



LUNDS
UNIVERSITET

DEPARTMENT of PSYCHOLOGY

***Multidimensional Perfectionism and Academic
Burnout in University Students: The Moderating Role
of Autonomy Support***

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Master's Thesis (30 hp)
Spring 2022

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Acknowledgements

First and foremost, I would like to thank Tomas Jungert, my supervisor for this thesis, for all his support and guidance throughout the process. Special thanks go to Birkir for his support in all respects. And lastly, I would like to give thanks to my parents, friends, and colleagues for giving advice and words of encouragement in time of need.

Abstract

The present study aims to explore the relationship between academic burnout, multidimensional perfectionism, and students' perceived autonomy support from the teacher/instructor, while accounting for sleep. The final sample contained 147 university students with the mean age of 26 years. Three moderation regressions were carried out in the analysis. The results demonstrated that multidimensional perfectionism and the perfectionism dimension evaluative concerns were significant negative predictors for academic burnout. The perfectionism dimension striving was a non-significant predictor for academic burnout, and autonomy support was a significant positive predictor for burnout in all models. Autonomy support was not found to moderate the relationship between academic burnout and multidimensional perfectionism or the two separate dimensions of perfectionism, sleep was found to protect against burnout. These results indicate that different learning environments might potentially impact students' perceived autonomy support and that aspects of multidimensional perfectionism may be associated with intrinsic motivation in academia. Future research on academic burnout, autonomy support, and multidimensional perfectionism is needed to improve understanding of the effects of these factors in different environments and further investigate those interactions to understand better preventive measures and ways to protect against them. This study contributes to a growing field of research on factors associated with academic burnout and university students' well-being and psychological processes.

Keywords: Academic burnout, multidimensional perfectionism, autonomy support, university students' well-being, self-determination theory

Introduction

Burnout has been widely researched in the organizational domain, but there is a gap in the research when it comes to academic burnout (Cheung & Li, 2019). Studies on academic burnout have mainly been conducted on students at the lower levels of education, and the majority of studies on the topic have been conducted in Asian countries. Since cultural differences play a role, it is essential to deepen the knowledge in Western countries to understand the causes in different cultures better. That aside, research has shown that burnout substantially negatively affects students' academic careers and well-being (Blas-Atencia et al., 2020). Previous research has also reported a significant association between negative facets of perfectionism and academic burnout (Chang et al., 2020). Studies have also shown that autonomous motivation can protect against burnout in academic and work settings (Ljubin-Golub et al., 2020). Understanding academic burnout may contribute to a better insight into organizational burnout because, in most cases, individuals conduct their studies before entering their work-life and starting their careers. A longitudinal study by Robins et al. (2017) with a sample of final-year health profession students into their first two years at work found academic exhaustion and cynicism to predict work exhaustion and cynicism.

This study aims to explore the relationship between academic burnout, multidimensional perfectionism, and autonomy support. Contributing to the understanding of different factors associated with academic burnout is an essential step in the progress of attending to students' well-being and life satisfaction. Understanding the psychological processes that cause students to experience academic burnout is necessary for creating and preparing effective measures for primary, secondary, and tertiary prevention for students. To the best of my knowledge, this would be the first study to examine the relationship between academic burnout, multidimensional perfectionism, and autonomy support in a sample of university students and, therefore, would be an essential addition to the literature on the topic.

Academic Burnout

Burnout refers to a state of physical and emotional exhaustion caused by a prolonged period of unmanaged stress and constant demands and expectation, leading to depersonalization and diminished personal accomplishment (Lin & Huang, 2014). The World Health Organization first added burnout to the ICD-11 in 2019 as an independent disease; burnout is not classified as a medical condition; the definition given for burnout is: "Burnout is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. Three dimensions characterize it: feelings of energy depletion or exhaustion, increased mental distance from one's job, or feelings of negativism or cynicism related to one's job and reduced professional efficiency" (World Health Organization, 2019). The ICD-11 implies that the focus of burnout is on the organizational context and should only be considered a work-related syndrome, not in other areas of life (Cheun & Li, 2019). However, in recent years, there has been increasing acceptance of empirical evidence which shows that students' burnout in academic settings is a significant problem (Ljubin-Golub et al., 2020) with chronic academic stress and demands, which is associated with poor academic performance (Lin & Huang, 2014) and academic adjustment (Chang et al., 2020). Academic burnout is a continuous phenomenon that can be experienced as minor school-related stress symptoms to a severe state of burnout (Ljubin-Golub et al., 2020). Academic burnout has been found to affect middle school students (e.g., Shih, 2015), college students (Xingyu et al., 2019), as well as university students (e Lin & Huang, 2014; Salmela-Aro & Read, 2017).

Generally, students face various responsibilities, expectations, and needs such as work schedules, homework, and other academic-related work, keeping up with good nutrition, sleep, physical and mental health, and attending to social and family aspects. If students feel as if they cannot keep up with these factors, stress may become excessive, and it can have severe consequences on academic performance as well as on mental and physical health

(Jacobs & Dodd, 2003). This stress may result in symptoms of emotional exhaustion, cynicism, and inefficacy (Chang et al., 2020; Ljubin-Golub et al., 2020). Emotional exhaustion refers to the feeling of being emotionally overextended and fatigued by one's stressors and academic demands. Cynicism refers to the development of skepticism and a negative attitude towards academic tasks, resulting in depersonalization from one's education, leading to the individual lacking compassion and a cold and pessimistic view of others. Lastly, inefficacy refers to the feeling that desired academic achievements cannot be met, the inclination to view oneself negatively, and dissatisfaction with one's accomplishments (Chang et al., 2020; Jacobs & Dodd, 2003). Prolonged stress and pressure can lead to psychological problems for students, and finding the balance between their academic, social, and private life can become difficult. When an imbalance between obligations, such as in the academic or working environment, and other external factors becomes overwhelming, it can lower self-esteem and lead to resentment (Bretland & Thorsteinsson, 2015). It reduces students' life satisfaction and is associated with academic failure, school dropout, stress, and depressive symptoms (Cheung & Li, 2019; Deniz et al., 2014). Salmela-Aro and Read (2017) reported findings in their study of engagement and burnout among a Finnish higher education sample (N = 12,394) that academic burnout increased as students had been studying longer (in years).

Multidimensional Perfectionism

Perfectionism is characterized as a personality trait associated with striving for perfection. It is embodied in the excessive pursuit of perfection and high standards for one's personal performance, which often cannot be reached, resulting in individuals experiencing fear and self-blame (Chang et al., 2020; Gordon & Hewitt, 2002; Xingyu et al., 2019).

Perfectionism in academia can be described as setting exceedingly high standards on oneself academic performance and pursuing those standards with harsh self-criticism.

Perfectionism has also been found to influence reactivity to academic stress, and studies have reported dimensions of perfectionism as a contributing factor to academic burnout (Cam et al., 2014; Fuente et al., 2020). Criticism and self-worth tied to achievement mean that perfectionism may undermine the quality of the individual's motivation and underpin psychological difficulties (Jowett et al., 2021). Academic achievements can be seen as primary means for development which increases the incidents of perfectionism as a character trait among students (Deniz & Cam, 2014).

Perfectionism has been associated with psychological difficulties (Jowett et al., 2021). Still, perfectionism is a multidimensional concept with personal, interpersonal, maladaptive, and adaptive aspects (Bieling et al., 2004; Chang et al., 2020; Frost et al., 1990). Previous research has reported perfectionism to be a significant predictor of academic burnout. However, recent conceptualization suggests two essential dimensions of perfectionism: perfectionistic concerns, which are maladaptive and have been shown to have a positive association with mastery-avoidance goals, and perfectionistic striving, which may lean towards being an adaptive facet of perfectionism and has been found to have a positive association with mastery-approach goals (Bieling et al., 2004; Chang et al., 2020; Frost et al., 1990). Perfectionistic dimensions are self-oriented perfectionism, where the individual expects high standards from one self's performance; other-oriented, where the individual holds high standards on those around them; and socially prescribed perfectionism, which is the perception that other people expect them to be perfect (Bieling et al., 2004).

Perfectionistic individuals tend to be vulnerable to communication anxiety, social anxiety, and imposter syndrome, which often use self-presentation to gain validation from others and avoiding criticism and rejection. Individuals who experience imposter syndrome experience feelings of fraudulence and hold high standards for themselves and critically

evaluate their difficulties and failures, aiming to maintain the appearance of perfection (Cowie et al., 2018).

The association with academic burnout differs depending on these dimensions (Chang et al., 2020). Evaluative concerns may lean towards being maladaptive and have been shown to have a more substantial positive effect on academic burnout, whereas perfectionistic striving has been found in some cases to have a negative association with academic burnout (Bieling et al., 2004; Chang et al., 2020). Evaluative concerns have previously been found to be strongly associated with depression, anxiety, stress, and test-taking anxiety (Bieling et al., 2004). A meta-analysis by Hill and Curran (2016) of 43 studies ($N = 9.838$) on multidimensional perfectionism (perfectionistic strivings and perfectionistic concerns) and burnout found perfectionistic concerns to have a medium to a significant positive relationship with overall burnout and symptoms of burnout. In contrast, perfectionistic striving was found to have a negative effect on overall burnout in two out of three symptoms (reduced personal accomplishment and depersonalization but not exhaustion) of burnout. Perfectionistic striving and perfectionistic concerns showed a high correlation, which underlines the importance of further investigating the relationship between academic burnout and different dimensions of perfectionism (Chang et al., 2020; Hill & Curran, 2016).

Autonomy Support and the Self-Determination Theory

Deci and Ryan (1985) introduced the self-determination theory (SDT), which is a theory of human behavior and personality development which focuses on the determinants of intrinsic motivation, it involves the experience of acting based on choice rather than based on obligation or coercion (Deci & Ryan, 1985; Núñez et al., 2012; Ryan & Deci, 2017). The theory states that satisfaction of three basic psychological needs, the need for competence, relatedness, and autonomy, enhances intrinsic motivation and are vital for the growth and well-being of an individual's personality and cognitive structure (Núñez et al., 2012; Shih,

2015). The degree to which these three needs are fulfilled impacts the type of motivation, which varies in the degree of self-determination. Quality in social factors allows the individual to fulfill these basic psychological needs, and the context determines motivation, performance, and well-being (Ljubin-Golub et al., 2020).

Within self-determination theory, six sub-theories have been developed (Ljubin-Golub et al., 2020; Ryan & Deci, 2017). The first one of the sub-theories within SDT is the cognitive evaluation theory (CET), which focuses on intrinsic motivation and how the social environment influences intrinsic motivation and, subsequently, high-quality performance and well-being. According to CET, intrinsic motivation diminishes when an individual experiences events that negatively affect their autonomy or competence. In contrast, individuals' intrinsic motivation enhances when they experience events that support their perception of autonomy and competence (Ryan & Deci, 2017). Motivated behaviors vary in the degree to which they are autonomous or controlled, and autonomous behaviors are performed out of personal importance and interest. In contrast, controlled behaviors may rather be experienced as being pressured by interpersonal demands. Intrinsically motivated behaviors are the paradigm of autonomy, they are not sustained with offers or rewards, rather by interest and spontaneous thoughts and feelings. Still, extrinsically motivated behaviors are necessary to accommodate the social environment and are sustained by contingency (Black & Deci, 2000). Autonomy support is a significant social factor and psychological condition. It describes the behavior of acknowledging the individual's feelings, point of view, and perception, giving the individual information and freedom of choice, and minimizing pressure and control (Ljubin-Golub et al., 2020). Significant others, such as parents, peers, and teachers, can provide supportive autonomy structures that allow individuals to satisfy their autonomy needs and support relatedness and competence (Simon & Salanga, 2020). It is important to distinguish that according to SDT, autonomy is not the same as independence or

individualism, as an individual can be willingly or unwillingly dependent on another individual (La Guardia & Ryan, 2007).

Autonomy support has been concluded to positively affect the individual's motivation, performance, and well-being (Ljubin-Golub et al., 2020), which may contribute to less academic burnout (Cheung & Li, 2019; Deniz et al., 2014). A study by Banerjee and Halder (2021) on a sample of 115 middle school students reported that perceived teachers' autonomy support was a significant negative predictor of students' amotivation. Autonomy support did not only reduce amotivation but increased motivation as well. In line with these findings, a study by Shih (2015) on a sample of 478 Taiwanese adolescents reported that students' perceived autonomy support from their teacher significantly influenced experienced academic burnout. A longitudinal study by Yu et al. (2016) on 236 Chinese adolescents showed that teachers' autonomy support positively affected basic psychological needs satisfaction, increased school engagement, and decreased anxiety and depression among students. A meta-analysis on the effects of perceived autonomy support on academic achievements and motivation among higher education students done by Okada (2021) of 48 studies found teachers' autonomy support to have a weak effect on students' academic performance and the impact on motivation for academic learning to be medium to large.

Perceived autonomy support has also been found to moderate the relationship between perfectionism and burnout (Jowett et al., 2021). To the best of my knowledge, this would be the first study to examine the relationship between perfectionism, academic burnout, and autonomy support in a sample of university students, leading to the current study's aim.

The Current Study

The current study aims to explore the relationship between academic burnout, multidimensional perfectionism, and perceived autonomy support, with the goal of

contributing to the understanding of different factors associated with academic burnout and university students' well-being and psychological processes.

Further, the specific aims will be: (1) to investigate the relationship between multidimensional perfectionism and academic burnout, (2) to investigate the relationship between autonomy support and academic burnout, (3) to investigate the relationship between multidimensional perfectionism, academic burnout, and the role of autonomy support as a moderator in university students, and (4) to investigate the difference between the two multidimensional perfectionism subscales, evaluative concerns and striving, on academic burnout.

Method

Participants and Procedures

This study was conducted using a cross-sectional quantitative method using an online survey. University students (N = 173) were recruited via Lund University and social media platforms such as Facebook, Reddit, Instagram, and Survey Circle.

Ethical considerations were undertaken at every stage of the study, which complied with the 1964 Helsinki declaration and any later amendments (Declaration of Helsinki (1964), 1996) and the General Data Protection Regulation (Parliament, 2016). Participants did not receive any financial compensation for taking part and were informed about withdrawing from the study at any point before submitting their responses. Before taking the measures described below, participants read an information sheet that explained the aim and basics of the study and were asked for their consent to take part in the survey. Participants were asked to provide information on their demographics which included their age, gender, country of origin, the country they are studying in, their field of studies, their current level of studies, how many hours they sleep on an average night, and how many times a week they exercise. Following were the Frost Multidimensional Perfectionism Scale-Brief (F-MPS-

Brief), the Learning Climate Questionnaire (LCQ), and the School-Burnout Inventory (SBI). A full version of the survey can be seen in Appendix A. Inclusion criteria for participants to be recruited was to be a university student aged 18 years or older. Validity checks were performed on the data, which resulted in the exclusion of 26 participants' data.

The final sample of university students was 147, with an age range of 19 – 53-year-old ($M = 26.14$, $SD = 6.42$). In the sample, 81.8% identified as female, 15.5% as male, and 2.7% as non-binary or other genders. Of which 56.8% of the participants were studying at a bachelor's level, 39.2% were on a master's level, and 3.4% were on a doctoral level. In the sample, 44.6% of participants were from Iceland, 12.2% from the UK, 6.8% from Germany, and 5.4% from the USA. In the sample, 33.11% of the participants were currently not studying in the country they are from. A further breakdown of participants' country of origin and what country the participants conduct their studies in can be seen in Appendix B.

Measures

Multidimensional Perfectionism

The Frost Multidimensional Perfectionism Scale – Brief (F-MPS-Brief) was used in this study to measure multidimensional perfectionism. This inventory is a short form of the Frost Multidimensional Perfectionism Scale (F-MPS). It contains 8-items and has two dimensions: Evaluative concerns (EC) and Striving (S). The Frost Multidimensional Perfectionism Scale (FMPS) was developed by Frost et al. (1990), and the full scale contains 35-items and six dimensions: Concerns over mistakes, Personal standards, Parental expectations, Parental criticism, Doubt about actions, and Organization (Woodfin et al., 2020). The multidimensional aspect of the brief scale (F-MPS-Brief) measures two perfectionism dimensions: evaluative concerns, which is considered maladaptive, and striving, which is considered positive (Bieling et al., 2004).

On a 5-point scale anchored by “*I Strongly disagree*” to “*5 Strongly agree*”, students indicated whether they agreed with items such as “*If I fail at work/school, I am a failure as a person,*” which corresponds to the evaluative concerns subscale, and “*I set higher goals for myself than most people,*” which corresponds to the striving subscale (Burgess et al., 2016). Scores on the 5-point Likert scale range from 8 to 40. Higher scores indicate higher levels of perfectionistic tendencies (Woodfin et al., 2020).

A study on the development and validation of the F-MPS-Brief by Burgess et al. (2016) on both a clinical sample ($n = 90$) and a community sample ($n = 405$) reported internal consistency of the subscale evaluative concerns ($\alpha = .85$ and $.83$, respectively) and the subscale striving ($\alpha = .85$ and $.81$, respectively). The two subscales demonstrated pooled correlation estimates with one another with the expected strength and direction in both the clinical ($r = .39, p < .01$) and community ($r = .47, p < .01$) samples. Cronbach’s alpha in this study was $.79$ for the full F-MPS-Brief scale, suggesting acceptable reliability, $.73$ for the evaluative concerns subscale, suggesting acceptable reliability, and $.83$ for the striving subscale suggesting good reliability (Schrepp, 2020).

Autonomy Support

The Learning Climate Questionnaire (LCQ) was adapted by William and Deci (1996) and measures the degree to which students perceive that they receive autonomy support from their instructor (Simon & Salanga, 2020). The scale consists of 15 items, and responses are given on a 7-point Likert scale, anchored by “*I Strongly disagree*” and “*7 Strongly agree*”. Higher scores indicate a higher level of perceived autonomy support from the instructor (Simon & Salanga, 2020). An example of an item in the LCQ is “*My instructor tries to understand how I see things before suggesting a new way to do things*” (Simon & Salanga, 2020).

William and Deci (1996) reported a good internal consistency of the LCQ ($\alpha = .96$) and autonomy orientation was positively correlated with autonomy support ($r = .24, p < .05$) on a sample of second-year medical students ($n = 131$). Cronbach's alpha in this study was .92 for the scale, suggesting excellent reliability (Schrepp, 2020).

Academic Burnout

Perceived academic burnout was measured by the School Burnout Inventory (SBI), which was developed by Salmela-Aro and Näätänen (2005) and consists of 9 items measuring three dimensions of school burnout: Exhaustion at school (EXH), Cynicism toward the meaning of school (CYN), and Sense of inadequacy at school (INAD) (Salmela-Aro et al., 2009). The SBI was developed from the Bergen Burnout Inventory (BBI-15) and was constructed by changing the work context to the school context (Salmela-Aro et al., 2009).

Responses are given on a 6-point Likert scale, anchored by “*1 Completely disagree*” to “*6 Completely agree*” scores on the 6-point Likert scale range from 9 to 54. Higher scores indicate a higher level of school burnout (Salmela-Aro et al., 2009). Examples of items in the SBI are “*I feel a lack of motivation in my schoolwork and often think about giving up,*” which corresponds to the cynicism towards the meaning of school subscale, “*I feel overwhelmed by my schoolwork,*” which corresponds to the exhaustion at school subscale, and “*I often have feelings of inadequacy in my schoolwork,*” which corresponds to the sense of inadequacy at school subscale.

A study by Salmela-Aro et al. (2009) with a sample of adolescent students ($n = 1419$) reported reliability of the subscale exhaustion at school ($\alpha = .80$), the subscale cynicism towards the meaning of school ($\alpha = .80$), and the subscale inadequacy at school ($\alpha = .67$). Reliability for overall school burnout ($\alpha = .88$). The study reported concurrent validity for the SBI, and standardized validity coefficients of exhaustion at school = .80, cynicism towards

the meaning of school = .81, and inadequacy at school = 1.00. Cronbach's alpha in this study was .86 for this scale, suggesting good reliability (Schrepp, 2020).

Sleep

Participants were asked how much sleep they would assume they got on an average night. The given choices for this question were 4 – 5 hours, 6 – 7 hours, 8 – 9 hours, and more than 9 hours. In the statistical analysis, sleep was scored as 1 = 4 – 5 hours, 2 = 6 – 7 hours, 3 = 8 – 9 hours, and 4 = > 9 hours.

Statistical Analysis

The data collected from participants were exported from Qualtrics to IBM SPSS 28. Transforming participants missing data for data cleaning was conducted; 4.82% of participants' values were missing in the data. For the perfectionism subscales (evaluating concern and striving), multiple imputations by chained equations were carried out, as supported by Woodfin et al. (2020) and Krause et al. (2020). Little's MCAR test was carried out on autonomy support, and multiple imputations were carried out, as supported by Krause et al. (2020). There was no missing data regarding academic burnout.

Total scale scores were then calculated and standardized for all the measures (the two multidimensional perfectionism subscales, evaluative concerns and striving (separately and a total score), school burnout, and autonomy support) per the provided guidance (Frost et al., 1990; Salmela-Aro et al., 2009; Simon & Salanga, 2020; William & Deci, 1996; Woodfin et al., 2020). Following, Mahalanobis distance (Mahalanobis, 1936), Cook's distance (Cook, 1977), and Leverages values (Hoaglin & Welsh, 1978) were calculated; if two out of three measures identified outliers in the dataset, those data points were deleted (Buchanan, 2015), which in this instance lead to one data point to be deleted as an outlier.

The normal distribution of the variables of the study population was examined, and the standardized skewness and kurtosis values of all variables were under the acceptable

threshold of $p < .05$, indicating a normally distributed sample (Fields, 2009). When a Shapiro-Wilk test was performed on the data, the results showed that academic burnout, striving, and sleep was significant $p > .05$ and therefore not normally distributed. However, due to the size of the sample, taking into consideration that these variables were under an acceptable range of skewness and kurtosis, and after examining Q-Q plots for the variables, these results were not considered to be too troublesome. Q-Q plots can be seen in for academic burnout in Figure 1, for striving in Figure 2, and for evaluative concerns in Figure 3.

Figure 1.

Q-Q plot displaying deviation from the normal distribution for academic burnout data points.

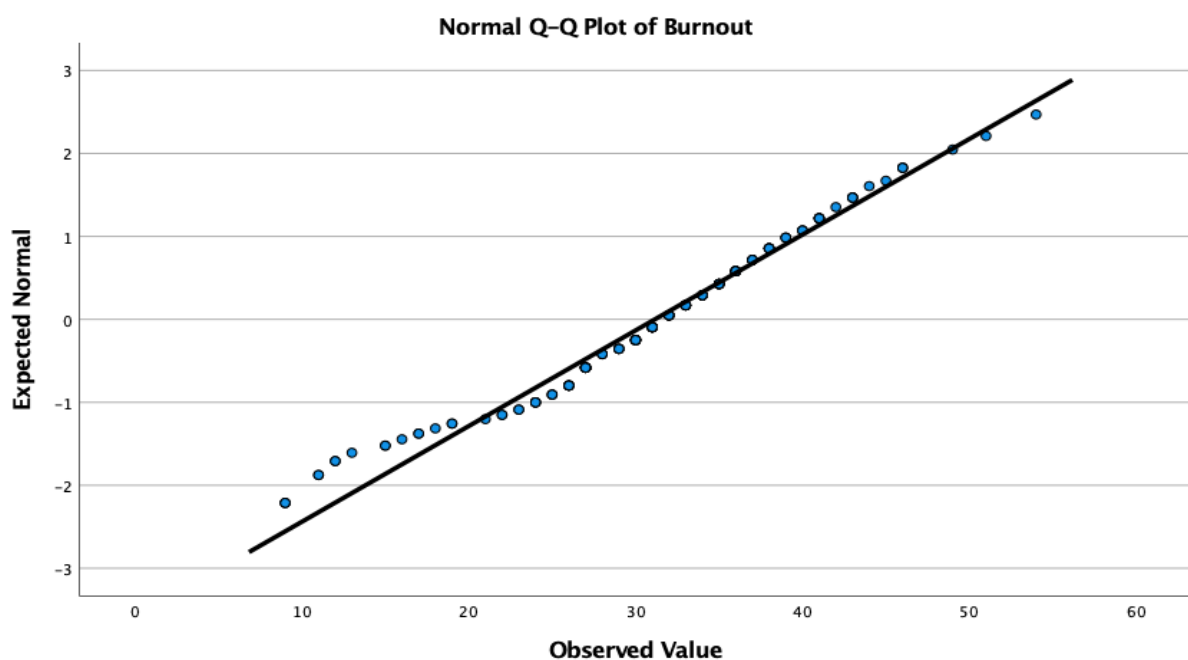


Figure 2.

Q-Q plot displaying deviation from the normal distribution for striving datapoints.

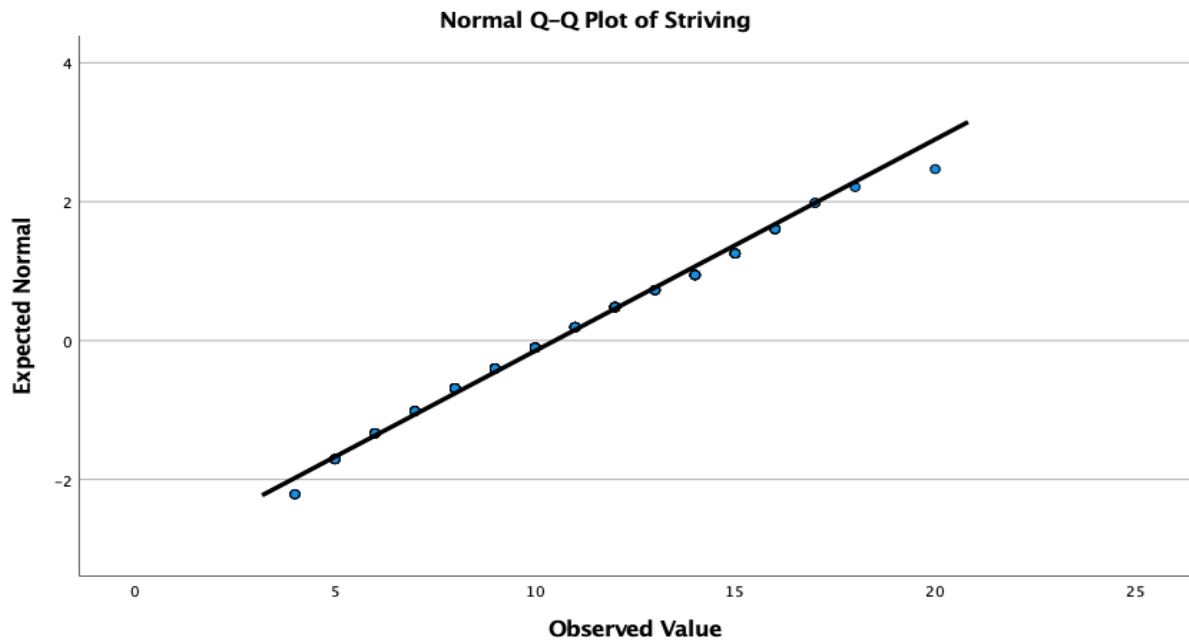
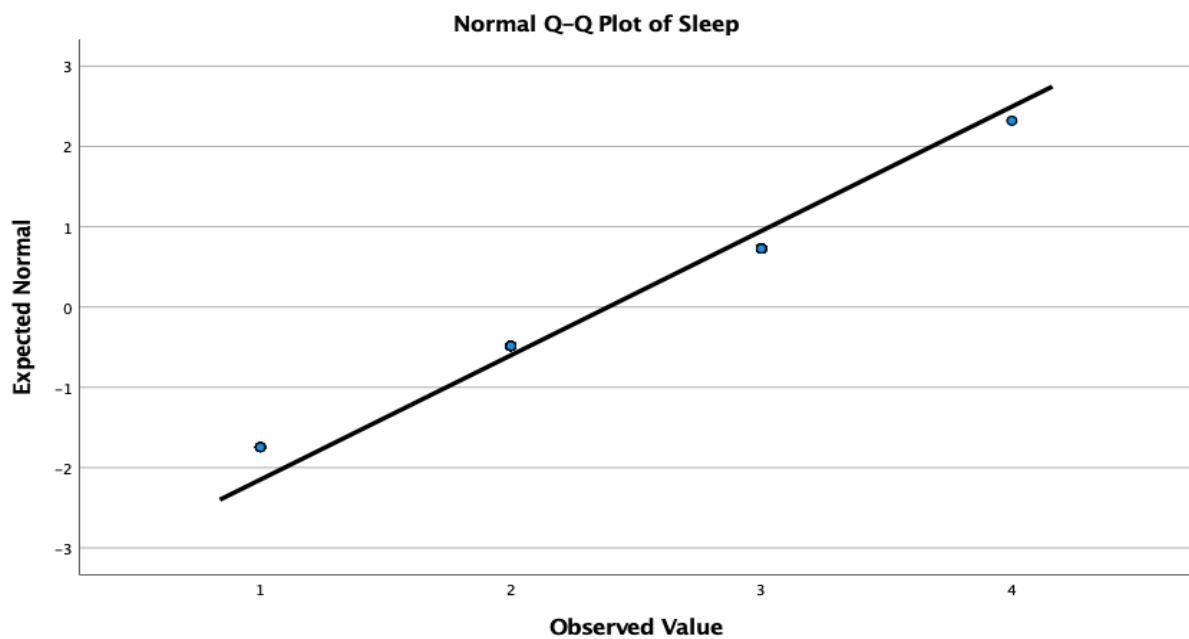


Figure 3.

Q-Q plot displaying deviation from the normal distribution for sleep data points.



Moderation analysis was chosen to be used in this study per critiques on mediation analysis on cross-sectional data, the reason being that, even under ideal situations, mediation analysis used with cross-sectional approaches is likely to generate biased estimations of longitudinal mediation parameters (Maxwell & Cole, 2007).

Three moderation regressions were carried out using the moderation model in the PROCESS macro plug-in for SPSS (Hayes, 2013). Three separate independent variables were used for each analysis for the three different models. First, multidimensional perfectionism total score, second, subscale evaluative concerns, and last, subscale striving, with the moderator variable, autonomy support total score, the dependent variable, total burnout score, and the covariate sleep, were specified accordingly.

Results

Preliminary Analysis

Out of the 173 participants, 148 participants provided usable data. One outlier was identified in the LCQ, measuring autonomy support—Table 1 displays the means, standard deviation, and bivariate correlations for each variable. As shown in Table 1., correlation is high between the multidimensional perfectionism and the two variables, evaluative concerns and striving. This can be explained by the fact that the latter two are dimensions within the measure of multidimensional perfectionism scale.

Table 1*Bivariate correlations, means, and standard deviations of all variables*

	1.	2.	3.	4.	5.	6.	<i>M</i>	<i>SD</i>
1 Burnout	•	.28**	.28**	.43**	-.03	-.33**	31.14	8.67
2. Autonomy Support		•	-.09	-.18*	-.04	-.07	49.45	13.89
3. Multidimensional Perfectionism			•	.82**	.81**	.16	23.22	5.41
4. Evaluative Concerns				•	.33**	.25**	12.73	3.36
5. Striving					•	.01	19.49	3.28
6. Sleep						•	2.39**	0.65

** *Correlation is significant at the .01 level (2-tailed)** *Correlation is significant at the .05 level (2 tailed)***Multidimensional Perfectionism**

Multiple linear regression was carried out to examine the relationship between academic burnout and three potential predictors, multidimensional perfectionism (F-MPS-Brief), autonomy support (LCQ), and their interaction while controlling for sleep. In this analysis, the whole scale included the subscales evaluative concerns and striving. The R^2 indicated that 23.07% of the variance in the data could be explained by variances in these four variables. The final model was a significant predictor of academic burnout $F(4, 142) = 10.65, p = .001, R^2 = .23$. As shown in Table 2, the variables that significantly contributed to the model were the independent variable multidimensional perfectionism ($\beta = .20, p < .01$), the moderating variable autonomy support ($\beta = .24, p < .005$), but not their interaction ($\beta = .10, p = .155$), sleep as a covariate also significantly contributed to the mode ($\beta = -.29, p < .001$). In other words, multidimensional perfectionism and sleep are significant negative

predictors of academic burnout, while autonomy support is a significant positive predictor of academic burnout. The interactions between multidimensional perfectionism and autonomy support were non-significant, meaning that autonomy support did not moderate the relationship between multidimensional perfectionism and academic burnout.

Table 2

Academic Burnout Predicted from Multidimensional Perfectionism and Autonomy Support.

Predictor	β	p	95% CI
Multidimensional Perfectionism *	-.195	.012	-.347, -.043
Autonomy Support**	.236	.002	.089, .382
Multidimensional Perfectionism x Autonomy Support	.100	.155	-.039, .239
Sleep***	-.285	.000	-.434, -.137

* $p < .01$

** $p < .05$

*** $p < .001$

Evaluative Concerns

Multiple linear regression was carried out to examine the relationship between academic burnout and three potential predictors, the perfectionism dimension evaluative concerns (F-MPS-Brief-EC), autonomy support (LCQ), and their interaction while controlling for sleep. The R^2 indicated that 28.86% of the variance in the data could be explained by variances in these four variables. The final model was a significant predictor of academic burnout $F(4, 142) = 14.40, p = .001, R^2 = .29$. As shown in Table 3, the variables that significantly contributed to the model were the independent variable evaluative concerns ($\beta = -.32, p < .001$), the moderating variable autonomy support ($\beta = .21, p < .005$), but not their interaction ($\beta = .10, p = .125$), sleep as a covariate also significantly contributed to the model ($\beta = -.27, p < .001$). In other words, evaluative concerns and sleep are significant negative predictors of academic burnout, while autonomy support is a significant positive predictor of academic burnout. The interactions between evaluative concerns and autonomy support were non-significant, meaning that autonomy support did not moderate the relationship between evaluative concerns and academic burnout.

Table 3

Academic Burnout Predicted from Evaluative concerns and Autonomy Support.

Predictor	β	p	95%	CI
Evaluative Concerns*	-.316	.000	-.122,	-.161
Autonomy Support***	.207	.005	.064,	.349
Evaluative Concerns x Autonomy Support	.101	.125	-.030,	.246
Sleep*	-.270	.001	-.385,	-.095

* $p < .001$

** $p < .01$

Striving

Multiple linear regression was carried out to examine the relationship between academic burnout and three potential predictors, the perfectionism dimension striving (F-MPS-Brief-S), autonomy support (LCQ), and their interaction while controlling for sleep. The R^2 indicated that 18.26% of the variance in the data could be explained by variances in these three variables. The final model was a significant predictor of academic burnout $F(4, 142) = 7.93, p = .001, R^2 = .18$. As shown in Table 4, the variables that significantly contributed to the model were the moderating variable autonomy support ($\beta = .26, p < .005$) and the covariate sleep ($\beta = -.31, p < .001$), the independent variable striving ($\beta = -.03, p = .739$) and the interaction between autonomy support and striving ($\beta = .09, p = .227$) did not contribute to the model. In other words, striving is a non-significant predictor of academic burnout, while autonomy support is a significant positive predictor of academic burnout, and sleep is a significant negative predictor of burnout. The interactions between striving and autonomy support were non-significant as well.

Table 4

Academic Burnout Predicted from Striving and Autonomy Support.

Predictor	β	p	95% CI
Striving	-.026	.738	-.177, .125
Autonomy Support*	.245	.002	.096, .399
Striving x Autonomy Support	.093	.227	-.058, .243
Sleep**	-.314	.000	-.464, -.163

* $p < .01$

** $p < .001$

Discussion

Findings in this study on the relationship between multidimensional perfectionism and academic burnout are not entirely in line with previous research, as multidimensional perfectionism was found to be a significant negative predictor for academic burnout. This means that students who scored higher on multidimensional perfectionism were less likely to have experienced academic burnout. Thus, multidimensional perfectionism may be a protective factor against academic burnout. These results cannot be interpreted without looking into the two dimensions in the perfectionism scale. One of the aims of this study was to examine the difference between the two dimensions, evaluative concerns and striving, since they are inherently different; evaluative concerns are often considered maladaptive, and striving is considered adaptive.

In contrast to the author's prediction, the perfectionism dimension, evaluative concerns, was also a significant negative predictor of academic burnout. This suggests that students who experience higher evaluative concerns are less likely to experience burnout. Previous research has reported evaluative concerns to contribute positively to academic burnout. To interpret these findings, it is important to consider the factors that might have influenced or contributed to the outcome of this sample of students. One such factor that might have impacted the results is the learning environment students have been in during the last two years. Data from participants in this study were collected in February 2022, meaning that most, if not all, students have gone through a period of online learning in the last two years, a situation the students themselves did not have a choice about. How multidimensional perfectionism impacts students during the COVID-19 pandemic has not yet been empirically studied (Pereira et al., 2020). Even though this current study did not have the COVID-19 pandemic as a focal point, it could be concluded that the learning environment students have been in for the last two years impacted the results. A potential reason behind

multidimensional perfectionism and evaluative concerns being found to be negative predictors of academic burnout may be that individuals who are high in perfectionism tend to be vulnerable to communication anxiety, social anxiety, and imposter syndrome (Cowie et al., 2018), which in the academic setting of classroom learning might lead to distress, anxiety and reduced well-being. Since the students in this study have most likely been in an environment of online learning, the consequences of high perfectionism and social settings in academia might have modified, whereas students who are high in perfectionism might be less likely to experience burnout as the impact of social and communication anxiety have become less burdensome.

Students can create their learning environment with little interaction from their institutions with online learning. Students who pressure themselves to exceed might be more motivated to attend to their tasks, leading to other students who don't experience high perfectionism to lack the motivation and independence to keep track of their studies. In their research on perfectionism and academic difficulties, Cowie et al. (2018) concluded that the desire to demonstrate academic proficiency may relate to adaptive forms of academic motivation. In line with this, Stoeber et al. (2009) found that self-oriented perfectionism in university students correlated with intrinsic motivation for studying.

The perfectionism dimension of striving was not found to be a significant predictor of academic burnout. The majority of previous research has identified striving as a significant negative predictor of academic burnout. Still some studies have identified striving as a form of "neutral" perfectionism, with neither positive nor negative emotional implications, pointing out that further research should be conducted on whether striving is sufficiently distinct from perfectionism (Bieling et al., 2004).

Findings showed that autonomy support was a significant positive predictor for academic burnout in all three models. These findings suggest that students who experience

high autonomy support are more likely to experience academic burnout. These results go against conclusions from most previous research where autonomy support has been a protective factor against academic burnout (Shih, 2015; Jowett et al., 2021). Still, some findings from previous research may support the results from this current study.

Due to most educational institutions turning to remote teaching, students' perception of autonomy support from their teachers might not have the same effect as expected. Students cannot have physical interactions with their teachers, which may lead to autonomy support not regulating in the same way as previously reported. There is a lack of empirical studies about the different perceptions and outcomes of students' perceived autonomy support from teachers in in-person versus online settings. Still, a few studies have been conducted on students' experiences and well-being during the COVID-19 pandemic, which offers insight into the subject. Notably, a study by Chiu (2022) supported previous research as autonomy support was found to be one of the most influential factors for students' intrinsic motivation in classrooms, but the effect of autonomy support was diminished in an online learning environment during the COVID-19 pandemic. Another notable factor might be that as an online learning environment is less supervised than classrooms, students experience higher autonomy and may have fewer autonomy needs. In the self-determination theory and the cognitive evaluation theory, students' intrinsic motivation varies in different social environments. In an online learning environment, students have less need for autonomy support and more need for relatedness (Chiu, 2022). This might lead to the conclusion that a reason for the current results being that autonomy support was found to be a positive predictor of academic burnout may be due to the nature of online learning being more autonomous, students' have a greater sense of perceived autonomy and therefor might be feel less need for autonomy support. Nevertheless, studies have shown that academic burnout and school dropout have increased in times of COVID-19 (Joulaei & Sadati, 2020; Ramos et al.,

2021), as students feel their schoolwork becomes overwhelming, they cannot keep track of their academic duties. In another aspect, a study by Muthuprasad et al. (2021) on a sample of 307 university students in an online setting reported that students had a negative experience with their teacher's support during COVID-19 regarding feedback and a lack of belief in their teacher's ability to use information communication technologies. A study by Wang et al. (2021) on 117 college students in an online setting reported results where autonomy support did not influence students' help-seeking persistence or show a relation with students' joy or anxiety, contradicting previous research. This might lead to the conclusion that lack of in-person interaction between students and teachers might result in making students who feel the need for, and attempt to seek out, autonomy support from their teachers experience insecurity, as they are not able to be in direct contact with their teachers or seek out guidance and support over technical communication.

As this study uses a cross-sectional method, causal relationships can't be determined. This could mean that the findings that autonomy support has a significant positive relationship with academic burnout might be because students who are already experiencing burnout may be more likely to seek out autonomy support as a coping strategy.

Another important finding in this current study is the importance of sleep as a protecting factor against academic burnout. Sleep was a significant negative predictor of academic burnout in all three models in this current study. Lack of sleep duration and sleep quality has been closely associated with various health concerns among students, including irritability, chronic fatigue, attention problems, depression leading to unsatisfactory academic progress, academic failures, and school dropout (Liu et al., 2021; Naderi et al., 2021). Poor sleep quality has been associated with mental disturbance due to stressors that impact students' mental health and intentions to drop out (De Los Santos et al., 2022). This aligns with previous research, a study done by Allen et al. (2020) on the association between stress,

burnout, sleep quality, and sleep duration, with a sample of 2,683 graduate students it was reported that sleep duration lessened the relationship between stress and exhaustion.

Similarly, a study by Lehto et al. (2018) on a sample of 555 university students reported sleep-related factors (poor sleep quality, daytime sleepiness, and daytime tiredness) to be significantly correlated with higher levels of students' burnout. These results emphasize the importance of sleep for students' well-being.

Significance of the Current Study

Academic burnout has become an increasing problem for students (Cheung & Li, 2019). Evidence has shown that it will only increase and become more substantial without suitable repercussions (Ljubin-Golub et al., 2020). Until recent years, students have been underrepresented in research on burnout as the focus has primarily been on the work domain, but as acceptance of the significance of academic burnout increases, the importance of further empirical research emerges (Ljubin-Golub et al., 2020). This study aimed to contribute to the existing empirical knowledge about academic burnout. Understanding the psychological processes that cause students to experience academic burnout is essential for creating and preparing effective primary, secondary, and tertiary prevention measures for students (Deniz et al., 2014). This need is emphasized as research has shown that it may, in return, decrease the odds of burnout later in life (Robin et al., 2017). Academic institutions need to recognize the risk and symptoms of academic burnout in students to consider interventions and offer support and help them navigate academic demands (Cowie et al., 2018).

The COVID-19 pandemic is one of the major global health crises worldwide, and its outbreak has significantly impacted educational institutions and students' academic lives (Hassan & Sadati, 2020). Societies have had to learn new ways to adapt to unique circumstances while facing the uncertainty of the present and the future. Students and academia are a field where the norm changed drastically with remote learning, and it is

essential to investigate the consequences. Even though this study did not directly examine students' well-being regarding their learning environment, as schools mainly had turned back to on-campus teaching during data collection, it is still a study examining students who had gone through strenuous times because of the COVID-19 pandemic.

Limitations of the Current Study

Since this is a cross-sectional study with a single-source self-report survey, some common concerns need to be addressed. Firstly, self-report measures may be biased due to social desirability as participants may present themselves in a favorable light. This might especially play a role among those high in perfectionism who might minimize difficulties (Cowie et al., 2018). Secondly, cross-sectional research designs do not assist in determining cause and effect, making it difficult to make a causal inference (Spector, 2019). This limitation must be kept in mind when interpreting the results as they are not entirely in line with previous research, as it is not possible from this current study to determine to what extent experienced academic burnout influenced multidimensional perfectionism and perceived autonomy support. As for the findings that autonomy support was a significant positive predictor of academic burnout, it might be concluded that the learning environment students have been in during the COVID-19 pandemic has had an impact. A recent study by Wang et al. (2021) on a sample of college students who had to conduct their studies via Zoom during the pandemic reported that students don't perceive autonomy support from their teachers in the same way as before. It is also possible that students experiencing burnout would be more likely to seek out autonomy support from their teachers, as a causal relationship can't be determined in this current study.

It would have been beneficial to have considered the effects of the COVID-19 pandemic on the students before data collection. This study initially did not have the aim of investigating this. Still, when the results were clear, it brought up questions about whether

this unexpected outcome was due to students having been conducting their studies in unprecedented times, with unpredictability and online learning. The inventories used in the questionnaire were not designed for considering the possible impact of these factors or for making distinctions between in-person versus online education. Therefore, the reliability of these inventories when the data collection was performed might bring some perplexity to the outcome.

The sample was predominantly Icelandic (44.6%), which may propose a problem of how well the representativeness is. Nevertheless, Iceland is a Westernized country, so the sample should still represent the population of university students in Western countries, even though more diversity of nationalities would have given more credible results for making concrete conclusions. It is also worth mentioning that 7.7% of the sample of students in this study came from non-Western countries, but only 4.2% of students were studying in a non-Western country.

The sample had a majority of females (81.8%), which is not entirely unexpected because more females attend universities (National Center for Educational Statistics, 2011). In previous literature, there have not been reported many or substantial gender differences in academic burnout. However, males and females (studies incorporating more genders are not sufficient) have been reported to experience factors related to academic burnout differently (Castellanos, 2018). A meta-analysis by Castellanos (2018) on gender differences and academic burnout found, e.g., that loneliness was reported higher in male students, but females reported higher stress levels. There have not been substantial differences found between genders and prevalence of high perfectionism, though females have been found to be more vulnerable to academic stress and imposter syndrome (Cowie et al., 2018). Female students have been found to be more self-determined and autonomy-oriented (William & Deci, 1996).

Future Research

This research aims to understand contributing factors for academic burnout in university students. Even though empirical research has been increasing in recent years, the subject of academic burnout has not gained enough ground, as it was not been accepted until a few decades ago, so there is still missing information about this complex phenomenon. In the context of academic burnout in university students, autonomy support and multidimensional perfectionism have not been researched before this study, to my knowledge. It would be valuable to gain a deeper understanding of the interaction between different factors that have previously been empirically shown to influence academic burnout. Future research should further investigate those interactions to understand better preventive measures and ways to protect against them.

The COVID-19 pandemic had various impacts on many levels and aspects of society. Most students conducting their studies on school grounds had their studies moved to an online setting, for different periods and with uncertainty about the future. Since the results from this current study are not entirely in line with findings from previous research, it is worth investigating further what causes these results from this sample of students. Even though studies are challenging to replicate, expecting the same results at a different time as the environment changes, this current study might be challenging as the last years in which these students have had to conduct their studies have been unprecedented. Students have been in an online learning environment without it being their own choice, which can be difficult and straining for students and has been shown to impact students' well-being and increase depression and dropout (Moscoviz & Evans, 2022;). It would have been beneficial for interpretation and discussion of these results to have gained more insight into the students' experience during COVID-19. Future research should aim to understand students' well-being

better. Factors contributing to academic burnout should be investigated with the difference in students' experience in an online versus in-person environment.

The results from this study brought up some interesting questions that future studies should investigate further. First was the finding that autonomy support was a positive predictor of academic burnout. One reason could be that students have been in online classes where autonomy is high but still does not protect against academic burnout. The second finding was that multidimensional perfectionism, and the perfectionism dimension evaluative concerns were negative predictors of academic burnout. Future research should investigate whether multidimensional perfectionism is associated with intrinsic motivation in academia. The third finding was that the perfectionism dimension striving was a non-significant predictor of academic burnout, which leads to the question of whether striving is sufficiently distinct from perfectionism, as it has been concluded to have neither negative nor positive emotional implications (Bieling et al., 2004). Lastly, sleep was found to be a significant negative predictor of academic burnout, further supporting previous research on the importance of sleep and students' well-being. This study cannot determine the causal relationship between academic burnout, multidimensional perfectionism, and autonomy support, as this study used a cross-sectional method. A longitudinal study would be beneficial to bring insight and a deeper understanding of those relationships.

Concluding Remarks

The overall aim of the present study was to explore relationship between academic burnout, multidimensional perfectionism, and perceived autonomy support. Although the findings in this current study were not entirely in line with the majority of previous research, it indicates that different learning environment might potentially impact students' perceived autonomy needs, and that aspects of multidimensional perfectionism may be associated with intrinsic motivation in academia. However, further studies are needed in order to further

support these results and to investigate how circumstances and different environments effect multidimensional perfectionism and perceived autonomy support in relation to academic burnout. Findings in this study further supports previous research on the importance of sleep and students' well-being. This study contributes to a growing field of research on factors associated with academic burnout and university students' well-being and psychological processes.

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Appendix A. Survey

Introduction text:

This survey is on the relationship between well-being, perceived support, and standards for university students.

Your responses will be completely confidential, and you will not be asked for any identifiable information. The data gathered with this survey will be stored securely and may be kept for up to 5 years. This study is conducted in compliance with data protection legislation, for further information, see <https://www.lunduniversity.lu.se/about-university/contact-us/processing-personal-data-lund-university>

As such, if you leave the survey, before finishing, you will have to start again if you want to contribute to this survey. If you wish to stop participating, feel free to exit the survey window at any time, your answers will not be saved unless you finish and submit them. If you wish to withdraw your data after completing the survey, you can send an email to esterlif55@gmail.com until 01.03.22 asking for your data to be withdrawn without further explanation.

Overall, the survey should take approximately 5-10 minutes, and guidelines for taking the survey will be presented after you consent to participate in the survey.

This survey is being carried out by Ester Ólafsdóttir, who is currently a master's level student in Psychology at Lund University. If you have questions about the survey, please be in contact through esterlif55@gmail.com.

By beginning the survey, you are consenting to take part in this survey and acknowledging that you must be 18 years old or older, and that you understand that you can withdraw your participation at any time prior to the final submission of your responses.

Demographic questions

1. How old are you?

2. What is your gender?
3. What country are you from?
4. What country do you study in?
5. How much sleep would you assume you get on an average night?
6. How many days a week on average do you exercise? (Physical exercise, for example walking, running, swimming, working out in a gym etc., for at least 30 minutes each time)
7. What do you study?
8. What is your current level of studies?

Frost Multidimensional Perfectionism Scale – Brief Form

Evaluative concerns

1. If I fail at work/school, I am a failure as a person.
2. If someone does a task at work/school better than me, then I feel like I failed at the whole task.
3. If I do not do well all the time, people will not respect me.
4. The fewer mistakes I make, the more people will like me.

Striving

1. I set higher goals for myself than most people.
2. I have extremely high goals.
3. Other people seem to accept lower standards from themselves than I do.
4. I expect higher performance in my daily tasks than most people.

Response format:

Strongly disagree, disagree, neutral, agree, and strongly agree

(Frost et al., 1990).

Learning Climate Questionnaire

1. I feel that my instructor provides me choices and options.
2. I feel understood by my instructor.
3. I am able to be open with my instructor during class.
4. My instructor conveys confidence in my ability to do well in the course.
5. I feel that my instructor accepts me.
6. My instructor made sure I really understood the goal of the course and what I need to do.
7. My instructor encouraged me to ask questions.
8. I feel a lot of trust in my instructor.
9. My instructor answers my questions fully and carefully.
10. My instructor listens to how I would like to do things.
11. My instructor handles people's emotions very well.
12. I feel that my instructor cares about me as a person.
13. I don't feel very good about the way my instructor talks to me (reversed).
14. My instructor tries to understand how I see things before suggesting a new way to do things.
15. I feel able to share my feelings with my instructor.

Response format:

1. Strongly agree, 2, 3, 4. Neutral, 5, 6, 7. Strongly agree.

(William & Deci, 1996).

School Burnout Inventory

1. I feel overwhelmed by my schoolwork.
2. I feel a lack of motivation in my schoolwork and often think of giving up.

3. I often have feeling of inadequacy in my schoolwork.
4. I often sleep badly because of matters related to my schoolwork.
5. I feel that I am losing interest in my schoolwork.
6. I'm continually wondering whether my schoolwork has any meaning.
7. I brood over matters related to my schoolwork a lot during my free time.
8. I used to have higher expectations of my schoolwork than I do now.
9. The pressure of my schoolwork causes me problems in my close relationship with others.

Response format:

Completely disagree, partly disagree, disagree, partly agree, agree, and completely agree.

(Salmela-Aro and Näätänen, 2005).

Appendix B. Breakdown of participants country of origin and country of studies

What country are you from? *What country do you study in?*

<i>Country</i>	<i>N</i>	<i>%</i>	<i>Country</i>	<i>N</i>	<i>%</i>
Iceland	66	44.6	Iceland	29	33.1
UK	18	12.2	UK	25	16.9
Germany	10	6.8	Sweden	23	15.5
USA	8	5.4	Denmark	14	9.5
Finland	5	3.4	USA	8	5.4
Netherlands	4	2.7	Netherlands	3	1.4
Sweden	3	2.0	Germany	3	1.4
Canada	3	2.0	Canada	3	1.4
Poland	3	2.0	Australia	2	1.4
Scotland	2	1.4	India	2	1.4
Romania	2	1.4	Latvia	2	1.4
Pakistan	2	1.4	Pakistan	2	1.4
Latvia	2	1.4	Scotland	2	1.4
Ireland	2	1.4	Spain	1	.7
India	2	1.4	Poland	1	.7
Brazil	2	1.4	Philippine	1	.7
Australia	2	1.4	Norway	1	.7
Bangladesh	1	.7	Ireland	1	.7
China	1	.7	Greece	1	.7
Cyprus	1	.7	France	1	.7
Denmark	1	.7	Finland	1	.7
France	1	.7	Brazil	1	.7
Philippine	1	.7	-	1	.
Spain	1	.7			
Suriname	1	.7			
Switzerland	1	.7			
Turkey	1	.7			
	2	1.4			
Total	148	100.0		148	100.0