perfectionism, performance expectations, and coping" (Merrell et al., 2011, p. 515). Common themes included stress resulting from feelings of academic inadequacy, failing to meet unrealistically high academic standards, avoidant coping in response to perceived failures, and relationship conflict. Rice, Bair, Castro, Cohen, and Hood (2003) conducted a qualitative analysis on a sample of four maladaptive perfectionists, two adaptive perfectionists, and three non-perfectionists. Maladaptive perfectionists were defined as people in the upper third of the distribution on concern over mistakes and personal standards subscales of the Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990). Non-perfection-

ists were in the bottom third of the distribution on both subscales, and adaptive perfectionists were defined as people in the upper third of the distribution on personal standards only. When describing perfectionism in a short interview, themes of chronic distress and dissatisfaction with performance, interpersonal problems, a desire to perform at high levels in work and school, inflexible black-and-white thinking, a need for achievement and recognition, and symptoms of obsessive–compulsive disorder were identified. Schuler (2000) interviewed a sample of 20 perfectionistic but gifted middle school students. Perfectionists were identified using cluster analysis on an adapted version of Frost et al.'s (1990) Multidimensional Perfectionism Scale. A cluster of "neurotic perfectionists" were identified who scored high on concern over mistakes, personal standards, parental expectations, doubts about actions, and perceived parental criticism. The main themes identified among the neurotic perfectionists in this study were inability to tolerate mistakes, perceptions that others (particularly parents) require perfection and perceived criticism from others as a result of performance failure. All students envisioned their future in highly agentic terms – even at this young age, students focused on getting good grades with career goals in highly-educated, prestigious jobs. Moreover, the neurotic perfectionists reported significant impairments in parental relationships because of perceived pressure to perform at high standards.

In sum, this review of the qualitative research suggests perfectionists are primarily focused on agentic concerns, such as competence, performance and achievement. Their motivation for achieving at a high level appears to be extrinsic, typically deriving from a fear of losing approval from others after failure. Perfectionists also tended to have marked interpersonal problems – however, in the qualitative accounts from participants, these interpersonal problems are inexorably tied up with agentic concerns. Relationship problems were tied to actual or perceived failures in achievement or competence, and the associated feelings of anger and disappointment that result from unacceptable deviations from perfection.

Agency and communion feature prominently in many psychological theories, such as theorizing by Blatt (2008) and self-determination theory (Bauer & McAdams, 2000). Agency represents the self as an individual, typically manifested in themes of achievement, power, status, and self-mastery. Communion focuses on the self in relation to others, and is typically manifested in themes of love, dialogue, caring and community. Themes of agency and communion were adapted into a coding scheme for autobiographical narratives by McAdams, Hoffman, Day, and Mansfield (1996). In research using this coding scheme, agency was positively associated with power motivation (McAdams et al., 1996), positively associated with conscientiousness, and negatively associated with neuroticism (McAdams et al., 2004). Themes of communion were positively associated with intimacy motivation (McAdams et al., 1996), extraversion, and agreeableness (McAdams et al., 2004). Coding schemes for agency and communion show moderate test–retest correlations over 10-week and 3-year periods, supporting their reliability (McAdams et al., 2006).

It is worth noting that the constructs of agency and communion can be conceptualized at one of three levels (i.e., personality traits, characteristic adaptations, and narrative identity; McAdams & Pals, 2006), in a similar fashion to other personality characteristics. Some authors measure agency and communion as a personality trait or characteristic adaptation using self-report questionnaires (Abele, Rupprecht, & Wojciszke, 2008; Studies 1 and 4 in Abele & Wojciszke, 2007; Wojciszke, Baryla, Parzuchowski, Szymkow, & Abele, 2011). In contrast, other researchers measure agency and communion as a form of narrative identity by transforming participants' open-ended descriptions of autobiographical memories into quantitative data using various coding schemes (McAdams et al.,

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[1] There is debate in the literature regarding the adaptive or maladaptive nature of perfectionistic strivings (Flett & Hewitt, 2006; Stoeber & Otto, 2006). Some researchers argue that healthy, adaptive perfectionism is a "pure" form of perfectionistic strivings uncontaminated by perfectionistic concerns, and identify this subtype using cluster analysis or moderation (Gaudreau & Thompson, 2010; Rice & Ashby, 2007). While we acknowledge the importance of this debate, the present study was underpowered to analyze data in this way.

1996, 2004; Uchronski, 2008), which is better conceptualized at Level 3 of McAdams and Pals' (2006) model of personality. Generally speaking, the self-report personality trait measures are weakly correlated with those coded from open-ended autobiographical data (Grossbaum & Bates, 2002; Uchronski, 2008), suggesting they measure different features of personality. While we acknowledge the important contribution of researchers studying agency and communion using self-report questionnaires, we limited our literature review above to papers which code agency and communion from autobiographical memories (i.e., narrative identity; McAdams & Pals, 2006).

The present study uses a mixed methods design, prioritizing quantitative data by converting qualitative data into numerical codes for statistical analysis (a QUAN + qual design; Hanson, Creswell, Clark, Petska, & Creswell, 2005). This design overcomes the limitations of mono-method designs, and has the potential to incrementally advance understanding of perfectionism. This design represents a particular advance for the study of perfectionistic autobiographical narratives, which have (to our knowledge) only been studied using qualitative methods (Merrell et al., 2011; Rice et al., 2003; Schuler, 2000; Slaney & Ashby, 1996). A mixed methods design emphasizing quantitative data helps move this area of inquiry from qualitative data exploration into specific hypothesis testing using quantitative data. Past research linking personality traits to narrative identity has typically been limited to Big Five personality traits (e.g., McAdams et al., 2004). The present research also incrementally advances this literature by being the first to test the relationship between perfectionism – a personality domain related to, but distinct from, the Big Five – and narrative identity.

Consistent with prior theory, people high in perfectionism appear to place an excessive emphasis on agentic concerns, such as self-control and extrinsically motivated performance (Blatt, 2008; Flett et al., 1998; Frost et al., 1990; Mills & Blankstein, 2000). Indeed, in extreme cases, highly perfectionistic people may even commit suicide after a publicly visible failure (Blatt, 1995). This suggests people high in perfectionism are likely to place a great deal of importance on agentic concerns in their own life narratives, albeit for unhealthy reasons. Thus, we hypothesize perfectionistic concerns, perfectionistic strivings, and perfectionism cognitions will be positively correlated with agency.

Theory on perfectionism has long stressed that the need for approval and belongingness – especially approval from parental figures – underlies perfectionism, and that perfectionists believe approval from others is contingent upon being perfect (e.g., Pacht, 1984). Moreover, the persistent sense of falling short of others' expectations and a maladaptive pattern of interpersonally aversive behaviour contributes to social disconnection from others (Hewitt, Flett, Sherry, & Caelian, 2006). Theorizing from a more psychodynamic perspective also suggests that perfectionistic people prioritize agentic concerns at the expense of communion (Blatt, 2008). This over-focus on agency in an attempt to earn approval from others often makes it more difficult to achieve communal goals. For example, perfectionistic concerns are linked to increased conflict in romantic relationships (Mackinnon et al., 2012), and other interpersonal problems such as decreased perceived social support, hostility, rejection and low relationship satisfaction (Habke & Flynn, 2002). Thus, we hypothesize that perfectionistic concerns will be negatively correlated with communion.

There is less theoretical and empirical support for a relationship between (a) perfectionistic strivings and communion and (b) perfectionistic cognitions and communion. Habke and Flynn (2002) suggest self-oriented perfectionism (a component of perfectionistic strivings) is associated with interpersonal problems, but to a lesser extent than perfectionistic concerns. It is possible that behaviours typical of people high in perfectionistic strivings and perfectionism cognitions (e.g., ceaseless striving) may result in an unduly narrow set of life experiences (e.g., constant studying) where chances for developing close relationships are missed. Using Blatt's (2008) terminology, there may be an over-focus on self-definition at the expense of relatedness. Thus, we tentatively hypothesize that perfectionistic strivings and perfectionism cognitions will also be negatively correlated with communion.

2. Method

2.1. Participants

Participants were (N = 127; 99 women; 28 men) attending university for the first time starting September 2010. Participants ranged from 18 to 24 years old (M = 18.31; SD = 0.80). Most participants (84.92%; N = 107) graduated high school in spring 2010; at Wave 1, 36.8% (N = 46) were in a romantic relationship involving dating. Participants self-identified as Caucasian (81.1%), Asian (5.5%), Black (3.9%), Arabic (3.9%), or "other" (5.6%). This sample resembles other undergraduate samples recruited at Dalhousie University (e.g., Graham et al., 2010).

2.2. Procedure

The study was approved by Dalhousie University's ethics board. Eligible participants completed a semi-structured guided autobiography interview (McAdams et al., 1996) followed by identical pen-and-paper questionnaires at each of two waves. Participants were debriefed at the end of Wave 2. Participants completed Wave 1 within the first 50 days of fall term and were scheduled to complete Wave 2 at the beginning of winter term (130 days after Wave 1). Phone reminders, email reminders, and incentives (3 bonus points and $25 for psychology students; $55 for non-psychology students) were used to reduce attrition. Attrition rates were low, with 115 participants (90.6%) completing Wave 2. On average, Wave 2 occurred 133.18 (SD = 8.08) days after Wave 1.

2.3. Materials

2.3.1. Perfectionistic concerns
Three short-form subscales developed by Cox et al. (2002) measured perfectionistic concerns: The 5-item socially prescribed perfectionism subscale ("The better I do, the better I am expected to do;" Hewitt & Flett, 1991), the 5-item concern over mistakes subscale ("If I fail at work/school, I am a failure as a person;" Frost et al., 1990), and the 4-item doubts about actions subscale ("Even when I do something very carefully, I often feel that it is not quite right;" Frost et al., 1990). Subscales were standardized and summed into a measure of perfectionistic concerns (Graham et al., 2010). Participants responded to socially prescribed perfectionism items using scales from 1 (*strongly disagree*) to 7 (*strongly agree*), and responded to concern over mistakes and doubts about actions items using scales from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants responded using a long-term timeframe ("during the past several years"). Evidence suggests this measure is reliable and valid (Graham et al., 2010).

2.3.2. Perfectionistic strivings
Three short-form subscales measured perfectionistic strivings, consistent with McGrath et al. (2012): A 5-item self-oriented perfectionism subscale derived from Hewitt and Flett's (1991) Multidimensional Perfectionism Scale ("I strive to be as perfect as I can be;" Cox et al., 2002), a 4-item personal standards subscale derived from Frost et al.'s (1990) Multidimensional Perfectionism Scale ("I set higher goals than most people;" Cox et al., 2002), and a 4-item self-oriented perfectionism subscale derived from

the Eating Disorder Inventory ("I hate being less than best at things;" Garner, Olmstead, & Polivy, 1983). Subscales were standardized and summed into a measure of perfectionistic strivings (McGrath et al., 2012). Participants responded to Hewitt and Flett's (1991) self-oriented perfectionism items using 7-point scales from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants responded to personal standards items using scales from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants responded to Garner et al.'s (1983) self-oriented perfectionism items using scales from 1 (*never*) to 6 (*always*). Participants responded using a long-term timeframe ("during the past several years"). Research indicates this measure is reliable and valid (McGrath et al., 2012).

2.3.3. Perfectionism cognitions

Perfectionism cognitions were measured using Flett et al.'s (1998) 25-item Perfectionism Cognitions Inventory. Participants read a list of perfectionistic thoughts ("I should be perfect"), and indicated how frequently each thought occurred during the past 7 days. Participants responded to items using a 5-point scale from 0 (*not at all*) to 4 (*all of the time*). Studies support the reliability and validity of this measure (Flett et al., 2007).

2.3.4. Guided autobiography interview

Participants completed a semi-structured interview administered by trained research assistants at both waves. Interviewers asked participants to verbally describe four "key scenes" in their own life story. The High Point is an episode involving intense positive emotion that stands out as the highest, most wonderful moment within the reporting period. The Low Point is an episode involving intense negative emotion that stands out as the worst, most unpleasant moment. The Turning Point is an episode where a participant undergoes a substantial change in self-understanding. Participants were also asked to provide one Other Event "that stands out in your memory as being especially important or significant in some way." For each key scene, participants were asked to describe what happened, where it happened, who was involved, what they did, what they were thinking and feeling, what impact this experience may have had upon them, and what this experience says about who they were or are as a person. Each key scene needed to be unique; participants were not permitted to tell the same story twice. Asking for discrete stories prevents the same story from being coded more than once. Interviewers were trained to prompt participants for more detail (e.g., "What were you thinking and feeling at that time?"). Our interview was derived from McAdams et al.'s (1996) Guided Autobiography, and variations of

this procedure were used in other studies (McAdams et al., 2006). Our interview was audio-recorded and transcribed at a later date by trained assistants. A subset of transcripts ($N = 60$) was double-checked for accuracy; transcription errors were minimal.

Participants were asked to focus on key scenes that occurred during summer vacation (from May 1 to August 31) at Wave 1, and on key scenes from their first semester at university (from September 1 to December 31) at Wave 2. In total, interviews with participants generated 376,995 words, corresponding to approximately 1508 pages of double-spaced text.

2.3.5. Agency and communion

Themes of agency and communion were coded using McAdams et al.'s (1996) coding scheme. Each key scene was coded for four agency themes: Achievement/Responsibility (overcoming obstacles to achieve instrumental goals), Status/Victory (winning and achieving heightened status), Power/Impact (asserting oneself in a powerful way), and Self-Mastery (striving to control or better the self). Each key scene was also coded for four communion themes: Love/Friendship (a relationship becomes closer), Dialogue (reciprocal, non-hostile, non-instrumental communication), Caring/Help (providing care, assistance or support), and Unity/Togetherness (a sense of oneness with a community of people). Total scores for agency and communion are calculated by summing themes across all four key scenes, so total scores can range from 0 to 16. See Table 1 for a list of frequencies and sample excerpts for each component of agency and communion. A qualitative analysis of these themes using thematic analysis (Braun & Clarke, 2006) is located in the Supplementary materials.

The first author and a trained research assistant first coded 400 key scenes (50 of each scene at both waves) for agency and communion to calculate inter-rater reliability. AC1 is a statistic used to assess inter-rater reliability in dichotomous data which addresses the limitations of Cohen's kappa (Gwet, 2002). Intraclass correlations (ICCs) are a measure of inter-rater reliability used with interval-level data. Inter-rater reliability was moderate to excellent when examined for each individual theme (AC1's ranged from .73 to 1.0) and for total scores (ICCs ranged from .74 to .87). Once inter-rater reliability was established, the trained research assistant coded the remaining stories for agency and communion. The resulting agency and communion scores thus reflect the research assistant's scores only. This assistant was blind to hypotheses and questionnaire results and consulted regularly with the first author. Research supports the reliability and validity of this coding scheme (McAdams et al., 1996, 2006).

Table 1
Frequencies and sample quotes for agency and communion.

Variable	Wave 1 Frequency	Wave 2 Frequency	Sample quote
Agency			
Achievement/ Responsibility	61 (25.3%)	53 (28.5%)	"I hadn't got higher than a C + since I started. My last paper I got back was a B […]. I was on cloud nine." (Wave 2, High Point)
Status/Victory	40 (16.6%)	11 (5.9%)	"I just like got a [scholarship] and it is a lot of money, but when you put it into comparison of what other people got, I got so upset." (Wave 1, Low Point)
Power/Impact	13 (5.4%)	13 (7.0%)	"One of the guys tried to put me into a head lock […] but I reacted and ended up throwing him on his butt." (Wave 2, Other Story)
Self-Mastery	127 (52.7%)	109 (58.6%)	"I finally understood that […] unless I […] really work hard […] I'm not really gonna become the athlete that I imagine I can become." (Wave 1, Other Story)
Communion			
Love/Friendship	95 (38.3%)	96 (42.7%)	"I just realized I loved those people that I was with […] I just realized how much those people meant to me […] how much I value my friends." (Wave 2, High Point)
Dialogue	88 (35.4%)	73 (32.4%)	"We just talked about all the times we've had together, from grade nine to grade twelve." (Wave 1, Other Story)
Caring/Help	49 (19.8%)	40 (17.8%)	"I cried and then I called my best friend and […] she calmed me down a bit." (Wave 2, Low Point)
Unity/Togetherness	16 (6.5%)	16 (7.1%)	"It was an awesome feeling […] being welcomed into such a social community." (Wave 1, High Point)

Note: Frequencies indicate the number of times each subtheme was coded in the narratives. Percentages indicate the proportion of the total number agency themes coded within that wave For example, to calculate Wave 1 Status/Victory: $(40/(61 + 40 + 13 + 127)) * 100\%$.

Table 2
Means, standard deviations and ranges.

Variable	Wave 1		Wave 2		Potential range	Actual range
	M	SD	M	SD		
Perfectionistic concerns						
HFMPS socially prescribed perfectionism	19.42	7.16	17.83	7.48	5–35	5.0–32.0
FMPS doubts about actions	10.97	3.70	10.77	4.22	4–20	4.0–20.0
FMPS concern over mistakes	11.72	5.26	11.08	5.21	5–25	5.0–24.0
Perfectionistic strivings						
HFMPS self-oriented perfectionism	23.76	5.50	21.21	6.52	5–35	5.0–35.0
FMPS personal standards	13.54	3.30	13.18	3.81	4–20	4.0–20.0
EDI self-oriented perfectionism	13.20	4.42	13.01	4.53	4–24	4.0–24.0
Perfectionism cognitions	44.60	18.57	42.19	20.42	0–100	0.0–95.0
Agency	1.99	1.48	1.80	1.35	0–16	0.0–6.0
Communion	2.01	1.66	2.09	1.56	0–16	0.0–8.0

Note: N = 127. In all cases, means were calculated by summing component items together. Perfectionistic concerns and strivings were calculated by standardizing and summing the three component subscales, as listed in the table. Actual range was calculated using the range of values across both waves. 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.

Table 3
Bivariate correlations, alpha reliabilities, intraclass correlations, kurtosis, and skewness.

Variable	1	2	3	4	5	6	7	8	9	10	α/ICC	Kurtosis	Skew
Wave 1													
1. Perfectionistic concerns	–										.89	0.16	−0.81
2. Perfectionistic strivings	.62***	–									.91	−0.19	−0.05
3. Perfectionism cognitions	.72***	.60***	–								.92	0.28	−0.49
4. Agency	.20*	.25**	.21*	–							.74	−0.60	−0.20
5. Communion	−.06	−.11	−.10	−.12	–						.87	0.87	0.85
Wave 2													
6. Perfectionistic concerns	**.82*****	.54***	.65***	.12	−.00	–					.92	0.21	−0.81
7. Perfectionistic strivings	.56***	**.72*****	.61***	.12	.03	.67***	–				.93	−0.40	−0.40
8. Perfectionism cognitions	.60***	.49***	**.76*****	.21*	−.03	.71***	.68***	–			.94	0.53	−0.38
9. Agency	.26*	.12	.24*	**.20**	−.13	.30**	.14	.21*	–		.87	0.71	0.57
10. Communion	−.05	−.01	−.04	.01	**.21***	.01	.03	.07	−.01	–	.87	0.34	−0.35

Note: N = 127. A bivariate correlation of .10 signifies a small effect size, .30 signifies a medium effect size, and .50 signifies a large effect size. Test–retest correlations are indicated in bold.
* p < .05.
** p < .01.
*** p < .001.

3. Results

3.1. Missing data

Overall, 7.6% of data were missing, with covariance coverage ranging from .83 to 1.00. Missing data were handled using multiple imputation (20 imputations) in SPSS 20.0. Multiple imputation improves statistical power and parameter estimates compared to list-wise deletion and single imputation methods (Graham, 2009). Because missing data was minimal at Wave 1, and because there is no established way to use multiple imputation for exploratory factor analysis, we used listwise deletion (N = 123) for the factor analysis.

3.2. Descriptive statistics and reliability

Means, standard deviations, alpha reliabilities and intraclass correlations appear in Table 2. We compared the Wave 1 means in the present study to means reported in other undergraduate samples (Flett et al., 1998; Graham et al., 2010; McAdams et al., 2006; McGrath et al., 2012). To quantify the degree of difference in means between the present study and prior research, we used Cohen's d as a measure of effect size and used independent t-tests to compare means across studies. Means for all variables were not significantly different (ps > .05) from prior research (ds range from

−.11 to .25). These analyses suggest our means are broadly comparable to other undergraduate samples. When comparing Wave 1 and Wave 2 means from Table 2 using paired t-tests, none of the means for variables in our study changed significantly over time (ps > .05). In total, there were 427 agency themes coded and 473 communion themes coded (see Table 1 and the Supplementary materials for a detailed breakdown). Alpha reliabilities ranged from .89 to .94, supporting the internal consistency of the questionnaires. Kurtosis and skew statistics (Table 3) and an inspection of histograms suggest data were approximately normally distributed. One outlier was identified for Wave 2 agency using box plots. The pattern of results observed did not change when data were re-analyzed after performing a square-root transformation on agency and communion total scores or when this outlier was removed (rs were all within .02 of presented values, and statistical significance using the p < .05 criterion did not change). Thus, we retain the outlier and present analyses from untransformed variables for ease of interpretation.

3.3. Bivariate correlations

Bivariate correlations are in Table 3. Test–retest correlations for perfectionism variables ranged from .72 to .82, suggesting these constructs were highly stable. The test–retest correlation was a non-significant trend for agency (p = .07), and was significant for

Table 4
Point-biserial correlations examining subcomponents of agency and communion.

	Wave 1 Perfectionistic concerns	Wave 1 Perfectionistic strivings	Wave 1 Perfectionism cognitions	Wave 2 Perfectionistic concerns	Wave 2 Perfectionistic strivings	Wave 2 Perfectionism cognitions
Wave 1						
Achievement/resp.	.16[†]	.16[†]	.17[†]	.15	.07	.13
Status/victory	.16[†]	.21[*]	.19[*]	.11	.13	.10
Power/impact	.11	.18[*]	.09	.10	.08	.06
Self-mastery	.16[†]	.19[*]	.18[†]	.08	.10	.17[†]
Love/friendship	.02	.02	−.08	.03	−.01	−.06
Dialogue	−.03	−.09	.01	.01	.02	−.04
Caring/help	−.03	−.11	−.08	−.02	.02	.02
Unity/togetherness	−.11	−.00	−.05	−.10	−.02	−.04
Wave 2						
Achievement/resp.	.06	−.06	.01	.03	−.08	−.11
Status/victory	.26[*]	.21[*]	.26[*]	.20[†]	.23[*]	.26[*]
Power/impact	.03	.08	−.01	.05	.05	−.02
Self−mastery	.09	.05	.15	.15	.06	.19[†]
Love/friendship	−.12	−.11	−.11	−.08	−.11	−.13
Dialogue	.07	.07	.04	.14	.18[†]	.13
Caring/help	.08	.12	.07	.05	.10	.15
Unity/togetherness	.02	.07	.04	.04	.07	.15

Note: N = 127. Achievement/resp. = achievement/responsibility.
[†] *p* < .10.
[*] *p* < .05

communion, suggesting these constructs have modest test–retest stability.[2] Intercorrelations among perfectionism variables were significant with medium to large effect sizes across both waves (*r*s from .49 to .72), consistent with prior work (e.g., Graham et al., 2010).

Across waves, three of four correlations between agency and perfectionistic concerns were significant (*r*s from .12 to .30), one of four correlations between perfectionistic strivings and agency were significant (*r*s from .12 to .25), and four of four correlations between perfectionism cognitions and agency were significant (*r*s from .21 to .24), generally supporting hypothesis 1. In contrast, communion was uncorrelated with the three perfectionism variables across both waves (*r*s from −.11 to .07), failing to support hypothesis 2. Table 3 does not change substantively when adding demographics as covariates using partial correlations.[3]

We also broke perfectionistic concerns and perfectionistic strivings into their component subscales, and examined their relationship with agency and communion. Across waves, three of four correlations between agency and socially prescribed perfectionism were significant (*r*s from .15 to .29), three of four correlations between concern over mistakes and agency were significant (*r*s from .13 to .22), and two of four correlations between doubts about actions and agency were significant (*r*s from −.01 to .28). Only 3 of 12 correlations (*r*s from .04 to .24) between perfectionistic strivings subscales and agency were significant (i.e., each Wave 1 perfectionistic strivings subscale was correlated with Wave 1 agency).

As in Table 3, themes of communion were uncorrelated to the six subscales of perfectionistic concerns and perfectionistic strivings at both waves (0 of 12 correlations were significant). These results broadly support the results in Table 3, and the pattern of results did not suggest a specific role for any individual subscale.

3.4. Point-biserial correlations examining subcomponents of agency and communion

We also explored the relationships between perfectionism variables and individual agency subthemes (achievement/responsibility, status/victory, power/impact, and self-mastery) and communion (love/friendship, dialogue, caring/help, and unity/togetherness). Dichotomous variables were calculated such that 1 = subtheme present in at least one story, and 0 = no subtheme present. A series of 96 point-biserial correlations are presented in Table 4. Because point-biserial correlations suffer from reduced statistical power as dichotomous variables deviate from a 50/50 split (Tabachnick & Fidell, 2001), we set our critical *p*-value at .10 for these exploratory analyses. Communion subthemes were virtually uncorrelated (1 of 48 correlations significant) with perfectionism variables at both waves, replicating results using total scores in Table 3. Wave 1 agency subthemes were positively correlated with all Wave 1 perfectionism variables (9 of 12 correlations significant) but were generally uncorrelated with Wave 2 perfectionism variables (1 of 12 correlations significant). Wave 2 status/victory subthemes were positively correlated with Wave 2 perfectionism variables (6 of 6 correlations significant), but Wave 2 perfectionism variables were uncorrelated with Wave 2 achievement/responsibility, power/impact, and self-mastery subthemes (1 of 18 correlations significant). Overall, status/victory themes were the strongest correlate of perfectionism variables.

3.5. Longitudinal analyses measuring change over time

We also conducted longitudinal analyses testing whether perfectionism predicts change in agency over time and vice versa. First, we created residualized measures of agency, communion,

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[2] The correlation between high-school grades (the focus of many Wave 1 stories) and university grades (the focus of many Wave 2 stories) tends to be very small (Mackinnon, 2012). Because many of the achievement/responsibility themes focused on school performance, test-retest correlations may be attenuated. When test-retest reliabilities are re-calculated for agency omitting achievement/responsibility themes, the effect size increases, *r* = .30, *p* = .002.

[3] Some readers might prefer we enter strivings as a simultaneous predictor with other perfectionism variables or that an "adaptive" subtype of perfectionism be identified using moderation (Gaudreau & Thompson, 2010). While we acknowledge the importance of these questions, the present study is underpowered to test these hypotheses due to a high degree of colinearity among predictors (Mason & Perreault, 1991). The strong positive correlation between perfectionistic concerns and perfectionistic strivings (Graham et al., 2010) would inflate the Type II error rate to an unacceptable level. Thus, we simply present bivariate correlations.

and perfectionism variables by regressing the Wave 2 measure on the Wave 1 measure, and saving the standardized residuals in SPSS. We then correlated Wave 1 measures with these new residualized measures, allowing us to test if variables predicted change over time. Perfectionistic concerns ($r = .23$, $p = .03$) and perfectionism cognitions ($r = .20$, $p = .04$), but not perfectionistic strivings ($r = .07$, $p = .46$), predicted increases in agency over time. None of the perfectionism variables predicted changes in communion over time (rs from $-.04$ to $.01$, $ps > .05$). Moreover, neither agency (rs from $-.08$ to $.07$, $ps > .05$) nor communion (rs from $.07$ to $.16$, $ps > .05$) could predict changes in perfectionism variables over time.

4. Discussion

Perfectionistic concerns and perfectionism cognitions were correlated with themes of agency in autobiographical narratives, consistent with hypothesis 1. Moreover, longitudinal analyses suggested that perfectionism variables predict changes in agency, rather than the reverse. People high in perfectionistic concerns may feel pressured to perform perfectly in work and school-related domains to win approval from others, avoid strong reactions to perceived failures, and to overcome a persistent sense of self-doubt. Perfectionism cognitions are intrusive, automatic thoughts about perceived performance failures and the need to work harder to achieve agentic goals (e.g., "I need to work harder;" Flett et al., 1998). Thus, it stands to reason that the most accessible autobiographical memories for people with high levels of perfectionistic concerns and perfectionism cognitions would be memories which centre on performance, achievement, and hard work. This contention is supported by qualitative research (Merrell et al., 2011; Slaney & Ashby, 1996).

Perfectionistic strivings were inconsistently correlated with agency across waves, and did not predict changes in agency over time in the longitudinal analyses. These findings might suggest perfectionistic strivings are less strongly related to agency; this makes sense, given research suggesting perfectionistic strivings predict different outcomes than perfectionistic concerns (Stoeber & Otto, 2006). However these inconsistencies might simply reflect measurement error or our small sample size. It is noteworthy that all three perfectionism variables were correlated with agency at Wave 1. This could suggest the May–August reporting period represents a more salient time for narrating themes of agency in this age group; for example, stories about graduation or winning scholarships were more common at Wave 1. Nonetheless, research using larger sample sizes is needed to test whether perfectionistic strivings contribute uniquely to the prediction of agency in autobiographical narratives.

When agency subthemes were examined separately, themes of status/victory (i.e., winning and/or achieving heightened status) emerged as the strongest correlate of perfectionism variables. Agency as measured from narratives is a construct with both positive and negative aspects. Agency is related to personal growth (McAdams et al., 2006) and negatively associated with neuroticism (McAdams et al., 2004). However, studies also generally show a pattern of inconsistent or null relationships with subjective well-being, eudaimonic well-being and affective tone in narratives (Bauer & McAdams, 2004; Grossbaum & Bates, 2002; McAdams et al., 2006). Bauer and McAdams (2000) have suggested status/victory themes represent a form of extrinsic motivation. Extrinsic motivation is positively related to negative outcomes and perfectionism (Mills & Blankstein, 2000). The present research extends these findings in a more nuanced way, suggesting perfectionists place particular importance on competitive achievements where their

victories are publicly lauded (e.g., winning scholarships, victory in sports).

All three perfectionism variables were uncorrelated with themes of communion across waves, contrary to hypothesis 2. Though it is difficult to interpret null results, it is possible themes of communion do not tap the same underlying constructs as prior work on perfectionism and social disconnection (Hewitt et al., 2006). That is, communion may not clearly measure subjective social disconnection (e.g., low levels of perceived social support) or objective social disconnection (e.g., an objectively impoverished social network). Though we can infer that people who tell communal stories place value on close interpersonal relationships, the stories themselves tell the researcher little about social disconnection. Some authors conceptualize themes of communion as a communal form of motivation (McAdams et al., 2006): People who tell communal stories are motivated by a need to belong and be loved by other people. The need for relatedness is a fundamental human need (Blatt, 2008); however, people who tell communal stories are thought to have a stronger need for relatedness than others. If perfectionism compromises close relationships as theory suggests (Hewitt et al., 2006), narratives might contain more frequent reports of conflict, break-ups or relationship-oriented regrets. Future research might use alternative coding schemes which assess separation from or rejection by others, such as Winter's (1991) running text system. People high in perfectionistic concerns might be overly focused on the negative emotions elicited by social disconnection. Exploring this topic using more nuanced communal subthemes might be a fruitful avenue for future research.

Evidence suggests people high in perfectionistic concerns place an inordinate amount of pressure on themselves to perform well as a way of obtaining acceptance and approval from others (Hewitt & Flett, 1991). People high in perfectionistic concerns often want approval from others, but feel others have unrealistic demands of perfection, and that relational intimacy is contingent on their performance (e.g., "The fewer mistakes I make, the more people will like me;" Frost et al., 1990). If communion is primarily a measure of communal motivation, then our null results make sense. Perfectionistic people want to have close interpersonal relationships; however, they are plagued by self-doubt and feel others are constantly judging them, impairing their ability to engage in close relationships. Thus, perfectionists may *want* to be close to others, but objectively fail to do so in a variety of ways (Mackinnon et al., 2012). This nuance is not captured by the measure of communion used in our study.

All of our participants were undergoing the transition to university for the first time, which includes frequent performance evaluation, heightened stress and temporary social isolation (Hicks & Heastie, 2008). We also asked participants to tell stories that occurred during a discrete 8-month portion of this transitional period, rather than allowing participants to freely narrate their whole life story. Thus, the stories in our study are more likely to focus on the transitional period itself, and the associated concerns with evaluation, social isolation, and stress. Many agentic stories focused on performance, particularly in school. Indeed, the prototypical stories for agency were performance-related and extrinsically-motivated (e.g., grade-focused performance, winning an award for performance, striving to perform better in school). There was a pronounced focus on school performance, and students who told agentic stories often expressed a great deal of self-doubt (e.g., being "surprised" that they won a scholarship). Though the stories were often positive in tone (e.g., students were happy to get a good grade, to win at sports, or to gain insight), they also betrayed an undertone of self-doubt, excessive self-control, a preoccupation with others' opinions and potentially unrealistic standards about performance. This was particularly true for status/victory subthemes. An excerpt from a relatively perfectionistic student (85th per-

centile on perfectionistic concerns in this dataset) illustrates this point: "I saw one of my friends and he was really, as you call a nerd. He studies really too much, and I wanted to be better than him in studying, [...] He told me that he got (pause) maybe three to four scholarships and I only got two [...] I felt so bad and I thought that he is way better than me and I was way down" (Wave 1, Low Point, coded for status/victory). Such qualitative information helps clarify the relationship between agency and perfectionism.

Though our sample size (N = 127) is relatively large for mixed methods research (Hanson et al., 2005), and is (to our knowledge) the largest qualitative study on perfectionism to date, it is small compared to most mono-method quantitative studies of perfectionism. The relatively small sample size, combined with the high degree of collinearity among perfectionism variables precluded more complex analyses such as multiple regression, moderation, and structural equation modelling. Though such analyses are useful for identifying the relative importance of different perfectionism measures in large sample research, the type II error rate is too large for such analyses to be informative in the present dataset. Future research should collect larger samples. In addition, all participants in our sample were students undergoing the transition to university for the first time. By selectively studying students transitioning to university, we had an opportunity to observe a key developmental period. However, student samples are widely criticized for their lack of generalizability. Future research might use a similar methodology in clinical samples of highly perfectionistic people. We present a qualitative analysis of agency and communion in the online Supplementary materials; however, future research might use a grounded theory approach (Barker, Pistrang, & Eliott, 2002) to develop further insights. Although our choice to focus the life narratives on two discrete 4-month periods ensures that participants do not tell the same story twice, our results may be less directly comparable to research which did not impose a specific timeframe for participants to narrate (McAdams et al., 2006) and may have attenuated test–retest correlations for agency and communion. Nonetheless, it is remarkable that perfectionism was correlated with agency at both waves. Future research may want to conduct a more comprehensive life-narrative interview where participants consider their entire life story. We also measured agency and communion at McAdams and Pals' (2006) level of narrative identity, rather than using questionnaire measures of agency and communion (Abele & Wojciszke, 2007; Abele et al., 2008; Wojciszke et al., 2011). Because questionnaires appear to be conceptually distinct from codes derived from narratives (Grossbaum & Bates, 2002; Uchronski, 2008), future research might benefit from including both types of measurement.

4.1. Conclusions

Using a mixed methods design which converted qualitative data in autobiographical narratives into quantitative codes, we expanded and clarified the literature by showing that questionnaire measures of perfectionism were positively associated with themes of agency in the autobiographical narratives of emerging adults transitioning to university. These results held across a two-wave study using a 4-month longitudinal design, strengthening the case for agentic themes in narratives as a persistent aspect of perfectionism and may suggest that agentic themes are amplified by perfectionistic concerns during key transition periods. This supports the long-held assertion that perfectionists are overly concerned with themes of high standards, self-control, dominance, and being recognized by others for their achievements (Blatt, 1995; Frost et al., 1990; Hewitt & Flett, 1991). It also provides a novel mixed methods test of this assertion in a literature dominated by self-report questionnaire methods and, to our knowledge, provides the

first systematic, quantitative test of perfectionism as manifested in autobiographical narratives. This model also represents one of the few empirical tests of personality that integrates all three levels of personality as espoused by McAdams and Pals (2006) and represents a significant methodological and empirical advance for the literature on perfectionism.

Acknowledgments

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.jrp.2013.02.007.

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