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The influence of Perfectionism, Self-Esteem and Resilience on Young People's Mental Health

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All data available on request from corresponding author

Abstract

The current study explored whether maladaptive perfectionism and low self-esteem constituted reliable risk factors of student mental illness, as well as determining whether resilience moderates these predictive relationships. 434 University undergraduate students were recruited. Depression and anxiety were measured using the Patient Health Questionnaire (PHQ-9) and Generalised Anxiety Disorder Assessment (GAD-7). Perfectionism, self-esteem and resilience were analysed in relation to the PHQ9 and GAD-7 scores via a regression analysis.

Perfectionism discrepancy, self-esteem and resilience all significantly predicted depression and anxiety. Hierarchical regression analysis revealed a statistically significant amount of additional variance to be explained by resilience for depression and anxiety, than for perfectionism and self-esteem alone. Maladaptive perfectionism and low self-esteem predispose an individual to depression and anxiety, though resilience may act as a protective factor against development of mental illness.

Poor mental health, specifically that relating to depression and anxiety, has been found to detrimentally and longitudinally impact the lives of its sufferers (e.g. Cohen, Edmondson & Kronish, 2015; Lee & Giuliani, 2019; Nutt, Wilson & Paterson, 2008; Nutzinger & Zapotoczky, 1985), with long-term suicide risk increasing from 0.3% to 6.0% for individuals with one or more comorbidities (Holmstrand, Bogren, Mattison & Brådvik, 2015). Not only does this have substantial, adverse effects for the individual (e.g. Johannessen, Andersson, Bjorngaard & Pope, 2017) but for society as a whole: psychotropic illness significantly predicts unemployment, work absenteeism and welfare dependency (Doran & Kinchin, 2017).

Mental illness in the student population, specifically, warrants attention, as previous research has revealed mental ill-health to disproportionately affect young people (aged 10-24; World Health Organisation, 1999): nearly half of all mental illness is experienced by younger adults, with the majority of lifetime mental disorders first apparent by the age of 25 (Kessler et al, 2005).

Depression and anxiety, in particular, have yielded consistent, co-morbid diagnosis for students suffering from mental illness.

Maladaptive perfectionism and poor self-esteem, particularly, have been identified as important risk factors for mental health problems in adolescents (e.g. Dunkley et al, 2006; Handley et al, 2014; Limburg et al, 2016; Masselink, Roekel & Oldehinkel, 2018; Nguyen et al, 2019; Ntamsia et al, 2017; Steiger et al, 2014). Defined as the persistent striving for unattainably high standards (Sheppard & Hicks, 2017), maladaptive perfectionism predicts: higher levels of depressive symptoms (e.g. Egan et al, 2011) and pathological worry in patients with Generalised Anxiety Disorder (GAD; Handley et al, 2014). Similarly, defined as the dissatisfaction with oneself (James, 1980), poor self-esteem produces enduring vulnerability for development of depressive symptoms (Masselink, Roekel & Oldehinkel, 2018) and is positively associated with anxiety (Nguyen et al, 2019; Ntamsia, 2017).

While a wide range of risk factors for mental illness have been considered in previous research (e.g. Pham et al, 2019; Said, Kypri & Bowman, 2013), perfectionism and self-esteem appear unique in their repeated confirmation as significant predictors of student mental (ill)health. Other risk factors have either: demonstrated substantial variability according to demographic

characteristics (e.g., Motjabai & Crum, 2013; Nugent, Rosato, Hughes & Leavey, 2020), or failed to establish a reliable association entirely (Roberts, Lenton, Keetharuth & Brazier, 2014). Contrastingly, durability of the predictive relationships between self-esteem and mental illness has been demonstrated in longitudinal and meta-analytic research (Steiger et al, 2014; Limburg et al, 2016; Dunkley et al, 2006). Consequently, the consistent significance revealed for maladaptive perfectionism and low self-esteem highlights their importance as risk factors for poor mental health. Furthermore, the association between perfectionism, self-esteem and mental health has been demonstrated particularly in young adults: Poor self-esteem (e.g., Ogihara, Uchida & Kusumi, 2016) and maladaptive perfectionism (e.g., Carrant & Hill, 2019). Overall, perfectionism and self-esteem seem integrally related to mental health and should, therefore, be investigated in their capacity as risk factors for student mental illness.

Resilience defined as the capacity to recover from significant stress (Rutter, 1985), is one possible explanation as to why some individuals will go on to develop a mental disorder, while others are spared (Garmezy, 1983). Yet, for resilience to have an impact on mental health, an interaction with other risk factors is required (Garmzey, 1983; Rutter, 1985). Unsurprisingly, therefore, studies considering resilience independently from other factors have only shown a correlational association with mental health (Bezdjan et al, 2017; Scali et al, 2012). Consequently, in failing to accommodate for moderating variables, research has often overlooked factors likely to have indirectly influenced mental health. To address this in the current study, the potential moderating effect of resilience on the association between perfectionism, self-esteem and mental illness will be explored. While research in this area is in its infancy, studies that have been conducted are largely supportive of resilience's modulating role: resilience mediated the relationship between perfectionism and mental illness, applying to both socially prescribed (Kilbert et al, 2014) and maladaptive dimensions (Sheppard & Hicks, 2017). Equally, students with higher resilience and self-esteem tended to display fewer depressive symptoms (Chung et al, 2020), with a mediating model of resilience and self-esteem relevant to depressive symptoms revealed (Liu, Zhou, Lie & He, 2020)

However, research has also demonstrated notable inconsistencies: a significant, moderating effect of resilience on the relationship between perfectionism and mental health has only been revealed for single dimensions (Kilbert et al, 2014; Bieling, Israeli & Antony, 2004). Similarly, while

an association between self-esteem, resilience and mental health has been found, substantial disagreement between studies has prevented establishment of a reliable, predictive relationship - particularly, one which can clearly define the direct and mediating roles of these factors. Research has either: a) solely investigated the relationship between resilience and mental health - preventing resilience's mediating influence on other risk factors from being explored (Dumont & Provost, 1998), b) presented a relationship contrary to that predicted by previous research: low resilient, yet highly self-confident, individuals were more likely to display depressive symptoms (Choi et al, 2019) or c) only found moderating effect for variables other than resilience - e.g. rumination partially mediated vulnerability effect of low self-esteem for depression (Kuster, Orth & Meier, 2012). Consequently, further investigation of the particular role of resilience in the relationship between perfectionism, self-esteem and student mental health is necessary in order to gain a comprehensive understanding of the risk and protective factors for mental health. By aiming to establish whether perfectionism and self-esteem are significantly associated with mental health, as well as determining whether this association is moderated by resilience, the following research question was considered: How does resilience moderate the ability of maladaptive perfectionism and poor self-esteem to predict student mental illness? Specifically, the current study utilised self-report questionnaires to compare scores on perfectionist, self-esteem and resilience measures to those of depression and anxiety. Ultimately, it was hypothesised that higher levels of maladaptive perfectionism and lower levels of self-esteem would predict more severe depression and anxiety. By simultaneously exploring the predictive relationships between risk factors and mental ill-health, as well as the interrelationships between these factors, this study offers novel insight into the predisposing features of mental illness. Therefore, targets for interventions can be better specified, facilitating development of more cost-effective, personalised treatments - e.g. selective prevention strategies (Mrazek & Haggerty, 1994).

[In addition, at this present time, we cannot ignore the fact that the Covid-19 pandemic has had a significant impact on all areas of life for young people. Specifically, we are starting to see early studies linked to the first Covid-19 wave that demonstrate that young people's mental health has been substantially impacted by the restrictions brought on by the pandemic. For example, Marshall et al., \(2020\) have calculated a worsening of general Mental health by 8.1%, particularly affecting young adults and women. Furthermore, in a survey by the mental health charity YoungMinds, which included 2111 participants up to age 25 years with a mental illness history in](#)

[the UK, 83% said the pandemic had made their conditions worse \(Lee, 2020\)](#) Hence, a secondary aim of the current study is to assess the impact of Covid-19 on the mental health of young people.

Methods

Participants

424 first-year, [University of XXXXXXXXUK based](#) -psychology students, [from a large civic University](#), were recruited over a two-year data collection period (2020-2021). Age of participants ranged from 18-21, with most either 18 (54.6%) or 19 (34.8%) years old. Females comprised the majority of the sample (84.7%), with participant characteristics shown in Table 1.

Table 1: *Participant characteristics (N = 424)*

	Frequency	%
Age, y		
18	237	54.6
19	151	34.8
20	27	6.2
21	9	2.1
Gender		
Female	359	84.7
Male	60	14.2
Non-binary	4	0.9
Prefer not to say	1	0.2

Volunteer sampling was utilised, with the final scale advertised via the Research Participation Scheme's System. On completion of the study, participants were rewarded with course credits.

Materials

Perfectionism - The Almost Perfect Scale (APS; Slaney et al, 2001).

The APS measures adaptive and maladaptive perfectionism separated into three sub-scales: high standards, order and discrepancy. 23 positively and negatively worded statements are included, assessed on a 7-point Likert Scale (1 = strongly disagree, 7 = strongly agree). Example statements include: "I have high expectations for myself", "I am never satisfied with my accomplishments". Scores for each sub-scale are calculated (Rice and Ashby, 2007), categorising respondents into one of three groups: 'non-perfectionist', 'perfectionist' (standards score of 42+) 'maladaptive perfectionist' (standards & discrepancy scores of 42+). Reliability of the scale is supported in moderate-high internal consistency estimates ($r = .82$; Rice & Ashby, 2007), with modest convergent and divergent validity also shown (Slaney et al, 1999). Therefore, the APS-R can be adopted as a reliable and valid measure of perfectionism.

Self-esteem - Rosenberg Self-Esteem Scale (RSES; 1965)

The unidimensional RSES measures global self-esteem, including positively and negatively worded items: "On the whole I am satisfied with myself", "I certainly feel useless at times". 10 items are rated on a 4-point even scale (0 = "strongly disagree", 3 = "strongly agree"), inversely scored for negative items. Total scores range from 0-30; higher scores indicate higher self esteem. Reliability of the RSES is demonstrated in high internal consistency estimates ($r = .72$ -.88; Fleming & Courtney, 1984; Ward, 1977) and test re-test coefficients ($r = .50$ -.63; Byrne, 1983; Silbert & Tippett, 1965; McCarthy and Hoge, 1984). High criterion ($r = .77$ -.88; Myers and Winters, 2002) and construct validity (Rosenberg, 1965) has also been shown. Therefore, the RSES can be used as a valid and reliable measure of self-esteem.

Resilience - Connor-Davidson Resilience Scale (CDRS; Connor-Davidson, 2003)

The CDRS measures resilience by how effectively a person responds to stressful experiences. Items are assessed on a 5-point scale (0 = 'not true at all', 4='true nearly all of the time'), with an example: "Even when hopeless I don't give up". Total scores range from 0-100; higher scores indicate higher resilience. Comparability with Campbell-Sills and Stein's (2007) 10-item version (Burns and Anstey, 2010), means the CD-RISC-25 can be supported in studies validating the newer scale. These have revealed strong: internal reliability estimates ($r = .85$; Campbell-Sills & Stein, 2007); construct, divergent and convergent validity (Gonzalez, Moore, Newton & Galli, 2015; Scali et al, 2012). Additionally, factor analysis has upheld the scale's unidimensional definition of resilience: the majority of items loaded onto a single dimension (Burns and Anstey, 2010). Therefore, the CD-RISC-25 can be confidently used to measure resilience in this research.

Depression - Patient Health Questionnaire (PHQ-9)

The PHQ-9 measures severity of depressive symptoms according to DSM-IV criteria. Respondents consider: "over the last two weeks, how often have you been bothered by any of the following problems". Nine items are included, rated on a 4-point scale (0 = "not at all", 3 = "nearly every day"), e.g.: "Poor appetite or overeating?" Total scores range from 0-27; higher totals indicate more severe depression. Depression severity is categorised into five subgroups: 'none' (total score of 0-4), 'mild' (5-9), 'moderate' (10-14), 'moderately severe' (15-19) and 'severe' (20-27). High internal consistency estimates ($r = .86-.89$; Kroenke et al, 2001) uphold reliability of the scale, with strong criterion and construct validity equally shown (Kroenke et al, 2001). Flexibility of administration (e.g. telephone-administered PHQ-9; Pinto-Meza et al, 2005) makes this a particularly useful measure given the restrictions of Covid-19 on conducting in person research. Therefore, the PHQ-9 provides a fitting measure of depression for use in this study.

Anxiety - Generalised Anxiety Disorder Assessment (GAD-7)

The GAD-7 assesses severity of generalised anxiety disorder; respondents consider symptoms over the past two weeks. Seven items are included, e.g.: "Feeling nervous, anxious or on edge?" Total scores range from 0-21; higher totals indicate more severe GAD. Scores of 5, 10 and 15 represent cut-off points for mild, moderate and severe anxiety. Validity of the scale is evidenced in powerful concurrent (Löwe et al, 2008) and convergent coefficients (Ruiz et al, 2011), with strong construct, criterion and cross-cultural validity also shown. (Spitzer et al, 2006). Reliability is equally supported in high agreement between: self-report and interviewer administered versions (Spitzer et al, 2006); individual items and the total score (Zhong et al, 2015). Therefore, the GAD-7 can be confidently adopted in the current study to measure anxiety.

Final Measure - Factors Affecting Student Mental Health: Questionnaire

The final measure comprised eight sections: 1) overall purpose of questionnaire, instructions for completion, ethical considerations, 2) demographic information: student ID number, gender and age, 3-7) the five, pre-established questionnaires ordered: PHQ-9, GAD-7, APS-R, RSE and CDRS-25, 8) a short debrief.

[NB. All self-report questionnaires were in English](#)

Procedure

Participants completed the final questionnaire via an online Google form link, which was self-administered.

Results

Responses were screened, with only those completed by first year undergraduate students included. Of accepted responses: 11.1% were completed by males, 86.6% by females - with the remainder attributable to 'non-binary' or 'prefer not to say' categories. ~~Means and SD all fell within normal range, though resilience and perfectionism discrepancy showed marked variation in scores.~~ Descriptive statistics for all variables can ~~clearly~~ be seen in Table 2.

Table 2: Mean, SD and range for scores on the five self-report questionnaires

	Mean	SD	Range
Depression (out of 27)	8.84	5.06	0-27
Anxiety (out of 21)	6.58	4.66	0-21
Self-esteem (out of 40)	28.85	5.37	13-40
Resilience (out of 100)	62.06	12.97	13-96
Perfectionism high standards (out of 49)	39/21	5.86	17-49
Perfectionism order (out of 28)	20.28	4.59	4-28
Perfectionism discrepancy (out of 84)	52.11	14.98	13-84

Data analysis

To analyse the data, several regression analyses were performed using SPSS software. First, separate standard multiple regressions for the criterion variables: depression (D) and anxiety (A) and predictor variables: self-esteem, perfectionism and resilience were calculated. Results from the analysis revealed self-esteem, perfectionism discrepancy and resilience to significantly predict both depression ($F(5, 428) = 50.6111, p < 0.01$) and anxiety ($F(5, 428) = 40.077, p < 0.01$). No significance was found for the two other perfectionist dimensions. Standardised coefficient beta values suggest self-esteem was a slightly stronger predictor than perfectionism

discrepancy (D (B = -.359 vs B = .76); A (B = -0.323, B = 0.205)) and resilience (D (B = .114); A (B = -.153)), as can be seen in Tables 3 and 4.

Table 3: *Standardised coefficients for model predicting depression*

Variable entered	Beta	P value
Self-esteem	-0.381	< .001
Perfectionism order	-0.001	0.975
Perfectionism high standards	-0.016	0.755
Perfectionism discrepancy	0.224	< .001
Resilience	-0.114	0.025

Table 4: *Standardised coefficients for model predicting anxiety*

Variable entered	Beta	P value
Self-esteem	-0.323	< .001
Perfectionism order	0.090	0.051
Perfectionism high standards	0.020	0.701
Perfectionism discrepancy	0.205	< .001
Resilience	-0.153	0.004

[Hierarchical multiple regression was also carried out for depression \(see Table 5\) and anxiety \(see Table 6\), with predictor variables entered in two stages: perfectionism and self-esteem in Stage 1; perfectionism, self-esteem and resilience in Stage 2.](#)

The hierarchical multiple regression revealed that at Stage one self-esteem and perfectionism discrepancy contributed significantly to the regression model for depression ($F(4, 429) = 61.410, p < 0.001$) and anxiety ($F(4, 429) = 41.171, p < 0.001$), and accounted for 36% and 30% of the variance in Depression and Anxiety respectively. At Stage 2, self-esteem, perfectionism discrepancy and resilience were found to be significant predictors for depression ($F(5, 428) = 50.611, p < 0.001$) and anxiety ($F(5, 428) = 40.077, p < 0.001$). The added variables from Stage 2 accounted for an additional 0.7% and 1.3% of variance in Depression and Anxiety respectively. Slightly more variance was, therefore, explained by resilience for anxiety than depression, with an associated, minimal increase in Sig F change: D ($p = 0.025$), A ($p = 0.004$).

Table 5

Hierarchical regression analysis predicting depression (PHQ-9 score)

Step	Variable entered	Cumul R^2	R^2 change	Beta
1	Self-esteem	.364 ($p < .001$)	.364 ($p < .001$)	-0.430 ($p < .001$)
	Perfectionism order			-0.012 ($p = .780$)
	Perfectionism high standards			-0.049 ($p = .307$)
	Perfectionism discrepancy			0.248 ($p < .001$)
2	Self-esteem	.372 ($p < .001$)	.007 ($p = .025$)	-0.381 ($p < .001$)
	Perfectionism order			-0.001 ($p = .975$)
	Perfectionism high standards			-0.016 ($p = .755$)
	Perfectionism discrepancy			0.224 ($p < .001$)
	Resilience			-0.114 ($p < .001$)

Table 6

Hierarchical regression analysis predicting anxiety (GAD-7 score)

Step	Variable entered	Cumul R^2	R^2 change	Beta
1	Self-esteem	.305 ($p < .001$)	.305 ($p < .001$)	-0.389 ($p < .001$)
	Perfectionism order			0.075 ($p = .1.03$)
	Perfectionism high standards			-0.025 ($p = .620$)
	Perfectionism discrepancy			0.237 ($p < .001$)
2	Self-esteem	.319 ($p < .001$)	.013 ($p = .004$)	-0.323 ($p < .001$)
	Perfectionism order			0.075 ($p = .103$)
	Perfectionism high standards			0.020 ($p = .701$)
	Perfectionism discrepancy			0.205 ($p < .001$)
	Resilience			-0.153 ($p = .004$)

To determine whether resilience also yielded significant, unique interactions with perfectionism and self-esteem, separate stepwise regression analyses for depression and anxiety were performed. Three new variables were created to facilitate investigation of separate interactions, constituting total scores of: 1) resilience*self-esteem, 2) resilience*perfectionism discrepancy, 3) resilience*perfectionism order. Resilience*perfectionism order was analysed solely for anxiety, as significance was only revealed for this criterion variable in initial multiple regression analysis.

For depression, results of this analysis revealed significant interactions for both resilience*self-esteem ($p < 0.001$) and resilience*perfectionism discrepancy ($p < 0.05$). Resilience*self-esteem was found to explain a greater amount of variance ($\Delta R^2 = 0.018$) than resilience*perfectionism discrepancy ($\Delta R^2 = 0.007$), with higher significance also shown: $p = 0.001$ (R^2_{SE}), $p = 0.038$ (R^2_{PD}). For anxiety, a significant interaction between resilience*self-esteem was also demonstrated ($p = 0.007$), explaining an additional 1.2% of variance ($\Delta R^2 = 0.012$). Contrastingly to depression, the interaction between resilience*perfectionism discrepancy did not meet the threshold for significance ($p = 0.059$). Resilience*perfectionism order was not revealed to significantly interact ($p = 0.485$). Figures 1-4 clearly depict these results.

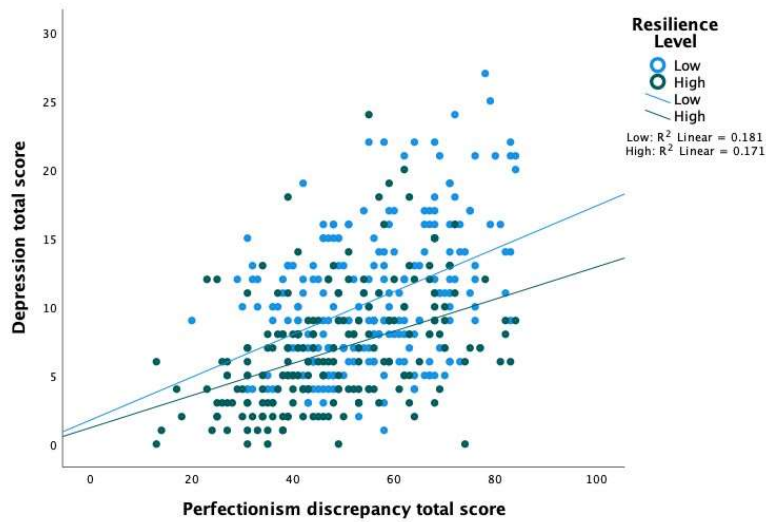
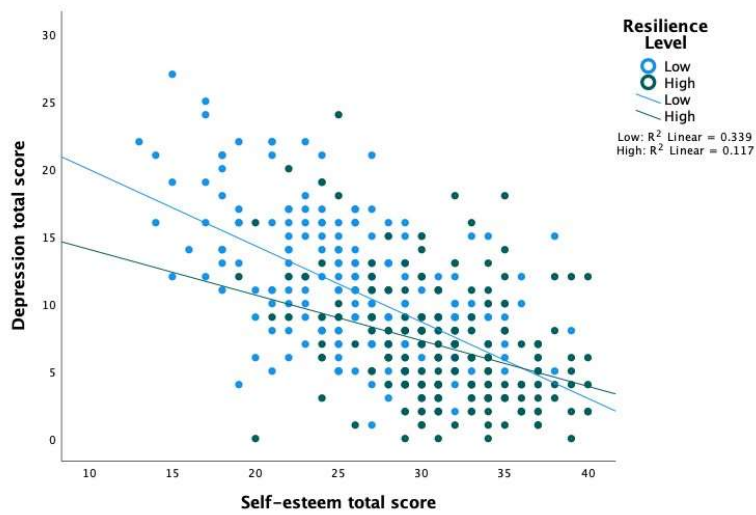
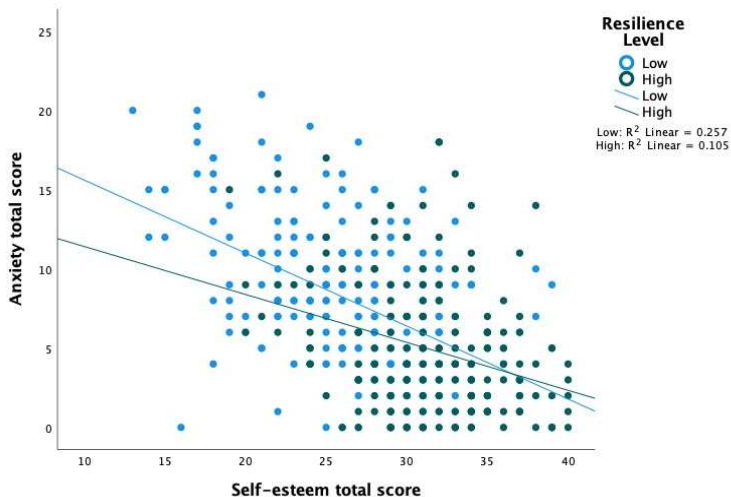


Figure 1: A line graph showing the relationship between perfectionism discrepancy (X) and depression (Y), as a comparison of total scores on the APS-R Scale and PHQ-9. Resilience was categorised into 'high' or 'low' according to Bhattarai, Maneewat & Sae-Sia's (2018) proposed structure, where regression lines indicate a moderating effect. Scores on depression measures for perfectionist individuals differed according to level of resilience, where low resilience predicted higher scores on depression measures.

(2)



(3)



Figures 2-3: Line graphs showing the separate relationships between self-esteem (X) and depression/anxiety (Y) as a comparison of total scores on the RSE, PHQ-9 and GAD-7 scales. Regression lines revealed similarly significant moderating effect of resilience for low self-esteemed individuals, where low resilience predicted higher scores on depression and anxiety measures.

Given that data collection took place over an extended time period, Univariate, one-way ANOVAs were conducted in order to establish whether group mean scores for depression and anxiety differed between years of study (2020-2021). Comparison of descriptive statistics revealed: significantly larger group mean scores for the PHQ-9 (9.56 vs 8.11) and GAD-7 (7.06 vs 6.11) for Group 2 (2021) than Group 1 (2020).

	Mean (PHQ-9)	Standard Deviation (PHQ-9)	Mean (GAD-7)	Standard Deviation (GAD-7)
Group 1	8.11	4.095	6.11	4.115
Group 2	9.56	5.786	7.06	5.114

Significant ANOVAs for both depression ($F(1, 432) = 8.991, p < 0.05$) and anxiety ($F(1, 432) = 4.527, p < 0.05$) suggest a statistically significant difference between group means: D ($p = 0.003$), A ($p = 0.034$). Alongside descriptive statistics, substantial variability in depression and anxiety was clearly shown between years of study (Originally Reported in [XXXXXX-Catling et al](#), under review)

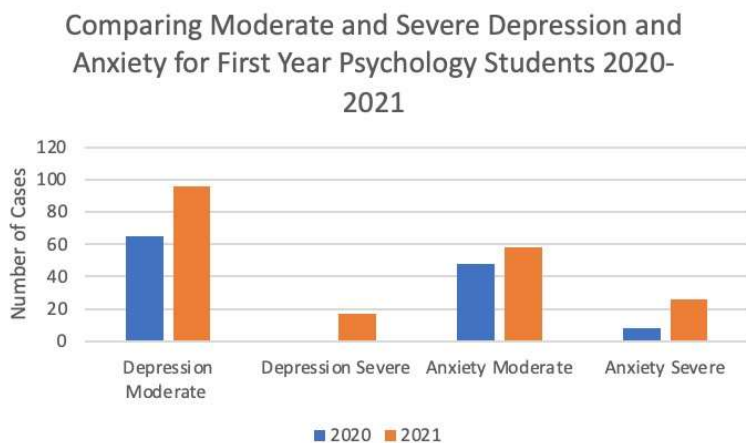
In order to analyse observed variability of criterion variables from a clinical perspective, cut-off scores for moderate and severe depression and anxiety were calculated. Cut-off points followed the structures outlined in the PHQ-9 and GAD-7 questionnaires: moderate depression/anxiety = score of 10+, severe depression = 20+, severe anxiety = 15+.

Table 7: Number of cases for moderate/severe depression and anxiety for Group 1 and Group 2 according to the proposed cut-off structures of the PHQ-9 and GAD-7 scales.

	Moderate Depression	Moderate Anxiety	Severe Depression	Severe Anxiety
Group 1	65	48	0	8
Group 2	96	58	17	26

Results of this comparison can be seen in Table 7: Group 2 had a larger number of cases than Group 1 for both: moderate (MG2 = 96, MG1 = 65) and severe depression (SG2 = 17, SG1 = 0); and moderate (MG1=48, MG2=58) and severe anxiety (SG1=8, SG2=26). Similar increases in case occurrences between Group 1 and Group 2 were shown for severe depression and anxiety, with an increase of 17 cases for severe depression, and 18 for severe anxiety. Slightly greater increase in case occurrence between Groups 1 and 2 was found for moderate depression than moderate anxiety, with an increase in 31 and 10 cases respectively. Figure 4 graphically represents results. (Originally reported in [XXXXXX-Catling et al.](#), under review)

Figure 4: A bar graph comparing cases of moderate and severe depression and anxiety between 2020 and 2021 first-year psychology students



Discussion

The current study established perfectionism and self-esteem as significant predictors of student mental illness, and clarified resilience's moderating role. Specifically, higher levels of maladaptive perfectionism (i.e. perfectionism discrepancy) and poor self-esteem were associated with greater depression and anxiety, with the strongest association revealed for individuals also demonstrating low resilience. Given the consistent interrelationship(s) between resilience, perfectionism, self-esteem and student mental health (e.g. Kilbert et al, 2014; Sheppard & Hicks, 2017; Chung et al, 2020; Liu, Zhou, Lie & He, 2020), the demonstrated predictive and mediative relationship between these factors is broadly supported.

Conceptually, results can be understood in consideration of the following: if resilience is the ability to adapt to negative emotional experiences (Rutter, 1985), and depressive-anxious individuals attribute greater negative meaning to self-image (McGrath & Repetti, 2002; Di Blasi et al, 2014) and nonachievement of perfectionism (Gilbert, Durrant & McEwan, 2006; Ashby, Rice & Martin, 2011), resilience can be assumed to target maintenance of these disorders by minimising automatic, negative connotations of emotional experiences (Troy & Mauss, 2011). Consequently, resilience should be understood as a protective factor, safeguarding individuals who present characteristics associated with greater risk of mental ill-health (e.g. maladaptive perfectionism and low self-esteem) against development of mental disorder(s). However, the extent to which resilience can be considered to prevent mental ill-health seems dependent on the construct used to define mental illness: a significant interaction between resilience and perfectionism discrepancy was revealed for depression only. Unexpectedly, therefore, the anticipated relationship between resilience, perfectionism and anxiety (Kilbert et al, 2014; Sheppard & Hicks, 2017) was not confirmed.

Mental illness was also revealed to considerably vary across time, with a notable increase in depression and anxiety between 2020-2021. It is likely, therefore, that in collating data between distinct periods of time, and constructs of mental ill-health, the current study may have underestimated the confounding influence of these methodological components in determining severity of mental illness. However, given the context in which the study took place (i.e. during the Covid-19 pandemic), the considerable increase in mental illness observed within this study is reflective of real life-patterns - an increase from 1 in 10 to 1 in 4 adults

reporting symptoms of anxiety or depressive disorder was found between January-June 2019 and January 2021 (Panchal, Kamal, Cox and Garfield, 2021).

Drawing on data obtained from the Census Bureau's Household Pulse Survey and KFF Health Tracking Polls, Panchal et al (2021) similarly demonstrated young adults to disproportionately experience anxiety and/or depressive disorder relative to all adults. By comparing obtained data to pre-Covid 19 statistics, researchers were able to offer unique insight into the consequences of the pandemic on student mental health: 26% of young adults reported serious thoughts of suicide during the pandemic compared to just 11% of all adults. Therefore, in considering findings of Panchal et al (2021) alongside the current study, greater understanding of the risk and protective factors of mental disorder(s) is obtained, mindful of variation in disorder(s) over time.

[One clear limitation of our study is the biased sample, with only 11.1% of our participants identifying as male. We know that in young adults that females are over twice as likely to report meant health issues than males \(e.g., NHS digital, 2018\), and hence we would need to be careful to extrapolate our findings to the entire UK population. However, notwithstanding this limitation, this does not lessen the impact of the findings from the present study or lessen the need for urgent interventions. A second potential limitation could be that some of the self-report instruments, such as the PDQ-9 may not be accurate for young female adults, as the instrument was not normed on a university population. However, many studies including that by Richardson et al., \(2010\) demonstrate a high level of sensitivity and specificity within cohorts of young people, \(both male and female\), and this is true across all of the measures utilised within the current study.](#)

Future research should aim to longitudinally assess the underlying mechanisms of mental ill-health, separately considering risk and protective factors, and constructs of mental illness. In doing so, unique interactions between predisposing/preventative factors and mental ill-health can be established, and greater stability of constructs used to assess mental illness achieved. Consequently, by utilising a design less sensitive to individual confounds, results will be protected from variable lifestyle factors known to influence prevalence of mental disorder(s) - e.g. employment (Linn, Sandifer & Stein, 1985; Farré, Fasani & Mueller, 2018). Finally, further

study would be wise to consider a unidimensional measure of maladaptive perfectionism (e.g. The Neurotic Perfectionism Questionnaire; Mitzman, Slade & Dewey, 1994) in order to definitively establish a predictive relationship with mental illness, as well as clarify the features constitutive of maladaptive versus adaptive dimensions.

Overall, the current study offers novel insight into the ability of maladaptive perfectionism and low self-esteem to predict student mental illness, according to level of resilience. By improving understanding of the predisposing features of mental disorder(s), treatment can be advised, emphasising the need for combined intervention. Specifically, Resilience Counselling and Cognitive Behaviour Therapy (CBT) could be collectively adopted; with CBT challenging the “need to be perfect” assumption and identifying negative, automatic thoughts contributing to poor self-belief (Handley, Egan, Kane & Rees, 2015; Kolubinski et al, 2018). Furthermore,

existing interventions aimed at enhancing self-esteem in young people should be extended to include resilience and perfectionism (Flett & Hewitt, 2014), given their proven success in reducing risk of eating disorder(s), substance abuse, anti-social behaviour and anxiety (O’Dea and Abraham, 2000). Ultimately, by improving pre-emptive interventions, demand for mental health services can be reduced. Subsequently, the growing treatment gap for individuals with a diagnosis of mental illness (Eustache et al, 2017) can be importantly narrowed, in an effort to address the current student mental health crisis (Schwartz et al, 2006).

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