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ABSTRACT

Many students report being overwhelmed by the expectations they have for themselves or experience from others while studying at university. As such, we investigated the degree to which perfectionism – a trait increasing among university students – is related to academic burnout. Researchers at twelve universities provided samples of undergraduate students who completed an online questionnaire measuring perfectionism (perfectionistic strivings and perfectionistic concerns) and burnout (exhaustion, cynicism, and efficacy) once towards the end of the academic year. Applying random-effects meta-analyses across samples showed that perfectionistic strivings had a small-to-medium positive relationship with exhaustion and small positive relationships with cynicism and efficacy. In addition, perfectionistic concerns had a medium-to-large, and medium, positive relationship with exhaustion and cynicism, and a small negative relationship with efficacy. The overall effect of perfectionism was positive, medium and large, for cynicism and exhaustion, and trivial for efficacy. The findings suggest that reducing perfectionism may offer a means of supporting student success and wellbeing.

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Introduction

The mental health and wellbeing of students are a major concern for universities with students reporting more of these issues than ever before (see Lewis and Bolton 2023; Mahon et al. 2024; Sivertsen et al. 2019). One growing issue is the number of students who are reporting academic burnout – a stress-related issue that undermines wellbeing and student success. To safeguard students from academic burnout, universities need a better understanding of the potential risk factors. In this regard, research more broadly has implicated perfectionism – an increasingly common trait among students – as one possible risk factor. However, surprisingly, few studies exist on the relationship between perfectionism and burnout in university students. Consequently, in the present study we conducted the largest test of this relationship to date across multiple UK and Irish universities, examining the degree to which different dimensions of perfectionism relate to academic burnout symptoms.

Academic burnout

Burnout is a syndrome characterized by feelings of exhaustion, cynicism, and (in)efficacy (Maslach and Jackson 1981). It has a long history in occupational research where the concept originated. However, burnout is also applicable to a range of settings beyond work, including parenting, sport, and education. For university students, burnout relates to the development of the three symptoms in the context of studying and university life – being emotionally exhausted by the experience of studying, experiencing negative feelings or cynicism towards studying, and having lower confidence in academic skills and abilities (Schaufeli et al. 2002). Although attempts have been made to determine the level of burnout among students (e.g. Rosales-Ricardo et al. 2021), cut-offs to determine when students are 'burnt out' depend on the instruments used, making it difficult to draw any firm conclusions. As such, burnout is perhaps best viewed on a continuum with increases associated with greater problems and changes in whether students find studying worthwhile and rewarding.

It is apparent from research that as burnout increases it takes a heavy toll on university students. This is evident in research that has found, for example, that burnout is positively related to feelings of loneliness (Dobos, Mellor, and Piko 2024), alcohol and illicit substance use (Andrade et al. 2021), and depressive symptoms (Wang et al. 2024). There is also evidence that links burnout symptoms among students with thoughts of suicide (Seo et al. 2021) and with increases in thoughts of suicide over the course of an academic programme (Dyrbye et al. 2008). With these worrying relationships in mind, it is unsurprising that researchers have also found that higher burnout symptoms are likely to undermine student motivation and success. For instance, burnout symptoms have been found to be related to lower engagement (Salmela-Aro and Read 2017), higher absenteeism (Seibert et al. 2016), and lower academic achievement at university (Madigan and Curran 2021).

In regards to how academic burnout develops, it can be understood as the result of a prolonged imbalance between study demands and resources (see Bakker and de Mostert, 2024). Demands and resources can be internal (e.g. high standards versus self-efficacy) and external (e.g. workload versus peer support). In addition, differences

between students in the way they experience demands and perceive available resources help explain why some students are more prone to stress and burnout than others (see Lazarus and Folkman 1987). In keeping with this approach, a range of common demands have been identified among students reporting higher burnout, such as workload, number and frequency of exams, and the need to work alongside studying (e.g. Benner and Curl 2018; Olson et al. 2023; Weber et al. 2019). So, too, have a number of different characteristics of students themselves that affect the experience of these demands such as their motives and personality traits (e.g. David 2010; Hyytinen et al. 2022; Sulea et al. 2015). Among the personality traits found to be related to academic burnout is perfectionism.

Multidimensional perfectionism

Perfectionism is a trait characterised by excessively high standards and overly critical self-evaluation (Frost et al. 1990). Studying perfectionism entails examining the effects of these two main features, typically referred to as perfectionistic strivings (PS) – internalised pressure to strive for perfection – and perfectionistic concerns (PC) – being overly concerned with the implications of imperfection (see Bieling, Israeli, and Antony 2004; Cox, Enns, and Clara 2002; Hill et al. 2024). One important and related distinction is between the degree to which people expect perfection from themselves (self-oriented perfectionism), as a marker of PS, or believe other people's approval depends on external expectations of perfection (socially prescribed perfectionism), as a marker of PC (Hewitt and Flett 1991). Adopting this and other similar approaches has provided an account of perfectionism whereby PS typically confers vulnerability to motivation, performance, and wellbeing problems, often depending on the amount of PC present, whereas PC is more uniformly problematic (see Gaudreau and Thompson 2010; Hill 2021; Hill, Madigan, and Olamaie 2021).

A considerable amount of research has examined the effects of perfectionism on university students. Many of the major existing meta-analytical reviews of perfectionism include studies of university students and address important issues that are regular concerns among this group, such as self-esteem, eating disorders, and sleep quality (Khossousi et al. 2024; Paranjothy and Wade 2024; Stricker et al. 2023). Findings from this research indicate that higher PC poses significant problems for students, while the effects of PS are also problematic but to a lesser degree. One exception to this work are findings that PS is related to higher academic achievement (Madigan 2019; Osenk, Williamson, and Wade 2020). It is notable, however, that more recent research suggests that any performance benefits of PS may be an inadvertent by-product of pursuing lofty goals rather than pursuing perfection, per se, with pursuing perfection actually likely to hinder academic performance (see Gaudreau et al. 2022).

Among the key costs of perfectionism for university students is burnout. Hill and Curran (2016) provided the clearest indication of this link in a previous meta-analysis of the relationship. They analysed the relationship across multiple domains, including education, and found that PS had small negative or non-significant relationships with burnout symptoms whereas PC displayed medium-to-large and medium positive relationships with burnout symptoms. In keeping with our understanding of the development of burnout, it appears that the personal standards students have for themselves may not

be the primary issue. Rather, it is the concerns, doubts, and fears regarding the consequences of not meeting those standards that are more important for the risk of burnout. As such, links between PC and experiences of test anxiety, avoidant coping, and reluctance to seek support, among other unhelpful accompaniments, seem pertinent to explaining why PC is the main source of perfectionism driven burnout among university students (e.g. Burcaş and Crețu 2021; Stoeber and Rountree 2021; Tan 2022).

With this research as a backdrop, the present study intended to address several limitations of existing work. First, Hill and Curran's (2016) meta-analysis included only three studies on perfectionism and burnout among university students. More robust and precise estimates of these relationships are therefore needed. Second, since the meta-analysis, several conceptual and analytical advances have helped reconcile the differing effects of PS and PC. This includes calculating the total unique (or net) effect of perfectionism (Hill, Madigan, and Olamaie 2021). The total unique effect of perfectionism has proved useful in other areas of research and has illustrated how, even in the context of more ambiguous relationships for PS, the influence of PC is often enough to make the overall effect of perfectionism problematic (see Hill, Madigan, and Olamaie 2021). Similarly, recent research examining the interaction between PS and PC has shown that their effects often depend on each other which includes relationships with burnout in other contexts (see Hill 2021). However, as yet, neither the total unique effect of PS and PC on academic burnout, nor the interaction between PS and PC in predicting academic burnout, have been examined.

Present study

Against this backdrop, the aim of the present study was to examine the relationships between multidimensional perfectionism and burnout in university students. In doing so, we examined (1) the sizes and directions of the meta-analytical relationships between multidimensional perfectionism (PS and PC) and burnout, (2) the total unique effect of perfectionism on burnout in university students, and (3) whether PC moderate the relationship between PS and burnout. Based on the aforementioned research, we hypothesised that (H1a) PS would be negatively related to burnout, (H1b) PC would be positively related to burnout, (H2) the total unique effect of perfectionism on burnout will be positive (i.e. any negative effect of PS would be smaller than the positive effect of PC), and (H3) PC will moderate the relationship between PS and burnout whereby higher levels of PC will correspond with smaller negative effects of PS on burnout.

Method

Participants

Twelve independent samples were collected that ranged in size from 21 to 187 students (M = 90.42, SD = 46.48). The total number of undergraduate students that completed the questionnaire was 1,115. The sample included 309 male and 796 female students (n = 9 intersex, prefer not to say, or did not respond) of which 953 were white (-British, -Irish, -other). Most participants were single (n = 608) or in

a relationship ($n = 435$). A range of academic programmes (e.g. HND, BA, BSc, MSci) and subject areas (e.g. psychology, sport science, biomedical science) were represented. Students were in the foundation year ($n = 15$), first year ($n = 518$), second year ($n = 357$), third year ($n = 161$), and fourth year ($n = 63$) of their programmes ($n = 1$ did not report). Most of the students were full-time ($n = 1{,}082$) and domestic ($n = 1{,}010$). Approximately 28% of students reported using wellbeing services at their university ($n = 308$ students in total). Most of the students who used wellbeing services had done so once ($n = 123$). The average number of times wellbeing services were used was 2.41 times ($SD = 2.38$; range = 1–20).

Measures

Multidimensional perfectionism

The short version of the Multidimensional Perfectionism Scale (MPS; Hewitt and Flett 1991, 2004) was used to measure perfectionism. This instrument was developed by Cox, Enns, and Clara (2002) based on a factor analysis of the original scale. The short version includes five items to measure self-oriented perfectionism which was used as the indicator of PS (e.g. 'One of my goals is to be perfect in everything I do'.) and five items to measure socially-prescribed perfectionism which was used as the indicator of PC (e.g. 'People expect nothing less than perfection from me'.). Responses were recorded on a 7-point scale (1 = 'Not at all agree' to 7 'Totally Agree'). The short version of the scale has been shown to produce valid and reliable scores in previous studies of undergraduate students and is highly correlated with the longer version of the scale. It was selected based on the additional brevity of the instrument and evidence that it outperforms the longer scale on some psychometric properties (see Cox, Enns, and Clara 2002).

Academic burnout

The Maslach Burnout Inventory[1] – General Survey for Students (Schaufeli et al. 1996) was used to measure academic burnout. It includes six items to measure exhaustion (e.g. 'I feel emotionally drained by my studies'), five items to measure cynicism (e.g. 'I doubt the significance of my studies'), and six items to measure efficacy (e.g. 'In my opinion, I am a good student'). Responses were recorded on a 7-point scale capturing how often the burnout symptom is experienced (0 = 'Never' to 6 = 'Every day'). The instrument is the most widely used when measuring academic burnout and evidence of the validity and reliability of the instrument is provided by Schaufeli et al. (1996).

Additional measures

University engagement was measured using three single-item ad-hoc measures. This included typical attendance ('Per week, I typically attended', 1 = 'None' to 5 'All my classes'), typical grades ('In terms of my grades for my assignments, I typically get', 1 = 'A failing mark (<40%)' to 5 = 'A first (>70%)'), and intention to quit university ('In terms of the likelihood that you will quit studying at university before your programme ends', 1 = 'Highly unlikely' to 5 = 'Highly likely').

Procedure

Prior to starting the study, ethical approval was granted by [BLIND FOR REVIEW]. The authorship team was tasked with recruiting an independent sample of undergraduates from their respective institutions (i.e. one sample per institution). Recruitment was via non-random, convenience sampling, and advertisement of the project. Data collection was via an online questionnaire during a set 12-week period (March to April, 2024). Students were required to be undergraduates. No additional selection or formal exclusion criteria was applied. Students provided informed consent and were offered an incentive to take part which was entry into prize draw to win one of three £50 vouchers.

The aims, hypotheses, and analyses of the present study were preregistered (BLIND FOR REVIEW). The study was completed as preregistered with the following deviations: (1) assessment of the factor structure of the instruments were undertaken, (2) the combined effects of perfectionism (Stoeber, Madigan, and Gonidis 2020) were also calculated to aid interpretation of total unique effects, (3) multiple meta-regressions were used to examine independent rather than collective effects of moderators in order to isolate their effects, (4) a set of ancillary analyses were conducted to examine the relationship between perfectionism and the three indicators of university engagement (attendance, grades, and intention to quit). Data and code for the study and analyses have been made publicly available (BLIND FOR REVIEW).

Statistical analyses

The minimum target sample size was set at ten independent samples of 113 undergraduate students. The target of 113 undergraduates was based on an a priori power analysis using the findings of Hill and Curran (2016) and the smallest correlation between perfectionism (PS and PC) and total burnout (r^{+} = .26, two-tailed, α = .05, power = .80, Faul et al. 2007). As such, the present study was designed to detect effects of a small-to-medium size that had been found in previous research. The target of ten independent samples was selected as it is the recommended minimal number of samples required for meta-regression which is the technique used to test H3 (Borenstein et al. 2009). Twelve samples were ultimately collected with five exceeding sample size requirements. Despite some under-recruitment at individual sample level, the analyses (which weights for sample size when calculating overall effects) is well suited to deal with this issue.

Preliminary analysis included removal of cases where missing data exceeded 5% and removal of univariate (±3.29, $p < .001$) and multivariate outliers (Mahalanobis distance exceeds χ^2 [5] = 20.52, $p < .001$) within each sample. Internal reliabilities were inspected (Cronbach's α and McDonald's' Ω) and with the exception of two occasions exceeded .70 (typically considered a threshold for being reliable) with one being extremely low (α = .45, efficacy in sample 9). We therefore excluded these scores from the primary analyses (note, a repeat of the analyses with and without their inclusion had minimal impact on all findings). Results for assessment of internal reliability are presented in the Supplementary Materials (Table S1).

Factor structure of the two instruments was also inspected using confirmatory factor analysis (CFA) and exploratory structural equation modelling (ESEM) with robust maximum likelihood estimation and using target rotation for ESEM. We used ESEM as well as

CFA as ESEM permits cross-loadings of items (whereas in CFA they are all set to zero) and can therefore be more appropriate when assessing multidimensional instruments (Marsh et al. 2009). Conventional criteria were used as indicative of reasonable fit: χ^2 (df) $p > .05$, CFI and TLI > .90, RMSEA < .08, 90% CI < .05 to <.08; SRMR < .08, AIC and BIC (smaller indicates better fit in model comparison) (Marsh, Hau, and Wen 2004). Overall, factor structures were supported with reasonable fit evident and notable in the ESEM models. Results are presented in the Supplementary Materials (Table S2 and S3).

Primary analyses were meta-analysis using a random-effect model (to test H1a and H1b). This analysis entails aggregating bivariate correlations between perfectionism dimensions and burnout symptoms across samples. In using a discrete set of samples within the same study, this technique is called a 'mini meta-analysis' (see Goh, Hall, and Rosenthal 2016). An overall effect is derived based on the weighted contribution of individual effects (r^+) along with corresponding 95% confidence intervals (CI). In a random effects model, effect sizes are weighted by the inverse of within-sample variance (viz. sample size) and between-sample variance (viz. variance attributed to differences between sample characteristics other than samples size). It is a technique that is extremely useful when samples contributing to the overall effect vary in size and other characteristics. Cohen's (1992) general recommendations were used to guide interpretation of effect sizes (small = .10, medium = .30, and large = .50). If the 95% confidence interval for the estimate did not include zero, the effect was statistically significant ($p < .05$, two-tailed).

Primary analysis also included calculation of the total unique effect (TUE) of perfectionism on burnout symptoms (to test H2). TUE was calculated using procedures described in Hill, Madigan, and Olamaie (2021). TUE ($\beta_{PS}+\beta_{PC}$), 95% CI, and relative weights are provided. The TUE is interpreted as the increase in burnout following a one standardised unit increase in both PS and PC. Again, if the CI did not include zero, the effect was statistically significant ($p < .05$, two-tailed). The combined effect (CE) was also added to this analysis to aid interpretation (not preregistered). The CE is interpreted as the standardized mean difference (Cohen's *d*) between students high in PS (+1 SD) and PC (+1 SD) versus students low in PS (−1SD) and PC (−1SD; see Stoeber, Madigan, and Gonidis 2020).

A meta-regression using a random-effects model was used to test H3. In this analysis, the mean level of PC was used to predict the effect of PS on burnout symptoms (r^+) in each sample. Exploratory (but pre-registered) analyses were also conducted which were meta-regressions with sex (% female, continuous), age (continuous), year of study (continuous), and mode of study (part-time or full-time) included as predictors of the PS and PC effects on burnout symptoms. Meta-essentials was used to conduct analyses for H1a, H1b, and H3, and two web-based applications were used to test H2 (Hill 2026; Tonidandel and LeBreton 2015).

Results

Descriptive statistics and bivariate correlations

Based on descriptive statistics in each sample and response-formats, overall, students reported moderate levels of PS ($M = 4.66$, $SD = 0.24$) and low levels of PC ($M = 3.27$, $SD = 0.25$). They also reported experiencing exhaustion 'once a week' ($M = 4.70$, $SD = 0.37$),

cynicism 'a few times a month' ($M = 3.75$, $SD = 0.26$), and feeling effective 'once a week' ($M = 4.68$, $SD = 0.16$). Based on the bivariate correlations in each sample, PS typically displayed a small, positive, and statistically significant relationship with exhaustion and small, positive, non-statistically significant relationships with cynicism and efficacy. By contrast, PC typically displayed medium-to-large, positive, and statistically significant relationships with exhaustion and cynicism, and a negative but varied relationship with efficacy in terms of size and significance. Results for each sample are reported in Table 1.

Meta-analytical effects

The meta-analysed effect of the relationship between PS and burnout was positive and small-to-medium for exhaustion ($r^+ = .24$, 95% $CI = .20, .28$), positive and small for cynicism ($r^+ = .08$, 95% $CI = .03, .14$), and positive and small for efficacy ($r^+ = .15$, 95% $CI = .08, .23$). In each case, the meta-analysed effect was statistically significant ($p < .05$, two-tailed). The meta-analysed effect of the relationship between PS and burnout was positive and medium-to-large for exhaustion ($r^+ = .43$, 95% $CI = .38, .48$), positive and medium for cynicism ($r^+ = .35$, 95% $CI = .30, .41$), and negative and small-to-medium for efficacy ($r^+ = -.18$, 95% $CI = -.29, -.07$). Again, in each case, the meta-analysed effect was statistically significant ($p < .05$). Results are presented in Table 2.

Total unique effect and relative weights of perfectionism

The TUE of PS and PC on burnout was positive and large for exhaustion ($\beta_{PS}+\beta_{PC} = .45$, 95% $CI = .39, .51$) with PC largely responsible for this relationship based on the relative weights analysis. The TUE of PS and PC was positive and medium for cynicism ($\beta_{PS}+\beta_{PC} = .29$, 95% $CI = .23, .35$), again, with PC largely responsible for this relationship based on the relative weights analysis. The TUE of PS and PC was trivial for efficacy ($\beta_{PS}+\beta_{PC} = -.02$, 95% $CI = -.08, .04$) with an approximately equal contribution of both dimensions of perfectionism based on relative weights analysis. The TUEs for exhaustion and cynicism were statistically significant ($p < .05$) but the TUE for efficacy was not ($p > .05$). CE showed that differences between students high and low in perfectionism were large for exhaustion and cynicism ($d = 0.90$ and $d = 0.58$) and trivial for efficacy ($d = 0.04$). Results are presented in Table 3.

Moderation analyses

Meta-regression analyses showed that PC did not moderate the relationship between PS and the three burnout symptoms (βs $= -.06, -.16, -.06$, ps $> .05$). Results are presented in Table 4. Exploratory analyses[2] provided evidence that year of study moderated the relationship between PS and efficacy ($\beta = .77$, $p = .01$). This relationship was larger as the number of students in the first year of study in the sample increased. In addition, there was also evidence that age moderated the relationship between PC and exhaustion ($\beta = .84$, $p = .02$). This relationship was larger in samples of older students. Results are presented in the Supplementary Materials (Table S4).

Table 1. Descriptive statistics and bivariate correlations for all samples.

	N	Age	% F	% PT	% YR1	PS M (SD)	PC M (SD)	EXH M (SD)	CYN M (SD)	EFF M (SD)	PS.PC *r*	PS.EXH *r*	PS.CYN *r*	PS.EFF *r*	PC.EXH *r*	PC.CYN *r*	PC.EFF *r*
Sample 1	111	19.33 (1.87)	42.34	1.80	86.49	4.45 (1.36)	2.84 (1.25)	3.92 (1.53)	3.46 (1.19)	4.82 (0.98)	.62***	.28**	.27**	.16	.39***	.40***	−.09
Sample 2	125	20.14 (2.71)	70.40	0	60.00	4.85 (1.22)	3.64 (1.35)	5.33 (1.46)	4.11 (1.49)	4.61 (1.01)	.43***	.21*	.13	.12	.33***	.34***	−.16
Sample 3	118	25.96 (9.03)	73.73	4.24	55.92	4.56 (1.31)	3.29 (1.56)	4.53 (1.58)	3.41 (1.64)	4.55 (1.20)	.46***	.21*	.04	.12	.50***	.41***	−.26**
Sample 4	83	20.73 (2.89)	63.86	2.41	43.37	4.35 (1.28)	3.15 (1.29)	4.60 (1.51)	3.63 (1.43)	4.60 (0.99)	.55***	.20	.07	.24*	.38***	.42***	−.08
Sample 5	187	20.50 (2.58)	79.70	0.53	97.32	4.44 (1.33)	3.15 (1.34)	4.81 (1.47)	3.86 (1.43)	4.52 (0.99)	.47***	.18*	.04	.33**	.37***	.21**	.02
Sample 6	45	24.47 (7.22)	80.00	0	22.22	4.78 (1.26)	3.09 (1.25)	5.08 (1.54)	3.56 (1.72)	4.89 (1.21)	.43**	.38*	.05	−.04	.53***	.33*	−.54***
Sample 7	89	21.40 (4.73)	84.27	2.25	35.95	4.97 (1.32)	3.49 (1.43)	4.98 (1.60)	3.96 (1.47)	4.57 (1.06)	.48***	.29***	.06	.12	.45***	.34***	−.09
Sample 8	121	20.31 (3.95)	80.17	0	34.71	4.66 (1.32)	3.27 (1.36)	4.96 (1.35)	4.22 (1.45)	4.53 (0.95)	.54***	.29***	.05	.11	.43***	.37***	−.07
Sample 9	21	19.90 (1.22)	80.95	0	28.57	5.17 (1.11)	3.73 (1.52)	4.52 (1.67)	3.75 (1.68)	4.97 (0.68)	.45*	.29	.06	.03	.41	.35	−.21
Sample 10	34	28.71 (11.43)	67.65	5.88	41.18	4.49 (1.64)	3.21 (1.46)	4.62 (1.78)	3.46 (1.56)	4.82 (1.29)	.60***	.12	.11	−.03	.54***	.53**	−.42*
Sample 11	88	34.26 (13.79)	73.86	20.45	38.64	4.58 (1.49)	3.05 (1.56)	4.49 (1.78)	3.87 (1.87)	4.61 (1.23)	.52***	.34***	.15	.01	.56***	.36***	−.25*
Sample 12	93	19.85 (2.73)	63.44	1.08	60.22	4.64 (1.11)	3.34 (1.35)	4.51 (1.55)	3.69 (1.55)	4.61 (1.07)	.34***	.22*	−.05	.21*	.45***	.39***	−.29***

Note: *N* = sample size; % F = percentage of female students; % PT = percentage part-time students; % YR1 = percentage of students in their first year of study; *M* = mean; SD = standard deviation; PS = perfectionistic strivings; PC = perfectionistic concerns; EXH = exhaustion; CYN = cynicism; EFF = efficacy; *r* = bivariate correlation; ***$p < .001$, **$p < .01$, *$p < .05$.

Table 2. Meta-analytical relationships between perfectionism and burnout across all samples.

Predictor variables	*k*	*N*	r^+	95% CI	Q_T	I^2
Exhaustion						
Perfectionistic strivings	12	1115	.24	.20, .28	4.48	0.00
Perfectionistic concerns	12	1115	.43	.38, .48	8.08	0.00
Cynicism						
Perfectionistic strivings	12	1115	.08	.03, .14	7.14	0.00
Perfectionistic concerns	12	1115	.35	.30, .40	7.60	0.00
Personal efficacy						
Perfectionistic strivings	11	1094	.15	.08, .23	12.48	19.90
Perfectionistic concerns	11	1094	−.18	−.29, −.07	23.01	56.54

Note: *k* = number of samples; *N* =sample size; r^+ = weighted mean effect; 95% CI = 95% confidence interval; Q_T = total heterogeneity of the weighted mean effect; I^2 = inconsistency in the observed relationship across studies; k^{TF} = number of imputed studies as part of the 'trim and fill' method.

Table 3. Total unique effects and combined effects of perfectionism on burnout.

Criterion variables	N	*r*(PS. Y)	*r*(PC. Y)	*r*(PS. PC)	TUE [95% CI]	RW PS (%)	RW PC (%)	R^2	Combined effect (*d*)
Exhaustion	1115	.24	.43	.49	.45 [.35, .55]	.03 (15.79)	.16 (84.21)	.19	0.90
Cynicism	1115	.08	.35	.49	.29 [.19, .39]	.01 (6.52)	.12 (93.48)	.13	0.58
Efficacy	1094	.15	−.18	.49	−.02 [−.12, .08]	.05 (45.38)	.06 (54.62)	.11	0.04

Note: *N* = Number of participants; PS = perfectionistic strivings; PC = perfectionistic concerns; Y = dependent variable; *r* = bivariate correlation; TUE = total unique effect; RW = relative weight (variance explained in dependent variable); 95% CI = 95% confidence intervals; *d* = Cohen's *d* (effect size).

Table 4. Meta-regressions of meta-analytical effects of PS on levels of PC.

	k	*N*	*B*	95% CI	*β*	*p*	Q_{model}	$Q_{residual}$	R^2
Perfectionistic strivings-Exhaustion									
Perfectionistic concerns	12	1115	−0.06	[−0.36, 0.24]	−.21	.66	0.20 [1], $p = .66$	4.28 [10], $p = .93$	0.04
Perfectionistic strivings-Cynicism									
Perfectionistic concerns	12	1115	−0.16	[−0.46. 0.14]	−.43	.25	1.31 [1], $p = .25$	5.83 [10], $p = .83$	0.18
Perfectionistic strivings-Efficacy									
Perfectionistic concerns	11	1094	−0.06	[−0.41, 0.35]	−.06	.86	0.03 [1], $p = .86$	8.48 [9], $p = .48$	0.04

Note: r^+ = weighted mean *r*; *B* = unstandardised regression coefficient; SE = standard error; 95% CI = 95% confidence interval; *β* = standardised regression coefficient; Q_{model} = heterogeneity explained by any categorisation in the data; $Q_{residual}$ = heterogeneity of the residual weighted sum of squares. Perfectionistic strivings-Exhaustion model fit: F (1, 10) = 0.46, $p = 0.51$; Perfectionistic strivings-Cynicism model fit: F (1, 10) = 2.25, $p = 0.16$; Perfectionistic strivings-Efficacy model fit: F (1, 9) = 0.03, $p = 0.86$.

Ancillary analyses

The meta-analysed effect of PS on attendance, grades, and intention to quit were positive and small for attendance ($r^+ = .11$, 95% CI = .04, .18) and grades ($r^+ = .18$, 95% CI = .09, .26), and trivial for intention to quit ($r^+ = -.03$, 95% CI = −.12, .05). The meta-analysed effect was statistically significant for attendance and grades ($p < .05$, two-tailed). The meta-analysed effect of PC on attendance, grades, and intention to quit was negative and small for attendance ($r^+ = -10$, 95% CI = −.16, −.04), trivial for grades ($r^+ = -.06$, 95% CI = −.18, .05)

and negative and small for intention to quit (r^{+} = .21, 95% CI = .11, .31). The meta-analysed effect was statistically significant for attendance and intention to quit ($p < .05$, two-tailed).

The TUE of PS and PC was trivial for attendance ($\beta_{PS}+\beta_{PC}$ = .00, 95% CI = −.06, .07) with both dimensions contributing approximately evenly. The TUE of PS and PC was positive and small for grades ($\beta_{PS}+\beta_{PC}$ = .10, 95% CI = .02, .15), with PS largely responsible for this relationship based on the relative weights analysis. The TUE of PS and PC was positive and small for intentions to quit ($\beta_{PS}+\beta_{PC}$ = .15, 95% CI = .06, .19), with PC largely responsible for this relationship based on the relative weights analysis. The CE showed that differences between students high and low in perfectionism were trivial for attendance (d = 0.00), small for grades (d = 0.20), and medium for intention to quit (d = 0.30). Results are presented in Supplementary Materials (Tables S5–S7).

Discussion

The aims of the present study were to examine (1) the sizes and directions of the meta-analytical relationships between multidimensional perfectionism (PS and PC) and burnout, (2) the total unique effect of perfectionism on burnout in university students, and (3) whether PC moderate the relationship between PS and burnout. We found mixed support for our hypotheses: PS had a small positive (rather than negative) relationship with exhaustion and cynicism (opposing H1a) and a small positive relationship with efficacy (supporting H1a), PC had a small-to-moderate positive relationship with all burnout symptoms (supporting H1b), the total unique effect of perfectionism was small-to-medium and positive for exhaustion and cynicism (supporting H2) and trivial for efficacy (not supporting H2), and PC did not moderate the relationship between PS and burnout symptoms (not supporting H3).

Multidimensional perfectionism

Based on previous meta-analytical evidence (Hill and Curran 2016), we expected PS to be negatively related to burnout symptoms. However, the present study provides evidence that PS has an exhaustive toll for university students. In explaining this finding, the indicator of PS used, self-oriented perfectionism, is perhaps notable in that, unlike more benign indicators of PS, it includes irrational beliefs about the importance of perfection (see Stoeber and Childs 2010). It is also related to a sense of self-worth based on personal competence and outperforming other students (Hill, Hall, and Appleton 2011). Taken together, these two features may be informative both in terms of exhaustive toll but also in regards to its relationship with a higher sense of efficacy as a student. Specifically, a desire to prove one's self-worth via academic achievement may both fortify a sense of being a 'good student', especially if accompanied by success, but will also add additional pressure to be continually be successful at university.

The influence of PC appears to be more straightforward. It was related to all symptoms in a way that suggested higher burnout and greater comparative importance than PS. The link between burnout and doubts, fears, and worries associated with not performing perfectly is perhaps intuitive. Every effort and assessment present an opportunity for confirmation of others' disapproval and the development of a sense of inadequacy. When underpinned by external pressures, as is the case when PC is indicated by socially

prescribed perfectionism, there is also less control over expectations. As such, there is greater potential to feel overwhelmed and fewer opportunities for respite from stress even after experiencing some short-lived personal success. As a further interesting point of comparison to PS, this dimension of perfectionism is related to a sense of self-worth contingent on outperforming others, like PS, but also to basing self-worth on the approval of others (Hill, Hall, and Appleton 2011). This dimension therefore appears to create something of a double-bind for students – a need to be both superior but also accepted by fellow students. Trying to do both may be another source of additional stress.

Additional insight into whether perfectionistic students, overall, are likely to experience burnout was provided by the total unique effects. The overall effect of perfectionism on two of the burnout symptoms – exhaustion and cynicism – was positive and especially large for exhaustion. That is, as students reported higher PS and PC, they also reported higher levels of these symptoms. Notably, in both cases, PC was the major contributor to these relationships supporting the notion that PC is the main source of academic burnout. The overall effect on reported efficacy was trivial with the positive relationship with PS neutralised by the negative relationship with PC. This is an important reminder for researchers and practitioners because students who report higher levels of PS will also tend to have higher levels of PC. Whilst one dimension of perfectionism might appear desirable in some ways, here in regards to study-related beliefs about efficacy, the other dimension works concurrently to cancel any possible benefits. This insight provides an important counter argument to the notion that perfectionism may be helpful for university students, particularly when the overall costs might be avoided by aiming for some lower, more reasonable standard of performance (see Gaudreau et al. 2022).

Moderators of perfectionism and burnout

Levels of PC were not found to moderate the relationship between PS and burnout symptoms. That is, the effects of PS and PC do not appear to depend on each other. In previous individual studies, there is evidence that this is sometimes the case, generally, for other outcomes (e.g. Smith et al. 2015), as well as for burnout specifically in contexts other than education (e.g. Hill 2021). In the absence of evidence here, it is possible that there are differences across domains in the way PS and PC exert their effects. This was evident in the last meta-analysis of perfectionism and burnout which found, for example, that PS was related to exhaustion at work but not at school (Hill and Curran 2016). However, we are mindful that the present study is the first test of this type of relationship using a meta-analytic approach, with a relatively small number of samples, and that there were other features of the data that made testing these types of effects difficult, such as low levels of variability between samples in PC scores. Additional research is therefore required to examine this issue further and provide a more robust test of any moderating effects of PC on PS and burnout.

There were a small number of instances in the exploratory analyses that provided evidence of moderation between perfectionism and burnout. The positive relationship between PS and efficacy was larger in samples that included more students in year one of study. In addition, the positive relationship between PC and exhaustion was larger in samples of older students. These two findings align with other work that has found burnout to be higher in older students and as semesters studied at university increase

(e.g. Olson et al. 2023). It is perhaps more likely that links between perfectionistic personal standards and feelings of efficacy would be at their highest when difficulty is at its lowest, and decrease progressively as challenge increases. In addition, with greater responsibilities away from university more likely (van Rhijn et al. 2016), older students may feel less able to overcome their concerns, doubts, and fears through greater effort, time, and other means, or may experience a heighted sense of pressure by virtue of not being the typical or 'ideal' student (see Gregersen and Nielsen 2023). On both accounts, our findings suggest that the need to support students with managing perfectionism may increase as they move through their programme and may be especially important for mature students.

As an ancillary analysis we also examined the links between perfectionism and markers of student engagement – typical attendance and grades, as well as intention to quit. These revealed a complex picture that sit alongside the findings relating to academic burnout. We found that PS was related to higher attendance and grades whereas PC was related to lower attendance and higher intentions to quit. When considered together, there was a positive net effect on grades but also on intentions to quit. Seemingly, students higher in perfectionism may perform better than their peers, but also find university more exhausting, and, perhaps as a consequence, have greater intention to leave. Perfectionism is a powerful motivational force that can include strong and obsessive commitment. However, it can also be destructive and is underpinned by a strong need to avoid failure. These tentative findings appear indicative of this complexity. The findings also place perfectionism alongside burnout as a risk factor for dropout from university (e.g. Mostert and Pienaar 2020) and reinforce its health-related and motivational costs.

Limitations and future studies

The findings of the present study should be considered in light of its limitations which also point to avenues for future work.

First, students within the present study were largely white, female, studying full-time and domestic. These characteristics need to be taken into account when considering the generalisability of the findings, particularly when student populations can be more diverse.

Second, we used two specific indicators of PS and PC. It is possible that the findings may be different for other indicators or when using multiple indicators, as has been found when examining perfectionism and burnout in other studies (Waleriańczyk, Hill, and Stolarski 2022). Future studies should examine these relationships using other dimensions of perfectionism.

Third, in using the MBI-SS, we measured efficacy. As such, burnout was indicated by lower perceptions of being an effective student, rather than higher perceptions of being an ineffective student. The latter may be a better marker of burnout and reversing scores may be insufficient to address this issue (see Bresó, Salanova, and Schaufeli 2007). Notably, too, this subscale provided two instances of lower internal reliability. As such, in examining this relationship in the future, measures of inefficacy may be needed.

Fourth, tests of moderation relied on a small number of samples and there were low levels of variability evident in the moderating factors, particularly the percentage of part-

time students. These analyses should therefore be considered with especial caution until additional studies can take place and the meta-analytical effects presented here can be updated and re-examined.

Finally, in examining these relationships further, and seeking to identify both additional moderating and possible mediating factors, we encourage researchers to consider the learning environment and social environment (e.g. Kim et al. 2018) along with other individual factors such as the capacity for self-regulation (e.g. de la Fuente et al. 2022).

Conclusion

The present study provides the largest test of the meta-analytical relationships between perfectionism and burnout in university students to date. Students exhibiting higher levels of perfectionism, particularly PC, are likely to report higher levels of exhaustion and cynicism. The relationship between perfectionism and a sense of efficacy among students is less straightforward with opposing relations with PS and PC providing a trivial effect overall. We found limited evidence for dimensions of perfectionism interacting with each other or for relationships being subject to moderation by gender, year of study, domicile, or mode of study. Overall, perfectionism appears to be a key risk factor for burnout among most university students.

Notes

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2. In exploratory analyses examining student mode of study, one sample was removed as it had substantially higher % of part-time students (20.45%) than other samples and was identified as an outlier in the regression plots. As a result of removing this outlier, one otherwise statistically significant moderator effect became non-significant ($p > .05$, PC-exhaustion).

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Data availability statement

Data and code for the study is available via https://figshare.com/s/a78f6f6f7ee8a5c63b5d.

References

Andrade, G. F., P. V. D. S. Menolli, P. A. Clemente, A. E. Mesas, D. C. Silva, and E. Girotto. 2021. "Burnout Syndrome and Consumption of Alcohol and Illicit Substances in University Students." *Paidéia (Ribeirão Preto)* 31:e3134. https://doi.org/10.1590/1982-4327e3134.

Bakker, A. B., and K. Mostert. 2024. "Study Demands–Resources Theory: Understanding Student Well-Being in Higher Education." *Educational Psychology Review* 36 (3): 92. https://doi.org/10.1007/s10648-024-09940-8.

Benner, K., and A. L. Curl. 2018. "Exhausted, Stressed, and Disengaged: Does Employment Create Burnout for Social Work Students?" *Journal of Social Work Education* 54 (2): 300–309. https://doi.org/10.1080/10437797.2017.1341858.

Bieling, P. J., A. L. Israeli, and M. M. Antony. 2004. "Is Perfectionism Good, Bad, or Both? Examining Models of the Perfectionism Construct." *Personality & Individual Differences* 36 (6): 1373–1385. https://doi.org/10.1016/s0191-8869(03)00235-6.

Borenstein, M., L. V. Hedges, J. P. Higgins, and H. R. Rothstein. 2009. *Introduction to Meta-Analysis*. West Sussex: John Wiley & Sons.

Bresó, E., M. Salanova, and W. B. Schaufeli. 2007. "In Search of the 'Third Dimension' Of Burnout: Efficacy or Inefficacy?" *Applied Psychology* 56 (3): 460–478. https://doi.org/10.1111/j.1464-0597.2007.00290.x.

Burcaş, S., and R. Z. Creţu. 2021. "Multidimensional Perfectionism and Test Anxiety: A Meta-Analytic Review of Two Decades of Research." *Educational Psychology Review* 33 (1): 249–273. https://doi.org/10.1007/s10648-020-09531-3.

Cohen, J. 1992. "A Power Primer." *Psychological Bulletin* 112 (1): 155–159. https://doi.org/10.1037/0033-2909.112.1.155.

Cox, B. J., M. W. Enns, and I. P. Clara. 2002. "The Multidimensional Structure of Perfectionism in Clinically Distressed and College Student Samples." *Psychological Assessment* 14 (3): 365–373. https://doi.org/10.1037/1040-3590.14.3.365.

David, A. 2010. "Examining the Relationship of Personality and Burnout in College Students: The Role of Academic Motivation." *Educational Measurement and Evaluation Review* 1:90–104.

de la Fuente, J., J. M. Martínez-Vicente, F. H. Santos, P. Sander, S. Fadda, E. Karagiannopoulou, E. Boruchovitch, and D. F. Kauffman. 2022. "Advances on Self-Regulation Models: A New Research Agenda Through the SR vs ER Behavior Theory in Different Psychology Contexts." *Frontiers in Psychology* 13:861493. https://doi.org/10.3389/fpsyg.2022.861493.

Dobos, B., D. Mellor, and B. F. Piko. 2024. "Exploring Fear of Happiness Among University Students: The Role of Perfectionism, Academic Burnout, Loneliness, and Hopelessness." *Scandinavian Journal of Psychology* 65 (3): 559–567. https://doi.org/10.1111/sjop.13001.

Dyrbye, L. N., M. R. Thomas, F. S. Massie, D. V. Power, A. Eacker, W. Harper, and T. D. Shanafelt. 2008. "Burnout and Suicidal Ideation Among US Medical Students." *Annals of Internal Medicine* 149 (5): 334–341. https://doi.org/10.7326/0003-4819-149-5-200809020-000.

Faul, F., E. Erdfelder, A. G. Lang, and A. Buchner 2007. "G*Power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences." *Behavior Research Methods* 39 (2): 175–191. https://doi.org/10.3758/bf03193146.

Frost, R. O., P. Marten, C. Lahart, and R. Rosenblate 1990. "The Dimensions of Perfectionism." *Cognitive Therapy and Research* 14 (5): 449–468. https://doi.org/10.1007/BF01172967.

Gaudreau, P., B. J. I. Schellenberg, A. Gareau, K. Kljajic, and S. Manoni-Millar. 2022. "Because Excellencism is More Than Good Enough: On the Need to Distinguish the Pursuit of Excellence from the Pursuit of Perfection." *Journal of Personality & Social Psychology* 122 (6): 1117–1145. https://doi.org/10.1037/pspp0000411.

Gaudreau, P., and A. Thompson. 2010. "Testing a 2×2 Model of Dispositional Perfectionism." *Personality & Individual Differences* 48 (5): 532–537. https://doi.org/10.1016/j.paid.2009.11.031.

Goh, J. X., J. A. Hall, and R. Rosenthal. 2016. "Mini Meta-Analysis of Your Own Studies: Some Arguments on Why and a Primer on How." *Social and Personality Psychology Compass* 10 (10): 535–549. https://doi.org/10.1111/spc3.12267.

Gregersen, A. F. M., and K. B. Nielsen. 2023. "Not Quite the Ideal Student: Mature Students' Experiences of Higher Education." *International Studies in Sociology of Education* 32 (1): 76–95. https://doi.org/10.1080/09620214.2022.2120525.

Hewitt, P. L., and G. L. Flett. 1991. "Perfectionism in the Self and Social Contexts: Conceptualization, Assessment, and Association with Psychopathology." *Journal of Personality & Social Psychology* 60 (3): 456–470. https://doi.org/10.1037/0022-3514.60.3.456.

Hewitt, P. L., and G. L. Flett 1991. "Perfectionism in the Self and Social Contexts: Conceptualization, Assessment, and Association with Psychopathology." *Journal of Personality & Social Psychology* 60 (3): 456–470. https://doi.org/10.1037//0022-3514.60.3.456.

Hewitt, P. L., and G. L. Flett. 2004. *Multidimensional Perfectionism Scale – Technical Manual*. Toronto: Multi-Health Systems Inc.

Hill, A. P. 2021. "Perfectionistic Tipping Points: Re-Probing Interactive Effects of Perfectionism." *Sport, Exercise, and Performance Psychology* 10 (2): 177–190. https://doi.org/10.1037/spy0000226.

Hill, A. P. 2026. "Total Unique Effect of Perfectionism Calculator (Shiny App; Version 2)." York St John University, Software. https://doi.org/10.25421/yorksj.34699536.v1.

Hill, A. P., and T. Curran. 2016. "Multidimensional Perfectionism and Burnout: A Meta-Analysis." *Personality and Social Psychology Review* 20 (3): 269–288. https://doi.org/10.1177/1088868315596286.

Hill, A. P., H. K. Hall, and P. R. Appleton. 2011. "The Relationship Between Multidimensional Perfectionism and Contingencies of Self-Worth." *Personality & Individual Differences* 50 (2): 238–242. https://doi.org/10.1016/j.paid.2010.09.036.

Hill, A. P., D. J. Madigan, T. Curran, G. E. Jowett, and J. Rumbold. 2024. "Exploring and Evaluating the Two-Factor Model of Perfectionism in Sport." *Journal of Psychoeducational Assessment* 42 (6): 612–634. https://doi.org/10.1177/07342829241231149.

Hill, A. P., D. J. Madigan, and M. Olamaie. 2021. "Combined Effects, Total Unique Effects and Relative Weights of Perfectionism." *Personality & Individual Differences* 183:111136. https://doi.org/10.1016/j.paid.2021.111136.

Hyytinen, H., T. Tuononen, A. Nevgi, and A. Toom. 2022. "The First-Year Students' Motives for Attending University Studies and Study-Related Burnout in Relation to Academic Achievement." *Learning & Individual Differences* 97:102165. https://doi.org/10.1016/j.lindif.2022.102165.

Khossousi, V., D. Greene, R. Shafran, T. Callaghan, S. Dickinson, and S. J. Egan. 2024. "The Relationship Between Perfectionism and Self-Esteem in Adults: A Systematic Review and Meta-Analysis." *Behavioural and Cognitive Psychotherapy* 52 (6): 1–20. https://doi.org/10.1017/S1352465824000249.

Kim, B., S. Jee, J. Lee, S. An, and S. M. Lee. 2018. "Relationships Between Social Support and Student Burnout: A Meta-Analytic Approach." *Stress and Health* 34 (1): 127–134. https://doi.org/10.1002/smi.2771.

Lazarus, R. S., and S. Folkman. 1987. "Transactional Theory and Research on Emotions and Coping." *European Journal of Personality* 1 (3): 141–169. https://doi.org/10.1002/per.2410010304.

Lewis, J., and P. Bolton. 2023. *Student Mental Health in England: Statistics, Policy, and Guidance*. London: House of Commons Library. https://commonslibrary.parliament.uk/research-briefings/cbp-8593/ .

Madigan, D. J. 2019. "A Meta-Analysis of Perfectionism and Academic Achievement." *Educational Psychology Review* 31 (4): 967–989. https://doi.org/10.1007/s10648-019-09484-2.

Madigan, D. J., and T. Curran. 2021. "Does Burnout Affect Academic Achievement? A Meta-Analysis of Over 100,000 Students." *Educational Psychology Review* 33 (2): 387–405. https://doi.org/10.1007/s10648-020-09533-1.

Mahon, C., A. Fitzgerald, A. O'Reilly, and B. Dooley. 2024. "Profiling Third-Level Student Mental Health: Findings from My World Survey 2." *Irish Journal of Psychological Medicine* 41 (2): 202–210. https://doi.org/10.1017/ipm.2021.85.

Marsh, H. W., K.-T. Hau, and Z. Wen. 2004. "In Search of Golden Rules: Comment on Hypothesis-Testing Approaches to Setting Cutoff Values for Fit Indexes and Dangers in Overgeneralizing Hu and Bentler's (1999) Findings." *Structural Equation Modeling* 11 (3): 320–341. https://doi.org/10.1207/s15328007sem1103_2.

Marsh, H. W., B. Muthén, T. Asparouhov, O. Lüdtke, A. Robitzsch, A. J. S. Morin, and U. Trautwein. 2009. "Exploratory Structural Equation Modeling, Integrating CFA and EFA: Application to Students' Evaluations of University Teaching." *Structural Equation Modeling* 16 (3): 439–476. https://doi.org/10.1080/10705510903008220.

Maslach, C., and S. E. Jackson. 1981. "The Measurement of Experienced Burnout." *Journal of Organizational Behavior* 2 (2): 99–113. https://doi.org/10.1002/job.4030020205.

Mostert, K., and J. Pienaar. 2020. "The Moderating Effect of Social Support on the Relationship Between Burnout, Intention to Drop Out, and Satisfaction with Studies of First-Year University Students." *Journal of Psychology in Africa* 30 (3): 197–202. https://doi.org/10.1080/14330237.2020.1767928.

Olson, N., R. Oberhoffer-Fritz, B. Reiner, and T. Schulz. 2023. "Study Related Factors Associated with Study Engagement and Student Burnout Among German University Students." *Frontiers in Public Health* 11:1168264. https://doi.org/10.3389/fpubh.2023.1168264.

Osenk, I., P. Williamson, and T. D. Wade. 2020. "Does Perfectionism or Pursuit of Excellencecontribute to Successful Learning? A Meta-Analytic Review." *Psychological Assessment* 32 (10): 972–983. https://doi.org/10.1037/pas0000942.

Paranjothy, S. M., and T. D. Wade. 2024. "A Meta-Analysis of Disordered Eating and Its Association with Self-Criticism and Self-Compassion." *International Journal of Eating Disorders* 57 (3): 473–536. https://doi.org/10.1002/eat.24166.

Rosales-Ricardo, Y., F. Rizzo-Chunga, J. Mocha-Bonilla, and J. P. Ferreira. 2021. "Prevalence of Burnout Syndrome in University Students: A Systematic Review." *Salud Mental* 44 (2): 91–102. https://doi.org/10.17711/SM.0185-3325.2021.013.

Salmela-Aro, K., and S. Read. 2017. "Study Engagement and Burnout Profiles Among Finnish Higher Education Students." *Burnout Research* 7:21–28. https://doi.org/10.1016/j.burn.2017.11.001.

Schaufeli, W. B., M. P. Leiter, C. Maslach, and S. E. Jackson. 1996. "Maslach Burnout Inventory – General Survey (MBI-GS)." In *Maslach Burnout Inventory Manual*, edited by C. Maslach, S. E. Jackson, and M. P. Leiter, 3rd Ed. Palo Alto, CA.: Consulting Psychologists Press 19–26.

Schaufeli, W. B., I. M. Martinez, A. M. Pinto, M. Salanova, and A. B. Bakker. 2002. "Burnout and Engagement in University Students: A Cross-National Study." *Journal of Cross-Cultural Psychology* 33 (5): 464–481. https://doi.org/10.1177/0022022102033005003.

Seibert, G. S., R. W. May, M. C. Fitzgerald, and F. D. Fincham. 2016. "Understanding School Burnout: Does Self-Control Matter?" *Learning & Individual Differences* 49:120–127. https://doi.org/10.1016/j.lindif.2016.05.024.

Seo, C., C. Di Carlo, S. X. Dong, K. Fournier, and K. A. Haykal. 2021. "Risk Factors for Suicidal Ideation and Suicide Attempt Among Medical Students: A Meta-Analysis." *PLOS ONE* 16 (12): e0261785. https://doi.org/10.1371/journal.pone.0261785.

Sivertsen, B., M. Hysing, M. Knapstad, A. G. Harvey, A. Reneflot, K. J. Lønning, and R. C. O'Connor. 2019. "Suicide Attempts and Non-Suicidal Self-Harm Among University Students: Prevalence Study." *BJPsych Open* 5 (2): e26. https://doi.org/10.1192/bjo.2019.4.

Smith, M. M., D. H. Saklofske, G. Yan, and S. B. Sherry. 2015. "Perfectionistic Strivings and Perfectionistic Concerns Interact to Predict Negative Emotionality: Support for the Tripartite

Model of Perfectionism in Canadian and Chinese University Students." *Personality & Individual Differences* 81:141–147. https://doi.org/10.1016/j.paid.2014.09.006.

Stoeber, J., and J. H. Childs. 2010. "The Assessment of Self-Oriented and Socially Prescribed Perfectionism: Subscales Make a Difference." *Journal of Personality Assessment* 92 (6): 577–585. https://doi.org/10.1080/00223891.2010.513306.

Stoeber, J., D. J. Madigan, and L. Gonidis. 2020. "Perfectionism is Adaptive and Maladaptive, but What's the Combined Effect?" *Personality & Individual Differences* 161, 109846. https://doi.org/10.1016/j.paid.2020.109846.

Stoeber, J., and M. L. Rountree. 2021. "Perfectionism, Self-Stigma, and Coping in Students with Dyslexia: The Central Role of Perfectionistic Self-Presentation." *Dyslexia* 27 (1): 62–78. https://doi.org/10.1002/dys.1666.

Stricker, J., L. Kröger, A. F. Johann, A. Küskens, A. Gieselmann, and R. Pietrowsky. 2023. "Multidimensional Perfectionism and Poor Sleep: A Meta-Analysis of Bivariate Associations." *Sleep Health* 9 (2): 228–235. https://doi.org/10.1016/j.sleh.2022.09.015.

Sulea, C., I. Van Beek, P. Sarbescu, D. Virga, and W. B. Schaufeli. 2015. "Engagement, Boredom, and Burnout Among Students: Basic Need Satisfaction Matters More Than Personality Traits." *Learning & Individual Differences* 42:132–138. https://doi.org/10.1016/j.lindif.2015.08.018.

Tan, J. S. T. 2022. "Hiding Behind the 'Perfect' Mask: A Phenomenological Study of Filipino University Students' Lived Experiences of Perfectionism." *International Journal of Qualitative Studies on Health and Well-Being* 17 (1). https://doi.org/10.1080/17482631.2022.2062819.

Tonidandel, S., and J. M. LeBreton. 2015. "RWA Web: A Free, Comprehensive, Web-Based, and User-Friendly Tool for Relative Weight Analyses." *Journal of Business & Psychology* 30 (2): 207–216. https://doi.org/10.1007/s10869-014-9351-z.

van Rhijn, T. M., D. S. Lero, K. Bridge, and V. A. Fritz. 2016. "Unmet Needs: Challenges to Success from the Perspectives of Mature University Students." *Canadian Journal for the Study of Adult Education* 28 (1): 29–47. https://doi.org/10.56105/cjsae.v28i1.4704.

Waleriańczyk, W., A. P. Hill, and M. Stolarski. 2022. "A Re-Examination of the 2x2 Model of Perfectionism, Burnout, and Engagement in Sports." *Psychology of Sport & Exercise* 61:102190. https://doi.org/10.1016/j.psychsport.2022.102190.

Wang, X., M. Yang, L. Ren, Q. Wang, S. Liang, Y. Li, and S. Wu. 2024. "Burnout and Depression in College Students." *Psychiatry Research* 335:115828. https://doi.org/10.1016/j.psychres.2024.115828.

Weber, J., S. Skodda, T. Muth, P. Angerer, and A. Loerbroks. 2019. "Stressors and Resources Related to Academic Studies and Improvements Suggested by Medical Students: A Qualitative Study." *BMC Medical Education* 19 (1): 1–14. https://doi.org/10.1186/s12909-019-1747-z.