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Academic Achievement Differences in Grandiose and Vulnerable Narcissists and the Mediating Effects of Self-Esteem and Self-Efficacy

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***Abstract*—**Narcissism is a personality trait characterised by selfishness, entitlement, and superiority. Narcissism is split into two subtypes, grandiose narcissism (GN) and vulnerable narcissism (VN). Grandiose narcissists are extraverted and arrogant, while vulnerable narcissists are introverted and insecure. This study investigates the psychological mechanisms that lead to differences in academic achievement (AA) between grandiose and vulnerable narcissists, specifically the mediating effects of self-esteem and self-efficacy. While narcissism is considered to be a negative trait, this study considers if better AA is one of them. Moreover, further research into VN is essential to fully compare and contrast it with GN. We hypothesise that grandiose narcissists achieve higher marks due to having high self-esteem which in turn boosts their sense of self-efficacy. In comparison, we hypothesise that vulnerable narcissists underperform due to having low self-esteem which limits their self-efficacy. Two online surveys were distributed to undergraduate university students. The first was a collection of scales measuring the mentioned dimensions, and the second investigated end of year AA. Sequential mediation analyses were conducted using the gathered data. Our analysis shows that neither self-esteem nor self-efficacy mediate the relationship between GN and AA. GN positively predicts self-esteem but has no relationship with self-efficacy. Self-esteem does not mediate the relationship between VN and AA. VN has a negative indirect effect on AA via self-efficacy, and VN negatively predicts self-esteem. Self-efficacy positively predicts AA. GN does not affect AA through the mediation of self-esteem and then self-efficacy, and neither does VN in this way. Overall, having grandiose or vulnerable narcissistic traits does not affect students' AA. However, being highly efficacious does lead to academic success, therefore, universities should employ methods to improve the self-efficacy of their students.

***Keywords*—**Academic achievement, grandiose narcissism, self-efficacy, self-esteem, vulnerable narcissism.

I. Introduction

THIS study investigates the relationship between narcissism and AA in undergraduate university students, specifically looking at the AA differences between grandiose and VN and how self-esteem and self-efficacy cause these differences. While narcissism is seen as a negative trait, being part of the Dark Triad with psychopathy and Machiavellianism, it is known to have some benefits [1]. For example, GN is associated with high life satisfaction and is found to have a buffering effect between the other Dark Triad traits and wellbeing [2]. Therefore, exploring other possible benefits of narcissism is essential to understand this trait fully, and superior AA may be one of these benefits.

Raskin and Terry characterised narcissism as 'grandiosity, entitlement, authority, superiority, exhibitionism, vanity, and exploitativeness' [3]. Narcissism is split into two subtypes, GN and VN. Grandiose narcissistic people view themselves as superior; they are extraverted and charming. These individuals are arrogant, manipulative, and enjoy being admired [4]. Whereas vulnerable narcissistic individuals are different, while still entitled and manipulative, they have fragile self-esteem, anxiety, and insecurity. They are unsociable people who feel overlooked and wronged [4], [5].

It is important to investigate this topic because while GN has been linked to higher achievement and improved wellbeing [2], this has not been fully explored and compared to VN. This study will address whether grandiose narcissists are actually higher-achieving due to their belief in themselves and their abilities, and if the negative aspects of VN cause low AA. Self-esteem and self-efficacy are vital parts of narcissism and differ for GN and VN, which may explain their AA differences. The entire mediating relationship of self-esteem and self-efficacy on the relationships between both types of narcissism and AA has not been thoroughly investigated, therefore, this study will build on existing literature and broaden understanding of this topic.

A. GN and Achievement

GN can have a multitude of benefits, which may lead to success and high achievement. For example, it can lead to career success. In a study of Italian CEOs, those with high GN were shown to become CEOs faster, manage more successful companies, and develop excellent leadership qualities [6]. Previous research has shown that CEOs tend to be narcissistic, and Rovelli, and Curnis indicated that it is GN that helps them with their career progression [6]. Furthermore, this study illustrated how being a grandiose narcissist lends itself well to high-powered leadership positions; facets of GN like charisma, confidence and a lack of empathy may be helpful in this type of career. Given that these findings show grandiose narcissists can achieve career success, a plausible assumption would be that they find success at university as well.

Grandiose narcissists are driven by success; they constantly endeavour to look better than their peers [7]. This need to be remarkable and clever may lead to grandiose narcissists aiming to achieve high grades at university, if only to make themselves

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look superior. Indeed, grandiose narcissists are motivated towards status and power [4]. This drive may cause narcissists to strive for academic success, a steppingstone to gaining high status and power. In fact, Papageorgiou et al. found that GN significantly positively influences school achievement indirectly through mental toughness [8]. Additionally, they demonstrated that GN is related to higher emotional intelligence and confidence, which can lead to academic success. Interestingly, GN has an indirect buffering effect on the other Dark Triad traits through mental toughness [9], which may positively affect academic and social success. Papageorgiou et al. used students aged 14 to 21 [8]; as most undergraduate university students are of a similar age range, 18 to early twenties, GN may influence their university achievement in the same way it does school achievement. Additionally, in this study GN was found to have high stability over time, therefore, narcissistic school children are likely to become narcissistic university students. As grandiose narcissists do better at school, it is reasonable to assume they do better academically at university as well.

B. VN and Achievement

While GN may have some adaptive features, for instance, positive associations with wellbeing and life satisfaction; these benefits do not necessarily extend to VN, which is negatively related to life satisfaction [2]. Hence, GN and VN should be assessed separately due to their different presentations.

A central maladaptive part of VN is pessimism. Vulnerable narcissists have low hopes for future outcomes, including mental health problem recovery and goal achievement [10]. This negative outlook, and the lack of personal growth exhibited by vulnerable narcissists, could lead to lower AA in university. Further research into VN and achievement is required.

C. Narcissism and Intelligence

Intelligence is consistently found to be the primary predictor of AA [11]. Therefore, it is crucial to rule out intelligence as the reason for narcissists attaining higher AA. Although grandiose narcissists highly value intelligence and view themselves as intellectually superior, no correlation between GN and objective intelligence has been found. Furthermore, VN is unrelated to objective intelligence, and although vulnerable narcissists are insecure, they do not consider themselves to have low intelligence [5]. Their general entitlement and superiority may negate their pessimism. If intelligence cannot account for the AA levels of vulnerable and grandiose narcissists, it is necessary to explore other mechanisms.

D. Self-Esteem and Self-Efficacy

Self-esteem is how positive one's beliefs about themselves, their qualities, and characteristics are, and has associations with self-image, values, self-worth, and personal success [12]. Self-efficacy is an individual's belief about their ability to complete tasks in various situations, their confidence in their abilities [13]. Consequently, academic self-efficacy is how well a person believes they can do in academic tasks [14].

1. Self-Esteem, Self-Efficacy and Achievement

Significant positive relationships between AA and self-esteem, [15], [16], and AA and self-efficacy [17]-[20] have been observed. Self-esteem promotes persistence, happiness, and helps with stress management [21], all of which may improve AA. To perform well, one must have the appropriate skills in addition to the belief that they can use them successfully; people's self-efficacy can influence their behaviours, thoughts, and emotions, which can, in turn, affect their outcomes [22]. Accordingly, if students believe in themselves, this can help them achieve academic success as they alter their behaviours, and conversely, if students doubt themselves, it hinders their academic performance. Furthermore, self-efficacy is protective against stress and psychological dysfunction [23]. Therefore, self-esteem and self-efficacy may be the mechanisms that mediate the relationship between narcissism and AA. Indeed, self-esteem and self-efficacy may be further intertwined, influencing each other. Afari et al. posited that self-efficacy mediates the relationship between self-esteem and AA [17]. Self-esteem may have an indirect effect on AA through self-efficacy. A grandiose narcissist's high regard of themself can cause them to have faith in their abilities, which in turn may lead to high AA; the converse may be true for vulnerable narcissists.

2. Self-Esteem and Narcissism

GN has been repeatedly shown to be positively correlated with self-esteem [1], with exorbitant self-esteem being a classic part of grandiose narcissists' nature [24]. This high self-esteem can be beneficial to the psychological health of these narcissists. Grandiose narcissists have other beneficial traits, including 'emotional stability, subjective wellbeing, assertiveness, and achievement motivation' [24]. This combination of high self-esteem and achievement motivation could result in a positive relationship between GN and AA. By comparison, VN has a negative association with self-esteem [25]. Vulnerable narcissists' self-esteem is fragile, and they are vulnerable to insults to their self-image. Furthermore, Rose established that self-esteem mediates the relationship between narcissism and happiness [26], so vulnerable narcissists having low self-esteem means they are unhappy.

Self-esteem and narcissism have a highly complex relationship, which multiple theories have attempted to explain. One prominent, but highly disputed, model is the psychodynamic mask model of narcissism. This theory proposes that narcissists' bravado is a front, and they actually have very fragile self-esteem [27], [28]. There are three main interpretations of this model. First, there is the discrepant self-esteem hypothesis (narcissists have low implicit but high explicit self-esteem), secondly, the unstable self-esteem hypothesis (narcissists have high trait self-esteem that lacks stability and reacts to occurrences), and finally, the contingent self-esteem hypothesis (narcissists have high contingent self-esteem that is dependent on agentic achievement). The contingent hypothesis is the most supported theory, though there is a fair amount of ambiguity [28].

Using the contingent self-esteem hypothesis, it may be

possible to hypothesise that grandiose narcissists have high AA, as their self-esteem depends on success in agentic domains. Zeigler-Hill et al. noted that grandiose narcissists' self-esteem decreases when encountering failures in achievement and that their self-esteem is unstable [29]. Interestingly, their self-esteem is not as affected by positive achievement events, potentially because positive events reaffirm their views concerning themselves, whereas adverse events threaten their positive sense of self. As grandiose narcissists are so negatively affected by failures in achievement, this may drive them to desperately avoid this failure, and therefore, increase their motivation to attain academic success. Nevertheless, Hart et al. disputed the contingent self-esteem hypothesis and established that GN is associated with reduced contingent self-esteem [27]. While grandiose narcissists may have high self-esteem, it is not contingent. They also suggested that VN and contingent self-esteem have no association or only a weak one. Narcissists' self-esteem may be more stable than previously thought or explained by other mechanisms. Conversely, Zeigler-Hill et al. also argued that vulnerable narcissists do have contingent self-esteem across a range of domains, while the self-esteem of grandiose narcissists is not globally contingent [30]. Further research has confirmed fragile, unstable self-esteem to be a feature of VN [31]. The unstable nature of their self-esteem may lead to vulnerable narcissists having lower self-esteem as it is susceptible to a large variety of insults, which in turn may lead to low AA. Notably, grandiose narcissists' self-esteem is positively related to competition [30]. Therefore, while their self-esteem may not be dependent on failure, they may work harder at university not to achieve high marks but to do better than their contemporaries.

Notably, grandiose and vulnerable narcissists modulate their self-esteem in different ways. Grandiose narcissists require attention and praise, so they engage in overt methods such as self-aggrandisement, while vulnerable narcissists seek approval from others [30]. Vulnerable narcissists' self-esteem is fragile, and they are susceptible to slights to their self-image. Due to this and their socially isolating ways, they are at risk of school burnout [32]. Vulnerable narcissists' problems and struggles with self-esteem may lead to them achieving worse results at university.

Campbell & Foster posited an alternative to the mask model of self-esteem [7]. They suggest that if a narcissist's internal homeostasis is maintained, they feel good, which is called narcissistic esteem. This form of self-esteem is associated with dominance and pride and can have an addictive nature. Moreover, narcissistic esteem may help facilitate the running of narcissists' self-regulatory system. Thus, narcissists may endeavour to achieve highly at university to gain this narcissistic esteem, primarily to feel good about themselves. Secondly, they may get high grades to feel as though they are better than others, as showing their superiority is an essential self-regulation tactic of narcissists [7], which links in with competition being a motivator for narcissists [30].

3. Self-Efficacy and Narcissism

While there is not much research on the relationship between self-efficacy, narcissism, and AA, as GN is associated with being overly confident [33], they may have high self-efficacy, which in turn may lead to high AA. Indeed, GN has been found to be positively associated with self-efficacy [34]. The converse may be true for VN. One study has illustrated GN to be positively associated with self-efficacy, whereas VN is negatively associated [25]. As self-efficacy is beneficial for AA [17], [35], this may aid grandiose narcissists with their achievement and be detrimental for vulnerable narcissists.

A weak relationship has also been found between GN and indicators of career success, mediated by self-efficacy [36]. Given this relationship, self-efficacy may mediate the relationship between GN and AA, a form of academic success. Additionally, this study was conducted on young professionals, who are older than undergraduate university students, however, still relatively close to in age, therefore, similar findings may be found in both groups.

E. Self-Fulfilling Prophecy and Narcissism

The process through which both narcissisms influence AA may be due to self-fulfilling prophecies. A self-fulfilling prophecy is where an individual's falsely held belief about a future situation alters their behaviour, which in turn causes the prophecy to become fulfilled and the individual's belief confirmed, maintaining the cycle [37]. Grandiose narcissists, believing they are smarter and superior to their peers, with their excessive self-esteem and self-efficacy, may believe they will achieve academic success at university, therefore, they may dedicate time and effort to studying, to prove they are the most intelligent, which may lead to them to doing well in assessments. Conversely, vulnerable narcissists may believe they will do badly academically due to their low self-esteem and lack of faith in their abilities. Accordingly, they may spend more time worrying about their assessments than working or simply not studying as they believe there is no point as they are destined to fail. This may result in vulnerable narcissists doing badly in university assessments. These cycles are shown in Figs. 1 and 2, which have been adapted from McCrie [38].

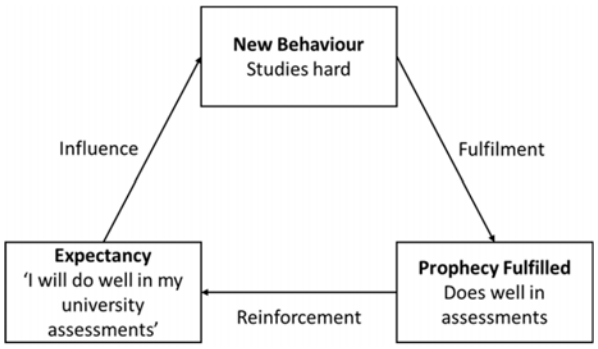

Fig. 1 The potential self-fulfilling prophecy of a grandiose narcissist

Farwell and Wohlwend-Lloyd's study [39] may support the proposed GN self-fulfilling prophecy cycle. They established that grandiose narcissists have optimistic expectations and view their present performances favourably. These may lead to grandiose narcissists expecting to do well in future academic

assessments. In fact, GN predicts performance in tasks, and the more challenging, more pressurised the task, and the more opportunity for self-enhancement, the better grandiose narcissists perform [35]. Grandiose narcissists undertake self-glorifying tasks to preserve their self-esteem, they are driven by the need to flaunt their brilliance through their accomplishments [40]. Grandiose narcissists want to broadcast their perfections, which in turn maintains their self-esteem. As having a university degree with a high grade may lead to many benefits in life, grandiose narcissists may be very motivated to do well and better themselves.

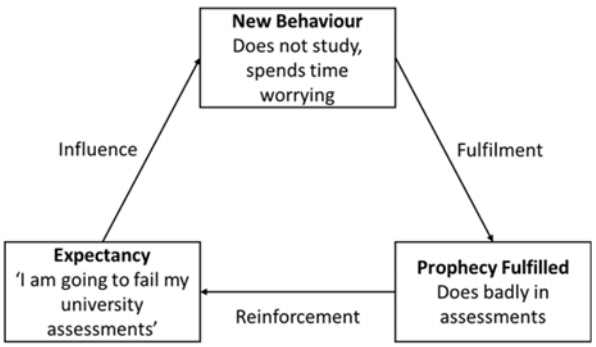

Fig. 2 The potential self-fulfilling prophecy of a vulnerable narcissist

F. Limitations

Most of the aforementioned studies were cross-sectional, therefore, only provide a snapshot of information and not provide information on the stability of the investigated traits [41]. The present study improves on previous studies as it incorporates a prospective analysis. Studies that use prospective analysis allow stronger claims to be made [42].

G. Aim

The aim of this study is to understand the psychological mechanisms that lead to differences in AA between grandiose and vulnerable narcissists.

H. Hypotheses

- Grandiose narcissists achieve higher marks due to having high self-esteem which boosts their sense of self-efficacy.
- Vulnerable narcissists underperform and achieve lower marks due to having low self-esteem that limits their sense of self-efficacy.

Given grandiose narcissists' confidence in themselves and their abilities, it would be logical to hypothesise that they achieve highly at university. They have this great motivation to do well, given that AA may be an agentic domain they base their self-esteem on, and they additionally crave ways to showcase their perfection, and a First-Class university degree is an ideal way to flaunt their superiority. This high self-esteem may lead to high self-efficacy, and in turn higher AA. On the other hand, vulnerable narcissists are plagued by self-doubt and insecurity, leading to lower self-esteem and therefore lower self-efficacy. Accordingly, this may lead to vulnerable narcissists underperforming at university, then feeling wronged and blaming anyone else. For example, it must be the lecturer's fault for not educating them properly rather than their lack of effort or intelligence.

I. Prediction

We predict direct pathways between the two types of narcissism and AA and indirect pathways via self-esteem and self-efficacy, sequentially.

II. Method

A. Design

This is a prospective correlational study testing two sequential mediation models. In the first model the predictor was GN and in the second model the predictor was VN. In both models AA was the outcome with Self-Esteem being the first and Self-Efficacy being the second mediator.

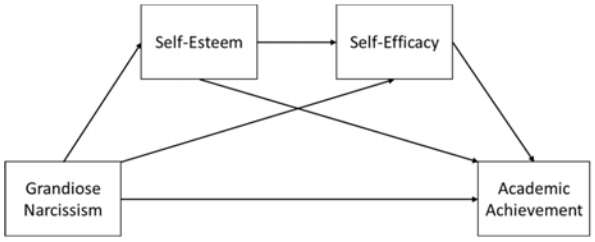

Fig. 3 The hypothesised sequential mediating effects of self-esteem and self-efficacy on the relationship between GN and AA

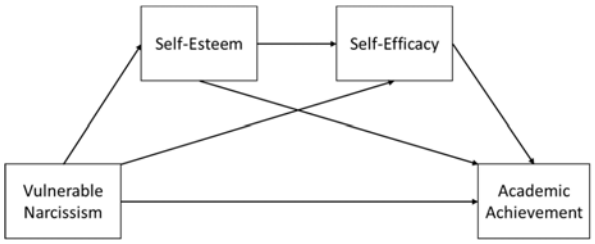

Fig. 4 The hypothesised sequential mediating effects of self-esteem and self-efficacy on the relationship between VN and AA

B. Participants

Participants were required to be current undergraduate university students and able to speak English. Participants could be in any year of their undergraduate degree, any age, gender, doing any degree, and at any university. Those completing postgraduate degrees or not at university were excluded. Participants were recruited using social media, online forums, and Newcastle University's School of Psychology Research Participation Scheme. Students who participated in this scheme gained one credit.

302 participants were initially recruited, and of these, 170 fully completed the baseline survey and therefore were included, and the rest were excluded from further consideration. 101 participants started the follow-up survey, and of these, 93 had a matching unique code and provided their end of year achievement mark. The data from the remaining participants were assessed for multivariate outliers using the Mahalanobis Distance Test [43]. One multivariate outlier was identified and removed, leaving $N = 92$ data sets for analysis.

C. Baseline Demographics

At baseline, the participants ranged in age from 18 to 34, with the mean age being 20.81 (*SD* = 2.07). 69.1% of participants identified as female, 28.2% male and 2.7% non-binary. The initial survey was completed by students studying 23 different degrees, a majority studying psychology (39.6%) followed by medicine (27.5%). Students were from 17 different universities, with the majority studying at Newcastle University (73.8%). The year of study of participants ranged from first to sixth year. The participants were almost entirely studying full-time, with there being only one part-time student.

D. Follow-up Demographics

At follow-up, the participants had the same age range, 18 to 34, however, the mean age was higher at 21.28 (*SD* = 2.27). 70.7% of participants identified as female, 28.3% male and 1.1% non-binary. The second survey was completed by students studying 20 different degrees, with the largest group studying medicine (35.9%), and then psychology (25.0%). Students attending 16 different universities participated, with the majority studying at Newcastle University (70.7%). The year of study of participants, again, ranged from first to sixth year. The age of participants at baseline and follow-up is shown in Fig. 5.

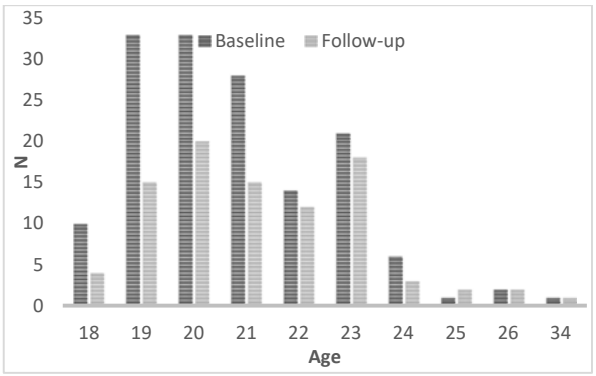

Fig. 5 Age of participants at baseline and follow-up

E. Ethical Considerations

Participants participated voluntarily after having been asked to join by an online invitation, which specified that participation was optional. Full consent was obtained through consent questions and participants were informed they could withdraw at any point. Participants were provided with a participant information sheet before taking part, and a participant debrief form after. Data were stored in the university server, password protected. Ethical approval was granted by the Newcastle University Ethics Committee on 17th March 2021. The biggest ethical challenge was that email address were required to send out the second survey, which challenged anonymity, therefore, email addresses were kept in a separate document to the rest of the data and not in the SPSS document, so the results of participants could not be linked to their email addresses.

F. Materials

1. NPI-16

GN was measured using the NPI-16 [44], which was derived from the 40-item Narcissistic Personality Inventory [3]. The NPI-16 was chosen as it is a shorter measure and, therefore, more practical for the online survey where participants had to complete multiple scales. The NPI-16 is a self-report scale of 16 items. Each item comprises two statements, and participants were required to choose the statement that most closely describes their feelings and beliefs about themselves. Each pair consists of a narcissistic statement and a non-narcissistic one, for example, 'I really like to be the centre of attention' and 'It makes me uncomfortable to be the centre of attention'. Narcissistic statements were coded as 1, non-narcissistic as 0. Scoring was worked out by calculating the proportion of responses consistent with narcissism and then calculating the mean (between 0 and 1). The higher the mean, the more narcissistic the individual. Ames et al. determined that the NPI-16 has sound psychometric properties as it has 'notable face, internal, discriminant, and predictive validity' [44], therefore, it was appropriate for this study. The test-retest reliability over a period of 5 weeks revealed correlations of 0.69 and 0.78, indicating good stability ($r = 0.85$, $p < 0.01$) [44]. Cronbach's α calculated for this scale in this study was 0.73.

2. Hypersensitive Narcissism Scale

VN was assessed using the Hypersensitive Narcissism Scale (HSNS) [45]. The HSNS was formulated using Murray's Narcissism Scale [46]. The HSNS was used due to its relatively short length and ease of use. The HSNS is a self-report scale and has 10 items. Each item is a statement, for example, 'I dislike sharing the credit of an achievement with others'. Participants used a 5-point Likert scale to rate their response (1 = very uncharacteristic or untrue, strongly disagree; to 5 = very characteristic or true, strongly agree). Scoring was calculated by totalling up the individual responses, and the higher the score, the higher the level of VN. Hendin & Cheek found the HSNS to be a reliable scale (HSNS; α = 0.72 to 0.76) [45]. Cronbach's α calculated for this scale in this study was 0.67.

3. Rosenberg Self-Esteem Scale

To assess self-esteem, the Rosenberg Self-Esteem Scale (RSES) [47] was used. This scale was used due to its ease of use, simplicity, and short length. This self-report scale has 10 items, each item is a statement regarding an evaluation of oneself, for example, 'On the whole, I am satisfied with myself'. Respondents rated how they feel about each statement using a 4-point Guttman scale (4 = strongly agree, 3 = agree, 2 = disagree, and 1 = strongly disagree). Five items were reverse scored. The scores for each item were totalled up, giving the final score. The higher the score, the higher the levels of self-esteem of the individual. Rosenberg stated that the RSES has internal reliability, the scale is unidimensional, and suggested it has face validity [47]. Cronbach's α calculated for this scale in this study was 0.88.

4. Self-Efficacy for Self-Regulated Learning Scale

The Self-Efficacy for Self-Regulated Learning scale [48] was used to assess the self-efficacy of the participants, in relation to their learning. This scale was chosen due to its ease of use and that it is specifically related to learning. This self-report scale has 11 items, each item is a question asking how well the participant can do specific tasks. For example, 'How well can you finish homework assignments by deadlines?'. Participants rated their response on a 7-point scale (1 = not well at all, to 7 = very well). The scores for each item were totalled up, giving a final score. The higher the score, the higher the participant's perceived self-efficacy. It is important to note that in our distribution of this scale, the word 'school' was replaced with 'university', as the survey was distributed to university students. The Cronbach's alpha coefficient was found to be 0.87, showing this scale has high reliability [48]. In addition, the Self-Efficacy for Self-Regulated Learning scale has been found to have construct and concurrent validity [49]. Cronbach's α calculated for this scale in this study was 0.89.

G. Procedure

Participants were required to complete two online surveys, which were made and completed on Qualtrics. The first survey was distributed during April and May 2021. It consisted of the four scales and a few questions about demographics. They also provided their email. The second survey was sent out, via email, in July 2021. This survey asked what their end of year achievement mark was. In the first survey, participants generated a unique code, which was used to match up the achievement mark from the second survey.

H. Data Analysis

Data were analysed using SPSS (Version 27.0).

1. Preliminary Analysis

Normality was tested using the Shapiro-Wilk test, and assumptions were tested by carrying out a linear regression of the variables. Comparisons were investigated using one sample t-tests, population means were found for GN [44], VN [45], self-esteem [15], and self-efficacy [48]. Correlational analysis was carried out to investigate the bivariate relationships between the variable in the models.

2. Mediation Analysis

To investigate the effects of psychological mechanisms on university AA, two sequential mediation analyses were performed using Hayes PROCESS macro, model 6, with 5,000 bootstrap re-samples to further explore if self-esteem and self-efficacy sequentially mediated the relationship between narcissism and AA.

III. Results

A. Normality Testing

A Shapiro-Wilk test indicated that the follow-up achievement marks followed a normal distribution, $W(92) = 0.99$, $p = 0.982$. VN also followed a normal distribution, $W(92) = 0.99$, $p = 0.672$, as did self-esteem, $W(92) = .99$, $p = .584$, and self-efficacy, $W(92) = 0.99$, $p = 0.467$. GN did not follow a normal distribution and was positively skewed, $W(92) = 0.92$, $p < 0.001$. It was attempted to normalize the data firstly using reflection with log10, and then by square root with reflection, however, both yielded data that were still skewed.

B. Assumptions

To test assumptions a linear regression was carried out. Tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern (GN, Tolerance = 0.92, VIF = 1.09; VN, Tolerance = 0.66, VIF = 1.52; self-esteem, Tolerance = 0.67, VIF = 1.50; self-efficacy, Tolerance = 0.90, VIF = 1.11). The data met the assumption of independent errors (Durbin-Watson value = 1.98). The scatterplot of standardised predicted values showed that the data met the assumptions of homogeneity of variance and linearity.

C. Comparisons between Normative Data and the Study Data

To test comparisons between the sample means and population means, one sample *t*-tests were carried out. The mean GN score was statistically significantly lower than the population scores, while the mean VN, self-esteem, and self-efficacy scores were not statistically significantly different. The results from the *t*-tests and the sample means are shown in Table I.

TABLE I
THE RESULTS OF MULTIPLE ONE SAMPLE T-TESTS AND THE MEAN SCORES OF THE VARIABLES AT FOLLOW-UP

Variable	*M*	*SD*	Population Normative *M*	*t*(92)	*p*
GN	0.21	0.17	0.31	-5.36	<0.001
VN	29.01	5.26	29.4	-0.71	0.480
Self-esteem	27.45	4.90	27.44	0.01	0.991
Self-Efficacy	4.47	0.99	4.53	-0.55	0.585
AA	67.94	7.49	-	-	-

D. Correlations

Results of the Pearson correlations (Table II) indicated significant negative correlations between VN and self-efficacy, $r = -0.28$, $p = 0.007$, and VN and self-esteem, $r = -0.55$, $p < 0.001$. Also, a significant positive correlation was found between self-efficacy and AA, $r = 0.37$, $p < 0.001$, The results of the Spearman's correlations showed only one significant positive correlation between GN and self-esteem, $\rho = 0.27$, $p = 0.008$. All other correlations were non-significant.

TABLE II
CORRELATIONS TABLE

Variable	AA	GN	VN	Self-Esteem
GN	0.09▪			
VN	-0.13	-0.16▪		
Self-Esteem	0.18	0.27*▪	-0.55**	
Self-Efficacy	0.37**	-0.11	-0.28**	0.19

Pearson's *r* was used for correlations. ▪ used Spearman's rho for correlations due to skewness; * $p < 0.05$; ** $p < 0.01$.

E. Mediation

For the first sequential mediation analysis, the outcome variable for analysis was end of year AA. The predictor variable for the analysis was GN. The first mediator was self-esteem,

and the second mediator was self-efficacy. The direct effect of GN on AA was not statistically significant, $R^2 = 0.15$, $F(3.00, 88.00) = 5.08$, $p = 0.652$, $\beta = 2.11$, 95% CI [-7.18, 11.41]. The other direct effects found were that GN was a statistically significant positive predictor of self-esteem, $R^2 = 0.06$, $F(1.00, 90.00) = 5.58$, $p = 0.020$, $\beta = 6.89$, , 95% CI [1.10, 12.70]. GN was not a statistically significant predictor of self-efficacy, $R^2 = 0.01$, $F(1.00, 90.00) = 0.51$, $p = 0.477$, $\beta = -4.77$, 95% CI [-18.01, 8.48]. Self-esteem was not a statistically significant predictor of AA, $R^2 = 0.15$, $F(3.00, 88.00) = 5.08$, $p = 0.335$, $\beta = 0.16$, 95% CI [-0.17, 0.49]. Self-efficacy was a statistically significant positive predictor of AA, $R^2 = 0.15$, $F(3.00, 88.00) = 5.08$, $p < 0.001$, $\beta = 0.25$, 95% CI [0.11, 0.40].

The total effect of GN on end of year AA was not statistically significant, Effect = 2.03, $p = 0.675$, 95% CI [-7.54, 11.60]. The total indirect effect of GN on AA was found to be not statistically significant, Effect = -0.09, 95% CI [-5.66, 5.20]. The indirect effect of self-esteem on AA was not statistically significant, Effect = 1.11, 95% CI [-1.65, 4.41]. The indirect effect of self-efficacy on AA was not statistically significant, Effect = -1.20, 95% CI [-5.44, 2.67]. The indirect effect of GN on self-esteem on self-efficacy on AA was not statistically significant, Effect = 0.86, 95% CI [-0.05, 2.30].

For the second sequential mediation analysis, the outcome variable for analysis was end of year AA. The predictor variable for the analysis was VN. The first mediator was self-esteem, and the second mediator was self-efficacy. The direct effect of VN on AA was not statistically significant, $R^2 = 0.15$, $F(3.00, 88.00) = 5.04$, $p = 0.756$, $\beta = 0.06$, 95% CI [-0.30, 0.42]. The other direct effects found were that VN was a statistically significant negative predictor of self-esteem, $R^2 = 0.31$, $F(1.00, 90.00) = 39.55$, $p < 0.001$, $\beta = -0.51$, 95% CI [-0.68, -0.35]. VN was a statistically significant negative predictor of self-efficacy, $R^2 = 0.08$, $F(1.00, 90.00) = 7.69$, $p = 0.007$, $\beta = -0.58$, 95% CI [-1.00, -0.16]. Self-esteem was not a statistically significant predictor of AA, $R^2 = 0.15$, $F(3.00, 88.00) = 5.04$, $p = 0.266$, $\beta = 0.21$, 95% CI [-0.16, 0.59]. Self-efficacy was a statistically significant positive predictor of AA, $R^2 = .15$, $F(3.00, 90.00) = 5.04$, $p = 0.001$, $\beta = 0.25$, 95% CI [0.11, 0.40]. The indirect effect of VN on self-esteem on self-efficacy on AA was not statistically significant, Effect = -0.02, 95% CI [-0.11, 0.06].

The total effect of VN on end of year AA was not statistically significant, Effect = -0.20, $p = 0.20$, 95% CI [-0.51, 0.11]. The total indirect effect of VN on AA was found to be statistically significant, Effect = -0.26, 95% CI [-0.45, -0.06]. The indirect effect of self-esteem on AA was not statistically significant, Effect = -0.11, 95% CI [-0.30, 0.07]. The indirect effect of self-efficacy on AA was statistically significant, Effect = -0.15, 95% CI [-0.28, -0.03].

IV. Discussion

The present study tested two hypotheses that: firstly, grandiose narcissists achieve higher marks at university due to high self-esteem boosting their self-efficacy; secondly, vulnerable narcissists underperform and achieve lower marks due to low self-esteem limiting their sense of self-efficacy.

The analysis was prospective, therefore, the predictions found were actual and true, and models more powerful, thus bolder claims can be drawn [42]. In addition, we can understand the direction of relationships between variables, as AA was assessed after narcissism, self-esteem and self-efficacy results were gathered.

The data from GN mediation indicate that GN does not significantly predict AA through the mediating effects of self-esteem and self-efficacy sequentially. GN positively predicts self-esteem but does not have a significant relationship with self-efficacy. Self-esteem was shown to have no relationship with AA; however, self-efficacy positively predicts AA. These results, therefore, fail to support the first hypothesis. Evidently, GN does not increase AA or self-efficacy but does generate higher self-esteem.

The results from the VN mediation show that overall, VN does not predict AA through the mediation of self-efficacy and self-esteem sequentially. This finding fails to support the second hypothesis. VN has an indirect negative effect on AA through self-efficacy; VN negatively predicts self-efficacy, which positively predicts AA. VN does negatively predict self-esteem, however, self-esteem has no relationship with AA. Therefore, while VN has no overall effect on AA, it still indirectly leads to lower AA through lower self-efficacy.

A. Grandiose Narcissism

1. Academic Achievement

Contrary to the hypothesised association, GN does not lead to higher AA. These findings do not support the theory that GN promotes better AA [8]; however, they fit the findings from another study [39]. Farwell and Wohlwend-Lloyd established that grandiose narcissistic students were more likely to overestimate their abilities and think they will achieve higher marks than they actually do, therefore, Farwell and Wohlwend-Lloyd concluded that GN is not correlated with actual achievement, only their self-predicted achievement [39]. Grandiose narcissists' views about themselves are unrealistic and overly favourable. Moreover, grandiose narcissists are not more intelligent [5], they only think they are due to their self-inflated views. Since grandiose narcissists are not more intelligent than the general population, they may not achieve higher marks. Indeed, our results show that despite GN having some benefits, promoting AA is not one of them. Nevertheless, these unexpected results may be due to the GN of the sample being lower than that of the population. The low NPI-16 scores may be due to social desirability [50], which may have led to the participants answering the questions in a way that made them appear more humble and less arrogant, which may have interfered with the results. Furthermore, the results from the NPI-16 were not normally distributed and could not be normalised. Therefore, if a different scale measuring GN was used that yielded normally distributed data, these data may have worked more cohesively with the mediation model and lead to results that may have supported the first hypothesis. However, the NPI-16 is a reliable measure that has been shown to have validity and is easy to use [44]. Again, the mean NPI-16 score for this analysis was significantly lower than the mean found in the literature, therefore, this may have skewed the results.

2. Self-Esteem

In line with previous research, we find that GN positively predicts self-esteem. This positive relationship has been found repeatedly in the literature [1], [24], [25], [51], and the results from this study build on the existing evidence, therefore we can have confidence in this finding. In addition, aspects of GN, such as superiority and vanity [3], may be integral to these narcissists developing high self-esteem. However, in this model, self-esteem had no relationship with AA, these results do not fit with the theory that high self-esteem leads to higher AA [16], [19]. Nevertheless, multiple theories may explain our results. Baumeister et al. recognised that while small correlations between self-esteem and academic performance have been found, they do not imply that high self-esteem causes high AA [21]. Alternatively, they suggested that good AA leads to high self-esteem in students and improving self-esteem may not improve academic performance. Additionally, as our results show, other studies have found no significant relationship between self-esteem and AA [20], [52]. As no relationship between self-esteem and AA was observed, it is hard to conclude whether the self-esteem of grandiose narcissists is contingent on AA, as they appear to be unrelated. These results suggest that other factors, such as intelligence and self-efficacy, may have a greater influence on AA than self-esteem.

3. Self-Efficacy

The results found contradict the claims that GN has a positive relationship with self-efficacy [25], [34] as no significant relationship was found. This lack of relationship could potentially be due to the GN of the sample being low or that GN and self-efficacy are not directly related. Nevertheless, the data build on the existing evidence regarding self-efficacy and AA, as self-efficacy was demonstrated to be a positive predictor of AA. Multiple studies have illustrated that self-efficacy positively predicts AA for a myriad of reasons [17]-[20]. For example, students with elevated self-efficacy may achieve high marks due to large amounts of self-belief, their interest in academic work, and the amount of time and effort they put into this work [18], [19]. Indeed, self-efficacy significantly influences performance, partly independently of skill [22].

How self-efficacy promotes AA ties in with Bandura's social cognitive theory, to which self-efficacy prominently contributes [22]. The social cognitive theory suggests that a triadic reciprocal determinism model explains how people function and learn, involving behaviour, personal factors, and environmental factors, which interact, regulate, and influence each other [22]. Highly efficacious individuals are perseverant and motivated, they employ multiple methods and approaches to overcome obstacles and achieve their goals, and so anticipate positive results [22]. Furthermore, self-efficacy can impact how students react to failure, those with high efficacy attribute their failures to not working hard enough [22] and redouble their efforts until they achieve their goals [53]. Clearly, through these processes, self-efficacy is incredibly beneficial for AA.

It is important to note that in the present study self-efficacy was measured just after people had received their semester one results, where participants' subgoals may have been attained. Subgoal attainment increases self-efficacy by informing self-appraisals [53], which may have benefited participants' end of year AA. Indeed, if participants' self-efficacy had been measured at the beginning of the year, when no subgoals had been attained, their self-efficacy may have been vastly different.

B. Vulnerable Narcissism

1. Academic Achievement

VN was observed to have no overall effect on AA in the analysis. Therefore, these data do not support the second hypothesis and suggest that the negative aspects of VN may not affect AA. Potentially, AA may be affected more significantly by other factors like intelligence [11], which may mitigate the effects of VN.

2. Self-Esteem

The results support the claim that VN has a negative relationship with self-esteem [25]. Vulnerable narcissists may have lower self-esteem as it is fragile and unstable in nature [30], [31]. Contrary to the hypothesised association that low self-esteem would lead to low AA; the results show no association between self-esteem and AA. There may be no relationship due to the previously mentioned reasons, but additionally, low self-esteem may not necessarily lead to poor AA. Pullmann & Allik argue that students who achieve academic success view themselves more critically (defensive pessimism), and students who achieve lower marks generate higher self-esteem to compensate for their lack of academic success (self-protective enhancement) [54]. These compensatory mechanisms may explain why low self-esteem may not indicate academic failure. Moreover, the results indicate that VN is not contingent on AA as no relationship was found between these variables. Hence, despite VN predicting low self-esteem, the low self-esteem does not beget low AA.

3. Self-Efficacy

In the analysis found, as expected, VN has a negative association with self-efficacy, which has been previously noted [25]. Again, self-efficacy was shown to have a positive relationship with AA. Clearly, VN has a negative, indirect effect on AA through the mediator of self-efficacy, despite VN having no overall effect on AA in the model. This is possible as the total effect of VN on AA accounts for all pathways between these two variables, including those not in the formal model. Therefore, the indirect pathway via self-efficacy is present but simply cancelled out but a pathway in the other direction [55]. Again, these findings are consistent with Bandura's social cognitive theory [22]. Those with low self-efficacy are less perseverant and lack the motivation to attain significant success, expecting to flounder and disappoint [22]. Students lacking self-efficacy attribute their failures to a lack of skill [22] and are discouraged, giving up rather than adapting [53]. Thus, those with low self-efficacy, including vulnerable narcissists, are more likely to accomplish less academically at university.

C. Self-Fulfilling Prophecy and Narcissism

The data from the analysis do not support the proposed idea

for the self-fulfilling prophecy for either GN or VN.; meaning that GN does not have an indirect effect on AA through the mediating effects of self-esteem, then through self-efficacy. The same was observed for VN. Indeed, in the analysis, self-efficacy and self-esteem did not correlate. These results contradict the claim that self-efficacy mediates the relationship between self-esteem and achievement [17].

D.Limitations and Future Research

The first limitation of the present study is that the analysis was observational, therefore not the gold-standard and may have issues with precision and validity [41]. Further research using experimental study designs should be carried out to investigate the causal relationships. In addition, a systematic review would be helpful to examine the current evidence available on this topic. The second limitation is that self-report scales were used. Participants may have altered their results to appear more favourably, potentially biasing results [50]. For example, participants may have wanted to appear less arrogant or reported higher marks than they received to seem more intelligent. Future research should take this into account and potentially employ other methods of measurement that are not self-report. Thirdly, there was attrition between the first and second surveys, potentially biasing results [56]. Time constraints led to the follow-up survey being distributed for only two weeks, compared to the month and a half that the first survey was out. Participants may have missed the email containing the follow-up survey and found it after the survey had closed. Additionally, some participants emailed raising the issue that they had not received their end of year results and would not until after the survey closed. Preferably, the follow-up survey would have been open longer, giving time for all participants to answer. Fourthly, all the participants were university students, therefore, the results may not be generalisable to school children, as university students are affected by different stressors. Further research is needed to establish how narcissism, self-esteem, and self-efficacy in school children influence achievement.

Lastly, the high AA of the participants may have contributed to the data not supporting the hypotheses. The mean AA was on the level of upper second-class honours, on the cusp of first-class honours [57]. Given that only 28% of undergraduate students achieve a first-class honours degree [58], the cohort had higher than average achievement, which may not be generalisable to the rest of the student population. Furthermore, most participants studied at Newcastle University and studied either medicine or psychology, which may have biased results. We might have found different relationships if we had an even distribution of students from different courses over a wider spread of universities.

The present study focussed on trait level narcissism, not narcissistic personality disorder (NPD). Investigating the effect of NPD on AA would be an intriguing focus for further research, which may be useful in clinical settings. Other areas that could be considered for future research include narcissism variation been different university courses, narcissism differences in university and non-university samples of the same age, and further research into narcissism and career success.

E. Wider Implications and Applications

Despite grandiose narcissists thinking they will achieve highly, they do not, therefore, grandiose narcissists need to be encouraged to work harder, and not rest on their laurels. Despite GN having some benefits, it is still part of the Dark Triad and thus a negative personality trait [1]. VN was shown to have a detrimental effect on self-esteem, self-efficacy, and, accordingly, AA. Therefore, students with vulnerable narcissistic traits should be identified through personal tutors and appropriately supported to avoid struggling with the demands of university [59].

The findings provide mechanisms through which universities could consider using to maximise the success of their students. It has become abundantly clear that by improving self-efficacy, AA can be enhanced. Therefore, workshops focussing on facilitating students in building their self-efficacy are vital at university. Methods that can develop self-efficacy include the practice of Chinese Tai Chi Chuan and behavioural-modelling workshops [23]. Interventions that incorporate elements of social cognitive theory, such as using verbal persuasion and goals and structured planning [22], have been shown to significantly elevate self-efficacy in academic environments [23]. Thus, interventions of this type should be used at universities to improve the self-efficacy of students.

V. Conclusion

The present study explored the relationships between narcissism, self-esteem, self-efficacy, and AA in undergraduate university students. We conclude that GN does not promote AA, and this relationship is not mediated by self-esteem and self-efficacy, sequentially. GN does, however, positively predict self-esteem. VN overall does not have a detrimental effect on AA through the mediating effects of self-esteem and self-efficacy, sequentially. However, it does have an indirect negative effect on AA through self-efficacy. VN has a negative relationship with self-esteem, but self-esteem has no effect on AA. Lastly, self-efficacy positively predicts AA. The present study provides an insight into how GN and VN influence AA and highlights the importance of enhancing self-efficacy in university students. It is recommended that universities employ methods incorporating social cognitive theory techniques to improve their students' self-efficacy, and therefore their AA.

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