An exploration of the role of competitiveness and mental health outcomes in Trainee Clinical Psychologists.

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Abstract

Purpose: This thesis aims to explore the relationship between competitiveness and mental health in a) student samples across further and higher education and b) in trainee clinical psychologists ("trainees") whilst accounting for the role of perfectionism.

Design: The portfolio is comprised of the following: a) an introduction to the context of the thesis, b) a systematic review of the literature examining the link between competitiveness and mental health in students, c) a bridging chapter which summarises competitiveness and mental health in medical students and trainees, d) an empirical research paper examining competitiveness, perfectionism and mental health outcomes in trainees using quantitative methods, e) additional methodologies, f) an extended results chapter summarising the findings across first- second-, and third- year trainees, and g) a concluding discussion and critical evaluation.

Results: This thesis highlights the multi-dimensional nature of competitiveness as a concept and recognises the heterogeneity in how the relationship between competitiveness and mental health is measured in students. Provisional evidence suggests hypercompetitiveness is associated with poorer mental health outcomes, but this is limited. Competitiveness was not found to be a predictor of mental health in trainees, however provisional findings suggest that there may be differences between year groups on the course. The empirical paper further highlights the role of perfectionism, specifically self-evaluative discrepancy, to significantly predict anxiety, depression and quality of life in trainees.

Conclusion: The portfolio reports research which is the first to directly examine competitiveness in trainee Clinical Psychologists and explore the relationship with trainee's mental health. It provides a foundation for future research to develop the understanding of competitiveness in student populations, particularly competitiveness as a factor of the

environment. The findings have implications for higher education contexts and specifically Clinical Psychology training providers with regards to, for example, processes of competency evaluation and supporting trainee wellbeing.

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Lastly, it would be remiss of me not to mention my huge adoration and thanks to family and friends who have supported me for the past 11 years in my effort towards becoming a qualified Clinical Psychologist. Despite many of them still not understanding quite what it is I do, their constant presence has been grounding and enabled me to maintain balance and connection with life beyond my career aspirations. For that, I am entirely grateful.

Chapter One: Introduction to the Thesis Portfolio

This chapter outlines the current conceptualisations of the various constructs considered in this thesis, namely competitiveness, mental health, and perfectionism. An introduction is provided for the population of interest referenced throughout this thesis. Finally, the structure and aims of each chapter of the thesis portfolio are outlined.

Definitions of Competitiveness

Competitiveness has largely been defined within research as an individual trait or attitude towards competition and examined across the domains of sports, education, economics, and social psychology. Early definitions of competitiveness recognised it to be the desire to be superior to others and to win in social situations (Griffin-Pierson, 1990). However, the literature has developed to suggest a second type of competitive orientation which consists of the desire to better one's own performance in order to achieve a goal or mastery (Kayhan & Hibbard, 2003). Many authors have aligned with a two-dimensional model of competitive orientation. There is consensus for this two-dimension model of competitive orientation, though there are few measures developed to operationalise these constructs.

Two self-report scales to measure these orientations across domains bring definition to the two dimensions of competitiveness (Ryckman et al., 1990, 1996). The Hypercompetitive Attitude (HCA) scale measures an individual's desire to compete and win by demonstrating superiority above others (Ryckman et al., 1990). In contrast, the Personal Development Competition Attitude (PDCA) scale measures an individual's orientation towards self-improvement and mastery rather than comparison with others (Ryckman et al., 1996). Therefore, the terms "hypercompetitiveness" and "personal development competitiveness" have been used to define and distinguish the two orientations of competitiveness in research.

Despite this, some researchers argue that competitiveness is multi-dimensional and extends to a four-factor model of competitiveness. Newby & Klein, (2014) argue that competitiveness is comprised of the following four dimensions: General Competitiveness – reflecting an individual's enjoyment of competition and extent to which they consider themselves to be competitive, Dominant Competitiveness – the degree to which an individual competes with others and be superior, Competitive Affectivity – reflecting the degree of positive emotional experience of competition, and Personal Enhancement Competitiveness – an individual's orientation towards mastery, achievement and self-improvement. These dimensions were examined by confirmatory factor analysis using structural equation modelling and deemed psychometrically valid; therefore these dimensions were employed as the definition of competitiveness for the empirical research presented in Chapter four. Similarly, Orosz et al. (2018) suggests that competitiveness is comprised of four factors: hypercompetitive orientation, self-developmental competitive orientation, anxiety-driven competition avoidance, and lack of interest towards competition. This suggests how competitiveness as an individual trait is conceptualised is evolving beyond the two-dimensional understanding.

Definitions of Mental Health

The World Health Organisation (WHO) define mental health as "a state of well-being that enables people to cope with the stressors of life, to realise their abilities, to learn and work well, and to contribute to their communities" (WHO, 2022). This definition highlights how language and terms such as "wellbeing" may be used interchangeably with "mental health" to describe an individual's state of being.

It is reported that three quarters of mental disorders develop before the age of 25 (Kessler et al., 2007) which has driven the need for early identification and treatment. The most

common mental health conditions in the UK are anxiety and depression (National Institute for Health and Care Excellence, 2011). The prevalence of these mental health conditions are increasing in university populations (Macaskill, 2013), as recognised by the increased use of university counselling services (Dogan, 2018). As well as impacting personal wellbeing, the presence of mental health symptoms has been linked to poorer retention at university and poorer academic performance (Eisenberg et al., 2016a; Evans et al., 2018). Therefore, understanding factors which impact mental health in student populations is important and further outlined in Chapter two.

Definitions of Perfectionism

Like competitiveness, perfectionism has largely been defined within research as an individual trait. Early definitions recognised that perfectionists have high standards which may be beyond an individual's reach (Burns, 1980). However, these early definitions failed to account for the role of perfectionism in self-evaluation or criticism. Although the debate on conceptualising perfectionism continues, there is some recognition of two primary traits of perfectionism (Stoeber & Otto., 2006): perfectionistic striving and perfectionistic concern. Perfectionistic striving has been described as the desire to perform perfectly and is associated with the goals and standards an individual sets for themselves. Perfectionistic concern relates to processes of self-criticism and is defined as perceptions of not meeting high standards or feeling good enough (Richardson & Rice, 2015). This two-dimensional conceptualisation of perfectionism has been adopted for the empirical research presented in Chapter four.

Training in Clinical Psychology

Training courses which provide individuals with a qualification in Clinical Psychology are international, although the level of education and training differs. In the United Kingdom, the recognised training programme is the Doctorate in Clinical Psychology (DClinPsy),

accredited by the British Psychological Society (BPS), approved by the Health and Care Professions Council (HCPC) and offered across 30 universities. The DClinPsy is a full-time three-year training programme offered at both a funded and self-funded basis to UK applicants and aims to develop trainees' competencies across academic and clinical contexts to qualify as a Clinical Psychologist.

Why examine competitiveness in trainee clinical psychologists?

DClinPsy places are funded by Health Education England (HEE) in partnership with regional NHS Trusts, on a Band 6 salary for the three years of training. The opportunity to complete a fully funded training course on a starting salary of £33,706 (NHS Employers, 2022) is a desirable proposition particularly in comparison to the option of self-funding around £27,000 in annual fees for teaching and placements. Consequently, the number of applicants significantly outweighs the number of funded positions available. Historically, the success rate to gaining a position on a funded DClinPsy course was 15%, and the number of places available was around 600 (UK Clearing House, 2022a). However, there has been an expansion to the number of funded positions for psychological professions in recent years which has led to the number of places on the DClinPsy almost doubling since 2018. This has further increased applicants' success rate to 25% as there were 1,155 places available for the 2022 intake of trainees (UK Clearing House, 2022a).

Despite improving success rates, the competition to secure a funded position on the DClinPsy remains fierce. Applicants to NHS funded places on the DClinPsy must fulfil essential eligibility criteria which include: holding a degree in Psychology, or an equivalent qualification, which is eligible for Graduate Basis for Chartered Membership (GBC) of the British Psychological Society, experience of paid or voluntary work in a relevant setting, familiarising the person with working practices in the NHS and UK statutory service-settings,

and the ability to manage the demands of clinical training (UK Clearing House, 2022b). Applicants to the DClinPsy courses are expected to evidence prior experience and qualifications through a selection process consisting of an online application, at least one interview, and at some institutions, performance on selection tests covering research knowledge, capacity for situational judgement and critical thinking skills. Therefore, every stage of selection could be experienced as competitive by individual applicants as only the top performing candidates are chosen to continue through the selection process.

Once a place on the DClinPsy is secured, trainees spend three years further developing their abilities, and processes of evaluation are in place to ensure that each trainee qualifies as competent and autonomous for clinical practice. The criteria are outlined by the BPS and informed by the Standards of Proficiency for Clinical Psychologists set out by the HCPC. Although the evaluation of such competencies is individualised, it is possible that the perception of competition between trainees remains from the application process. Similarly, trainees nearing the end of training may experience competitiveness when applying for their first post-qualification job, as they will be considered against other trainees seeking to secure similar roles. Overall, this indicates that it would be of interest to examine competitiveness as a construct within the population of trainee clinical psychologists in the UK. The role of competitiveness as part of clinical psychology training is discussed further in Chapters three, and four.

Why examine mental health of trainee clinical psychologists?

Trainees are at risk of experiencing higher levels of stress than the general population due to the nature of working with and containing distress in others (Pakenham & Stafford-Brown, 2012). It has been reported that as many as 40% of trainees have a significant problem with anxiety or depression (Brooks et al., 2002). Some individuals may have chosen to pursue

a career in clinical psychology due to their prior experiences or exposure to mental health conditions or treatment (Aina, 2015). Nikčević et al. (2007) found that undergraduate psychology students who wish to work clinically reported an increased incidence of childhood sexual abuse and neglect compared to undergraduates with no inclination to pursue clinical training. As these are identified risk factors for declining mental health, it further highlights the importance of recognising the mental health needs within this population. There have been recent developments in the recognition of lived experience of clinical psychologists (In2Gr8MentalHealth, 2022) and the focus on supporting trainee mental health (Health and Care Professions Council, 2017) which further highlight the need to understand the mental health concerns of this population.

Similar to other university students, there is potential that deterioration of mental health or associated distress may impact a trainees' ability to participate in and fulfil the academic requirements of the course. Further, research indicates that stress experienced by trainees has an impact on their ability to provide clinical services and care to vulnerable populations with whom they work (Pakenham & Stafford-Brown, 2012). Hence, the recent developments of specific wellbeing agendas across DClinPsy courses seeking to highlight wellbeing as a priority due to its link with clinical practice. Additionally, many DClinPsy courses seek to incorporate self-awareness and management of own wellbeing into trainees' competencies to enable individuals to "contain anxiety and distress" as part of their role (UK Clearing House, 2022b). Therefore, the benefits to understanding and supporting trainee mental health go beyond that of the individual and extend to the NHS services and populations which trainees work within.

Outline of Thesis Portfolio

This thesis portfolio aims to explore competitiveness in student populations, with a focus on trainee clinical psychologists, and further understand its relationship with mental health outcomes.

Chapter two presents a systematic review written for publication to Higher Education, which examines the link between competitiveness and mental health outcomes in student populations. The review findings are synthesised narratively to outline current research methodologies and findings within the context of how competitiveness is conceptualised.

Chapter three is a bridging chapter to outline the identified gap in existing literature to explore competitiveness in trainee clinical psychologists and quantify the relationship with mental health outcomes.

Chapter four presents an empirical research paper prepared for submission to Clinical Psychologist and aims to examine the link between competitiveness and trainees' mental health outcomes, considering perfectionism as a mediator. The paper is the first study to directly examine competitiveness in the population of trainee clinical psychologists in the UK using a quantitative methodology.

Chapter five provides an extended methodology including psychometric properties of the measures implemented, and details of the ethical considerations of the research design.

Chapter six describes extended results including the consideration of statistical assumptions, application of statistical corrections and additional analyses examining competitiveness and mental health outcomes across first, second-, and third-year trainees.

The thesis portfolio ends with an overall discussion and critical evaluation of the research presented. Theoretical and practical implications are discussed and recommendations for further development within research are outlined.

Chapter Two: Systematic Review Paper

Exploring the Role of Competitiveness on Students' Mental Health: A Systematic Review

Written for publication to *Higher Education*

(Author guidelines for manuscript preparation – Appendix A)

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Abstract

Objective: There is a growing interest in understanding the mental health needs of students. Research suggests that some students on particular programmes of study have poorer mental health than other student groups. A common characteristic of these programmes is the experience of competitiveness between students for opportunity. Despite being highlighted in research, the link with competitiveness is rarely studied directly. Hence, this report sought to review: (a) how competitiveness is defined within student populations and (b) whether there is a link between competitiveness and mental health outcomes in students. Method: A systematic review protocol was pre-registered with Prospero (CRD42022315543) and conducted. Six databases were searched yielding 2,390 articles, of which 10 studies met eligibility criteria and were included. Results: There was a clear distinction in the literature between competitiveness measured as a personality trait, and competitiveness measured as a subjective evaluation of the student's programme of study. There was provisional evidence to suggest that aspects of competitiveness may be linked to mental health outcomes, but that the role of gender may contribute to these observations. However, definitive conclusions cannot be drawn due to heterogeneity of study design, methodology and mental health outcomes. Conclusion: This review highlights the heterogeneity of current research and identifies the need for standardised measurement of student perception of environmental competitiveness to improve methodological robustness. Limitations of the review are discussed in line with the implications for higher education institutions.

Keywords: competitiveness, students, mental health, well-being, university.

Exploring the Role of Competitiveness on Students' Mental Health: A Systematic Review

Recognising the mental health needs of students in higher education has been a prominent focus in recent research. Kessler et al., (2007) report that three quarters of mental disorders develop by the age of 25, which corresponds with the typical age of students studying in colleges or universities globally (Statistics Canada, 2010). The mental health of students in higher education is reported to be declining; the proportion of university students disclosing mental health conditions in the UK has increased fivefold in the past ten years (Thorley, 2017). Identifying factors which contribute to the mental health of students in higher education may help identify the most at-risk students within higher education establishments. Previous research suggests that increasing tuition fees and concern for student debt contribute to student mental health outcomes (Cooke et al., 2004; Walsemann et al., 2015), whilst others highlight that larger class size reduces opportunities for personalised support (Brown, 2018). Poor mental health has been found to have a direct impact on students' academic outcomes and retention in education (Eisenberg et al., 2009, 2016b) which increases the need for research in this area.

There is a body of evidence which has highlighted the mental health of specific student groups. Research indicates that medical students have a high prevalence of anxiety and depression and experience psychological distress above that which is observed in the general population and age-matched peers (Dyrbye et al., 2006; Rotenstein et al., 2016). Understanding the factors contributing to these problems in medical students is of interest, given the number of applicants to medical training and subjects allied to medicine is increasing year on year (Universities and Colleges Admissions Service, 2022). Findings have been attributed to the increased academic demands of medical training (MacLean et al., 2016) which can affect work-life balance (Hill et al., 2018) and low levels of help-seeking, and associated stigma of self-disclosure compared to other undergraduates (Laidlaw et al., 2016).

Competitiveness as a Characteristic of Higher Education

Another factor suggested to explain why medical students' experiences of higher education may differ from other student disciplines is the hierarchical and competitive nature of medical school (Lempp & Seale, 2004). It is widely known that applicants to medical training are expected to demonstrate high academic achievement on both core qualifications and additional selection tests (Curtis & Smith, 2020), which rank students for allocation to medical school places. The competitive nature of entry continues during training whereby exemplary performance can lead to successful acquisition of places on residency programmes abroad once qualified (Dyrbye & Shanafelt, 2016). There is evidence to suggest that other disciplines beyond medicine in higher education are also considered more competitive in nature. Stallman, (2012) reports that law students and staff recognise the role of competitiveness within law programmes, attributing this to the perception that successful grades result in securing a job within a competitive market. Despite explicit recognition that competitiveness can be a characteristic of particular programmes of study, and is frequently highlighted in student narratives of their experiences (Hill et al., 2014; Lin et al., 2014), the research overlooks the opportunity to operationalise competitiveness when examining mental health outcomes in the same populations. Doing so could provide evidence to support the narrative of competitiveness having direct influence on mental health outcomes of students.

Defining Competitiveness

The literature examining the measurement of competitiveness has progressed over recent years to reveal a multi-dimensional understanding of competitiveness. Much of the research has adopted Helmreich's (1978) definition of competitiveness as "the desire to win in interpersonal situations". This definition of competitiveness can be reflected in contexts where an individual's performance is evaluated against other matched-individuals, and consequently

those who outperform others in some way benefit or are rewarded for their outcomes. Early thinking considered competitiveness to be a construct relating to what extent individuals seek to win or appear superior in comparison to others (Griffin-Pierson, 1990) and coined with the term 'hypercompetitiveness'. These understandings of competitiveness may apply to higher education, which attracts large numbers of applicants for a restricted number of places either on a course itself, or for post-qualification opportunities.

However, more recent advances in defining competitiveness led to the development of a two-dimensional understanding. It has been suggested that a second construct of competitiveness is the individual's desire to obtain a goal and master a task in comparison to the individual's own previous performance (Kayhan & Hibbard, 2003). Researchers have suggested that this internal need to compete against one's own standards is independent of the need to compete with others (Franken & Brown, 1996) and coined with the term 'personal development competitiveness'. This understanding of competitiveness may reflect better the process of an individual improving their academic competence and may apply to higher education student populations. This conceptualisation of competitiveness has been adopted and used across varying social contexts such as sport, work and interpersonal relationships and continues to be used in competitiveness research today.

Students and Competitiveness

Much of the literature exploring these domains of competitiveness in students, has done so with samples of athletes or competing sports teams representing their institution (Warmath et al., 2022). Although there have been some studies reporting on competitiveness of students within an academic setting (Houston et al., 2005), there is no single operational definition of competitiveness applied consistently within this area of research. Given the growing interest in student mental health outcomes and the suggestion that competition within select disciplines

of study may be contributing to student experiences, it would be of interest to understand in what way competitiveness is being defined or examined within students' learning environments. For example, to understand whether the two constructs outlined in literature are being adopted within research exploring student populations or not.

Aims

This systematic review aims to explore the following to gain a better understanding of the potential role of competitiveness on student mental health: (1) how is competitiveness being operationalised in research examining the role of competitiveness on students' mental health; (2) to what extent is there a link between competitiveness and mental health in student populations.

Methods

A systematic review methodology was adopted as a brief review of the literature indicated that research is being conducted within the field, but that a systematic approach would be beneficial to consolidate the research and address the review aims and derived research questions. Additional guidance from the PRISMA statement for systematic literature reviews (Moher et al., 2009) was also utilised. The PRISMA 27-item checklist was completed to reflect this process (Appendix B).

Search Strategy

The following databases were searched for relevant articles given their relevance to the area of interest: Academic Search Complete, MEDLINE Complete, APA PsychInfo, ScienceDirect, CINAHL Complete, and Scopus databases. The following search terms were combined with Boolean search strategies to identify articles for inclusion: ("students" OR

"undergraduates" OR "postgraduates" OR "college" OR "university") AND ("competitiveness" OR "competitive") AND ("mental health" OR "anxiety" OR "depression" OR "stress" OR "psychological distress") NOT ("athlete" OR "athletes" OR "athletics"). The primary author compiled all papers identified into an Endnote database and removed duplicate articles. One fifth of the most relevant results generated were collated and an independent reviewer assessed abstracts from these against the inclusion criteria. The primary author and independent reviewer then discussed discrepancies and reached a mutual consensus to determine the final number of full-text articles considered for review.

Eligibility Criteria

A number of inclusion criteria were defined to establish eligibility of retrieved studies. Only articles published in English were included though this did not limit studies to those implemented in English-speaking countries. Studies published since 2000 were considered as this would more accurately represent the academic experience of current students within the population. Studies that used a sample of individuals referred to or considered to be part of the student population were eligible. This was further defined as being currently enrolled or undertaking a course at a Further Education or Higher Education provider, or international equivalent. Any students considered alumni of an academic provider or under 16 years of age were excluded from this review.

Studies that operationalised or provided a measure of competitiveness were included. This was further defined as any self-report psychometric measures or Likert scale items indicating an individual's perception of competitiveness. This included perceptions of individual competitive characteristics, or competitiveness of the environment. Studies including pre-determined quantifiable ratings of an environment as competitive were also considered, as were studies which included comparisons between a naturally occurring

competitive group and a control group. Studies which reported on the competitiveness of students participating in sports activity for their education provider or participated in research examining competitiveness during computer gaming scenarios were excluded because they were deemed not to reflect student experiences of competitiveness in an academic context or higher education setting.

Included studies must have reported on mental health outcomes and examined the link of these outcomes with competitiveness. This was further defined as self-report psychometric measures of mental health outcomes, or self-report Likert scaled item(s). Studies which reported on specific symptoms of mental health (e.g. self-harm, or suicide) in the absence of a wider measurement of a mental health outcome were excluded from this review. Studies which exclusively measured anxiety or stress using physiological markers such as heart rate, perspiration, or hormone levels were also excluded because they did not represent participants' general state of wellbeing over time.

Data Extraction and Synthesis

Data extraction forms were utilised to collate information to compare and analyse the full-text articles (Appendix C). Initially, descriptive information was extracted from each study on characteristics of the sample population which included age, gender, and specific characteristics which may have been highlighted as inclusion criteria for the study. Descriptive information was also extracted to outline how competitiveness and mental health had been operationalised. This related specifically to how competitiveness was defined and measured within the methods, and which mental health indicators were explored. Further data were extracted to document the type of outcome measures used and the significant findings from each study.

Quality Appraisal

Quality of the secondary data retrieved was measured using the Standard Quality Assessment Criteria (Kmet et al., 2004). As all retrieved studies were quantitative, the checklist for quantitative studies (Appendix D) was utilised. Each item was allocated a score between 0 – 2, where 0 indicated if the information was not reported; 1 indicated when the information was partially reported but considered inadequate; 2 indicated reported information that was adequate. The manual for quality scoring of quantitative studies (Kmet et al., 2004) was referred to for the purpose of scoring. Some items can be rated as 'not applicable', therefore the total possible sum was not equal across all studies retrieved. A summary score was calculated by dividing the total sum by the total possible summed scores. All included articles were quality assessed by two independent raters who initially reached 95% inter-rater consistency. The two raters deliberated until they reached consensus on all checklist items.

Results

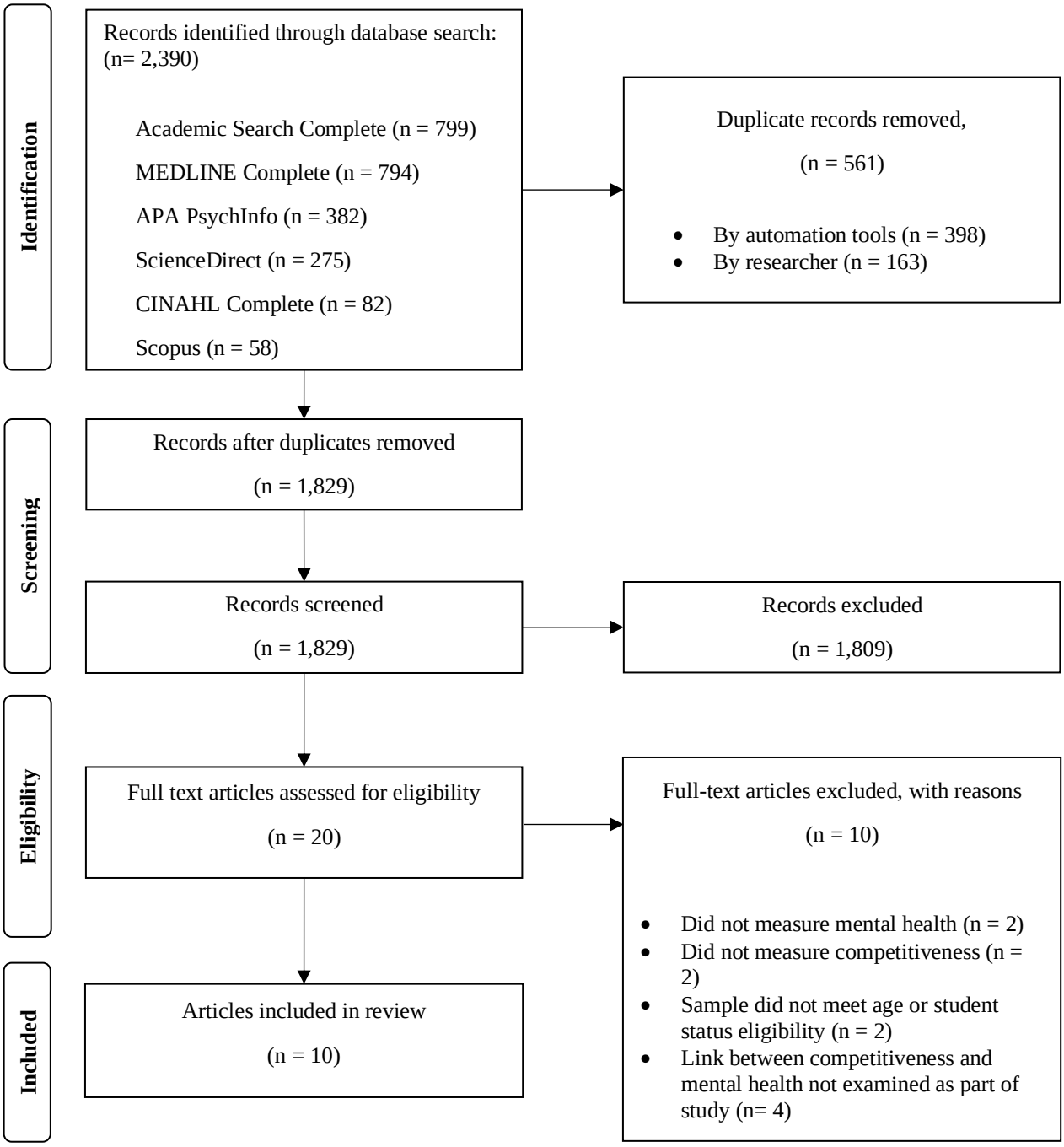
Search Results

The search was conducted on 16th August 2022 and resulted in the retrieval of 2,390 articles (Figure 1). Duplications of articles were identified and subsequently removed (n= 561). After reviewing the titles and abstracts of the records retrieved (n= 1,829) a further 1,809 records were excluded as they were irrelevant or did not meet the inclusion criteria. This resulted in the assessment of 20 full-text articles for eligibility. A further ten records were excluded for a variety of reasons; four papers were excluded as they did not measure competitiveness (n = 2) or mental health (n = 2) as outcomes; two articles were excluded because the sample did not meet the eligibility criteria for age (n = 1) or current student status (n = 1); two papers were

excluded because they did not examine the link between competitiveness and mental health. This resulted in 10 articles included in the final analysis.

Figure 1

PRISMA Flow Diagram of study selection based on (Moher et al., 2009)



Sample Demographics and Study Characteristics

A total of 65,869 participants were evaluated (Table 1). The studies[1] were conducted across a number of countries including the United States of America (40%), the United Kingdom (UK; 20%), Australia (20%), China (10%), and Hong Kong (10%). The sample size of the studies ranged from 16 to 43,210 participants (M=6,586.9, SD=13,675.2). Nine of the studies included a mixed sample of both male and females, and five of these studies included a majority female sample of more than 60%. One study held a majority male sample [4]. Only one study included an exclusively male sample [2].

Six of the studies sampled students completing the equivalent of an undergraduate degree in the UK (60%), three of the studies sampled postgraduate students (30%), and one study sampled students completing the equivalent of a college education in the UK (10%). Most studies sampled students across a range of disciplines (60%) but did not provide demographic information on this. Of those that did provide information, one study [8] sampled students from law and psychology, another from psychology, economics, and engineering [6], and two sampled students exclusively from the same discipline; one from law students [9], and another sampled medical students [2].

[1] The studies included in this review are referenced according to the corresponding number in Table 1.

Table 1

Demographic Information, Outcomes and Quality Appraisal for all Studies (N= 10) Included in the Review

	Author(s) (date) and Country	Sample, institution, and discipline	Gender and Age (years)	Competitiveness Conceptualisation	Competitiveness Measure(s)	MH Outcome Variable(s)	MH Outcome Measure(s)	Results			Quality Rating
								Significant positive link between competitiveness and outcome variable	Significant negative link between competitiveness and outcome variable	No significant link between competitiveness and outcome variable	
1	Chan & Cheung, (2022) Hong Kong	Undergraduate students Universities and college not specified Multiple disciplines not specified	125 females, 70 males Mean age = 21.55 (SD = 2.88)	Individual Construct – two subscales	HCA PDCA	Depression Anxiety Stress	DASS-21	HCA → Depression, Anxiety, Stress (females – correlated and significantly predicts) HCA → Stress (males) PDCA → Anxiety, Stress (females)	PDCA → significant predictor of Depression (males)	HCA → Depression, Anxiety (males) PDCA → Anxiety, Stress (males) PDCA → Depression (females)	0.82
2	Cook & Crewther, (2019) United Kingdom	Undergraduate students One university Medicine	16 males Range = 19 – 21	Environmental – experimental conditions & subjective experience	Competitive learning task Single item self-report rating competitiveness of learning environment	Anxiety	GAD-7	Competitive learning task → Anxiety	N/A	N/A	0.83

3	Hibbard & Buhrmester, (2010) United States	Twelfth grade students High schools in one district Not discipline specific	53 females, 57 males Mean age = 17.9	Individual Construct – two subscales	HCA (abridged) PDCA	Depressive symptoms	CDI	HCA → Depressive symptoms (females)	PDCA → Depressive symptoms (males & females)	HCA → Depressive symptoms (males)	0.73
4	Hyun et al., (2007) United States	Postgraduate international students One western university Across all academic disciplines	190 females, 361 males Mean age = 28.9 (SD= 5.4)	Environmental – subjective experience	Single item self-report rating competitiveness between students in respective programs	Emotional Distress Stress	Developed index of emotional distress.	N/A	N/A	Competitiveness → Emotional distress (positive but not significant)	0.55
5	Lipson et al., (2015) United States	Undergraduate students 72 universities and colleges in the US	24,197 females, 19,013 males, Mean age not provided	Environmental – objective selectivity	Admissions selectivity scores reported in Barron's Profiles of American Colleges (2003)	Depression Anxiety	PHQ-9 GAD-7 Binary measures of suicidal ideation, and NSSI.	Competitive admission selectivity → prevalence of NSSI (but odds ratios are not significant)	Competitive admission selectivity → Prevalence and odds of screening positive for depression and anxiety, and suicidal ideation	N/A	0.82

		Multiple disciplines not specified										
6	McEwan et al., (2012) United Kingdom	Undergraduate students One university Psychology, Economics and Engineering	215 females, 97 males Mean age = 20.25 (SD = 3)	Individual construct – single subscale	CCS	Depression Anxiety Stress	DASS-21	N/A	Competitiveness → Depression, Anxiety and Stress	N/A		0.82
7	Posselt, (2021) United States	Graduate and professional students 69 universities in the US Multiple disciplines not specified	12,825 females, 8,063 males Mean age not provided	Environmental – subjective experience	Self-reported dichotomous rating of class competitiveness.	Depression Anxiety	PHQ-9	Competitiveness → odds of screening positive for depression and anxiety	N/A	N/A		0.86

8	Skead & Rogers, (2016) Australia	Undergraduate students Two universities in Australia Law and Psychology	98 females, 55 males Mean age not provided	Environmental – subjective experience	Single item self-report rating university as competitive.	Emotional distress	Unspecified measure of emotional distress using self-reported ratings of emotional adjectives	Competitiveness → Emotional distress (law students)	N/A	Competitiveness → Emotional distress (psychology students)	0.82
9	Skead et al., (2020) Australia	Undergraduate and postgraduate students Two law schools in Australia Law	159 females, 66 males Mean age = 24.39 (SD = 5.56) and 33.40 (SD = 10.27)	Environmental – subjective experience	Single item self-report rating university environment as competitive.	Emotional wellbeing	BEES	N/A	Competitiveness → Emotional Wellbeing (most competitive law school)	Competitiveness → Emotional Wellbeing (least competitive law school)	0.86

10	Yimeng, (2009) China	Undergraduate and postgraduate students One university in China Multiple disciplines not specified	99 females, 100 males Mean age not provided	Individual Construct – two subscales	Chinese translated CAS (comprised of HCA & PDCA)	Mental health symptoms	SCL-90	N/A	PDCA → total symptom index, Depression, Anxiety, Phobia, Hostility, Paranoid, Psychoticism, Interpersonal sensitivity	HCA → total symptom index, Depression, Anxiety, Phobia, Obsessive Compulsive, Psychoticism, Paranoid ideation, Somatisation PDCA → Somatisation, Obsessive Compulsive	0.86

Note. BEES = Brief Emotional Experiences; CAS = Competitive Attitude Scale; CCS = Competitiveness and Caring Scale; CDI = Child Depression Inventory; DASS-21 = Depression, Anxiety and Stress Scale – 21 items; GAD-7 = Generalised Anxiety Disorder-7; HCA = Hypercompetitive Attitude Scale; NSSI = Nonsuicidal self-injury; PDCA = Personal Development Competitive Attitude Scale; PHQ-9 = Patient Health Questionnaire-9; SCL-90 = Symptom Checklist-90.

Methodological Variations

The most common design amongst the studies retrieved was correlational (70%). Two studies [5, 7] utilised a descriptive design (20%) to examine the prevalence of mental health outcomes across a sample. One study [2] utilised an experimental design (10%) whereby participants were randomly allocated to a paired learning condition or to learning alone.

Competitiveness

There was no singular definition of competitiveness across the studies included in this review. There was a clear distinction though between studies which operationalised competitiveness as a characteristic of individual participants [1, 3, 6, 10] (40% of studies), and those which sought to operationalise competitiveness as an environmental factor [2, 4, 5, 7, 8, 9] (60%).

All studies which measured competitiveness as an individual characteristic did so using a range of self-report questionnaires. One study [6] developed the Competitiveness and Caring Scale (CCS) which measured competitiveness on nine bipolar constructs using a 10-point Likert scale. These bipolar constructs included words which reflected competitive attributes such as "(Un)successful", "(Un)motivated", "(Un)accomplished". Three studies [1, 3, 10] administered the Hypercompetitive Attitude Scale (HCA; Ryckman et al., 1990) and the Personal Development Competitive Attitude Scale (PDCA; Ryckman et al., 1996). This is in line with research which conceptualises competitiveness as two distinct types of motivation: to either outperform others (hypercompetitiveness) or to perform well (personal development competitiveness). One study [3] referred to these types of motivation as "competing to win" and "competing to excel".

Of the six studies which examined competitiveness as an environmental factor [2, 4, 5, 7, 8, 9], four of them asked students to rate the competitiveness of their university programme/class/environment on a single item measure [4, 7, 8, 9]. Three of the self-report items provided responses on a six-point Likert scale [4, 8, 9], and one coded the responses dichotomously [7]. One study [5] utilised selectivity scores reported in Barron's Profiles of American Colleges (2003) to report on the competitiveness of the institution which ranged from 1 (noncompetitive) to 6 (most competitive). Only one study [2] utilised an experimental design to elicit a competitive environment in comparison to a non-competitive control. This study operationalised competitiveness through allocating participants to a paired learning condition (competitive) compared to the learning alone condition (noncompetitive). In addition, participants gave self-report ratings of competitiveness on a single item scale with a 10-point range from 1 (not at all) to 10 (extremely strong).

Mental Health

All studies utilised self-report items or questionnaires to measure mental health outcomes. The most common mental health outcomes examined were depression and anxiety. Of the studies reviewed, 70% examined depression, 60% examined anxiety, and 30% examined stress. Two studies [1, 6] utilised the Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995) as a unified measure of these three outcomes. Two studies [2, 5] administered the Generalised Anxiety Disorder Scale (GAD-7) to measure anxiety. Two studies [5, 7] administered the Patient Health Questionnaire (PHQ-9), one as a measure exclusively of depression [5], and the other as a measure of both depression and anxiety [7]. One study [3] administered the Child Depression Inventory (CDI). One study [4] developed an index to measure emotional distress summed from five items (hopelessness, exhaustion, sadness, depression, and overwhelmed) in

addition to a binary self-rating of "significant stress-related problem affecting academic performance and/or wellbeing".

Three studies [4, 8, 9] operationalised mental health outcomes more broadly as emotional distress or emotional well-being. One study [9] reported emotional well-being using the Brief Emotional Experiences Scale (BEES) whilst the other studies [4, 8] developed measures of emotional distress using ratings of emotional adjectives on a four-point scale. Only one study [10] operationalised mental health outcomes to include a measure of psychotic symptoms and paranoia, alongside depression and anxiety (Symptom Self-rating Scale; SCL-90).

Quality Assessment

Nine of the ten studies were eligible to be assessed on eleven of the Standard Quality Assessment Criteria checklist items yielding a maximum possible score of 22. As one study [2] utilised an experimental design, this study was eligible to be assessed on twelve of the items for quality assessment yielding a maximum possible score of 24. Overall, the methodological quality of included studies was good. The summary scores for the quality assessment ranged from 0.55 to 0.86 (M=0.79, SD= 0.09) out of a maximum score of 1 (Appendix E). The quality assessment scores were relatively homogenous, with eight out of the ten studies achieving a summary score between 0.82 and 0.86. All studies appropriately described the subject characteristics, variables, measures and outcome either partially or fully. Almost all studies used appropriate analytic methods (N= 9) and reported the results in sufficient detail (N= 9) to support the conclusions (N= 8). The areas of quality assessment which were poorer across the studies included estimates of the variance and controlling for confounding variables. It was identified that this is likely due to the non-experimental design of nine of the studies.

Link Between Competitiveness and Mental Health

Due to the heterogeneity of how competitiveness was defined and measured across the studies included, the link between competitiveness and mental health will be examined according to how competitiveness was defined.

Competitiveness as an Individual Characteristic

Hypercompetitiveness. The evidence to suggest a link between hypercompetitiveness and mental health was varied. One study found that hypercompetitiveness was both positively correlated with and could predict scores on self-report measures of depression, anxiety, and stress in female students with moderate effect sizes [1]. The positive correlation between this type of competitiveness and depression in female students was supported by another study [3], also with a moderate effect size (.46). There was limited evidence of a link between male students and mental health outcomes. One study [1] found that although there was a positive correlation between hypercompetitiveness and stress in male students, this was not a significant predictor. In one study [10] including both male and female students, there were no links between hypercompetitiveness and mental health as measured by the SCL-90.

Personal Development Competitiveness. Almost all studies which examined the link between personal development competitiveness and depression, indicated that there was a negative correlational relationship. One study [3] reported that personal development competitiveness and depression were negatively correlated with moderate effect sizes across females and males (-.36 and -.44 respectively; whilst another [10] reported a small effect size in a mixed sample (-.16). Although not found to be correlated in one of the studies [1], personal development competitiveness was a significant negative predictor of depression in males though there was no

significant correlation between this type of competitiveness and depression in females. Their findings did suggest though that personal development competitiveness is positively correlated with anxiety and stress in female students with small effect sizes (.29 and .28), but this pattern was not seen across males. One of the studies [10] provides further evidence that personal development competitiveness is negatively correlated to other mental health outcomes including anxiety, phobic anxiety, paranoid ideation and psychoticism with small effect sizes (ranging from -.14 to -.19). Although not a direct measure of personal development competitiveness, the competitive attributes on the self-report scale used in study [6] were aligned with evaluating one's sense of self and therefore considered more in line with this construct of competitiveness. Findings from this study [6] indicated a negative correlation between competitiveness and depression, anxiety, and stress with effect sizes of -.38, -.20, and -.24 respectively.

Environmental Competitiveness

Studies which examined competitiveness as a factor or characteristic of students' environment using self-report measures all found a link between competitiveness and mental health. Two studies [8, 9] asked students to rate the competitiveness of their academic environment and found that competitiveness was correlated with emotional distress with moderate effect sizes. However, these results only applied to one group of participants in each study who were identified to have rated their environment as more competitive than the other group included in the study. One study [8] found law students rated their university as more competitive than psychology students, and this was positively correlated with emotional distress (.35). Similarly another study [9] found that students from one Australian law school reported their environment to be more competitive than another law school, and this was negatively correlated with their emotional wellbeing (-.30). The only study [2] to examine the role of competitiveness as a paired learning

activity compared to a control group confirmed that ratings of competitiveness were significantly higher in the paired conditions with a large effect size (np^2= .75). Students who participated in the competitive test condition reported significantly higher ratings of anxiety than the control group with a large effect size (np^2= .49).

Studies examining the prevalence of mental health outcomes within student populations reported conflicting findings. One of the studies [7] which examined competitiveness of classes as a dichotomous variable suggests that students who described their classes as very competitive had 34% higher odds of screening for depression, and 67% higher odds of screening for anxiety. This was partially supported by another study [4] which found that competitiveness with other students was associated with negative emotional wellbeing (OR= 1.24), however this was not statistically significant. In contrast to these findings, one study [5] suggests that the odds of screening positive for depression were significantly reduced at highly competitive and most competitive institutions (OR= .83 and .89 respectively). Similarly, the odds of screening positive for anxiety are significantly higher at less competitive institutions (OR= 1.17). Students were also found to have significantly higher odds of reporting suicidal ideation at less competitive institutions (OR= 1.28).

Discussion

This review used a systematic approach to explore how competitiveness is being operationalised in research examining the role of competitiveness on mental health in student populations and to investigate whether there is a link between competitiveness and students' mental health outcomes.

Operationalising Competitiveness

Each study included in this review examined competitiveness either as an individual characteristic or as an evaluation of the students' environment. Findings showed that when examining competitiveness as an individual characteristic, a select number of validated measures are being implemented in research (HCA, Ryckman et al., (1990); PDCA, Ryckman et al., (1996)). These measures reflect the more widely accepted two-dimensional understanding of competitiveness in the wider literature, which would indicate that this is being taken into consideration when researching competitiveness in student populations. However, there is evidence to suggest that some researchers develop their own measures of competitiveness to address broader research aims, particularly when examining students' competitiveness alongside other constructs (McEwan et al., 2012).

The literature which operationalises competitiveness as the students' evaluation of their educational environment appeared to implement less robust methodologies to extract data. Single item response measures were commonly used to quantify a student's perception either of the wider educational institution, the specific programme of study or class competitiveness. This may reflect how larger studies exploring factors related to student mental health are reductionistic towards competitiveness or do not apply rigorous methodologies to study this as a variable. It is possible that single item response measures were utilised to minimise the effect of testing multiple variables in the context of looking at additional factors. However, it questions whether the literature examining the link between competitiveness and mental health in students is doing so as a direct link, or as part of an exploratory study containing multiple factors. This potentially limits the

research findings as the risk of type one statistical error increases unless appropriate statistical corrections have been applied.

This highlights an apparent gap within the literature for the development of a measure of students' evaluations of their educational institution or environment beyond either 'competitive' or 'non-competitive'. It could be suggested that the lack of well-established measures of student perceptions of their learning environment is due to the current research primarily examining competitiveness within sporting contexts. There are very few measures available which have been developed for use in school age children and students, some of which may be specific to the learning environment (Jiang, 2004; Mitchell, 1996), however there is a notable lack of similar measures for college and university students. Nonetheless, it is likely that single item response measures are in the very least providing educational institutions with an efficient way of understanding student experience. There is evidence to suggest that this alone can enable institutions to differentiate between groups of students who are undertaking a course considered more competitive than other programmes (Skead et al., 2020; Skead & Rogers, 2016).

Competitiveness and Mental Health

This review found evidence to suggest that hypercompetitiveness may be associated with poorer mental health outcomes including depression and anxiety in females, but not males. Studies including mixed samples found no association between hypercompetitiveness and mental health outcomes rendering the results of this review inconclusive. This highlights the possible significance of gender differences and potential for type two errors to occur when examining competitiveness in mixed student samples. Methodological design which fails to account for possible gender differences potentially limits the ability of the review to detect significant links between competitiveness and mental health outcomes as the conflicting results between males and

females may not be detectable in mixed samples. Future studies would benefit from examining males and females as separate groups within studies. The provisional results are important to consider given that there are observable gender majorities within particular disciplines of study and the number of females applying to 'competitive' disciplines is increasing, including for law (Hilborne, 2022) and medicine (Association of American Medical Colleges, 2019).

This review also provides evidence to suggest that personal development competitiveness may be associated with lower levels of depression. This indicates that the presence of this type of competitiveness may not be detrimental to student mental health, which is promising as the aim of education is to improve students' competence and academic ability within their chosen programme of study. By receiving individual feedback following testing procedures against defined learning outcomes, students are encouraged to develop their abilities throughout their course. These processes appear more closely linked to personal development competitiveness. However, there is some evidence to suggest that high levels of personal development competitiveness may increase anxiety in females [1] but there was less consensus on this in the papers included within this review, and the finding applies to one specific context only.

The studies which sought to examine the link between students' perception of their environmental competitiveness and mental health outcomes concluded that competitiveness may be associated with poorer emotional wellbeing in the more competitive student groups [8, 9]. This suggests that students on more competitive programmes of study could be more likely to require support for their wellbeing throughout their studies. Similarly, the odds of screening positive for depression and anxiety were higher in students who rated their classes as more competitive [7]. However, this contrasted with evidence which suggested that the odds of screening positive for depression and anxiety were highest at the institutions deemed least competitive for admissions

[5]. These results highlight the disparity between objective ratings of institutions as competitive based on their selectivity, and the student experience of their chosen programme of study.

Limitations

There are identified limitations to the results found. Application of the inclusion criteria to the results of the searches identified 10 papers eligible for inclusion, which was deemed a small but sufficient sample of papers for the overall purpose of this review. This was perhaps surprising given how frequently competitiveness is stated in the literature as being a factor relating to programmes of study, including medicine and law, and how often the mental health outcomes of these populations are highlighted within research. Nonetheless, the conclusions come from a clear systematic methodology which suggests that all relevant studies were included for synthesis. The involvement of a second reviewer at the screening, selection and quality assessment stages of this review are a strength of the methodology applied.

Heterogeneity of the aims, outcome variables, methodology and analysis across the small sample of studies was the primary limitation to drawing conclusive outcomes. Given the small number of studies included, it is not possible to generalise confidently the results to larger student populations. However, identifying this heterogeneity was a strength in addressing the review's aim to examine how competitiveness is being defined in research, which suggests that the inclusion criteria were broad enough to identify variability in research design, and reduced bias towards particular methodology.

A further limitation of the included studies is the lack of comparison to non-student groups. This stresses the need for caution when interpreting the results as occurring exclusively in the student population as other extraneous variables have not been accounted for. As a result, this

review cannot confidently conclude or suggest that the outcomes presented arise solely in students or occur because of students' experiences.

Lastly, as nine of the ten retrieved studies were cross-sectional and provided descriptive and correlational results, this limits the ability to infer causality. The methodology of most studies was further limited as they did not control confounding variables. Therefore, it cannot be concluded from the results of the studies that competitiveness is an exclusive factor determining mental health outcomes in students. To address this, it would be of interest to examine the link between competitiveness and mental health longitudinally or gain an understanding as to how competitiveness and mental health may change throughout a programme of study.

Implications

Although the literature largely defines competitiveness as a personality trait, this review highlights that it would be of interest to educational institutions to understand the factors that contribute to students' own evaluations of their learning environment. This would enable education providers to collect more specific and useful data on their own students' experiences. When examining the link between perceived competitiveness and mental health in students across programmes of study, collecting data which evaluates the perceived competitiveness of the context is likely to be helpful. However, development of psychometrically valid measures is required to do so. Identifying this at a group level could further enable educational institutions to recognise which courses may be experienced as more competitive and highlight the groups of students undertaking these programmes of study. The identification of such factors would be of benefit to departmental staff responsible for designing and implementing programmes of study as well as contributing to wider initiatives regarding student support and wellbeing services.

Conclusion

This review provides evidence to suggest that research is beginning to explore the link between competitiveness and mental health in student populations. However, the heterogeneity of how competitiveness is operationalised and the small number of studies identified limit the ability to compare succinctly or make definitive conclusions about the literature available. This further limits the generalisability of the results. Although most studies examining competitiveness as a personality trait use widely-used valid measures which have arisen from the literature seeking to define competitiveness, the same cannot be said for the studies which examine student perceptions of their environment as competitive. There appears to be a gap in the literature for the development of a context-specific measure of students' evaluations of competitiveness within education institutions as this could improve the validity and robustness of methodologies for research in the future.

There are provisional results to suggest that personal development competitiveness is consistently negatively associated with depression. However, it would be remiss to ignore the suggestion that gender is a contributory factor within this area of research. Female students were found to report poorer mental health outcomes associated with hypercompetitiveness which were not observed in male students; however the evidence to support this is limited.

Studies which examine students' perceptions of the learning environment as competitive or non-competitive are limited in methodological rigor due to the use of single-item response measures. However, there is provisional evidence to suggest that mental health outcomes and poor emotional wellbeing are impacted in environments perceived as more competitive. Within the context of increased focus on student mental health and wellbeing in further education, this suggests that understanding competitiveness in this way may be useful for institutions seeking to

explore the experiences of students within particular programmes of study, with the view of identifying students at risk of poor mental health. Doing so may present an opportunity for educational institutions to review their programme delivery or contribute to student support service initiatives.

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Chapter Three: Bridging Chapter

Competitiveness and Mental Health of Students

The results of the systematic review in the previous chapter highlight several interesting considerations for research examining the link between competitiveness and mental health in students. Firstly, it shows that competitiveness, measured as an individual trait, is multifactorial and is commonly captured by examining two domains of competitiveness: hypercompetitiveness and personal development competitiveness. However, the findings of the systematic review show these two aspects of competitiveness may have different relationships with mental health outcomes. Therefore, research seeking to define and measure individual trait competitiveness should do so using a multifactorial tool, rather than a univariate measure. Secondly, the findings of the review show that the most common mental health outcomes examined in students are anxiety and depression, generally using standardised measures, to examine the link between competitiveness and these constructs. Therefore, future research in this area would benefit from examining anxiety and depression as mental health outcomes rather than general wellbeing in order to be comparable with the current literature available across the student population.

Additionally, the review identifies an apparent gap in the literature examining the relationship between competitiveness and mental health in specific academic disciplines such as medical students and clinical psychology trainees. This is surprising given the plethora of research which describes training programmes and opportunities within, for example, medical specialities to be competitive (Lefebvre et al., 2020; Vaysburg et al., 2021) and competition for a place on clinical psychology training as "fierce" (Laidlaw & Gillanders, 2011, p. 146). There are similarities between the two disciplines as both require considerable clinical and academic competencies and an ability to manage the demands of clinical placements. Much research has been conducted to

examine the mental health needs of medical students (Dyrbye et al., 2006; Hill et al., 2018; MacLean et al., 2016; Moir et al., 2018) and there are studies which utilise qualitative methodology to identify competition between students as a factor contributing to stress and well-being throughout medical training (Byrnes et al., 2020; Radcliffe & Lester, 2003). However, this relationship has not been explored in clinical psychology trainees. This emphasises the need for research to examine the role of competitiveness on mental health outcomes in specific student populations which are widely acknowledged to have an element of competitiveness to their course of study.

Why Examine Competitiveness and Mental Health Outcomes of Trainee Clinical Psychologists?

It could be argued that students enrolled on the Doctorate in Clinical Psychology (DClinPsy) pose similarities with those studying medicine. Firstly, the process of applying for a position on clinical psychology training is competitive (Goghari, 2022) due to the large number of applicants for limited number of places, similar to medical training. Following a recent uplift in places available, the success rates of applicants to DClinPsy courses in the UK has increased from 15% to 25% since 2019 (UK Clearing House, 2022a). However, applications still significantly outweigh the number of available places. This aspect of competitiveness is also present for many pre-training positions such as Assistant Psychologist or Research Assistant roles which enable applicants to acquire required experience or positions which expand their clinical and academic competencies (Goghari, 2022; Golding & Moss, 2019). This understanding of aspiring clinical psychologists' experiences amongst applicants, trainees, and clinical psychology training providers has led to the recognition of competitiveness within recent literature. Applicants and trainees have shared their reflections and experiences of competitiveness as being characteristic of

their journey in clinical psychology (Bettney, 2017; Mhambi, 2014). Similarly, qualitative research findings also support competitiveness as a factor of clinical psychology training (Binks et al., 2013; Galvin & Smith, 2017), but this construct has not been examined directly within this population using quantitative measures. Subsequently, the current research examining competitiveness in trainees fails to account for the multifactorial nature of competitiveness despite evidence from the previous chapter indicating that existing psychometric measures of competitiveness are available for research purposes.

The importance of mental wellbeing of DClinPsy trainees has been highlighted within existing literature. Like other healthcare students, trainees are deployed to work clinically in frontline NHS services where maintaining professionality whilst being exposed to, and supporting, distressed individuals is a core role of the job (UK Clearing House, 2022c). Trainees are also required to balance clinical placements with doctoral level academic demands including research projects and assignments (British Psychological Society, 2019). It is important that trainees demonstrate an ability to balance these demands and hold self-awareness with regards to the impact on their own wellbeing (British Psychological Society, 2020) as research suggests wellbeing is implicated in maintaining quality of life (Lawson & Myers, 2011). Baker (2003) has written about the importance of fostering good mental, physical, and spiritual well-being in therapists to maintain balance between professional and personal life. This suggests that it may be beneficial to consider additional outcomes such as quality of life which relate to trainee wellbeing.

Current research has sought to understand the wellbeing needs of trainees, and acknowledge their risk of elevated stress (Victor et al., 2022). However, as noted, there is an absence of literature which directly examines the relationship between trainees' mental health and competitiveness. Further, previous research has suggested that mental health outcomes in females

are more significantly influenced by competitiveness than males (Chan & Cheung, 2022; Hibbard & Buhrmester, 2010b), therefore it would be of interest to explore this in DClinPsy trainees, given that the trainee population is predominantly female in the UK, and may therefore be disproportionately impacted.

Development Throughout Training

Galvin & Smith (2015) suggest that individual differences such as personality were more strongly associated with psychological outcomes for trainees and indicate the need for further research in this area. Consequently, it would be of interest to examine how competitiveness may change in trainees throughout the course of training as research argues that competitiveness can be both a trait and influenced by the situational context (Elliot et al., 2018). Therefore, it could be suggested that the influence of environmental competitiveness from pre-qualification reduces once an individual has secured a place on training. Similarly, it could be argued that the demands of training differ from first year, to final year of training which could account for any reported differences in trainee wellbeing. Previous research has shown that mental health outcomes of university students can differ across year groups, seeing heightened anxiety and depression in the second year of study (Macaskill, 2013). This suggests that it would be beneficial additionally to explore whether the stage of training has an impact on trainees' competitiveness and mental health outcomes.

Accounting for the Role of Perfectionism

Perfectionism has also been shown to be prevalent in some student populations. Several studies have highlighted the role that maladaptive perfectionism has on increasing psychological distress in postgraduate researchers (Milicev et al., 2021) and increasing depression in medical

students (Evans et al., 2018). DClinPsy trainees pose similarities to both these groups, therefore accounting for the role of perfectionism is important when examining mental health outcomes. Existing research supports this position as trainees high in self-critical perfectionism report higher levels of depression (Richardson et al., 2020). Eley et al. (2020) also provide evidence to suggest perfectionism can play a mediatory role in the relationship between personality and psychological distress. Therefore, as the psychometric tools of competitiveness are considered to measure individual trait competitiveness the role of perfectionism as a mediator of competitiveness should be accounted for.

Therefore, the empirical study that follows is the first known study to explore competitiveness and mental health outcomes in trainee clinical psychologists using quantitative methods. The study also seeks to understand whether perfectionism has a mediatory relationship with competitiveness and mental health outcomes. Additional exploration of the differences in competitiveness and mental health outcomes of first, second, and third year trainees is presented in Chapter Six.

Chapter Four: Empirical Research Paper

Exploring the Role of Competitiveness on Psychological Distress and Quality of Life in Trainee Clinical Psychologists as Mediated by Perfectionism

Written for publication to *Clinical Psychologist*

(Author guidelines for manuscript preparation – Appendix F)

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Abstract

Objective: Competitiveness has a large presence in the journey, and applications, to Clinical Psychology training. There is evidence to suggest links between competitiveness and perfectionism with mental health in other student populations such as medicine. However, similar research is lacking in samples of trainee clinical psychologists. This study sought to understand: (a) can competitiveness predict psychological distress and quality of life in trainees and (b) is this mediated by perfectionism. Method: Trainees (N= 242) recruited from clinical psychology courses across the UK accessed an online survey to complete self-report scales measuring: competitiveness, perfectionism, anxiety, depression, and quality of life. Results: The findings suggest that competitiveness does not predict anxiety, depression or quality of life in trainees. Perfectionism shows a significant role in contributing to anxiety, depression, and quality of life. Trainees' discrepancy between their perceived performance and expectations was the only consistent independent predictor to all outcome variables. Conclusion: This study provides evidence to suggest that competitiveness does not contribute to mental health outcomes in trainee clinical psychologists. However, consideration should be given to recognise how competitiveness is being defined, measured, and reported in research. This study further highlights the importance of recognising how disparity in trainees' self-evaluation may be detrimental to mental health, and further examination into this could be of interest to clinical psychology training providers. Limitations of the study are discussed in line with the implications for clinical psychology training providers.

Keywords: competitiveness, mental health, students, trainee clinical psychologist, well-being,

Exploring the Role of Competitiveness on Psychological Distress and Quality of Life in Trainee Clinical Psychologists as Mediated by Perfectionism

To date, competitiveness as a construct has been grounded and widely researched within the areas of sport (Ryska, 2003; Sun et al., 2010) and economics (Bönte et al., 2017; Fletcher et al., 2008). Research has largely focused on the concept of interpersonal competitiveness, in line with Helmreich's (1978) early definition of competitiveness as "a desire to win in interpersonal situations". Accepting this definition has led to the acknowledgement of environmental and situational variables in competitiveness but failed to recognise the role of individual differences or consider the potential for competitiveness to be an individual trait (Smither & Houston, 1992).

Intrinsic motivation, as defined by Self-Determination Theory (Deci et al., 1981; Ryan & Deci, 2000), is seen to play a role in competitiveness and associated outcomes in performance and that an individual's motivation and goals contribute to competitive performance. This suggests that competitiveness as a construct is multidimensional and applicable across situational contexts, rather than exclusively relevant to those that reward individuals for outperforming others.

There is a lack of clarity on how competitiveness is defined within the literature. More recently there has been some acceptance of a two-dimensional approach to measuring competitiveness. This approach captures both the interpersonal desire to be superior to others and win in social situations (Griffin-Pierson, 1990) and the individual desire to obtain a goal and master a task in comparison to the individual's own previous performance (Kayhan & Hibbard, 2003). Research exploring these dimensions is evident in domains of sport and academic achievement (Shimotsu-Dariol et al., 2012). Newby & Klein (2014) expanded on this to suggest four dimensions

of competitiveness: personal enhancement competitiveness (internal need to do well), dominance (demonstrate superiority over others), general competitiveness (degree of motivation by competition) and competitive affectivity (emotional experience of competition). Despite the reconceptualisation of competitiveness as a construct, there is still a lack of research examining competitiveness in specific student groups whereby success is focused more on competence than academic achievement.

Applications to Clinical Psychology

Applying for Clinical Psychology training is an inherently competitive process and is one example of a student population focused on competence. In 2019 only the top 15% of applicants successfully gained a place on a UK Doctorate in Clinical Psychology (DClinPsy; UK Clearing House, 2022d); this success rate is low in comparison with other healthcare professional training courses. Success in applying requires high academic performance and pre-training experience, which is rigorously screened, assessed and scored to determine an individual's rank in relation to other applicants (UK Clearing House, 2022b, 2022e). Similar processes are also evident in applying for pre-training roles which is increasing the competition applicants face for a place on the course, and for relevant pre-training experience. Therefore, competitiveness appears to be characteristic of the journey into Clinical Psychology and has been described as "fierce amongst graduates" (Laidlaw & Gillanders, 2011) yet there is a lack of research examining this construct in this population.

Recent research suggests that even in the absence of competition against peers once on training, Trainee Clinical Psychologists ('trainees') continue to strive for high standards (Tigranyan et al., 2021). Trainees receive feedback on individual clinical and academic competencies and may seek to improve these throughout training (Sharpless & Barber, 2009),

which may explain this. However, it is also reported that comparisons with cohort peers can increase feelings of imposter syndrome (Jones & Thompson, 2017). These findings indicate it would be beneficial to explore whether dimensions of competitiveness may help us understand the in-training experiences for clinical psychology students. Currently there is no research examining competitiveness directly in trainees. Some research has sought to explore this phenomenon in other student populations; however, this is often examined within the context of the learning environment (Shimotsu-Dariol et al., 2012), or directly related to academic outcomes and achievement (Baumann & Harvey, 2018). This suggests that there is a gap in the research to examine competitiveness in trainees, particularly given that pre-training experiences are so heavily characterised by competition.

Trainee Wellbeing

Wellbeing of trainees is currently high on the agenda for UK DClinPsy courses (British Psychological Society, 2020), and an ability to balance the demands of clinical training is desired in students. Academic and clinical demands of the course contribute to the psychological distress experienced by individuals during training (Warren, 2018). More significantly, demands and core self-evaluations are reported to be important predictors of psychological ill-health and perceived stress in trainees (Galvin & Smith, 2015). It is of interest to examine what role competitiveness has to play in the wellbeing of trainees, and consequently their quality of life whilst in-training. In this study "wellbeing" is defined and characterised by psychological distress and quality of life. Previous research indicates that hyper-competitiveness is positively associated with mental health problems, and most significantly in females (Chan & Cheung, 2022). Understanding whether this is the case for trainees would be important since approximately 83% of applicants and DClinPsy trainees are female (UK Clearing House, 2022d). Hill et al. (2018) similarly found that medical

students report competitiveness and evaluating themselves against their peers to be a source of stress during their training. However, it is unclear as to whether this is a result of the interpersonal desire to be superior, or a self-evaluation of a trainee's own competence. These findings suggest that there could be a link between competitiveness and psychological distress in trainees that would benefit from further exploration.

Perfectionism as a Mediator

Similarly to competitiveness, perfectionism as a construct has been an area of interest for researchers in sport (Frost & Henderson, 1991) and academic achievement (Accordino et al., 2000). Perfectionism can be characterised by striving for excellence and setting high standards for oneself (Stoeber & Otto, 2006) which is similar to the drive for personal enhancement as a dimension of competitiveness. Perfectionism may have positive outcomes for an individual with regards to their performance. One study recognised that both trait perfectionism and competitiveness uniquely contribute to motivation and competitive performance (Klein et al., 2020) suggesting that there may be a link; however this has not been explored within trainees. However, the literature also suggests perfectionism can be detrimental to mental health outcomes, specifically depression as perfectionists attribute their self-worth to their success and outcomes (Sturman et al., 2009). A recent study identified traits of perfectionism to be associated with higher levels of distress in medical students (Eley et al., 2020), which highlights the need to consider the role of perfectionism when exploring psychological distress.. This suggests future research should consider the role of perfectionism as a mediator for competitiveness and psychological distress.

In summary, applying for Clinical Psychology training is inherently competitive. There is some evidence of links between competitiveness and perfectionism with mental health in other populations such as medical students. However, research is lacking in samples of trainees which

indicates the importance of examining the role of competitiveness on psychological distress and quality of life in trainees. As previous evidence suggests perfectionism influences mental health of students, it would be beneficial to examine whether this mediates the relationship between competitiveness, and psychological distress and quality of life. In this study, psychological distress will be defined as anxiety and depression. The aim is to understand factors which influence trainees' experiences on UK-based Clinical Psychology courses and inform ongoing agendas relating to wellbeing and selection processes.

Research Aims

This research aims to answer the following primary research questions:

1. Does competitiveness predict anxiety in trainees, and is this mediated by perfectionism?
2. Does competitiveness predict depression in trainees, and is this mediated by perfectionism?
3. Does competitiveness predict trainees' quality of life, and is this mediated by perfectionism?

Methods

Participants

Participants included 242 trainee clinical psychologists currently enrolled on an accredited course in the UK (female: 90.5%). Participants ranged from 21 - 53 years old (M= 28.98, SD= 3.64) and represented all year groups on training (See Table 2; Year 1: N= 93, Year 2: N= 87, Year 3: N= 62).

Table 2

Demographic Characteristics of Participants

	Total		Year 1		Year 2		Year 3	
Demographic	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%
Age (y)	28.98 (3.64)		28.65 (4.07)		29.17 (3.68)		29.23 (2.82)	
Gender								
Male		7.44		9.68		6.90		4.84
Female		90.50		90.32		90.80		90.32
Non-Binary		1.65		0.00		2.30		3.23
Prefer not to say		0.41		0.00		0.00		1.61
Ethnicity								
White		85.95		83.87		85.06		90.32
Mixed or multiple ethnic group		3.72		6.45		2.30		1.61
Asian or Asian British		6.61		4.30		8.05		8.06
Black, African, Caribbean, or Black British		1.65		2.15		2.30		0.00
Other Ethnic Group		2.07		3.23		2.30		0.00

Note. N= 242; Year 1: 93; Year 2: 87; Year 3: 62.

Ethical Approval

Ethical approval for the study was obtained from the Faculty of Medicine and Health Sciences Research Ethics Committee at the University of East Anglia (Appendix G). Participants

were invited to participate voluntarily in this research and provided their informed consent to participate.

Procedure

Convenience and snowball sampling methods were utilised to recruit participants via social media advertising (Appendix H) on sites including Twitter, Facebook and LinkedIn. Gatekeepers of DClinPsy courses were contacted by email with the study details (Appendix I) and asked to disseminate the advert to their cohorts of trainees. Participants were invited to complete an online survey which was accessible by a QR code or URL link. Participants confirmed that they had read and understood the Participant Information (Appendix J) and Consent Form (Appendix K) before completing self-report questionnaires. Following completion participants were offered the opportunity to enter their details to win one of five £20 vouchers for an online retailer. Submission of details for the voucher draw was not linked to online survey responses and so anonymity was maintained.

Measures

The following measures were administered. Psychometric properties for each measure are reported for the study sample.

Competitiveness

The Competitiveness Orientation Measure (COM; Newby & Klein, 2014) was used to measure competitiveness (Appendix L). The 37-items are scored on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Scores are summed giving a total score ranging from 37 to 185; a higher score indicating greater competitiveness. The COM provides scores across four subscales of competitiveness: general competitiveness, dominant competitiveness,

competitive affectivity, and personal enhancement competitiveness. Cronbach's alpha indicates good internal consistency for competitive affectivity (α= .856), and personal enhancement competitiveness (α= .818). Internal consistency was excellent for the general competitiveness subscale (α= .936), and dominant competitiveness (α= .915).

Perfectionism

Perfectionism was measured using the Short Almost Perfect Scale (SAPS; Rice et al., 2014; Appendix M). This scale consists of eight items scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Scores are summed and generate a total score ranging from 7 to 56 where higher scores indicate higher prevalence of perfectionism. The SAPS also generates scores on two subscales. The Standards subscale indicates how high an individual sets standards for themselves and scores range from 4 – 28. The Discrepancy subscale indicates the disparity between the standards and the degree to which the standards are reached, with scores ranging from 4 – 28. The internal consistency reliability of the standards subscale was good (α= .87) and excellent for the discrepancy subscale (α= .902).

Anxiety

Anxiety was measured using the Generalised Anxiety Disorder – 7 (GAD-7; (Spitzer et al., 2006; Appendix N) which rates the frequency of responders' anxiety symptoms experienced over the past two weeks. This seven-item questionnaire is scored on a 4-point Likert scale (0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day). Item scores are summed to provide a total score for the measure which ranges from 0 to 21 where higher scores indicate higher severity of anxiety symptoms. The GAD-7 had good internal consistency among items (α= .872).

Depression

Depression was measured using the Patient Health Questionnaire (PHQ-9; (Kroenke et al., 2001; Appendix O) which rates the frequency of responders' depressive symptoms experienced over the past two weeks. This nine-item questionnaire is scored on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Item scores are summed to provide a total score for the measure which ranges from 0 to 27 where higher scores indicate higher severity of depressive symptoms. The Cronbach's alpha (α) of the PHQ-9 was .86.

Quality of Life

The Quality of Life Scale (QOLS; Flanagan, 1978) was used to measure quality of life (Appendix P). This 16-item questionnaire asks participants to rate their satisfaction using a 7-point Likert scale (1 = terrible, 2 = unhappy, 3 = mostly dissatisfied, 4 = mixed, 5 = mostly satisfied, 6 = pleased, 7 = delighted). Item scores are summed to provide a total ranging from 16 to 112 where higher scores indicate higher satisfaction with quality of life. The QOLS had good internal consistency among items (α= .811).

Analytic Strategy

All data analyses were performed using the Statistical Package for the Social Sciences version 25 (IBM Corp, 2017). Pre-analysis screening satisfied the assumptions of hierarchical multiple regression and transformations were applied as required.

To investigate whether perfectionism mediates the relationships between competitiveness and the dependent variables, three simple mediation analyses were performed using PROCESS. The dependent variable for each analysis was Anxiety, Depression, or Quality of Life. The

predictor variable for the analyses was Competitiveness (total score). The mediator variable for the analyses was Perfectionism (total score).

To investigate further the relationships between competitiveness, anxiety, depression and quality of life, a series of hierarchical regressions were conducted to assess the ability of competitiveness to predict anxiety, depression and quality of life, considering perfectionism as a mediator. The hierarchical design employed two models: Model 1 predicted the outcome variables from the four competitiveness subscales (general competitiveness, dominant competitiveness, competitive affectivity, personal enhancement competitiveness) and Model 2 added the two perfectionism subscales (standards and discrepancy).

Results

Descriptive Statistics

See Appendix Q.

Competitiveness

The mean total score for competitiveness was 102.21 (SD= 26.93). The average score for each subscale was as follows: general competitiveness 34.43 (SD= 11.10), dominant competitiveness 30.22 (SD= 10.30), competitive affectivity 25.26 (SD= 6.68), personal enhancement competitiveness 12.29 (SD= 3.89). There are currently no standardised norms to compare these values for qualitative interpretation, but higher scores indicate greater competitiveness.

Perfectionism

The mean total score for perfectionism was 42.76 (SD= 8.79). The average subscale score for the standards subscale was 24.26 (SD= 3.84), which is in line with previous norms provided in college samples (M= 24.12, SD 3.63; M= 24.17, SD= 3.34, Rice et al., 2014). The average subscale score for the discrepancy subscale was 18.50 (SD= 6.21) which appears higher than previous norms provided in college samples (M=13.38, SD= 5.29; M= 13.63, SD= 5.42, Rice et al., 2014). This suggests that trainees may have higher perceived disparity between their standards and the degree to which those standards are reached when compared to other students.

Dependent Variables

The average anxiety score was 6.30 (SD= 4.50) which lies below the clinical threshold for anxiety disorder. Although most trainees scored below the clinical threshold (total score = 10), 22 trainees scored in the moderate-severe range for anxiety (9.1%), and a further 13 trainees scored in the severe range (5.4%). The data were non-normally distributed, and highly positively skewed, therefore a data transformation was applied prior to analysis.

The average depression score for participants was 5.909 (SD= 4.87), which was also below the clinical threshold for depression. Although the majority of the sample scored below the clinical threshold (total score = 10), 36 trainee scores in the moderate range for depression (14.88%), 12 trainees scored in the moderate-severe range (4.96%), and a further four trainees score in the severe range (1.65%). The data were non-normally distributed, and highly positively skewed, therefore a data transformation was applied.

The average quality of life score for participants was 79.98 (SD= 9.808), which was below the average total score for healthy populations (M= 90; Burckhardt & Anderson, 2003). In total 28

trainees scored between 60 – 69 (11.6%), four trainees scored between 50 – 59 (1.7%) and two trainees score below 50 (0.8%). The data were non-normally distributed, and slightly negatively skewed, therefore a data transformation was applied prior to statistical analysis. All transformations of the dependent variables were successful.

Mediation Analyses

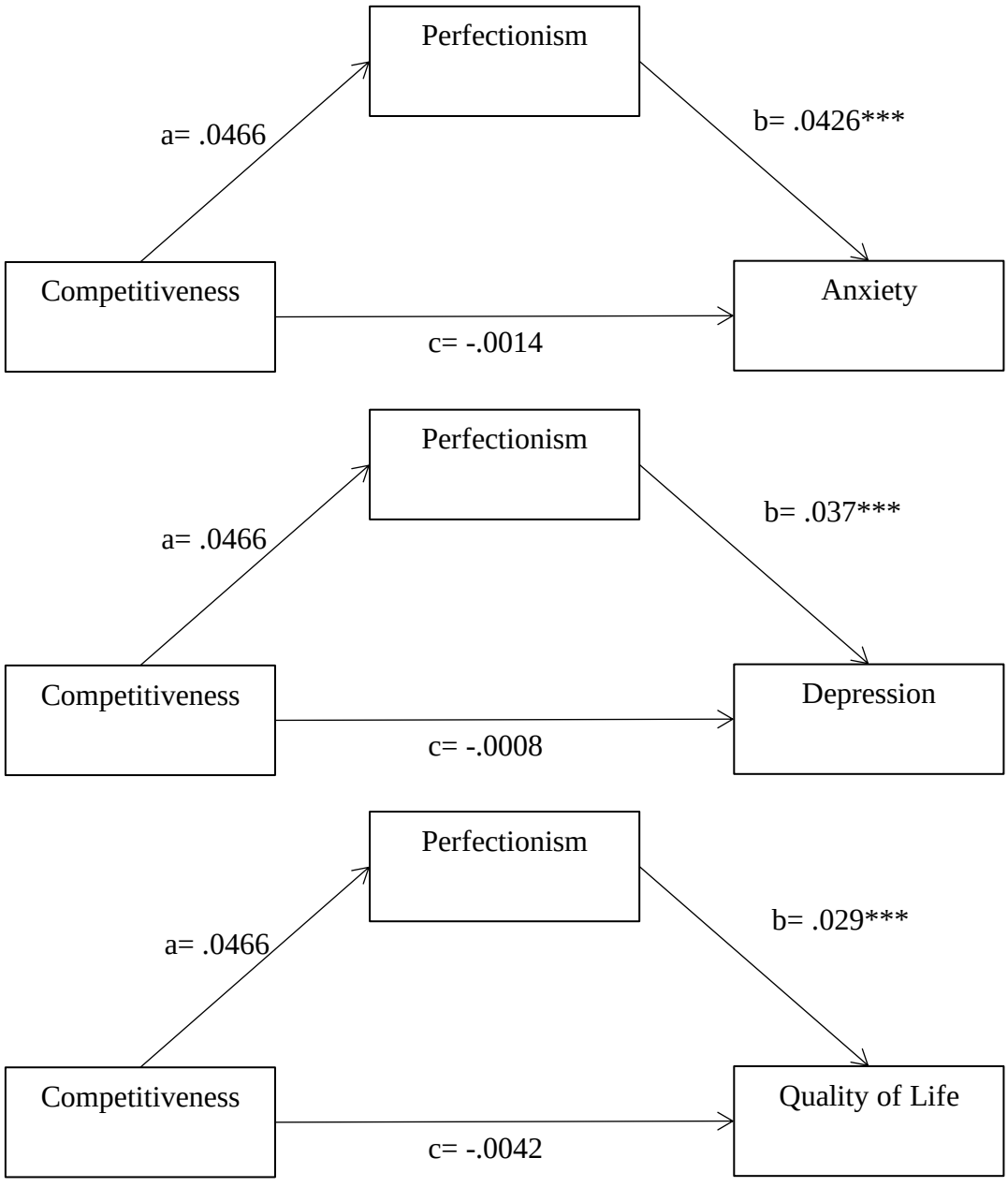
The results of the mediation analyses are presented in Figure 2. A Bonferroni-adjusted alpha level of .017 was applied to the analyses of each dependent variable to correct for multiple analyses.

Anxiety

Results revealed that the path (direct effect) from competitiveness to perfectionism is positive but not significant after Bonferroni correction (b=.0466, s.e.= .0208, p= .0264). The direct effect of perfectionism on anxiety is positive and significant (b= .0426, s.e. = .0066, p= <.0001), indicating that trainees scoring higher on perfectionism are more likely to score higher for anxiety. The direct effect of competitiveness on anxiety is negative but not significant (b= -.0014, s.e.= .0022, p= .5215). The indirect effect of competitiveness via perfectionism is positive but not statistically significant [b= .002, s.e.= .0009, 99% C.I. (-.0001, .0048)]. These findings suggest that competitiveness does not predict anxiety in trainees either directly or indirectly, however, there is evidence to suggest that trainees scoring higher on perfectionism are likely to be more anxious.

Figure 2

Mediation Models for Anxiety, Depression, and Quality of Life



Note. *** p<.001.

Depression

The path (direct effect) from competitiveness to perfectionism is positive but not significant after Bonferroni correction (b=.0466, s.e.= .0208, p= .0264). The direct effect of perfectionism on depression is positive and significant (b= .037, s.e. = .0073, p= <.0001), indicating that trainees scoring higher on perfectionism are more likely to score higher for depression. The direct effect of competitiveness on depression is negative but not significant (b= -.0008, s.e.= .0024, p= .7482). The indirect effect of competitiveness via perfectionism is positive but not statistically significant [b= .0017, s.e.= .0009, 99% C.I. (-.0002, .0044)]. These findings suggest that competitiveness does not predict depression in trainees either directly or indirectly, however, trainees scoring higher on perfectionism are likely to score higher for depression.

Quality of Life

The path (direct effect) from competitiveness to perfectionism is positive but not significant after Bonferroni correction (b=.0466, s.e.= .0208, p= .0264). The direct effect of perfectionism on quality of life is positive and significant (b= .029, s.e. = .0062, p= <.0001), indicating that trainees scoring higher on perfectionism are more likely to score higher for quality of life. The direct effect of competitiveness on quality of life is negative but not significant after Bonferroni correction (b= -.0042, s.e.= .002, p= .0397). The indirect effect of competitiveness via perfectionism is positive but not statistically significant [b= .0014, s.e.= .0007, 99% C.I. (-.0002, .0036)]. These findings suggest that competitiveness does not predict quality of life in trainees either directly or indirectly, however, trainees scoring higher on perfectionism are likely to have higher quality of life.

Hierarchical Regression

Preliminary analyses were conducted to ensure no violation of the assumptions of independence, normality, linearity, multicollinearity, and homoscedasticity. The results of the hierarchical regression analyses are presented below in Tables 3 and 4.

Table 3

Model 1 and Model 2 Hierarchical Regression Statistics for each Dependent Variable

	F-statistic	SE	p-value	R^2	$R^2\Delta$
Anxiety					
Model 1	2.632	0.954	0.035	0.043	
Model 2	10.175	0.872	0.000***	0.206	0.164
Depression					
Model 1	1.041	1.036	0.387	0.017	
Model 2	5.230	0.984	0.000***	0.122	0.104
Quality of Life					
Model 1	1.816	0.869	0.127	0.030	
Model 2	8.318	0.805	0.000***	0.175	0.145

Note. N= 242, *** p<.001.

Table 4

Model 2 with Subscales of the COM and SAPS as Predictors of Dependent Variables

Dependent variable	Independent Variable	B	β	t-value	p-value
Anxiety					
	Intercept	1.547		3.867	0.000
	General Competitiveness	-0.008	-0.094	-0.989	0.324

	Dominant Competitiveness	0.005	0.056	0.568	0.571
	Competitive Affect	-0.005	-0.038	-.475	0.635
	Personal Enhancement Competitiveness	0.020	0.080	.977	0.329
	Standards	-0.023	-0.091	-1.275	0.204
	Discrepancy	0.072	0.465	6.647	>0.001***
Depression					
	Intercept	1.290		2.860	.005
	General Competitiveness	-0.002	-0.024	-2.44	0.807
	Dominant Competitiveness	0.001	0.007	0.070	0.944
	Competitive Affect	0.001	0.008	0.100	0.920
	Personal Enhancement Competitiveness	0.005	0.020	0.236	0.814
	Standards	-0.010	-0.037	-0.496	0.620
	Discrepancy	0.060	0.359	4.884	>0.001***
Quality of Life					
	Intercept	5.315		14.400	0.000
	General Competitiveness	0.003	0.039	0.404	0.686
	Dominant Competitiveness	-0.017	-0.196	-1.932	0.055
	Competitive Affect	0.029	0.220	2.706	0.007**
	Personal Enhancement Competitiveness	-0.031	-0.137	-1.642	0.102
	Standards	-0.035	-0.155	-2.141	0.033
	Discrepancy	0.064	0.454	6.368	>0.001***

Note. ** p<.01, *** p<.001, B = Unstandardised regression coefficient, and β = Standardised Regression Coefficient.

Anxiety

The hierarchical multiple regression indicated that model 1 explained 4.3% of the total variance in anxiety, F(4,237)= 2.632, p= .035. However, this was not statistically significant after applying Bonferroni correction. Introducing the perfectionism subscales explained an additional

16.4% of variation in anxiety and this change in R^2 was significant, F change (6, 235)= 24.227, p< .001. In model 2 of the regression, the only significant predictor of anxiety was the discrepancy subscale (beta= .465, p< .001). Together the six independent variables accounted for 20.6% of the variance in anxiety.

Depression

The hierarchical multiple regression indicated that model 1 explained 1.7% of the total variance in depression but this was not statistically significant, F(4,237)= 1.041, p= .387. Introducing the perfectionism subscales explained an additional 10.4% of variation in depression and this change in R^2 was significant, F change (6, 235)= 13.957, p< .001. In model 2 of the regression, the only significant predictor of depression was the discrepancy subscale (beta= .359, p< .001). Together the six independent variables accounted for 12.2% of the variance in depression.

Quality of Life

The hierarchical multiple regression indicated that model 1 explained 3% of the total variance in quality of life but this was not statistically significant, F(4,237)= 1.816, p= .127. Introducing the perfectionism subscales explained an additional 14.5% of variation in quality of life and this change in R^2 was significant, F change (6, 235)= 20.719, p< .001. In model 2 of the regression only the discrepancy subscale and competitive affectivity were statistically significant, with discrepancy recording a higher beta value (beta= .454, p< .001) than competitive affectivity (beta= .22, p= .007). Together the six independent variables accounted for 17.5% of the variance in quality of life scores.

Discussion

Competitiveness

The results of this study suggest that there is no significant link between competitiveness and mental health outcomes, specifically anxiety and depression, in trainee clinical psychologists. Similarly, no significant link was found between competitiveness and quality of life of trainees. These findings suggest that competitiveness does not appear to have significant impact on individual wellbeing in trainee clinical psychologists. This challenges the narrative regarding competitiveness within clinical psychology. Previous research suggests clinical psychologists may be less likely to disclose mental health difficulties due to stigma and experience additional barriers to help-seeking (Tay et al., 2018). Therefore, it is possible that trainees underreported symptoms of mental health which influenced these findings.

It is possible that the way in which competitiveness was operationalised for this study has not captured the experiences of competitiveness as felt by trainees. Similarly, the results do not reflect previous research suggesting that competitiveness contributes to poor mental health outcomes in medical students. One explanation could be that previous studies focus on medical students' subjectively experiencing their degree and environment as being competitive, including the impact of limited positions for further training or specialist opportunities available within their cohort. This is in contrast with the competitiveness measure used in this study which measured competitiveness as a trait of the individual. This result therefore questions whether competitiveness as a construct relates to the individual or to the environment within which the individual is placed, when examining the impact on mental health outcomes.

Previous research has found that students who described their classes as very competitive had 34% higher odds of screening for depression, and 67% higher odds of screening for anxiety (Posselt, 2021), which suggests students perceiving their learning environment as particularly competitive may experience poorer mental health outcomes. This also highlights the need for further research into 'competitiveness' as an environmental factor in addition to individualised trait conceptualisations which have dominated research design within the field. This could potentially allow higher education providers to identify whether particular disciplines of study require a higher level of wellbeing support.

The narratives regarding competitiveness of DClinPsy courses often relate to pre-training experiences and the process of applying to the course, rather than in-training experiences. Therefore, it would be of interest to extend this research to applicants to DClinPsy courses to examine competitiveness between these individuals. UK Clearing House publishes annual data on the selection processes, number of applicants, and success rates to training. This type of data could be utilised as indicators of environmental competitiveness to determine the impact on mental health outcomes in applicants. This is of particular interest given that success rates are improving due to the increased number of funded places available nationally.

Perfectionism

Interestingly, the findings of this study reveal that perfectionism contributes more significantly to mental health outcomes, than competitiveness. This study provides evidence to suggest that the most significant independent factor which predicts mental health outcomes is the extent to which a trainee's self-evaluation of themselves is in line with their expectations (discrepancy subscale). It is interesting to note that as trainees' perceived expectations of themselves increase (standards subscale), the predicted scores for anxiety and depression decrease.

This suggests that poorer trainee' mental health outcomes are not linked to higher perceived expectations but instead relate directly to the disparity of their self-evaluation of their performance.

The DClinPsy programmes seek to evaluate trainees against pre-determined competencies through means of academic assignments, observed clinical practice, and self-reflection (British Psychological Society, 2019). Trainees are regularly given feedback on the extent to which they demonstrate the required competencies throughout training and encouraged to reflect on this feedback in line with their personal learning objectives and development. It is possible that these processes play a role in highlighting to trainees the extent of their perceived discrepancy and increasing this aspect of perfectionism within the trainee population. This is supported by the findings of this study as the average subscale score for the discrepancy subscale across the sample was higher than norms previously provided in college samples (Rice et al., 2014). It is important for DClinPsy providers to understand why this is and acknowledge the potential impact that high levels of self-evaluative discrepancy could have on trainees' mental health.

Strengths and Limitations

There are identified limitations to this study. Although a strength of the overall sample size is that it represents approximately 10% of the population of trainee clinical psychologists across England, Wales, and Scotland, the sample is not demographically representative of the current trainee cohorts. Males, and trainees identifying as black, of mixed ethnicity, or of other ethnicities are significantly under-represented in this sample therefore, the results should be applied with caution to trainees within these groups.

The sample size for this study was achievable largely due to the cross-sectional design of the study. However, a constraint of this is that the study could not infer causality or account for changes in individual trainees over time. Examining competitiveness and mental health in trainees using longitudinal methodology would account for both individual differences and extraneous variables. This would enable research to detect changes in competitiveness and mental health at both the group and individual level. A further benefit to a longitudinal approach would be that researchers can examine competitiveness and mental health in future intake cohorts of trainees with an opportunity to make comparisons between cohorts. This could be of interest given that the percentage of successful applicants to DClinPsy courses is increasing year on year. Therefore, it could be of interest to understand whether rate of competitiveness for a place on the DClinPsy further impacts individual competitiveness throughout their training.

Following completion of data collection and analysis it became apparent that the SAPS is no longer interpreted by summing the subscale scores. The measure's author suggests that the scoring guidance now utilises an item response metric. Therefore, as this was not done, the interpretation of perfectionism scores using the SAPS is a limitation of this study.

A further limitation to the design of this study is the use of the GAD7 and PHQ-9 to measure anxiety and depression, as these measures will undoubtedly be familiar to trainees participating. There is potential for trainees to underreport symptoms of mental health on these measures due to their knowledge of the scoring and clinical threshold which may result in deflated scores on the outcome variables within this study. However, the researchers remain confident that due to the level of anonymity of the data, the potential influence of social desirability and performance bias was minimised.

Conclusion

This research paper is the first to examine competitiveness using a quantitative approach within the population of trainee clinical psychologists. The study concludes that when defined as a construct of the individual, competitiveness does not predict mental health outcomes in trainees. However, there is evidence to suggest that perfectionism plays a significant role in contributing to anxiety and depression, most specifically trainees' perception of discrepancy between their performance and expectations. Higher education providers may benefit from reviewing how their processes of assessing competency and providing feedback may be received by trainees to understand the factors which contribute to higher self-evaluative discrepancy. Doing so may help identify individuals who may be likely to experience higher levels of anxiety and depression throughout training. This would enable higher education providers to target better wellbeing support to trainees who experience higher levels of self-evaluative discrepancy. Future research examining competitiveness may benefit from exploring students' experiences of competitiveness within specific programmes of study and seek to understand the role that student perceptions of the environment as competitive may have on mental health outcomes. It would be of further benefit to higher education providers to explore factors within programmes which may be contributing to students' experiences of competitiveness.

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Chapter Five: Extended Methodology for Empirical Paper

Psychometric Properties of Measures

Competitiveness

All subscales of the COM have been reported to have excellent reliability, good convergent validity, and each subscale is significant in adding unique variance to measuring competitiveness (Newby & Klein, 2014). Although some gender differences have been observed, effect sizes are small and the means between men and women remained relatively similar (Newby & Klein, 2014). The COM has been independently validated in a community sample which allows it to be generalised beyond the undergraduate population (Newby & Klein, 2014).

The COM was chosen because it is the first tool to be a psychometrically valid unified measure of competitiveness that also provides a multidimensional view of the phenomenon using the four subscales. All four subscales of the COM have significant positive correlations with other measures of competitiveness ($p < .001$) including measures commonly used to examine competitiveness in student samples (HCA and PDCA; Newby & Klein, 2014).

Perfectionism

The SAPS has good convergent and discriminant validity (Rice et al., 2014) based on other indicators of perfectionism. It has also shown criterion-related validity with some personality structures (conscientiousness, neuroticism) and emotion regulation (Rice et al., 2014). Further studies have indicated the SAPS has satisfactory to good reliability ($\alpha = 0.77$) and is invariant across participants' gender (Coelho et al., 2021).

The SAPS was chosen as the subscales of Standards and Discrepancy capture dimensions of Perfectionism that are applicable to trainees given it measures both the individual's performance expectations and their own critical evaluations of their performance towards this. Other measures of perfectionism were considered but the SAPS was chosen for ease of completion and the length of measure to reduce demand on participants. This was considered appropriate given that perfectionism is being examined as a mediator alongside other variables requiring questionnaire completion in this study, rather than as the main variable of interest. The SAPS is validated in a large sample of undergraduate students which can be seen as a good comparison for a sample of trainees. Rice et al., (2014) also reports the average scores in the two subscales for undergraduate students as 24.17 (Standards) and 13.63 (Discrepancy). Therefore, using the SAPS provided an opportunity to make comparisons with other student population norms.

Anxiety

The GAD-7 demonstrates good internal consistency, convergent validity with other measures, indicating high reliability and validity ($\alpha = 0.89$). It is a unidimensional measure that appropriately reflects anxiety across age and gender and has good construct validity (Löwe et al., 2008).

The GAD-7 was chosen because it is a widely used measure of anxiety and is relatively brief to complete. It has application to use in both students (Byrd-Bredbenner et al., 2021) and general community populations (Hinz et al., 2017), so is deemed appropriate for use with trainees.

Depression

The PHQ-9 demonstrates high internal consistency ($\alpha = 0.89$), good construct validity, and has been validated externally in primary care settings (Kroenke et al., 2001). It is a unidimensional

measure that allows for comparisons between age, gender, education level, and economic status (Villarreal-Zegarra et al., 2019).

The PHQ-9 was chosen because it is a widely used measure of depressive symptoms and is relatively brief to complete. It is routinely used in community samples to screen for depression (Patel et al., 2019) and has been evidenced within student samples (Adewuya et al., 2006; Rahman et al., 2022) therefore, it is deemed appropriate for use with trainees.

Quality of Life

The QOLS has been supported in convergent and discriminant construct validity in healthy adult populations and is reported to be a reliable and valid self-report measure of quality of life (Burckhardt & Anderson, 2003). It has high internal consistency ($\alpha = 0.84$) and no substantial ceiling or floor effects have been observed (Zucoloto & Martinez, 2019).

The QOLS was chosen for the range of conceptual categories that the items cover. These include material and physical wellbeing, relationships with other people, social and community activities, personal development, and recreation. Other measures of quality of life often focused on domains more pertinent to individuals whose life may be limited by physical health conditions, whereas the QOLS examines domains which are relevant to measuring the quality of life of trainees.

Data Analysis

Power Calculations

To determine the minimum sample size required for the primary statistical testing, an a priori power analysis was conducted using G*Power version 3.1.9.7. Results indicated the required

sample size to achieve 0.8 power (α) for detecting a medium effect, with a p-value less than .05, was N = 98 for a multiple regression with six predictors. Thus, the obtained sample size of N = 242 is adequate for the purpose of the primary analyses.

Further a priori power calculations for the secondary statistical testing indicated that in order to achieve 0.8 power (α) for detecting a medium effect, at a with a p-value of less than .05, a sample size of 159 (53 from each year of study) was required to conduct a one-way analysis of variance. Therefore, the obtained total group sizes for Year 1, Year 2, and Year 3 (N = 93, 87 and 62 respectively) are considered adequate for the purpose of the secondary analysis.

Statistical Test Choice

Primary Statistical Analysis. Mediation analysis was chosen to test the primary research questions as it would enable exploration of the relationship between the independent variable (competitiveness) and the dependent variables (anxiety, depression, and quality of life) whilst including the role of perfectionism as a mediator variable. A simple mediation analysis would clarify the nature of the relationships between these variables and allow the researcher to represent this visually. In order to reduce the likelihood of a type one error, a Bonferroni correction was applied (0.05/3) to account for the multiple mediation analyses conducted.

Hierarchical regression was chosen to examine further the contributions of the competitiveness and perfectionism subscales to the predicted scores of the dependent variables (anxiety, depression, and quality of life). This method was preferred above stepwise regression as the competitiveness and perfectionism subscales could be grouped and entered into each model. As the predictor variables were related to the criteria variables of competitiveness and perfectionism, hierarchical regression was deemed an appropriate method to analyse the variance

(Pedhazur & Kerlinger, 1982). Previous research and the results of the mediation analyses would inform the order in which the variables were entered into the hierarchical regression. As the mediation analyses were not significant for competitiveness, utilising hierarchical regression would enable the researcher to explore the variance explained by perfectionism after controlling for competitiveness.

Secondary Statistical Analysis. To investigate whether competitiveness changed depending on the stage of training a series of one-way ANOVA tests were planned. Separate ANOVAs were conducted for each of the four subscales of competitiveness and employed a Bonferroni correction. The independent variable was the nominal data provided by the year of study (first, second, and third). The dependent variable in each calculation was the interval data as collected on the COM for each domain of competitiveness (general competitiveness, dominant competitiveness, competitive affectivity, personal enhancement competitiveness). Due to the violation of statistical assumptions, the non-parametric statistical equivalent was employed (Kruskal-Wallis).

One-way ANOVA methodology was chosen as it would indicate whether there were any statistically significant differences between the means on each subscale of competitiveness across the three independent years of study. Conversely, conducting a MANOVA would create a composite dependent variable and combine the domains of competitiveness to create a single measure. This would not be beneficial to understanding where between-group differences may lie in relation to the separate domains of competitiveness. A further limitation of MANOVA was that it is less powerful than univariate tests and is sensitive to outliers. Therefore, conducting multiple one-way ANOVAs and applying a Bonferroni correction to the post-hoc comparisons was deemed a more appropriate analysis method for this study.

Ethical Considerations

The design of this study was developed in accordance with the following guidance: The British Psychological Society's (BPS) Code of Human Research Ethics (2014), The BPS Code of Ethics and Conduct (2018), and the dictates of the General Data Protection Regulations (GDPR) as outlined by The Data Protection Act (2018). Additionally, the University of East Anglia (UEA) Faculty of Medicine and Health Sciences (FMH) Research Ethics Committee (2020), and the UEA Research Data Management Policy (2019) were consulted. A number of ethical considerations are outlined below.

Ethical Approval

This study received initial ethical approval from the UEA FMH Research Ethics Committee in February 2022 (Ref: ETH2122-1609; Appendix G). An amendment was requested to account for a change in recruitment strategy which included approaching gatekeepers of DClinPsy courses to increase the reach of the study advertisement. This request was approved (Appendix R) and further details of the recruitment strategy are outlined below.

Recruitment

In addition to social media advertising, the contact details for 27 of the 29 clinical psychology courses across the UK were obtained from the Clearing House for Postgraduate Courses in Clinical Psychology (CHPCCP) and clinical psychology training provider web pages. Each training provider was contacted via email with a request for the correspondence to be forwarded to a gatekeeper. Gatekeepers were identified as either the Programme Director or Research Director of each course. The correspondence provided gatekeepers with information about the study (Appendix I), the study advert (Appendix H), evidence of ethical approval

(Appendix G) and a request for the gatekeeper to share the study details amongst their cohorts of trainees. A total of four clinical psychology training providers explicitly responded to the request to confirm that the study details had been shared with their cohorts.

Trainees from the University of East Anglia were not eligible to participate due to the researchers' affiliation with the clinical psychology course and due to the potential that trainees from UEA would have knowledge of the research aims and this would impact their responses. Additionally, there would have been potential for the sample to have been over-represented by trainees from UEA given the increased opportunity for recruitment from this population. Therefore, to ensure the sample was not biased to one clinical psychology provider, UEA trainees were not eligible to participate.

Procedure and Consent

As outlined in the procedure, participants opted-in to participate and accessed the online survey via a URL or QR code. Participants were provided with an information sheet (Appendix J) and provided informed consent prior to their participation (Appendix K). Participants were asked to confirm that they had read the prior information and understand their involvement in the study by clearly typing 'YES' into a textbox to provide their consent. The survey did not allow them to move on unless they specifically typed 'YES' into the textbox. Therefore, if they typed NO (or anything else) into the textbox then the participant was not able to continue to the questionnaires to take part in the study. Participants who did not give consent were asked and directed to exit the survey by closing the internet browser. Those who did continued on to complete the measures outlined in the methods section of Chapter 4. Following submission of their responses they were provided with a debrief form (Appendix S) and the researcher's details if they needed to make contact for any questions.

Confidentiality and Anonymity

To maintain participant anonymity, no identifiable information was submitted. The online survey collected data on basic demographics and the year of study for each participant. Therefore, to protect participant anonymity, the survey did not collect data on which clinical psychology training provider the participant was affiliated with. Collecting this data may have led to individual participants being identifiable particularly in smaller cohorts or of those who identified as being from a recognised minority in the sample (males, under-represented ethnicities).

All responses and data were stored anonymously on Qualtrics which is compliant with the Data Protection Act (UK Government General Public Acts, 2018). Data were not stored if a participant withdrew before confirming submission of their responses, and this was outlined to participants. Data extracted from Qualtrics were stored on encrypted devices and only accessible to the researcher for analysis.

Right to Withdraw

Due to the data being anonymised at the point of collection and remaining unidentifiable to the researcher throughout, it was not possible for participants to withdraw their data once they had confirmed submission of their responses. This was made clear in the participant information sheet and subsequent consent form. No other personal identifiable information was collected as part of the study. Participants who chose to enter the prize draw entered their contact details in a separate form so that it was not linked to their responses on the questionnaires.

Participant Distress

It was not anticipated that participants would be subject to any harmful experiences by taking part in this study, however it is noted that there were some items in the PHQ-9 which related

to thoughts of self-harm and suicide. This may have caused distress for some participants; therefore, information was made available to accompany this questionnaire which signposted participants to their GP, university wellbeing support services, and organisations such as the Samaritans if they wished to speak to someone about this.

Sample Characteristics

The overall sample size (N= 242) was representative of 10.2% of the available population total as reported by the UK Clearing House (2022a). Obtained sample sizes for Year 1, Year 2, and Year 3 were representative of 9.5%, 11.3% and 10.1% of the available populations respectively. Each year group experienced different success rates when they applied for the Doctorate in Clinical Psychology (Year 1= 22%, Year 2= 18%, Year 3= 15%) as outlined by the UK Clearing House (2022a). In all groups participants were predominantly female (Year 1 & 3= 90.32%, Year 2 = 90.8%) and of white ethnicity (Year 1= 83.87%, Year 2= 85.06%, Year 3= 90.32%). The mean age was lowest in Year 1 (M= 28.65, SD= 4.07), and highest in Year 3 (M= 29.23, SD= 2.82).

Chapter Six: Extended Results Chapter

This chapter outlines the testing of statistical assumptions for analyses outlined in Chapter four. In addition, further analyses which were conducted to determine whether there were any significant differences between years groups with regards to competitiveness, perfectionism, anxiety, depression, and quality of life. The additional findings are reported here due to the journal limitations on word count for the Empirical Research Paper presented in Chapter four.

Consideration of Statistical Assumptions

A series of multiple regression analyses were conducted to examine simple mediation models alongside the hierarchical regression analyses as outlined in Chapter four. Consequently, the assumptions of a multiple regression were adhered to for both the mediation analyses and hierarchical regression analyses. Prior to conducting the data analysis, the following assumptions were tested: independence of observations, linearity between the outcome variable and independent variables, homoscedasticity of data, multicollinearity of independent variables, and normally distributed errors. All dependent variables and independent variables were measured at interval level at a minimum and each data point was independent of one-another.

Normality

Kolmogorov-Smirnov test of normality was conducted to determine whether the dependant variable data was normally distributed. The results indicated that the null hypothesis should be rejected for anxiety and depression ($p < .001$) and consequently that the data were not normally distributed. A z-test was applied for normality testing and examination of the statistics for anxiety as measured by the GAD-7 indicated that the distribution was highly positively skewed with skewness of 1.054 (SE= .156) and kurtosis of .990 (SE= .312). Similarly, statistics indicated that

depression scores as measured by the PHQ-9 were also highly positively skewed with skewness of 1.257 (SE= .156) and kurtosis of 1.618 (SE= .312) which suggested that the assumption of normality had been violated. A square-root transformation was applied to these variables to address this. Examination of the statistics for the QOLS indicated that the data were non-normally distributed, with skewness of -.405 (SE= .156) and kurtosis of .216 (SE= .312), thus violating the assumption of normality. This indicated the distribution was slightly negatively skewed, and a reflect and square-root transformation was applied to the data to address this. The transformed variables (Appendix T) were entered in the mediation analyses and hierarchical regressions as the dependent variables.

An analysis of the standard residuals was carried out to identify remaining outliers. Clark-Carter (2009) recommends that in sample sizes greater than 50, the alpha level should be adjusted to obtain a new standardised value for the criterion to identify outliers. Therefore, the alpha level was adjusted to .0002 (.05/242) and consequently only residuals larger than 3.54 and less than -3.54 would be considered outliers. The analysis showed that the data contained no outliers for anxiety (Std. Residual Min = -2.88, Std. Residual Max = 2.31), depression (Std. Residual Min = -2.72, Std. Residual Max = 2.60) or quality of life (Std. Residual Min = -2.53, Std. Residual Max = 2.62).

To check further the normality of the data, histograms and P-P plots of standardised residuals were visually inspected for each dependent variable. Histograms and P-P Plots indicated that the data contained around normally distributed errors (Appendices U-V) and so the assumption of normally distributed errors was met.

Independence

The design of the study implied independence of observations but was also assessed by examining the Durbin-Watson statistics for each analysis. After entering the transformed dependent variables, the Durbin-Watson statistics for the mediation analyses (using Total Competitiveness and Perfectionism scores as independent variables) ranged from 1.584 to 1.904. The Durbin-Watson statistics for the hierarchical regression analyses (using the subscale scores of Competitiveness and Perfectionism as independent variables) ranged from 1.614 to 1.905. A value of 2 indicates no correlation between errors and Field (2013) suggests that values under 1 or more than 3 are a significant concern for violating the assumption of independence. Therefore, the values obtained here indicated that the data met the assumption of independence of observations.

Multicollinearity

An examination of correlations revealed that some independent variables were significantly correlated with one another (Appendix W). To assess for possible multicollinearity, the collinearity statistics were examined to highlight any Tolerance values greater than .1 and VIF values of less than 10. The data indicated that the collinearity statistics were within accepted limits for all independent variables (Appendix X). Therefore, the assumption of multicollinearity was deemed to have been met for both the mediation analyses and hierarchical regression analyses.

Homoscedasticity

To assess the homoscedasticity of the data, the scatterplots of standardised residuals against the predicted values were visually inspected. The scatterplots of residuals indicated that the assumption of homoscedasticity was met for each analysis (Appendices U-V).

Linearity

To test the assumption of linearity of relationships between the outcome variable and independent variables, scatter plots were constructed and inspected visually. All data points were symmetrically distributed around a horizontal line indicating that the assumptions of linearity were satisfied for each analysis (Appendices U-V).

Statistical Corrections

In recognition of the multiple analyses being conducted, Bonferroni type adjustment was applied to account for the potential inflation of Type I error. For the mediation analyses, a total of three linear regressions were conducted for each dependent variables, therefore an adjusted alpha level of 0.017 was applied. For the hierarchical regressions, a total of six predictor variables are examined therefore an adjusted alpha level of 0.008 was applied.

Additional Analyses

There are a number of anecdotally observed differences in the experiences of first, second, and third year trainees who participated in this research. As the number of training places available has been increasing since 2019, each year group experienced a higher success rate than the cohort before them (UK Clearing House, 2022a). It is possible that this could impact the experience of competitiveness of students across the three year groups, and hence scores on the measure. It could also be argued that the academic and clinical demands fluctuate throughout the three years of training. It has been suggested that Master's and Doctoral Psychology students report their thesis or dissertation to be the most stressful factor within their course (Park et al., 2021) and this activity is less prominent in the first year of training. Therefore, it is possible the timing of specific in-

training experiences may influence mental health outcomes in trainees across the different year groups and warrants further exploration.

The differences between years groups for each variable were examined as part of the secondary analysis in order to identify whether there were significant differences that may contribute to the interpretation of the primary findings presented in Chapter four. The additional analyses examined patterns of competitiveness, perfectionism, anxiety, depression, and quality of life which may not have been highlighted within the primary analyses.

Descriptive Statistics

See Table 5 for a summary of the descriptive data across the year groups.

Table 5

Means and Standard Deviations by Year Group

	Year 1		Year 2		Year 3	
Variable	Mean	SD	Mean	SD	Mean	SD
Competitiveness	105.20	24.17	102.09	27.63	97.87	29.55
General Competitiveness	35.01	10.22	34.29	11.51	33.76	11.90
Dominant Competitiveness	30.98	10.04	30.29	10.10	28.98	11.01
Competitive Affect	26.22	9.04	25.61	6.74	23.35	7.23
Personal Enhancement Competitiveness	13.00	3.19	11.91	4.18	11.77	4.32
Perfectionism	43.18	8.13	42.98	8.90	41.82	9.61
Standards	24.86	3.24	23.87	4.13	23.89	4.18
Discrepancy	18.32	6.20	19.10	5.97	17.94	6.57
Anxiety	5.77	4.30	6.24	4.18	7.18	5.14
Depression	5.68	4.79	5.89	5.17	6.29	4.62
Quality of Life	81.24	9.69	78.78	9.94	79.79	9.73

Competitiveness. The mean total score for competitiveness was lowest in Year 3 (M= 97.87, SD= 29.55) and highest in Year 1 (M=105.20, SD= 24.17). The average score for general competitiveness ranged from 33.76 (SD= 11.90) in Year 3 to 35.01 (SD= 10.22) in Year 1. Dominant competitiveness ranged from 28.98 (SD= 11.01) in Year 3, to 30.98 (SD= 10.04) in Year 1. Competitive affect ranged from 23.35 (SD= 7.23) in Year 3 to 26.22 (SD= 9.04) in Year 1. Personal enhancement competitiveness ranged from 11.77 (SD= 4.32) in Year 3 to 13.00 (SD= 3.19 in Year 1). These results suggest that first year trainees, on average, report higher scores across all subscales of competitiveness than third year trainees.

Perfectionism. The mean total score for perfectionism was highest in Year 1 (M=43.18, SD= 8.13) and lowest in Year 3 (M= 41.82, SD= 9.61). The mean standards score was higher in Year 1 (M= 24.86, SD= 3.24) than Year 2 (M= 23.87, SD= 4.13) and Year 3 (M=23.89, SD= 4.18) 42.76 (SD= 8.79). These scores appear to be in line with previous norms provided in college samples (M= 24.12, SD 3.63; M= 24.17, SD= 3.34, Rice et al., 2014) and indicate that trainees do not over- or under-estimate their expectations for their own performance. The mean discrepancy score was highest in Year 2 (M=19.10, SD= 5.97) and lowest in Year 3 (M=17.94, SD= 6.57). The mean discrepancy scores for all year groups appear higher than previous norms provided in college samples (M=13.38, SD= 5.29; M= 13.63, SD= 5.42, Rice et al., 2014). This suggests that trainees across all year groups may have higher perceived disparity between their standards and the degree to which those standards are reached, when compared to other students.

Anxiety. The mean anxiety score was highest in Year 3 (M= 7.18, SD= 5.14) and lowest in Year 1 (M=5.77, SD= 4.30). The mean score for all year groups lay below the clinical threshold for anxiety disorder. Although the majority of trainees in each year group scored below the clinical threshold (total score = 10), there was a higher percentage of trainees in Year 3 with scores in the severe (9.68%) range compared to trainees in Year 1 (3.23%) and Year 2 (4.60%; Figure 3; Table 6). This indicates that third year trainees may experience more severe anxiety than first and second year trainees.

Figure 3

A Bar Chart Indicating Trainees' Classification on the GAD-7 Expressed as a Percentage of Each Year Group

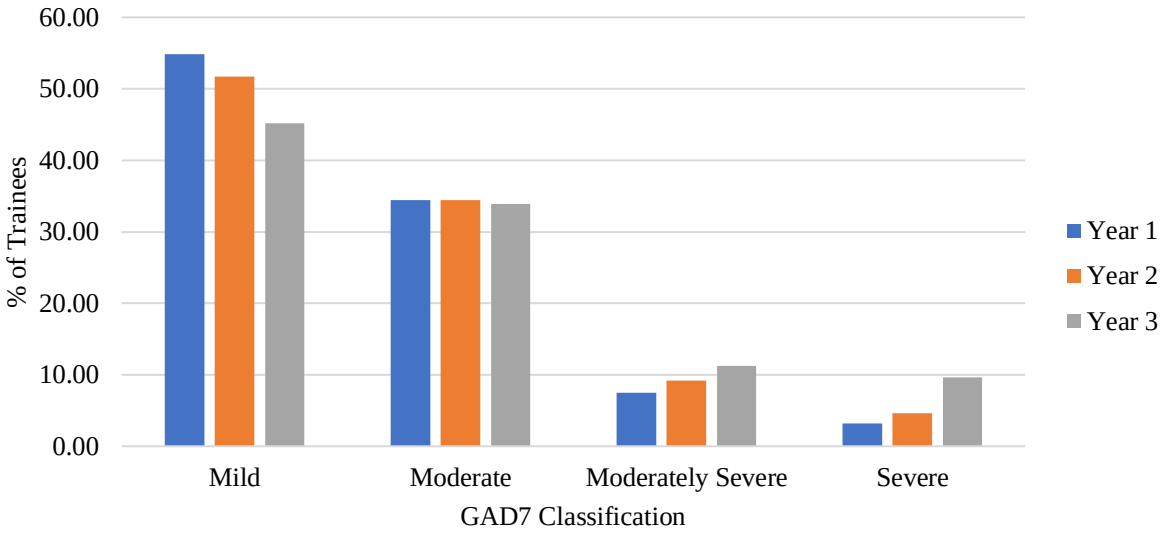


Table 6

Trainees' Classification on the GAD-7

Classification	Year 1		Year 2		Year 3		Full Sample	
	n	%	n	%	n	%	n	%
Mild	51	54.8	45	51.7	28	45.2	124	51.2
Moderate	32	34.4	30	34.5	21	33.9	83	34.3

Moderately Severe	7	7.5	8	9.2	7	11.3	22	9.1
Severe	3	3.2	4	4.6	6	9.7	13	5.4

Note. Total scores correspond to the following categories: Mild= 0-5; Moderate= 6-10; Moderately Severe= 11-15; Severe= 16-21. N= 242; Year 1: 93; Year 2: 87; Year 3: 62.

Depression. The mean depression score was highest in Year 3 (M= 6.29, SD= 4.62) and lowest in Year 1 (M=5.68, SD= 4.79). The mean score for all year groups lay below the clinical threshold for depression. Although the majority of trainees in each year group scored below the clinical threshold (total score = 10), there was a higher percentage of trainees in Year 1 with scores in the moderately severe (6.45%) range compared to trainees in Year 2 (4.60%) and Year 3 (3.23% Figure 4; Table 7). This indicates that first year trainees may experience more moderately severe depression than second and third year trainees.

Figure 4

A Bar Chart Indicating Trainees' Classification on the PHQ-9 Expressed as a Percentage of Each Year Group

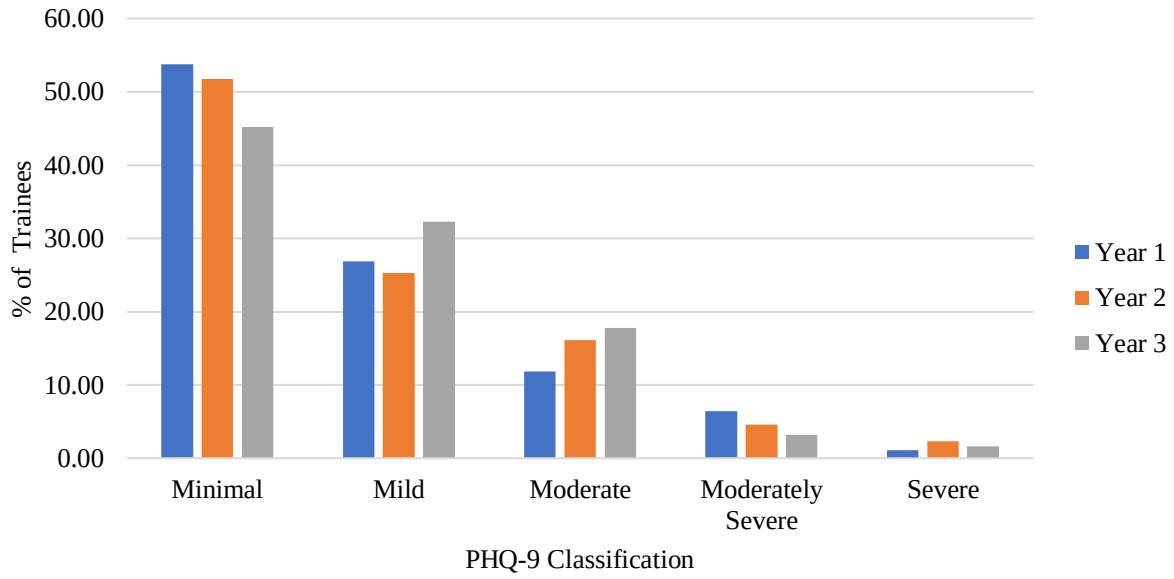


Table 7

Trainees' Classification on the PHQ-9

Classification	Year 1		Year 2		Year 3		Full Sample	
	n	%	n	%	n	%	n	%
Minimal	50	53.8	45	51.7	28	45.2	123	50.8
Mild	25	26.9	22	25.3	20	32.3	67	27.7
Moderate	11	11.8	14	16.1	11	17.7	36	14.9
Moderately Severe	6	6.5	4	4.6	2	3.2	12	5.0
Severe	1	1.1	2	2.3	1	1.6	4	1.7

Note. Total scores correspond to the following categories: Minimal= 0-4; Mild= 5-9; Moderate= 10-14; Moderately Severe= 15-19; Severe= 20-27. N= 242; Year 1: 93; Year 2: 87; Year 3: 62.

Quality of Life. The mean quality of life score was highest in Year 1 (M=81.24, SD= 9.69) and lowest in Year 2 (M=78.78, SD= 9.94). The mean score for all year groups lay below the average total score for healthy populations (M= 90; Burckhardt & Anderson, 2003). The highest percentage of trainees scoring below the average for a healthy population was in Year 2 (87.36%; Figure 5; Table 8) indicating that second year trainees may experience poorer quality of life than first year and third year trainees (78.49% and 83.87% respectively).

Figure 5

A Bar Chart Indicating Trainees' Total Score on the QOLS Expressed as a Percentage of Each Year Group

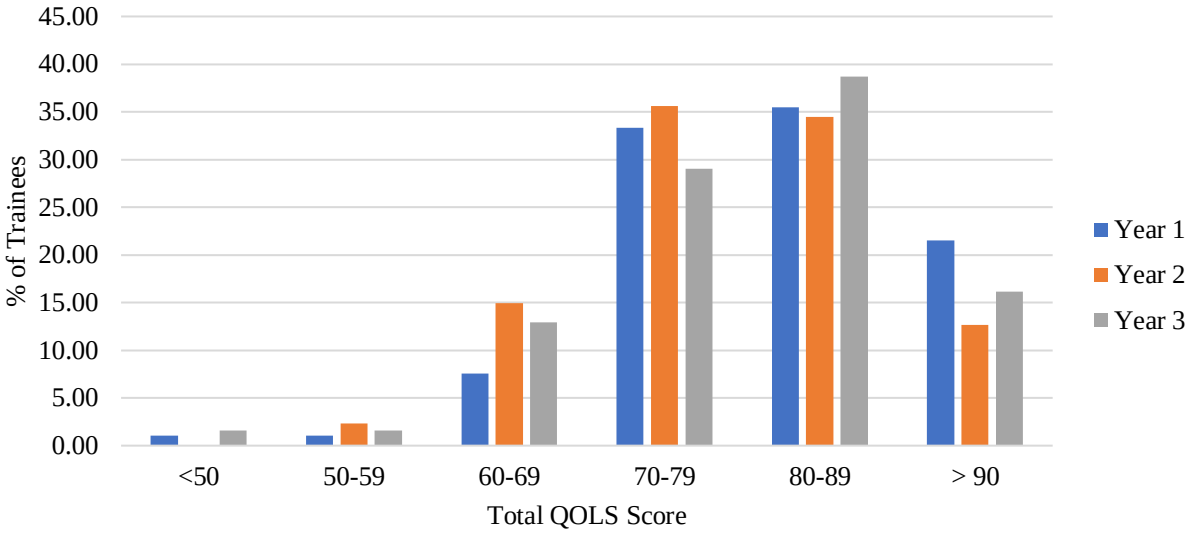


Table 8

Trainees' Total Score on the QOLS

Total Score	Year 1		Year 2		Year 3		Full Sample	
	n	%	N	%	n	%	N	%
< 50	1	1.1	0	0.0	1	1.6	2	0.8
50-59	1	1.1	2	2.3	1	1.6	4	1.7
60-69	7	7.5	13	14.9	8	12.9	28	11.6
70-79	31	33.3	31	35.6	18	29.0	80	33.1
80-89	33	35.5	30	34.5	24	38.7	87	36.0
> 90	20	21.5	11	12.6	10	16.1	41	16.9

Note. N= 242; Year 1: 93; Year 2: 87; Year 3: 62.

Kruskal-Wallis

To investigate whether there were any significant differences between the year groups for competitiveness, perfectionism and the outcome variables, a series of one-way ANOVA tests were planned.

The assumptions of the planned one-way ANOVA were as follows: measurement of data at least interval level, independence of data, normally distributed sample and homogeneity of variance. The first two assumptions have been met as described above. Field (2013) suggests that the normality of sample data can be indicated on histograms for each variable split by participant group. Histograms were produced and visually inspected to reveal non-normally distributed data across several variables (Appendix Y). This was further confirmed by Shapiro-Wilk tests which indicated that almost all variables were not normally distributed (where $p > .05$). In addition, a Levene's test was conducted to assess the data for homogeneity of variance and revealed that one variable (personal enhancement competitiveness) violated this assumption. Therefore, as a result of the above violated assumptions, the non-parametric Kruskal-Wallis test was adopted.

The Kruskal-Wallis tests revealed that there were no statistically significant differences between the year groups for overall competitiveness, general competitiveness, dominant competitiveness or personal enhancement competitiveness (See Table 9). There was a statistically significant difference in competitive affectivity across the year groups $H(2) = 6.135$, $p = .043$. A Bonferroni correction was applied to the post hoc Mann Whitney U tests to account for the comparison across three groups. Therefore, an adjusted alpha level of 0.017 was employed. This revealed that competitive affectivity was significantly higher in Year 1 ($Mdn = 27$, $n = 93$) compared to Year 3 ($Mdn = 24$, $n = 62$), $U = 2226$, $z = -2.403$, $p = .016$, with a small effect size $r = -.19$. These results suggest that first year trainees gain more enjoyment from engagement in

competition than third year trainees who are likely to present as more ambivalent towards competition. Trainees who score higher for competitive affectivity may be more likely to develop feelings of superiority and powerfulness from competition (Newby & Klein, 2014) and therefore given the results presented above first years appear to be more likely than third years to experience this.

Table 9

Kruskal Wallis Analyses Including Mean Ranks by Year Group

	Mean Rank					
Variable	Year 1	Year 2	Year 3	H Statistic	df	p value
Competitiveness	127.02	122.02	112.5	1.607	2	0.448
General Competitiveness	124.11	121.13	118.1	0.279	2	0.87
Dominant Competitiveness	127.21	121.83	112.48	1.653	2	0.438
Competitive Affect	129.93	126.05	102.47	6.315	2	0.043*
Personal Enhancement Competitiveness	133.12	115.45	112.55	4.26	2	0.119
Perfectionism	122.6	124.41	115.77	0.591	2	0.744
Standards	130.77	115.86	115.5	2.703	2	0.259
Discrepancy	119.1	127.97	116.02	1.235	2	0.539
Anxiety	113.58	122.32	132.23	2.679	2	0.262
Depression	117.96	118.66	130.8	1.486	2	0.476
Quality of Life	130.59	111.77	121.52	3.253	2	0.197

Note. * p< .05

Further analyses revealed that there were no statistically significant differences between the year groups for anxiety, depression, quality of life, or perfectionism (See Table 9). This suggests that trainees across all year groups score similarly for perfectionism with regards to their perceived expectations, and perceived disparity between their expectations and current

performance. The results also suggest that trainees have similar experiences of mental health symptoms (namely anxiety and depression) and quality of life regardless of their stage of training.

Hierarchical Regression

Hierarchical multiple regressions were used to assess the ability of competitiveness and perfectionism to predict anxiety, depression and quality of life, across the three year groups. The results presented here are limited by statistical power due to the number of participants within each year group. The required sample size for a multiple regression with six predictors to achieve 0.8 power (α) with an adjusted p-value of .017, was N = 123 for detecting a medium effect, and N = 58 for detecting a large effect. This indicates that the regressions across the three year groups are only powered to detect a large effect size given the sample sizes of 93, 87, and 62 for first, second and third years respectively. Therefore, these results are presented here as provisional findings and the statistical limitations should be considered.

Anxiety

The hierarchical multiple regressions indicated that model 1 explained 3% of the total variance of anxiety in Year 1, 6% in Year 2, and 13% in Year 3 (Table 10), but these models were not statistically significant. Introducing the perfectionism subscales explained an additional 14.1% of the variance in anxiety in Year 1, 21.1% in Year 2, and 20.9% in Year 3 which were all significant models. Therefore, competitiveness and perfectionism account for more variance of anxiety in third year trainees (33.8%), in comparison to first (17.1%) and second year trainees (27.1%). In model 2 of the regressions, the only significant predictor of anxiety in every year group was the discrepancy subscale. These results indicate that as training progresses, competitiveness

and perfectionism are increasingly contributing to trainees' anxiety, with trainees' perception of discrepancy with expectations highlighted to be a significant contributor.

Table 10

Hierarchical Regressions for Anxiety

	F-statistic	SE	p-value	R^2	$R^2\Delta$
Overall Sample					
Model 1	2.632	0.954	0.035	0.043	
Model 2	10.175	0.872	0.000***	0.206	0.164
Year 1					
Model 1	0.684	1.004	0.605	0.030	
Model 2	2.964	0.938	0.001***	0.171	0.141
Year 2					
Model 1	1.317	0.868	0.271	0.060	
Model 2	4.960	0.774	0.000***	0.271	0.211
Year 3					
Model 1	2.122	0.997	0.090	0.130	
Model 2	4.690	0.885	0.001***	0.338	0.209

Note. *** p<.001.

Depression

The hierarchical multiple regressions indicated that model 1 explained 6% of the total variance of depression in Year 1, 1.1% in Year 2, and 8% in Year 3 (Table 11), but these models were not statistically significant. Introducing the perfectionism subscales explained an additional 8.1% of the variance in anxiety in Year 1 and 10.1% in Year 3 but these models were not significant. Perfectionism was found to explain an additional 19.1% of the variance in anxiety in Year 2 and this model was significant with only the discrepancy subscale making a statistically

significant unique contribution (beta= .527, s.e.= .022 p< .001). These results suggest that depression is significantly predicted by competitiveness and perfectionism only for second year trainees. Also, perfectionism explains considerably more variance for depression in second year trainees when compared to first and third year trainees. This indicates that the impact of perfectionism on depression outcome is greater in second year trainees with trainees' perception of discrepancy with expectations highlighted to be a significant contributor.

Table 11

Hierarchical Regressions for Depression

	F-statistic	SE	p-value	R^2	$R^2\Delta$
Overall Sample					
Model 1	1.041	1.036	0.387	0.017	
Model 2	5.230	0.984	0.000***	0.122	0.104
Year 1					
Model 1	1.404	1.033	0.239	0.060	
Model 2	2.344	0.999	0.021	0.141	0.081
Year 2					
Model 1	0.232	1.074	0.920	0.011	
Model 2	3.376	0.976	0.000***	0.202	0.191
Year 3					
Model 1	1.239	1.004	0.305	0.080	
Model 2	2.022	0.964	0.041	0.181	0.101

Note. *** p<.001.

Quality of Life

The hierarchical multiple regressions indicated that model 1 explained 11.3% of the total variance of quality of life in Year 1, 2.4% in Year 2, and 19.6% in Year 3 (Table 12). Only the

model for Year 3 was significant with only competitive affectivity making a statistically significant unique contribution (beta= .492, s.e.= .021, p= .007). This indicates that competitiveness alone predicts quality of life for third year trainees and enjoyment of competition is highlighted to be a significant positive contributor. Introducing the perfectionism subscales explained an additional 16.1% of the variance in quality of life in Year 1, 30.2% in Year 2, and 4.6% in Year 3. Only the model for Year 1 and Year 2 were significant with the discrepancy subscale making a statistically significant unique contribution in both year groups. Additionally, two of the competitiveness subscales were significant contributors in Year 1 (dominant competitiveness and competitive affectivity). Dominant competitiveness made a larger contribution to quality of life (beta= -.537, s.e.= .015, p= .002) than discrepancy (beta= .47, s.e.= .015 p< .001) and competitive affectivity (beta= .321, s.e.= .017 p= .009). This indicates that competitiveness and perfectionism significantly predict quality of life in first- and second-year trainees, with perfectionism explaining considerably more of the variance in quality of life in second year trainees.

Table 12

Hierarchical Regressions for Quality of Life

	F-statistic	SE	p-value	R^2	$R^2\Delta$
Overall Sample					
Model 1	1.816	0.869	0.127	0.030	
Model 2	8.318	0.805	0.000***	0.175	0.145
Year 1					
Model 1	2.796	0.845	0.031	0.113	
Model 2	5.416	0.773	0.000***	0.274	0.161
Year 2					
Model 1	0.503	0.899	0.733	0.024	
Model 2	6.441	0.756	0.000***	0.326	0.302

Year 3					
Model 1	3.472	0.784	0.013**	0.196	
Model 2	2.918	0.775	0.201	0.241	0.046

Note. ** p< .017, *** p<.001.

Chapter Seven: Discussion & Critical Evaluation

This chapter aims to discuss the findings of both the systematic review and empirical study within the context of the current literature. The contribution of this thesis to the wider understanding of competitiveness within trainee clinical psychologists is outlined. The research is evaluated against identified strengths and weaknesses, and future theoretical and practical implications are discussed with recommendations for the future direction of research in this area.

Summary of Findings

Systematic Review

This thesis aimed to understand the relationship between competitiveness and mental health outcomes in trainee clinical psychologists. The systematic review highlighted the heterogeneity in how competitiveness was being defined and operationalised within research. The review confirmed the recognition of a two-dimensional understanding of competitiveness including Hypercompetitiveness (Ryckman et al., 1990) and Personal Development Competitiveness (Ryckman et al., 1996). Additionally the review also highlighted emerging attempts to quantify subjective ratings of competitiveness (Hyun et al., 2007; Posselt, 2021; Skead et al., 2020; Skead & Rogers, 2016) or use admissions data regarding institution selectivity (Lipson et al., 2015) to determine competitiveness of student programmes. The way in which competitiveness was operationalised in research is proposed to be important in considering if there is a link with mental health outcomes, though the current evidence is still inconclusive and in its infantry.

Empirical Research Paper

Despite taking a multifactorial view of competitiveness as an individual trait, the empirical study concluded that there is no significant link between competitiveness and mental health in trainee clinical psychologists. This is in contrast to the literature which has found traits of competitiveness to be either positively correlated (Chan & Cheung, 2022) or negatively correlated (Hibbard & Buhrmester, 2010b; McEwan et al., 2012; Yimeng, 2009) with mental health outcomes in students. This is a promising finding as it suggests that despite the experience of applying to the DClinPsy being described as competitive, it is not detrimental to trainee mental health or quality of life whilst in-training. Interestingly, the role of perfectionism was found to be significant in predicting anxiety, depression, and quality of life with the self-evaluative discrepancy between expected standards and current performance being a significant factor in explaining these outcomes. This is in line with a recent study which found self-critical perfectionism to be positively correlated with depression and burnout in trainees (Richardson et al., 2020) and highlights the need to understand and support the mental wellbeing of trainees who may have more perfectionistic traits. The negative relationship between the standards subscale of perfectionism with anxiety and depression goes some length to confirming that perfectionistic striving (standards) is generally associated with positive outcomes, whilst self-evaluative discrepancy is associated with negative outcomes (Stoeber & Otto, 2006).

Extended results

The extended results provisionally reveal differences between each year group with respect to the amount of variance of anxiety, depression, and quality of life explained by competitiveness and perfectionism. Despite no significant group differences of each variable independently, there is tentative evidence that the relationship between them is influenced by the stage of training. This draws attention to how each year of training may have individual differences or characteristics

which impact the relationship between competitiveness and perfectionism with mental health outcomes. As this is the first known study to explore these constructs at different stages of training or academic study, this would benefit from further exploration.

Strengths and Limitations

Although the systematic review highlighted the heterogeneity in how competitiveness is operationalised in research, the small number of studies available for review limits the ability to make convincing conclusions about the relationship between competitiveness and mental health outcomes. Many studies included within the systematic review obtained large sample sizes, which increases the generalisability of the findings to the target populations of students. However, a limitation of these studies is the use of cross-sectional design which hinders the ability to infer causality as individual characteristics and extraneous variables are not accounted for. This highlights the need for further research to examine the relationship between these constructs in student populations.

An overall strength of the empirical paper is the large sample size recruited from the total population of trainees in the UK (N= 242). Given the provisional findings that the relationship between competitiveness, perfectionism, and mental health may differ throughout training, it would be beneficial for this to be examined using longitudinal methods. Nonetheless, the use of cross-sectional design in the empirical study enabled recruitment of participants within the research project time scale. Only limited participant demographic information was collected to maintain anonymity of trainees enrolled on DClinPsy courses with small cohort sizes and to encourage more trainees to participate in the research. However, in doing so there is a lack of knowledge on how widely this research represents trainees geographically across the UK. It is not

known how many DClinPsy providers have been captured within this research. Therefore, the confidence to generalise these results to trainees on every DClinPsy course in the UK is limited.

Although the COM was chosen for its multifactorial acknowledgement of competitiveness, there are some limitations to its use. Primarily, the scores are not comparable with other student samples which have more commonly been sampled using the Competitive Attitude Scale (CAS – comprised of the PDCA and HCA scales). Due to a lack of standardised normative data, the results of the COM across the sample cannot be interpreted to give a qualitative descriptor of competitiveness in trainees. Therefore, this research has not been able to make inferences about trainees as either less competitive or highly competitive individuals.

Theoretical Implications

This thesis poses implications for the theoretical understanding of competitiveness and perfectionism in line with models of motivation, personality, and emotion regulation.

Social Comparison Theory

Social Comparison Theory has a role to play in explaining the nature of trainees self-evaluation of themselves. Festinger's (1954) theory suggests that comparison of oneself to others serves to assess one's own opinions or ability. This could suggest similarity with the dimension of hypercompetitiveness as both constructs involve active evaluations of self in relation to another for the purpose of assessing performance. Anecdotally, this process of social comparison is evident in pre-qualification groups and applicants to the DClinPsy courses in the UK, and may have a role in perpetuating social comparison once enrolled on clinical training.

Festinger (1954) highlights the importance of objective metrics in self-evaluation and social comparison, and this is of relevance to trainees' experiences. Throughout the course trainees

are likely to be provided with numerical, categorical, and qualitative feedback relating to their competency development and performance in academic and clinical tasks. Although helpful at an individual level, it could be argued that this can reinforce the likelihood of comparison with other trainees within the same cohort and serves as a way to evaluate further one's own perceived competence in relation to the wider group. It could also be argued that social comparison may inform the standards an individual sets for themselves, otherwise known as the 'level of aspiration' (Festinger, 1942) which poses similarities to the standards subscale of perfectionism which was examined within this research. This highlights how social comparison theory may explain some aspects of competitiveness and perfectionism as outlined and defined within this thesis.

Three Systems of Emotional Regulation

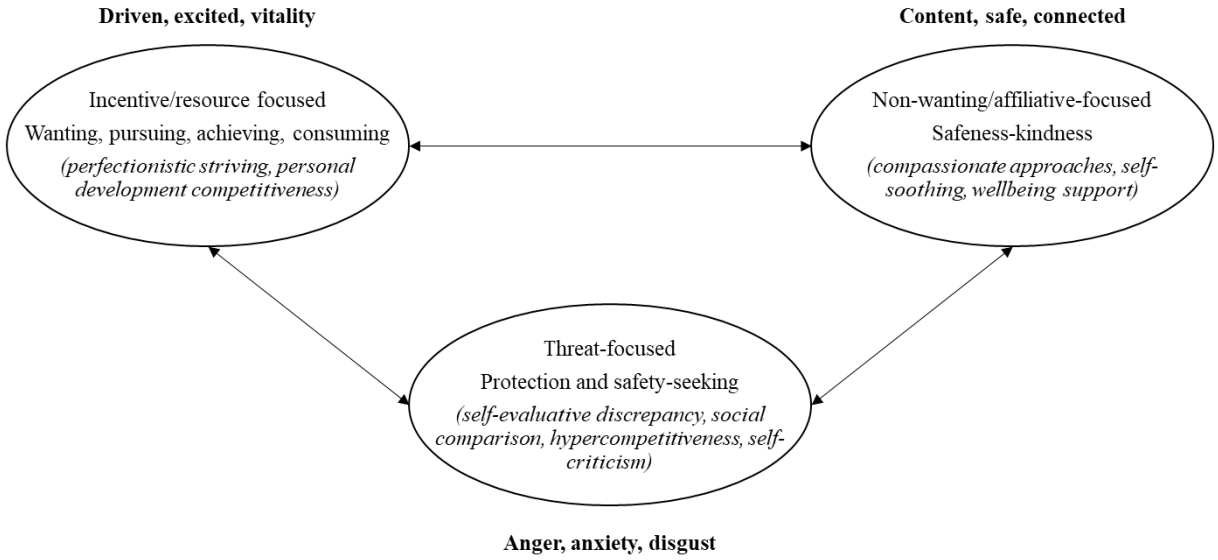
The link between competitiveness and perfectionism in trainees could be seen as means of regulating emotions in conjunction with Paul Gilbert's (2009) three circle model of emotion which informs Compassion Focused Therapy (Figure 6). The nature of continuous evaluation on courses could be seen to activate trainees' threat systems by triggering processes of social comparison or hypercompetitiveness. This may prompt self-criticism which can act as a protective strategy to regulate emotions associated with the threat of failure (Ehret et al., 2015; Gilbert et al., 2004). Trainees who are highly self-critical may be prone to higher self-evaluative discrepancy, which this research has found to predict poorer mental health outcomes in trainees.

Trainees may respond to an activated threat system by moving into the drive system. Characteristics of the drive system include striving or working towards a target to achieve mastery or overcome the perceived threat. These behaviours are anecdotally known to be present in trainees. This system may be similar to the process of setting higher standards to achieve (standards subscale of perfectionism) or drawing upon personal development competitiveness. As

these constructs have been described as more adaptive responses, they have been associated with better mental health outcomes. This is supported by the findings in Chapter Four as the standards subscale of perfectionism was a negative predictor of anxiety and depression in trainees.

Figure 6

Three Types of Affect Regulation System Adapted from Gilbert (2009) to Reflect Processes of Competitiveness, and Perfectionism



Unfortunately, as constructs relating to the soothe system were not directly examined within this thesis, it is not possible to consider the relationship or role soothing processes may have with competitiveness and perfectionism. However, this could be an interesting direction for future research in order to further understand how trainees move into or activate their soothe system throughout training. It could be argued that trainees may be well equipped to draw upon the soothing system to regulate their emotions when threat and drive systems are activated due to high levels of self-awareness. However, the influence of DClinPsy demands and responsibilities has the potential to impact on the time trainees have available to utilise resources which bring contentment

or safeness. Overall, this theoretical insight poses important questions around understanding trainee response and behaviour which regulates emotions when threat and drive systems are activated.

Practical implications

The findings of this research suggest it is important to consider which factors within DClinPsy courses may be reinforcing perfectionism (specifically the self-evaluated discrepancy of performance). They also support existing research highlighting the need for trainees' wellbeing to be supported throughout training, and that this may be more relevant to those who are perfectionists or highly critical of their performance.

Competency Evaluation

All DClinPsy courses are required to evaluate the development of academic and clinical competencies throughout training (British Psychological Society, 2019). There is no standardised approach to this process across training programmes in the UK, however the use of formative and summative assessments is standard across higher education settings, including medical education. Interestingly, research has found that students may still feel distressed by poor outcomes regardless of whether an assessment is formative or summative due to expectations placed upon them (Jones et al., 2021). It could be argued that courses which mark academic assignments by allocating numerical grades may be contributing to trainees' self-evaluative perception of their personal development as it serves to quantify the extent to which a trainee has demonstrated specific competencies and understanding. Therefore, evaluative processes may have potential to influence processes of self-evaluative discrepancy and perfectionism in trainees, which this research has found to be linked to poorer mental health outcomes. An alternative may be to evaluate academic

assignments on a pass or fail basis. Research in medical students found that a pass/fail system of evaluation was beneficial to student wellbeing and not detrimental to overall academic competence (Spring et al., 2011). Further research indicates that a pass/fail grading system was associated with increased group cohesiveness in medical students (Rohe et al., 2006) which may also go some length to reducing competition within cohorts (White & Fantone, 2010), improving group academic success (Beal et al., 2003) or further reducing anxiety and depression (Slavin et al., 2014). Therefore, it may be of interest for DClinPsy courses to consider using a pass/fail process for marking academic assignments to the benefit of trainees' wellbeing.

There may also be implications for DClinPsy courses in how they evaluate trainees' clinical competencies during placement activity, and potentially move to a similar pass/fail grading i.e., not achieved/achieved. DClinPsy courses seek to categorise trainees' development of clinical skills throughout training, but it is possible that the evaluative categories may further highlight trainee perfectionism. If current evaluative methods allow room for clear strengths to be identified in comparison to expected levels of trainee competence, then there is potential that trainees may be aware of the discrepancy between average competence and identified strengths in clinical practice. This may lead some trainees to strive to excel in many competencies or perceive ratings of 'expected level' or 'average', or 'satisfactory' to signify that further development in these areas could be achieved.

Supporting Wellbeing

It is important for DClinPsy courses to provide, and trainees to be aware of, the support in place for wellbeing concerns. Due to the link between perfectionism and mental health, this suggests that interventions or approaches which directly address perfectionism could be of benefit to trainee mental health. NICE guidelines recommend Cognitive Behaviour Therapy (CBT) as an

evidence-based intervention recommended for the treatment of anxiety and depression in the general population (National Institute for Health and Care Excellence, 2011). Additionally, there is evidence that CBT is an effective intervention for perfectionism (Egan & Shafran, 2017; Galloway et al., 2022; Zikopoulou et al., 2021) which indicates its suitability to treat mental health of trainees. This could be achieved through the university-wide led student support services, or as a bespoke wellbeing offer within DClinPsy departments.

Richardson et al. (2020) suggests that self-compassion mediates the relationship between self-critical perfectionism and depression in trainees, therefore using Compassion Focused Therapy (CFT) could be a viable approach to support trainees displaying depressive symptoms. CFT is derived from Paul Gilbert's (2009) three circle model of emotion as outlined above, therefore is conceptually related to this understanding of the findings of the current study. CFT has been proposed as an effective intervention to reduce self-criticism (Gilbert & Procter, 2006) and maintain reduced anxiety, depression and stress symptoms (Krieger et al., 2019). Therefore, DClinPsy courses and trainees who seek support could consider the use of CFT as an intervention to support mental health and directly address self-critical perfectionism.

However, DClinPsy courses should be made aware that individuals who are high in perfectionism may be less likely to seek support (Dang et al., 2020). This highlights the need for training providers to proactively offer signposting and support for wellbeing as part of trainees' orientation to clinical training. Additionally, the role of supervisory relationships is important in the recognition of individual trainee wellbeing. O'Donovan et al., (2011) outlines that supervision has several functions, including restorative functions of supporting personal and professional wellbeing. Therefore, it is important for these spaces to be recognised as vital to managing trainee wellbeing.

Research Implications and Future Direction

This thesis suggests that although no link was found between competitiveness and mental health outcomes in a general sample of trainees, there was some suggestion that the relationship between these constructs and perfectionism changes across first, second-, and third-year trainees. Therefore, future research could focus on each year group individually, ideally taking a longitudinal approach to account for individual differences. As the number of places available on DClinPsy courses is increasing (UK Clearing House, 2022a), there is opportunity to recruit a larger sample size and achieve statistical power, which limited the extended results presented in Chapter six of this thesis. Examining competitiveness in this way would also enable researchers to understand whether the recent increase in success rate of applications to the DClinPsy impacts competitiveness within trainees.

As discussed in Chapter two, a psychometrically sound measure of environmental competitiveness has not been developed to date. Despite the advances in conceptualising trait competitiveness, the theoretical understanding of conceptualising perceived context-specific competitiveness is limited to singular-item self-report scales or, at most, a number of items developed with face validity but no further psychometric evidence of validity or reliability (Murayama & Elliot, 2012). Therefore, current research lacks methodological rigour and validity in examining the influence of competitiveness within a specific context or environment. Further development of theoretical understanding and conceptualisation would move away from competitiveness as a personality trait and acknowledge the environmental context which may account for how competitiveness is experienced particularly in student populations.

There is also a lack of research directly examining competitiveness as a factor of the environment and its potential link with student mental health. It would be of interest to incorporate

this into research exploring competitiveness in trainee clinical psychologists, by seeking subjective ratings from trainees as to how competitive they consider their course to be or other indicators of course competitiveness. For, example, utilising such data alongside admissions statistics has the potential to develop understanding of trainee experience of competitiveness within context of their enrolled course. Examining the relationship with mental health outcomes provides an opportunity for DClinPsy providers to identify whether increased competitiveness through environmental factors contributes to trainee wellbeing. Findings may be helpful for DClinPsy providers to understand how their training programme is experienced by trainees, and whether this contributes to mental health. Doing so may enable training providers to identify and provide additional support to trainees.

Given that the narrative of competitiveness being part of becoming a clinical psychologist extends to the process of applying to DClinPsy courses and gaining relevant pre-training experience, it would be of interest to extend this research to the pre-qualification applicants. Doing so could enable additional factors to be considered as mediators between competitiveness and mental health, for example the number of previous unsuccessful applications. This would increase the understanding of how pre-training experiences influence competitiveness and mental health outcomes.

Finally, it could be of interest to expand this research to other healthcare professions in training. Primarily extending this research to medical students would address the gap in research linking competitiveness and mental health of this population. There has also been a recent expansion of psychological professions and training pathways which attract aspiring psychology graduates. Understanding the nature of competitiveness and mental health of these training pathways could provide samples of clinically trained students to compare with DClinPsy trainees.

This would go some length to putting the ratings of competitiveness into perspective and understanding whether trainees across different psychological professions are more, or less, competitive than others and contribute to the narrative of particularly training pathways as competitive.

Overall Conclusion

The current literature examining the relationship between competitiveness and mental health outcomes in students is sparse and heterogenic in methodologies. This poses questions regarding how competitiveness is conceptualised within research and the lack of methodological rigour to measure environmental competitiveness. The lack of sufficient studies limits the ability to compare succinctly or make definitive conclusions about the literature available.

This thesis provides a unique contribution to research as it is the first to directly examine competitiveness within trainee clinical psychologists. The results suggest there is no significant link between competitiveness and mental health but recognises perfectionism does positively predict anxiety, depression and quality of life. The role of self-evaluative discrepancy was found to be a unique significant predictor. These findings can be explained in line with psychological theory and models of emotion regulation which lead to the suggestion that compassionate approaches may be effective interventions in reducing self-critical perfectionism in trainees.

There are practical implications for clinical psychology providers to consider including potentially reviewing the way in which trainees' competencies are evaluated, and recognising the potential role of compassionate approaches in well-being support. Future research would benefit from further exploring the link between competitiveness, perfectionism and mental health outcomes in trainees longitudinally and across student year groups as provisional results indicate

that the relationship between these constructs may vary throughout training. Doing so would enable a greater understanding of trainees' mental health and enables DClinPsy courses to target their wellbeing support as required.

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Appendices

List of Appendices

Appendix A

Author Guidelines for Higher Education

(for Systematic Review presented in Chapter Two)

Submission guidelines

Instructions for Authors

General

Manuscripts sent to Higher Education are expected to contribute to knowledge in the field of higher education studies, and to communicate effectively with a broad international audience. We expect that authors, the journal and the field will develop through the review process and subsequent publication. We strongly recommend that authors consult several back issues of Higher Education to get a clear sense of the type of articles that are of interest to the readership of the journal. It is also necessary to take account of previous scholarly work in the topic area of the proposed article, whether published in this or other higher education journals. In the case of empirical research studies it is important to provide adequate information about the context of the study so as to locate the study in the broader field, and to integrate the data analysis and presentation effectively with the discussion of literature and concepts.

Manuscript Submission

Manuscript Submission

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Cite references in the text by name and year in parentheses. Some examples:

- Negotiation research spans many disciplines (Thompson, 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott, 1991; Barakat et al., 1995; Kelso & Smith, 1998; Medvec et al., 1999).

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- Article by DOI Hong, I., Knox, S., Pryor, L., Mroz, T. M., Graham, J., Shields, M. F., & Reistetter, T. A. (2020). Is referral to home health rehabilitation following inpatient rehabilitation facility associated with 90-day hospital readmission for adult patients with stroke? *American Journal of Physical Medicine & Rehabilitation*. Advance online publication. https://doi.org/10.1097/PHM.0000000000001435
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- Online document Fagan, J. (2019, March 25). *Nursing clinical brain*. OER Commons. Retrieved January 7, 2020, from https://www.oercommons.org/authoring/53029-nursing-clinical-brain/view

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- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

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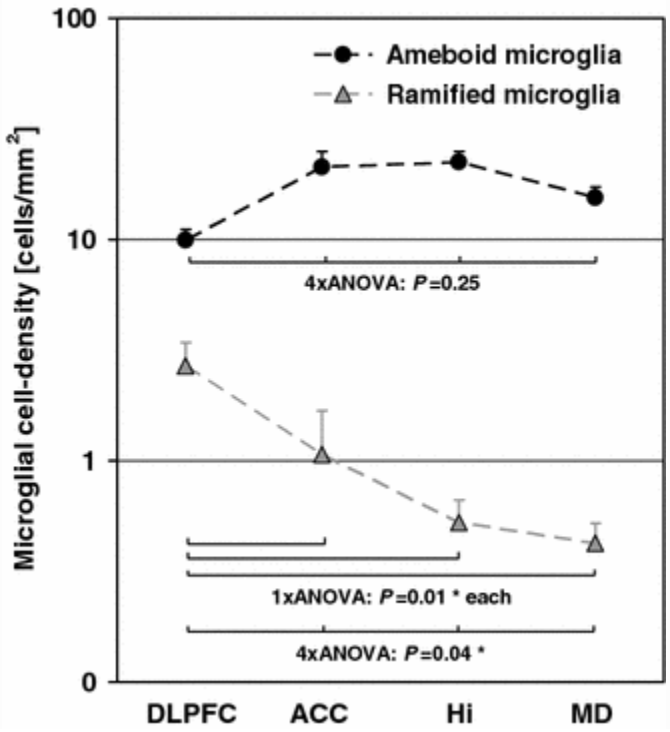

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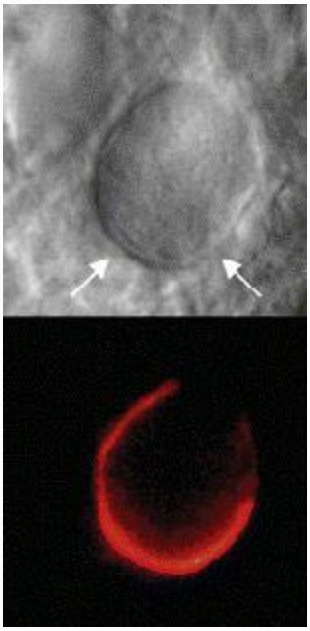

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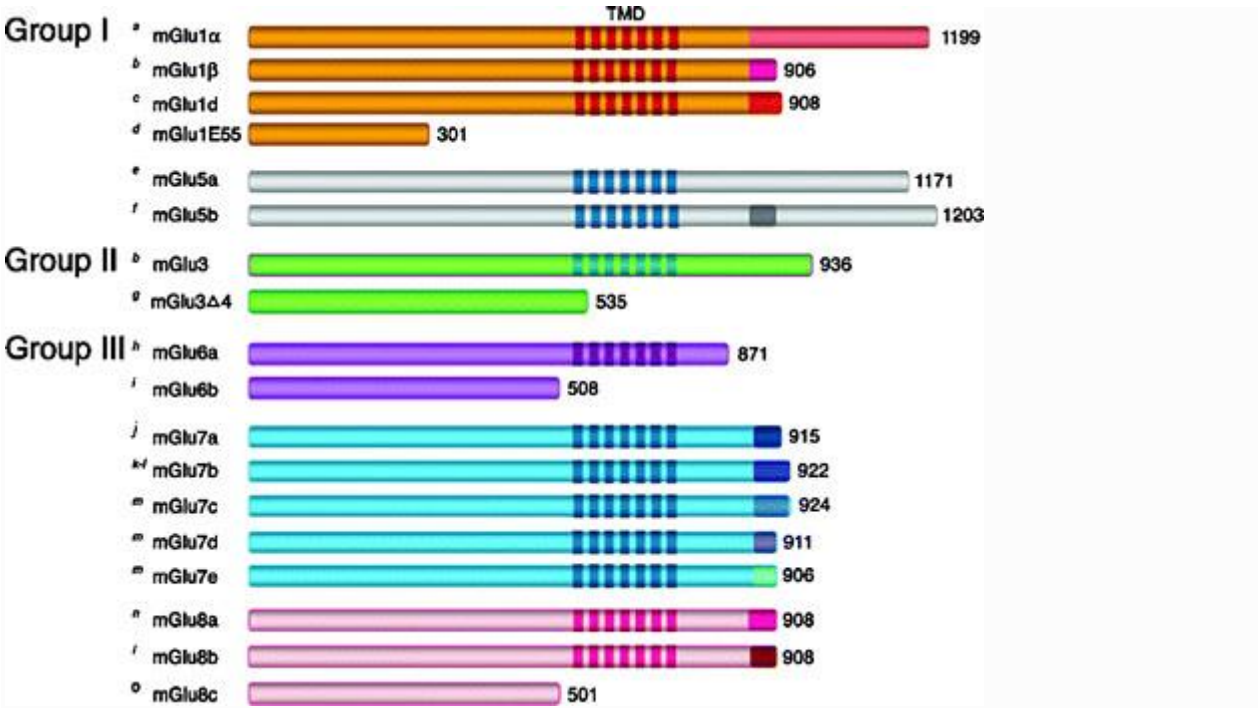

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1) made substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data; or the creation of new software used in the work;

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* Based on/adapted from:

ICMJE, Defining the Role of Authors and Contributors,

Transparency in authors' contributions and responsibilities to promote integrity in scientific publication, McNutt at all, PNAS February 27, 2018

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All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by [full name], [full name] and [full name]. The first draft of the manuscript was written by [full name] and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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A Graduate Student's Guide to Determining Authorship Credit and Authorship Order, APA Science Student Council 2006

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Please note that, in addition to the above requirements, funding information (given that funding is a potential competing interest (as mentioned above)) needs to be disclosed upon submission of the manuscript in the peer review system. This information will automatically be added to the Record of CrossMark, however it is **not added** to the manuscript itself. Under 'summary of requirements' (see below) funding information should be included in the '**Declarations**' section.

Summary of requirements

The above should be summarized in a statement and included on **a title page that is separate from the manuscript** with a section entitled "**Declarations**" when submitting a paper. Having all statements in one place allows for a consistent and unified review of the information by the Editor-in-Chief and/or peer reviewers and may speed up the handling of the paper. Declarations include Funding, Competing interests, Ethics approval, Consent, Data, Materials and/or Code availability and Authors' contribution statements. **Please use the title page for providing the statements.**

Once and if the paper is accepted for publication, the production department will put the respective statements in a distinctly identified section clearly visible for readers.

Please see the various examples of wording below and revise/customize the sample statements according to your own needs.

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Examples of statements to be used when funding has been received:

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- The research leading to these results received funding from [...] under Grant Agreement No[...].
- This study was funded by [...]
- This work was supported by [...] (Grant numbers [...] and [...]

Examples of statements to be used when there is no funding:

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- No funding was received for conducting this study.
- No funds, grants, or other support was received.

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Non-financial interests: none.

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List of Repositories

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DataCite

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Authors who need help understanding our data sharing policies, help finding a suitable data repository, or help organising and sharing research data can access our Author Support portal for additional guidance.

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Open Choice

Funding and Support pages

Appendix B

PRISMA 27-item Checklist

Section/topic	#	Checklist item	Reported on page #
		TITLE	
Title	1	Identify the report as a systematic review, meta-analysis, or both.	20, 21, 22, 25
		ABSTRACT	
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	21
		INTRODUCTION	
Rationale	3	Describe the rationale for the review in the context of what is already known.	22-25
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	25
		METHODS	
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	21
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	26-27
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	25-26
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	25-28
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable included in the meta-analysis).	25-26

Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	27
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	N/A
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	27-28
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A
Synthesis of results	14	"Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis. "	N/A
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	27-28
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
		RESULTS	
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	28-29
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	31-35
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	38 & 173
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	N/A
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	36-41
Risk of bias across studies	22	2 Present results of any assessment of risk of bias across studies (see Item 15).	38 & 173
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A

DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	41-46
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	44-45
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	46-47
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	N/A

Appendix C

Example Data Extraction Form

Date form completed	5th September 2022
Title of article	Exploring the gender difference in relationships between narcissism, competitiveness, and mental health problems among college students.
Reference for article	Chan, C. Y., & Cheung, K. L. (2022). Exploring the gender difference in relationships between narcissism, competitiveness, and mental health problems among college students. *Journal of American college health, 70*(4), 1169-1178.
Aim of study	To address the gaps in the research literature, this exploratory study has the following objectives: (1) To explore gender differences in two forms of narcissism (overt and covert narcissism), two forms of competitiveness (hypercompetitiveness and personal development competitiveness), mental health problems (stress, anxiety, and depressive symptoms), academic performance (GPA), study hours, and attitudes toward GPA (GPA satisfaction and individuals' view that their GPA reflects their hard work or ability) (2) To investigate the relationships between two forms of narcissism, two forms of competitive- ness, stress, anxiety, and depression symptoms in males and females; (3) To investigate the relationships between stress, anxiety, and depression symptoms, academic performance (GPA), study hours, and attitudes toward GPA in males and females.
Procedure	Participants provided informed written consent. Participants invited to complete online and anonymous survey including standardized psychological instruments (outlined in measures). Ethical approval obtained.

Participants	195 students (62.1% female) various disciplines from universities in Hong Kong. Mean Age 21.55 years
Measures used (relating to competitiveness and mental health only)	Hypercompetitive Attitude (HCA) Scale consisting of 26 items and answered on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Scores range from 26 to 130 with a higher score indicating a more hypercompetitive attitude The Personal Development Competitive Attitude (PDCA) Scale answered on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Depression Anxiety Stress Scale (DASS-21) consisting of 21 items and answered on a 4-point scale from 0 (does not apply to me) to 3 (applied to me very much/most of the time). Validated Chinese-translated DASS-21 was used.
Results	Using the recommended cut off scores, it was found that depression, anxiety, and stress were prevalent among students, regardless of gender. In total, 69.7%, 78.9%, and 69.7% of students had elevated levels of depression, stress, and anxiety symptoms (from mild to extremely severe), respectively. Males reported higher levels of personal development competitiveness than females ($p < .001$) with medium effect size. Levels of depression, anxiety and stress symptoms did not differ by gender. In males, personal development competitiveness was significantly and negatively associated with depression ($p = .007$). There were significant and positive associations between hypercompetitiveness and depression, anxiety, and stress in females (all $p < .001$) but hypercompetitiveness was not associated with depression, anxiety, and stress in males.
Author's stated limitations	The sample data in the study was sufficient according to sample size but relatively small which limits generalisability. Cross-sectional design and correlational approach hinder conclusions on causal inferences. Unequal number of female and male participants (majority female) however this may be reflective of the student population in Hong Kong.

Author's recommendations	Additional research recommended to address limitations including implementing longitudinal design to investigate causal relationship in broader college student population. Highlights the need for universities or colleges to implement a systematic and continuous method to monitor the mental health of their students, particularly females with hypercompetitive attitudes to be monitored more closely.

Appendix D

Checklist for Quantitative Studies

Criteria		YES (2)	PARTIAL (1)	NO (0)	N/A
1	Question / objective sufficiently described?				
2	Study design evident and appropriate?				
3	Method of subject/comparison group selection or source of information/input variables described and appropriate?				
4	Subject (and comparison group, if applicable) characteristics sufficiently described?				
5	If interventional and random allocation was possible, was it described?				
6	If interventional and blinding of investigators was possible, was it reported?				
7	If interventional and blinding of subjects was possible, was it reported?				
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?				
9	Sample size appropriate?				
10	Analytic methods described/justified and appropriate?				
11	Some estimate of variance is reported for the main results?				
12	Controlled for confounding?				
13	Results reported in sufficient detail?				
14	Conclusions supported by the results?				

Appendix E

Quality Assessment Scores

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total Score	Possible Score	**Summary Score**
Chan & Cheung (2022)	2	2	1	1	-	-	-	2	2	2	2	0	2	2	18	22	**0.82**
Cook & Crewther (2019)	2	1	2	2	2	-	-	1	1	2	2	1	2	2	20	24	**0.83**
Hibbard & Buhrmester (2010)	2	1	1	2	-	-	-	1	2	2	1	0	2	2	16	22	**0.73**
Hyun et al. (2007)	2	1	2	2	-	-	-	1	2	1	0	0	0	1	12	22	**0.55**
Lipson et al. (2015)	2	2	2	2	-	-	-	2	2	2	1	0	2	1	18	22	**0.82**
McEwan et al. (2012)	2	2	1	2	-	-	-	2	2	2	1	0	2	2	18	22	**0.82**
Posselt (2021)	2	2	2	2	-	-	-	2	2	2	0	1	2	2	19	22	**0.86**
Skead & Rogers (2016)	2	2	2	2	-	-	-	1	2	2	1	0	2	2	18	22	**0.82**
Skead et al. (2020)	2	2	2	2	-	-	-	1	2	2	2	0	2	2	19	22	**0.86**
Yi-meng (2009)	2	2	2	2	-	-	-	2	2	2	1	0	2	2	19	22	**0.86**

Appendix F

Author Guidelines for Clinical Psychologist

(for Empirical Research Paper presented in Chapter Four)

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- Commentary
- Brief report
- Invited brief guide to evidence
- Case series
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- Should be written with the following elements in the following order: title page; abstract; keywords; main text introduction, materials and methods, results, discussion; acknowledgments; declaration of interest statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list)
- Should be no more than 6000 words
- Should contain a structured abstract of 200 words.
    - Please use the headings: Objective, Method, Results, and Conclusions
- Should contain between 3 and 6 **keywords**. Read making your article more discoverable, including information on choosing a title and search engine optimization.

- **Key Points**: Please include 6 key points: 3 Key Points for "what is already known about this topic" and 3 Key Points for "what this topic adds" in your manuscript. Please place the Key Points after the key words in the manuscript, and write your Key Points with a practitioner audience in mind.

Review

- Should be written with the following elements in the following order: title page; abstract; keywords; main text introduction, materials and methods, results, discussion; acknowledgments; declaration of interest statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list)
- Should be no more than 8000 words
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- Should be no more than 3000 words
- Should contain a structured abstract of 200 words.
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- **Key Points**: Please include 6 key points: 3 Key Points for "what is already known about this topic" and 3 Key Points for "what this topic adds" in your manuscript. Please place the Key Points after the key words in the manuscript, and write your Key Points with a practitioner audience in mind.

Commentary

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- Should be no more than 2000 words
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- Should be written with the following elements in the following order: title page; abstract (optional); keywords; main text introduction, materials and methods, results, discussion; acknowledgments; declaration of interest statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list)
- Should be no more than 750 words
- Should contain a structured abstract of 200 words.
    - Please use the headings: Objective, Method, Results, and Conclusions

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A structured abstract is optional for invited brief guide to evidence

Case series

- Should be written with the following elements in the following order: title page; abstract; keywords; main text introduction, materials and methods, results, discussion; acknowledgments; declaration of interest statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list)
- Should be no more than 3000 words
- Should contain a structured abstract of 200 words.
    - Please use the headings: Objective, Method, Results, and Conclusions
- Should contain between 3 and 6 **keywords**. Read making your article more discoverable, including information on choosing a title and search engine optimization.

- **Key Points**: Please include 6 key points: 3 Key Points for "what is already known about this topic" and 3 Key Points for "what this topic adds" in your manuscript. Please place the Key Points after the key words in the manuscript, and write your Key Points with a practitioner audience in mind.

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We are committed to promoting and increasing the visibility of your article. Here are some tips and ideas on how you can work with us to promote your research.

Queries

Should you have any queries, please visit our Author Services website or contact us here.

Appendix G

Ethics Approval Letter

University of East Anglia
Norwich Research Park
Norwich. NR4 7TJ

Email: ethicsapproval@uea.ac.uk
Web: www.uea.ac.uk

Study title: Exploring the Role of Competitiveness on Psychological Distress and Quality of Life in Trainee Clinical Psychologists as Mediated by Perfectionism

Application ID: ETH2122-0053

Dear Gabriella,

Your application was considered on 2nd February 2022 by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee).

The decision is: **approved**.

You are therefore able to start your project subject to any other necessary approvals being given.

This approval will expire on **29th September 2023**.

Please note that your project is granted ethics approval only for the length of time identified above. Any extension to a project must obtain ethics approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) before continuing.

It is a requirement of this ethics approval that you should report any adverse events which occur during your project to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) as soon as possible. An adverse event is one which was not anticipated in the research design, and which could potentially cause risk or harm to the participants or the researcher, or which reveals potential risks in the treatment under evaluation. For research involving animals, it may be the unintended death of an animal after trapping or carrying out a procedure.

Any amendments to your submitted project in terms of design, sample, data collection, focus etc. should be notified to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) in advance to ensure ethical compliance. If the amendments are substantial a new application may be required.

Approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) should not be taken as evidence that your study is compliant with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. If you need guidance on how to make your study UK GDPR compliant, please contact the UEA Data Protection Officer (dataprotection@uea.ac.uk).

Please can you send your report once your project is completed to the FMH S-REC (fmh.ethics@uea.ac.uk).

I would like to wish you every success with your project.

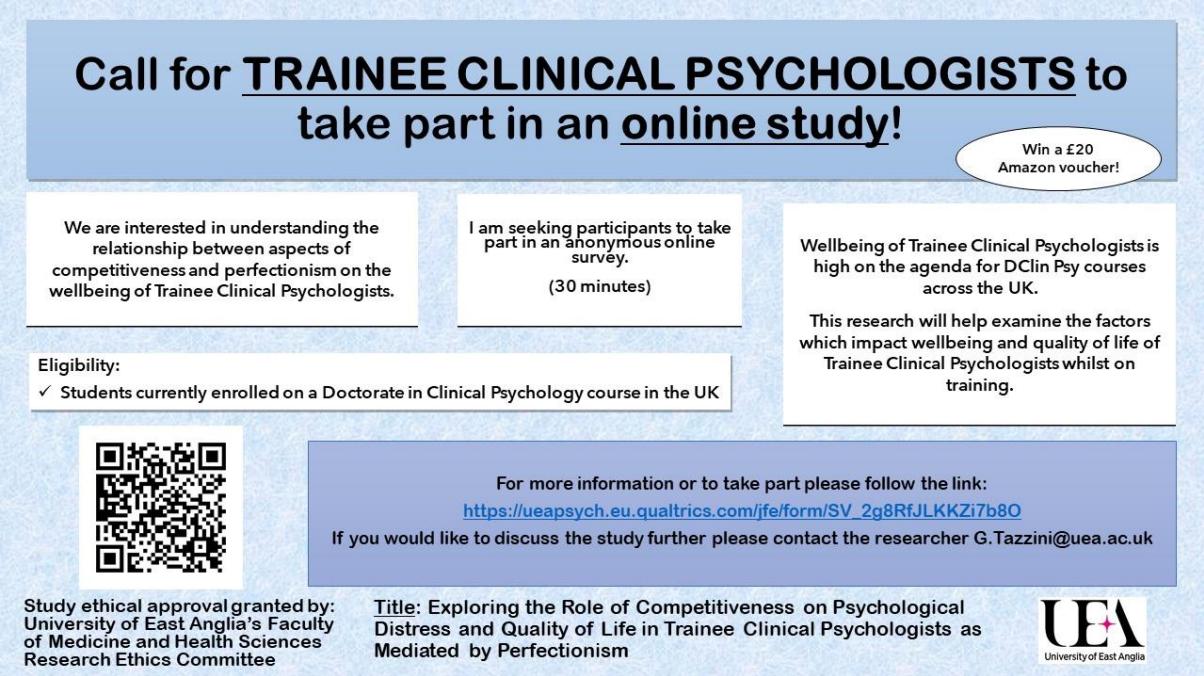
On behalf of the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee)

Yours sincerely,

Paul Linsley

Appendix H

Study Advert



Appendix I

Email Communication to Gatekeeper(s)

Dear [Gatekeeper],

My name is Gaby Tazzini and I am a Trainee Clinical Psychologist at the University of East Anglia (UEA). I am getting in contact to ask for your help in disseminating the details of my thesis research project for the Doctorate. It is an online research study targeting 1st, 2nd and 3rd year cohorts of Trainee Clinical Psychologists who may wish to participate. I would be grateful if you could forward details to your trainees.

The aim of the study is to explore the role of competitiveness and perfectionism on Trainee Clinical Psychologist's psychological distress and quality of life. This research can help us to understand whether there is a relationship between these constructs and highlight areas of further interest relating to trainee wellbeing for Clinical Psychology courses.

I have attached a visual poster to advertise the study, and here is the link which can be disseminated directly to students which includes information for participants.

https://ueapsych.eu.qualtrics.com/jfe/form/SV_2g8RfJLKKZi7b8O

If you would like further information, please see the attached document which outlines further details of the study and what is involved. This study is approved by the University of East Anglia's Faculty of Medicine and Health Sciences Research Ethics Committee and I can provide a letter stating this if required.

Thank you very much for considering this and for supporting my research project.

Best wishes,

Gaby Tazzini

Trainee Clinical Psychologist

Doctorate in Clinical Psychology Programme (ClinPsyD)

University of East Anglia (UEA)

Email: *G.Tazzini@uea.ac.uk*

Dear [Gatekeeper]

I would like to invite you to assist me in recruiting participants for a research study. Before you decide you need to understand why the research is being done and what it would involve for you and for the participants. Please take time to read the following information carefully. Ask questions if anything you read is not clear or if you would like more information. Take time to decide whether or not to facilitate this research.

WHO I AM AND WHAT THIS STUDY IS ABOUT

My name is Gabriella Tazzini and I am a postgraduate researcher from the University of East Anglia. I am conducting research exploring the role of competitiveness and perfectionism on Trainee Clinical Psychologist's psychological distress and quality of life. This research can help us to understand whether there is a relationship between these constructs and highlight areas of further interest relating to trainee wellbeing for Clinical Psychology courses. This research is being undertaken as part of the Doctorate in Clinical Psychology and will be presented as part of a Doctoral Thesis.

WHAT I NEED YOUR ASSISTANCE WITH

I am seeking to recruit at least 92 Trainee Clinical Psychologists from clinical psychology training courses in the UK to participate in this study and I require your permission to advertise this study amongst your cohorts of Trainee Clinical Psychologists. Your role would be to distribute the study advert and an online survey link attached to this email so that participants can consider participating, or contact me directly to discuss taking part. Participants access the online survey by following the URL link included in this information. Individuals currently employed as a Trainee Clinical Psychologist and undertaking a doctorate in Clinical Psychology within the United Kingdom will be eligible to take part. However participants who are currently on long term leave (e.g. sick leave, maternity leave) will not be eligible to participate.

WHAT TAKING PART IN THE RESEARCH WILL INVOLVE?

Participation requires completion of an online survey, which has multiple sections and will take no longer than 30 minutes. Participants will be asked to complete five questionnaires measuring perspectives people have toward themselves and their performance, as well as aspects of psychological distress and quality of life. Participation is voluntary.

WHO WILL HAVE ACCESS TO DATA FROM RESEARCH?

By consenting to participate, participants are agreeing to the personal information shared to be collected and used for the purpose of this research study. Any information provided will only be used for the purposes outlined in this Participant Information Statement. The 2018 General Data Protection Regulation Act and the University of East Anglia Research Data Management Policy (2019) will be adhered to at all times. Participant information will be anonymised at the point of collection and stored securely. Data will be stored until analysis and publication are completed, then destroyed.

WHAT WILL HAPPEN TO THE RESULTS OF THE STUDY?

Findings from this study may be included in publication, and presented at research conferences but participants and their organisations will not be identifiable. Overall results can be provided in the form of a one page lay summary which participants will receive after the study is finished.

WHO SHOULD YOU CONTACT FOR FURTHER INFORMATION?

If there is a problem or your require further information you can contact the researcher via the University at the following address:

Gabriella Tazzini

Norwich Medical School

Faculty of Medicine and Health Sciences

University of East Anglia

NORWICH

NR4 7TJ

g.tazzini@uea.ac.uk

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the programme director (Niall Broomfield): N.Broomfield@uea.ac.uk.

Many thanks for your attention to this email,

Gabriella Tazzini

Incl: Study Advert and Qualtrics URL for online survey.

Appendix J

Participant Information Sheet

Participant Information Statement

Exploring the Role of Competitiveness on Psychological Distress and Quality of Life in Trainee Clinical Psychologists as Mediated by Perfectionism

Thank you for your interest in this study. Before you decide whether or not to take part, please read the following information carefully. If you would like more information concerning the study, please do not hesitate to email me any questions.

(1) What is this study about?

You are invited to take part in this study exploring factors influencing the wellbeing of students undertaking training in Clinical Psychology. We are recruiting Trainee Clinical Psychologists from across the UK, to understand how competitiveness and perfectionism influence students' in-training experiences.

This Information Statement outlines the study to help you decide whether you would like to take part, please read it carefully and raise any questions you may have. Your participation is voluntary and you retain the right to withdraw up until the point of submission.

(2) Who can take part in the study?

You can take part in this study if you are 'an individual currently employed as a Trainee Clinical Psychologist and undertaking a doctorate in Clinical Psychology within the United Kingdom'

You are not eligible to take part in this study if any of the following apply to you:

- Undertaking clinical psychology training outside of the UK
- Currently on a break from training for any circumstance (e.g. maternity leave, long-term sick leave)
- Enrolled on the Doctorate in Clinical Psychology at the University of East Anglia (UEA)

If any of the above criteria apply to you, then you are not eligible to participate and we kindly ask you to exit the survey at this point.

(3) Who is running the study?

This study is being conducted by Gabriella Tazzini, a Trainee Clinical Psychologist within the Norwich Medical School at the University of East Anglia.

(4) What will the study involve for me?

Your participation requires completion of an online survey, which has multiple sections and will take no longer than 30 minutes. You will be asked to complete five questionnaires measuring perspectives people have toward themselves and their performance, as well as aspects of psychological distress and quality of life.

(5) How much of my time will the study take?

The survey will take no longer than 30 minutes to complete.

(6) Do I have to be in the study? Can I withdraw from the study once I've started?

Participation is voluntary, your decision whether to participate will not affect prospects on the Clinical Psychology Training course. You can withdraw from the survey prior to completion and your data will not be saved. You can do this by closing your internet browser which will exit the survey. However, once you have confirmed the submission of your responses and completed the survey, you will not be able to withdraw your data from the study because all data will be anonymous.

(7) Are there any risks or costs associated with being in the study?

This study is not expected to cause any distress, however you are advised to stop completing the survey if at any time you feel uncomfortable. There are some questions which ask about current experiences of self-harm and suicidal thoughts, which have the potential to be distressing for some participants. If you complete the survey and experience distress or become concerned for your own mental health, you are encouraged to seek support. You can contact your GP for mental health support and Samaritans offer a 24/7 listening service via 116 123. You can also draw on support provided by your University such as an advisor/supervisor or student Wellbeing service.

(8) Are there any benefits associated with being in the study?

This study will hopefully provide insight into factors influencing the wellbeing of Trainee Clinical Psychologists and indicate areas of interest for Clinical Psychology Training programmes to highlight for student wellbeing.

(9) What will happen to information about me that is collected during the study?

By consenting to participate, you are agreeing to the anonymous research data to be collected and used for the purpose of this research study. Any information provided will only be used for the purposes outlined in this Participant Information Statement unless you consent otherwise. The Data Protection Act (2018) and the University of East Anglia Research Data Management Policy (2019) will be adhered to at all times. The information you provide is anonymous and as such you are unidentifiable. All data will be stored securely on the UEA One Drive file sharing system. This will ensure that only the primary researcher and supervisors have access to the data during the research and it will not be shared beyond the researchers involved. Data will not be shared on a repository. Findings from this study will be written up to be presented for dissemination or publication, but you will not be identifiable. Data will be stored until analysis and publication are completed. After study completion the data will be transferred to the primary supervisor (Dr Imogen Rushworth) to store securely online within the Norwich Medical School facilities. The data will be deposited with UEA archives in line with the Research Data Management Policy which states that research data

is held by the University for a minimum 10 year period. After this period, the data will be reviewed and either retained or destroyed by UEA.

If you wish to be entered for the optional raffle to win one of five £20 Amazon vouchers, you will be asked to provide your email address and first name. This information will be collected on a different survey platform (Smart Survey) and will not be linked or be able to be linked to your responses on the research questionnaires. Your first name and email address will only be made available to the primary researcher (Gabriella Tazzini) and will be stored securely on the researcher's personal UEA One Drive system, separately from all other study data. The five winners will be selected at random by assigning each entrant a number and then using a random number generator to select the five winning entrants. Your information will be destroyed once the five winners have been selected, contacted, and confirmed receipt of their £20 voucher.

(10) What if I would like further information about the study?

Once you have read this information, you have the opportunity to ask any further questions you may have by contacting the researcher (g.tazzini@uea.ac.uk).

(11) Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study, but it is not possible to provide feedback on your individual responses. Overall results will be provided in the form of a one page lay summary which you will receive after the study is finished. You can request this by contacting the researcher (g.tazzini@uea.ac.uk).

(12) What if I have a complaint or any concerns about the study?

The ethical aspects of this study have been approved under the regulations of the University of East Anglia's Faculty of Medicine and Health Sciences Research Ethics Committee.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the programme director (Professor Niall Broomfield): N.Broomfield@uea.ac.uk.

(13) OK, I want to take part – what do I do next?

You will be asked to review the consent form for this study. By giving consent to take part in this study you are telling us that you:

- ✓ Understand what you have read.
- ✓ Agree to take part in the research study as outlined above.
- ✓ Agree to the use of your anonymised data as described.

You need will now be directed to a page to confirm your consent to take part before completing the online questionnaires. Please click 'Confirm and proceed'.

Appendix K

Participant Consent Form

Participant Consent Form

By acknowledging that I have read this consent form and clicking to proceed with the online survey, I agree to take part in this research study.

In giving my consent I state that:

- ✓ I understand the purpose of the study, what I will be asked to do, and any risks/benefits involved.
- ✓ I have read the Participant Information Statement and have been able to discuss my involvement in the study with the researcher if I wished to do so.
- ✓ I understand that being in this study is completely voluntary and I do not have to take part. My decision to take part in this study will not impact my prospects on the Clinical Psychology Training course.
- ✓ I understand that my data are to be anonymised and held confidentially. Only the researcher, her associates, and supervisor will have access to them.
- ✓ I understand that I can withdraw from the study at any point during the survey, and my data will not be submitted. But once I have confirmed the submission of my responses and completed the survey, I understand that I will not be able to withdraw my data from the study.
- ✓ I understand that the information collected will be stored securely and will only be used for the purpose of this research study.
- ✓ I understand that the results of this study may be published, but these publications will not contain any identifiable information about me.

(Participant asked to clearly type 'YES' into a textbox to confirm that they have read the previous information and consent to take part in the study. The survey will not allow them to move on unless they specifically type 'YES' into the textbox.)

Appendix L

Competitiveness Orientation Measure (COM)

Participants will be asked to rate each item on a 5-point Likert scale:

1 Strongly disagree
2 Slightly disagree
3 Neither agree nor disagree
4 Slightly agree
5 Strongly agree

The following scale measures aspects of competitiveness. Please read each question carefully and try to answer as honestly as possible. Do not spend too much time on any one item; if trying to decide between two responses, choose the one that first comes to mind.

1. I like to be better than others at almost everything.
2. I get a lot of enjoyment out of competition.
3. Other people comment on how competitive I am.
4. I enjoy setting and beating goals through competition.
5. I don't care if other people are better at things than I am.
6. No matter what, I try to be better than others at things.
7. I am a competitive person.
8. I view almost every situation as a way to prove that I am better at things than others.
9. I can improve my competence by competing.
10. I put a lot of effort into beating others at things.
11. I love the thrill of competition.
12. Being the best makes me feel powerful.
13. I don't really care if I get beat in a competition.
14. Competition motivates me.
15. For as long I can remember, I have wanted to outperform others.
16. Competition allows me to judge my level of competence.
17. I do not find competition self-fulfilling.
18. I think a lot about ways to win.
19. I love to compete.
20. I enjoy beating others in almost every area in life.
21. Losing in a competition wouldn't bother me.
22. I enjoy competing against others.
23. It is important for me to outperform others.
24. I wouldn't mind finishing in last place in a competition.
25. I use competition as a way to prove something to myself.
26. I think about competition a lot.
27. Winning makes me feel superior to others.
28. I like to challenge others.

29. Other people notice how much I have to dominate others in a competition.
30. I like being the best compared to other people.
31. Competing doesn't really matter to me.
32. Competition allows me to measure my own success.
33. I would rather not compete.
34. I perform better when I compete against others.
35. I try to be the best person in the room at almost anything.
36. Winning does not make me feel superior to others.
37. Others notice that I am competitive.

Appendix M

Short Almost Perfect Scale (SAPS)

The following items are designed to measure certain attitudes people have toward themselves, their performance, and toward others. It is important that your answers be true and accurate for you. In the space next to the statement, please enter a number from "1" (strongly disagree) to "7" (strongly agree) to describe your degree of agreement with each item.

STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	AGREE	STRONGLY AGREE
1	2	3	4	5	6	7

1. I have high expectations for myself.
2. Doing my best never seems to be enough.
3. I set very high standards for myself.
4. I often feel disappointment after completing a task because I know I could have done better.
5. I have a strong need to strive for excellence.
6. My performance rarely measures up to my standards.
7. I expect the best from myself.
8. I am hardly ever satisfied with my performance.

Appendix N

Generalised Anxiety Disorder Scale (GAD-7)

Participants will be asked to rate each item on a 4-point Likert scale:

0 - Not at all

1 - Several days

2 - More than half the days

3 - Nearly every day

1. Over the last 2 weeks, how often have you been bothered by the following problems?

a. Feeling nervous, anxious or on edge

b. Not being able to stop or control worrying

c. Worrying too much about different things

d. Trouble relaxing

e. Being so restless that it is hard to sit still

f. Becoming easily annoyed or irritable

g. Feeling afraid as if something awful might happen

2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

0 - Not difficult at all

1 - Somewhat difficult

2 - Very difficult

3 - Extremely difficult

Appendix O

Patient Health Questionnaire (PHQ-9)

Participants will be asked to rate each item on a 4-point Likert scale:

0 - Not at all

1 - Several days

2 - More than half the days

3 - Nearly every day

1. Over the last 2 weeks, how often have you been bothered by any of the following problems?

a. Little interest or pleasure in doing things

b. Feeling down, depressed, or hopeless

c. Trouble falling/staying asleep, sleeping too much

d. Feeling tired or having little energy

e. Poor appetite or overeating

f. Feeling bad about yourself or that you are a failure or have let yourself or your family down

g. Trouble concentrating on things, such as reading the newspaper or watching television.

h. Moving or speaking so slowly that other people could have noticed. Or the opposite; being so fidgety or restless that you have been moving around a lot more than usual.

i. Thoughts that you would be better off dead or of hurting yourself in some way.

2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

0 - Not difficult at all

1 - Somewhat difficult

2 - Very difficult

3 - Extremely difficult

Appendix P

Quality of Life Scale (QOLS)

Participants will be asked to rate each item on a 7-point Likert scale:

7 - Delighted
6 - Pleased
5 - Mostly Satisfied
4 - Mixed
3 - Mostly Dissatisfied
2 - Unhappy
1 - Terrible

Please read each item and circle the number that best describes how satisfied you are at this time. Please answer each item even if you do not currently participate in an activity or have a relationship. You can be satisfied or dissatisfied with not doing the activity or having the relationship.

1. Material comforts home, food, conveniences, financial security
2. Health - being physically fit and vigorous
3. Relationships with parents, siblings & other relatives - communicating, visiting, helping
4. Having and rearing children
5. Close relationships with spouse or significant other
6. Close friends
7. Helping and encouraging others, volunteering, giving advice
8. Participating in organizations and public affairs
9. Learning- attending school, improving understanding, getting additional knowledge
10. Understanding yourself - knowing your assets and limitations - knowing what life is about
11. Work - job or in home
12. Expressing yourself creatively
13. Socializing - meeting other people, doing things, parties, etc
14. Reading, listening to music, or observing entertainment
15. Participating in active recreation
16. Independence, doing for yourself

Appendix Q

Descriptive Statistics

Variable	Full Sample	
	Mean	SD
Competitiveness	102.21	26.93
General Competitiveness	34.43	11.10
Dominant Competitiveness	30.22	10.30
Competitive Affect	25.26	6.68
Personal Enhancement Competitiveness	12.29	3.89
Perfectionism	42.76	8.79
Standards	24.26	3.84
Discrepancy	18.50	6.21
Anxiety	6.30	4.50
Depression	5.91	4.87
Quality of Life	79.98	9.81

Table Q1. Descriptive statistics for the full sample (N= 242) across all variables and subscales.

Appendix R

Ethical Approval for Amendment to Recruitment

University of East Anglia

Study title: Exploring the Role of Competitiveness on Psychological Distress and Quality of Life in Trainee Clinical Psychologists as Mediated by Perfectionism

Application ID: ETH2122-1609 (significant amendments)

Dear Gabriella,

The amendment to your research was considered on 12th April 2022 by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee).

The decision is: **approved**.

You are therefore able to start your project subject to any other necessary approvals being given.

If your study involves NHS staff and facilities, you will require Health Research Authority (HRA) governance approval before you can start this project (even though you did not require NHS-REC ethics approval). Please consult the HRA webpage about the application required, which is submitted through the IRAS system.

This approval will expire on **29th September 2023**.

Please note that your project is granted ethics approval only for the length of time identified above. Any extension to a project must obtain ethics approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) before continuing.

It is a requirement of this ethics approval that you should report any adverse events which occur during your project to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) as soon as possible. An adverse event is one which was not anticipated in the research design, and which could potentially cause risk or harm to the participants or the researcher, or which reveals potential risks in the treatment under

evaluation. For research involving animals, it may be the unintended death of an animal after trapping or carrying out a procedure.

Any amendments to your submitted project in terms of design, sample, data collection, focus etc. should be notified to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) in advance to ensure ethical compliance. If the amendments are substantial a new application may be required.

Approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) should not be taken as evidence that your study is compliant with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. If you need guidance on how to make your study UK GDPR compliant, please contact the UEA Data Protection Officer (dataprotection@uea.ac.uk).

Please can you send your report once your project is completed to the FMH S-REC (fmh.ethics@uea.ac.uk).

I would like to wish you every success with your project.

On behalf of the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee)

Yours sincerely,

Paul Linsley

Ethics ETH2122-1609: Miss Gabriella Tazzini

Appendix S

Participant Debrief Sheet

Participant Debrief

Exploring the Role of Competitiveness on Psychological Distress and Quality of Life in Trainee Clinical Psychologists as Mediated by Perfectionism

Thank you for taking part in this study exploring factors influencing the wellbeing of students undertaking training in Clinical Psychology. As outlined in the Participant Information Statement, if you are experiencing any distress following the survey, you are encouraged to seek support by contacting your GP for mental health support. Samaritans also offer a 24/7 listening service via 116 123. You can also draw on support provided by your University such as an advisor/supervisor or student wellbeing service.

You can also contact the researcher to request a lay summary of the findings via the University at the following address:

Gabriella Tazzini

Norwich Medical School

Faculty of Medicine and Health Sciences

University of East Anglia

NORWICH NR4 7TJ

g.tazzini@uea.ac.uk

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the Programme Director, Professor Niall Broomfield. He may be contacted on: N.Broomfield@uea.ac.uk.

Kind regards,

Gabriella Tazzini

Appendix T

Transformation of Skewed Dependent Variable Data

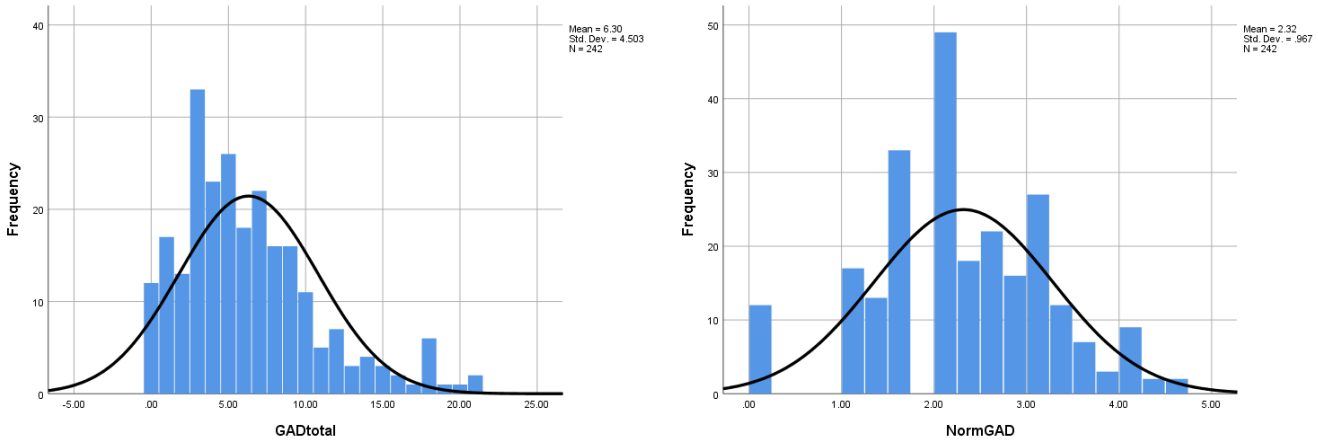


Figure T1. Pre- and post- transformation for the Anxiety variable

In Figure T1 the histogram on the left indicates that the data from the GAD-7 were not normally distributed. The histogram on the left indicates a normal distribution following a square-root transformation.

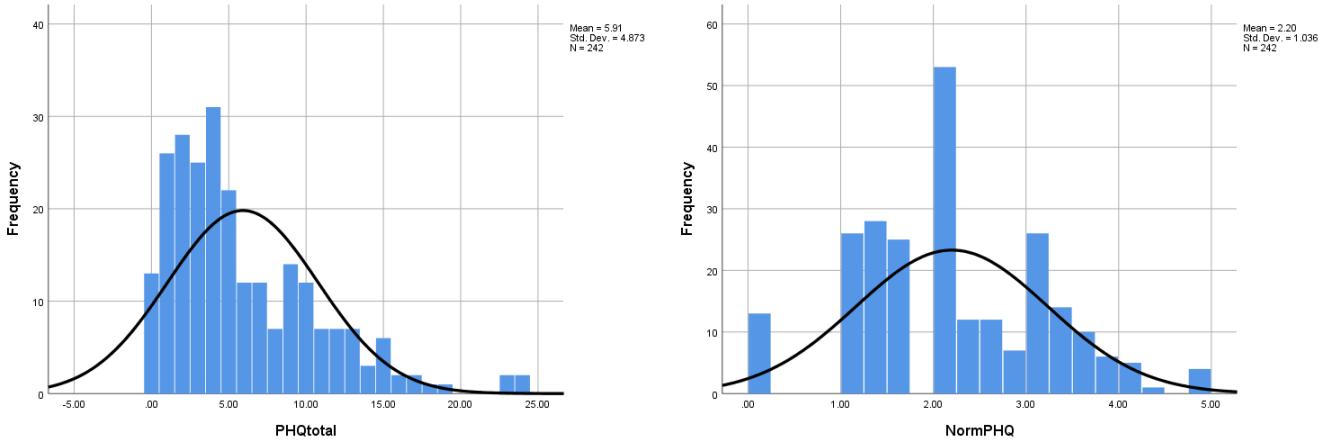


Figure T2. Pre- and post- transformation for the Depression variable

In Figure T2 the histogram on the left indicates that the data from the PHQ-9 were not normally distributed. The histogram on the left indicates a normal distribution following a square-root transformation.

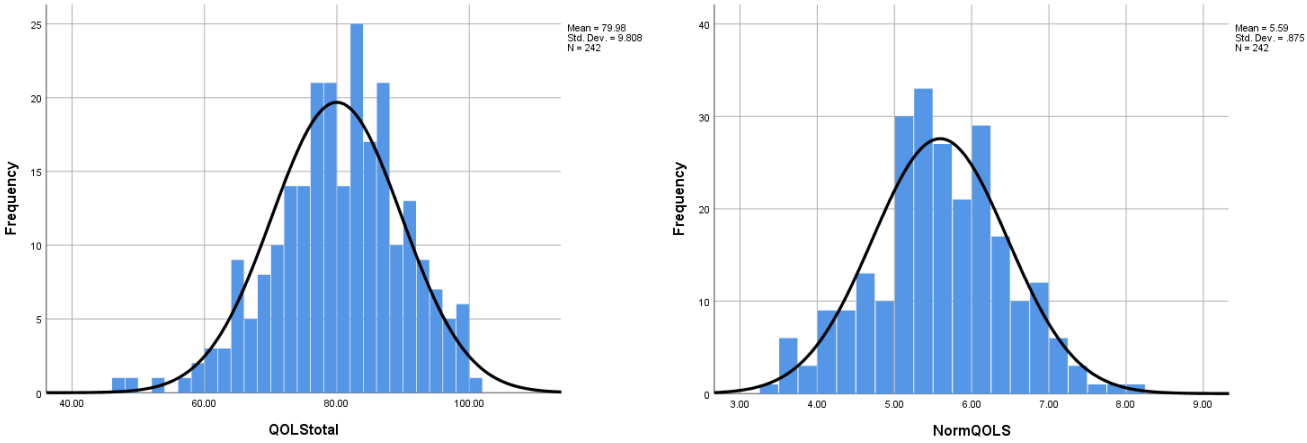


Figure T3. Pre- and post- transformation for Quality of Life variable

In Figure T3 the histogram on the left indicates that the data from the QOLS were not normally distributed. The histogram on the left indicates a normal distribution following a reflect and square-root transformation.

Appendix U

Assumption Testing for Mediation Analyses

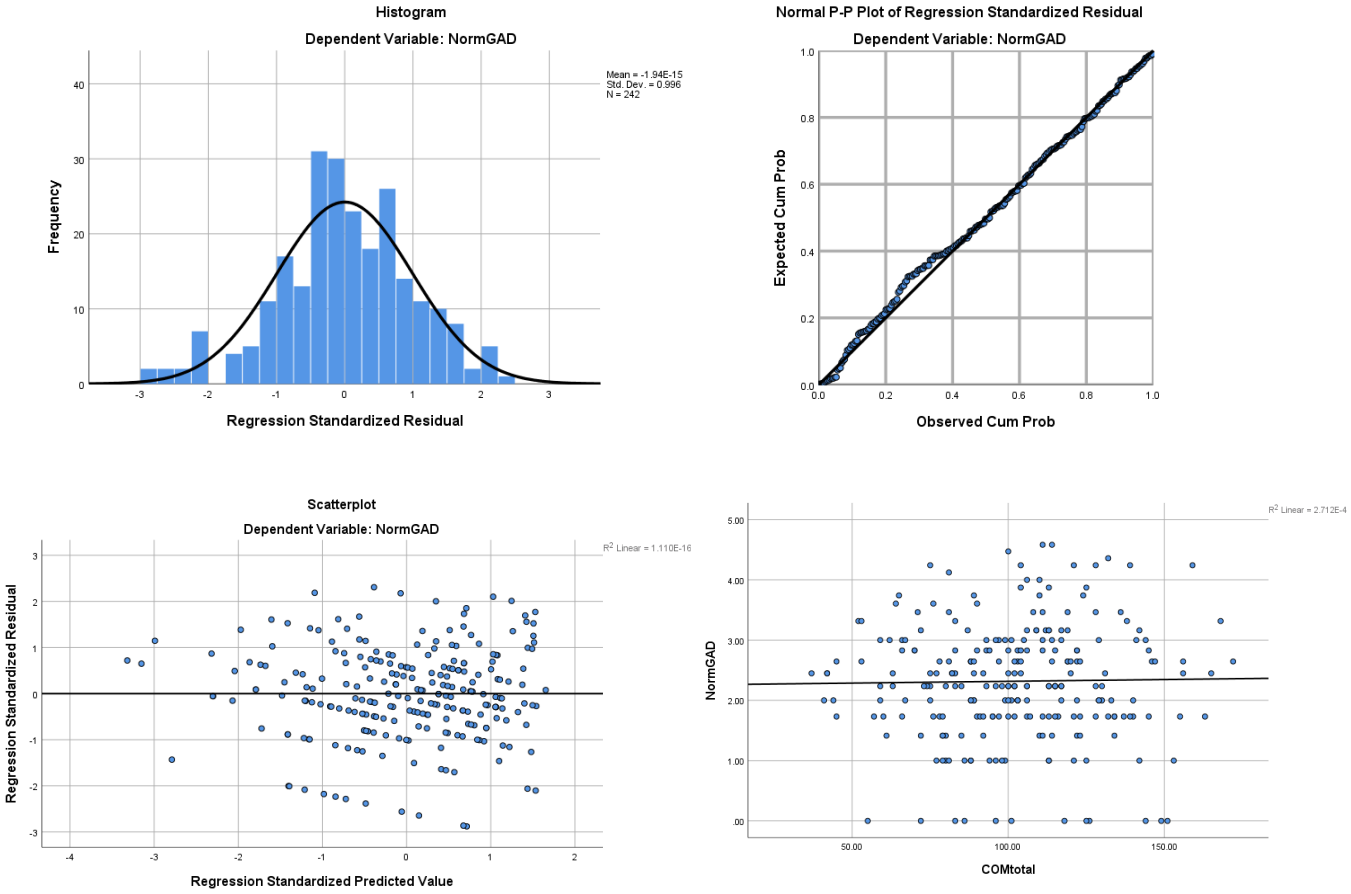


Figure U1. Assumption testing for the multiple regression analysis examining perfectionism as a mediator of the relationship between competitiveness and anxiety.

In Figure U1 the histogram and P-P Plot demonstrate an approximately normal distribution of the anxiety variable. The scatterplot of residuals indicates the assumption of homoscedasticity is met. The second scatterplot indicates a linearity of the relationship between competitiveness and anxiety.

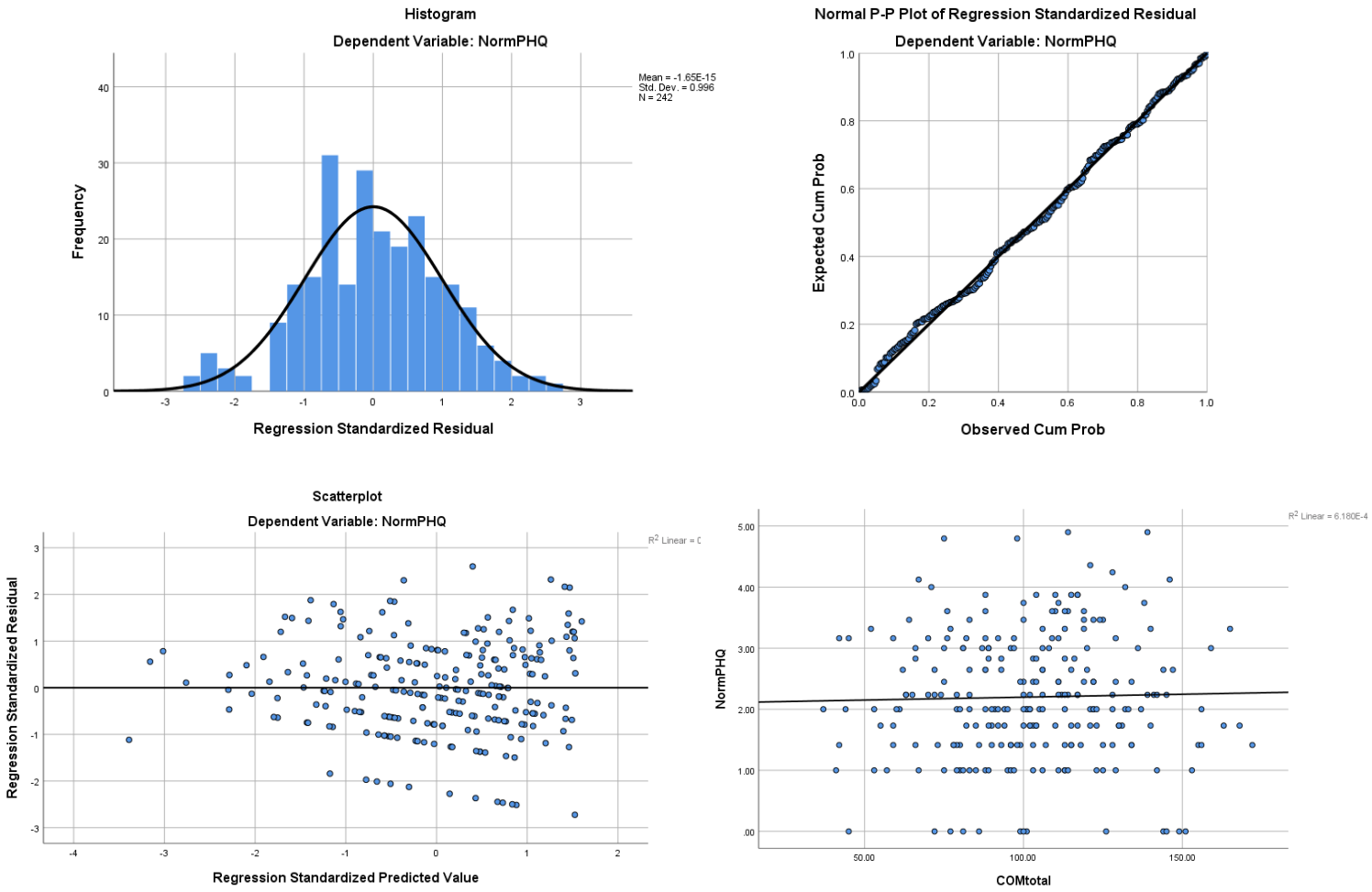


Figure U2. Assumption testing for the multiple regression analysis examining perfectionism as a mediator of the relationship between competitiveness and depression.

In Figure U2 the histogram and P-P Plot demonstrate an approximately normal distribution of the depression variable. The scatterplot of residuals indicates the assumption of homoscedasticity is met. The second scatterplot indicates a linearity of the relationship between competitiveness and depression.

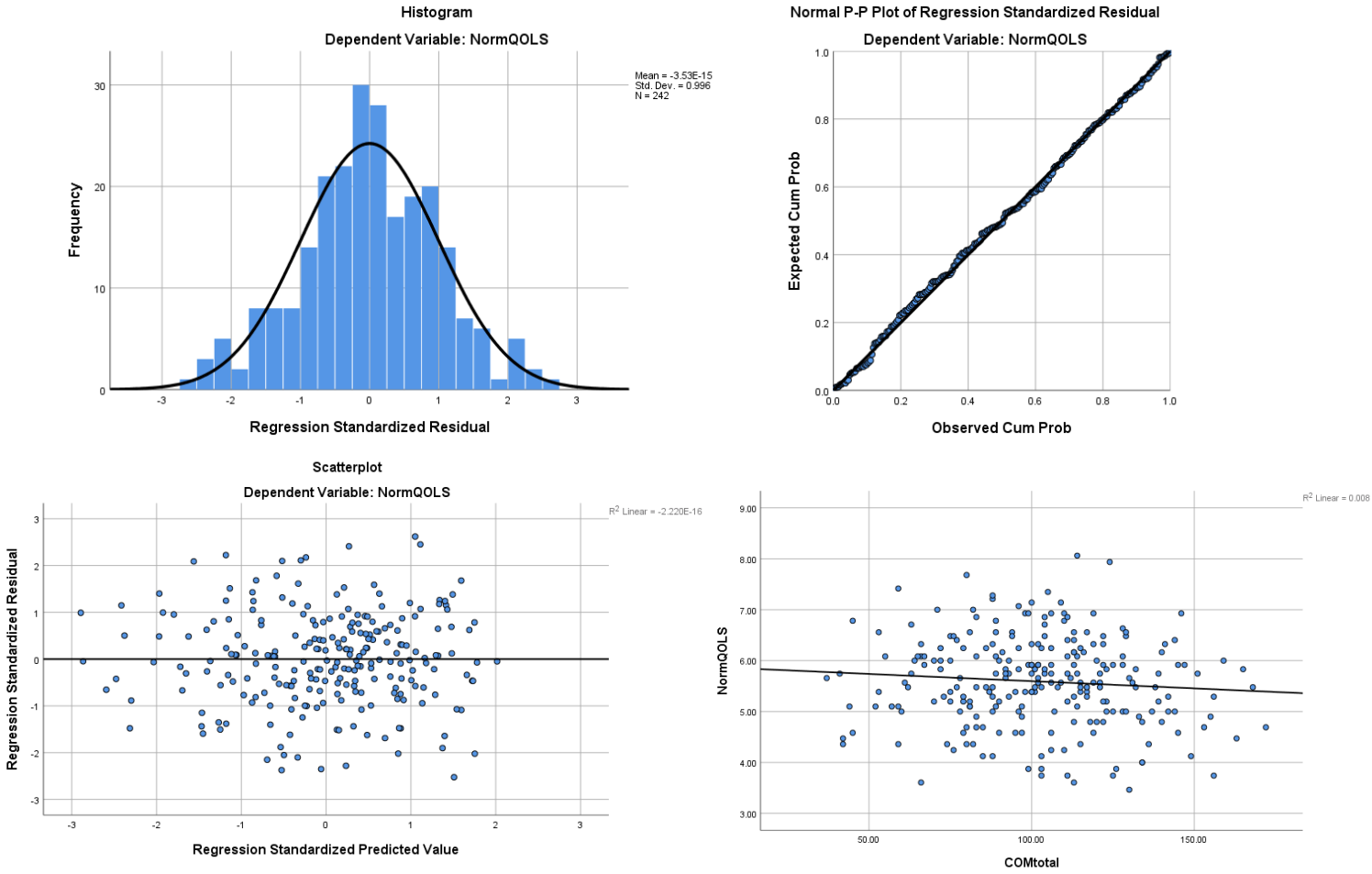


Figure U3. Assumption testing for the multiple regression analysis examining perfectionism as a mediator of the relationship between competitiveness and quality of life.

In Figure U3 the histogram and P-P Plot demonstrate an approximately normal distribution of the depression variable. The scatterplot of residuals indicates the assumption of homoscedasticity is met. The second scatterplot indicates a linearity of the relationship between competitiveness and quality of life.

Appendix V

Assumption Testing for Hierarchical Regression Analyses

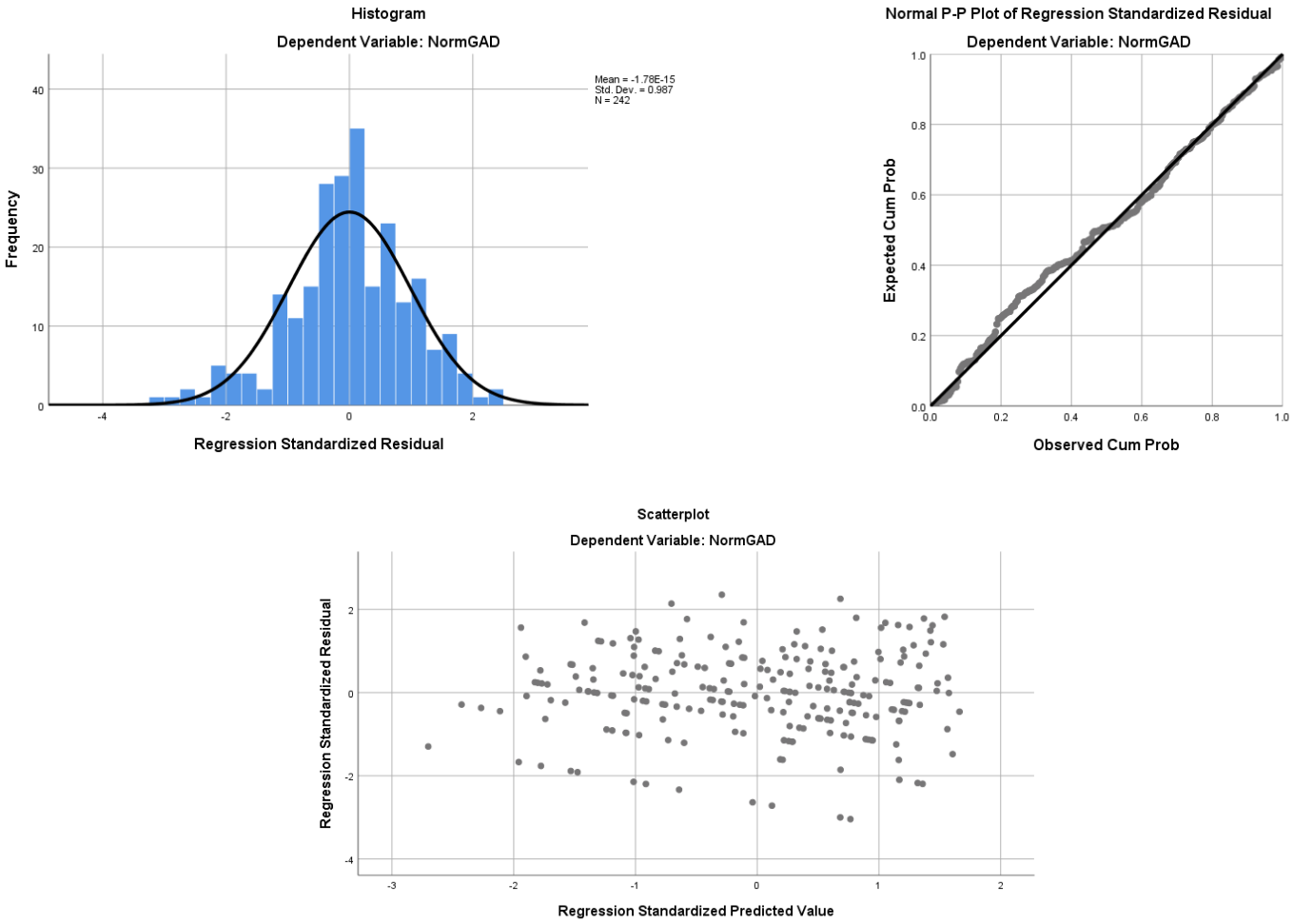


Figure V1. Assumption testing for the hierarchical multiple regression analysis examining the subscales of competitiveness and perfectionism as predictors of anxiety.

In Figure V1 the histogram and P-P Plot demonstrate an approximately normal distribution of the anxiety variable. The scatterplot of residuals indicates the assumption of homoscedasticity is met.

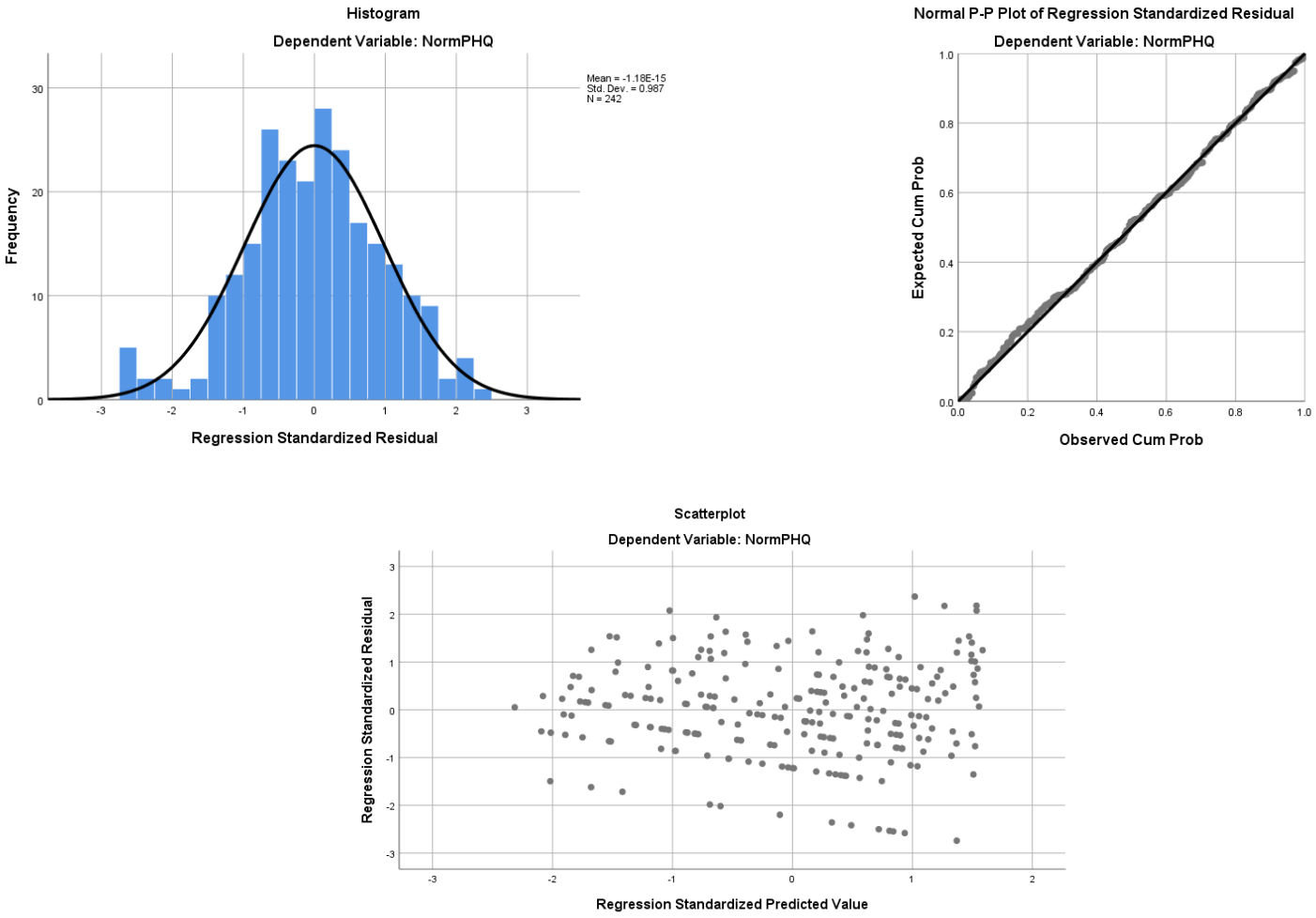


Figure V2. Assumption testing for the hierarchical multiple regression analysis examining the subscales of competitiveness and perfectionism as predictors of depression.

In Figure V2 the histogram and P-P Plot demonstrate an approximately normal distribution of the anxiety variable. The scatterplot of residuals indicates the assumption of homoscedasticity is met.

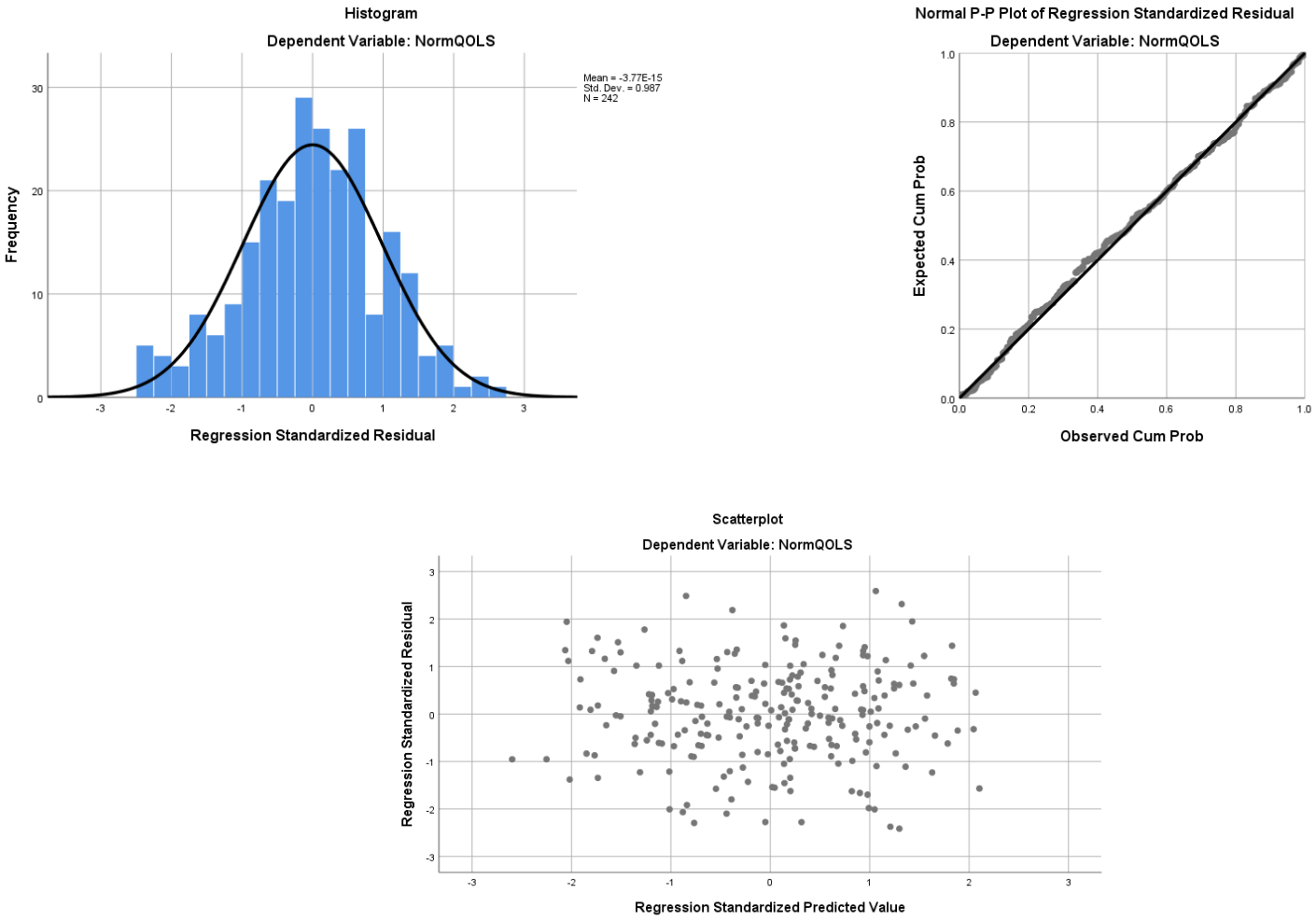


Figure V3. Assumption testing for the hierarchical multiple regression analysis examining the subscales of competitiveness and perfectionism as predictors of quality of life.

In Figure V3 the histogram and P-P Plot demonstrate an approximately normal distribution of the anxiety variable. The scatterplot of residuals indicates the assumption of homoscedasticity is met.

Appendix W

Correlations Tables for Assumption Testing

Variable	1	2	3	4	5
1. Anxiety	-				
2. Depression	.713***	-			
3. Quality of Life	-.407***	-.462***	-		
4. Competitiveness (Total)	.016	.025	-.087	-	
5. Perfectionism (Total)	.381***	.311***	.273***	.143*	-

Note. *p< .05; ***p< .001.

Table W1. Correlations of variables included in the mediator analyses.

Variable	1	2	3	4	5	6	7	8	9
1. Anxiety	-								
2. Depression	.713***	-							
3. Quality of Life	-.407***	-.462***	-						
4. General Competitiveness	-0.052	-0.027	-0.131*	-					
5. Dominant Competitiveness	0.058	0.049	0.079	0.707***	-				
6. Competitive Affectivity	0.01	0.033	0.037	0.41***	0.63***	-			
7. Personal Enhancement Competitiveness	0.089	0.063	-0.084	0.634***	0.581***	0.482***	-		
8. Perfectionism - Standards	0.157**	0.151**	0.07	0.043	0.204**	0.316***	0.246***	-	
9. Perfectionism - Discrepancy	0.443***	0.347***	0.343***	-0.063	0.137*	0.088	0.163**	0.501***	-

Note. *p< .05; **p< .01; ***p< .001.

Table W2. Correlations of variables included in the hierarchical regression analyses.

Appendix X

Assumption Testing for Multicollinearity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.639	.339		1.883	.061		
	SAPStotal	.043	.007	.387	6.411	.000	.980	1.021
	COMtotal	-.001	.002	-.039	-.642	.521	.980	1.021

a. Dependent Variable: NormGAD

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	SAPStotal	COMtotal
1	1	2.934	1.000	.00	.00	.01
	2	.047	7.884	.03	.28	.84
	3	.018	12.612	.97	.72	.16

a. Dependent Variable: NormGAD

Tables X1. Collinearity statistics for the mediation analysis with Anxiety as the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.695	.374		1.857	.065		
	SAPStotal	.037	.007	.314	5.058	.000	.980	1.021
	COMtotal	-.001	.002	-.020	-.321	.748	.980	1.021

a. Dependent Variable: NormPHQ

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	SAPStotal	COMtotal
1	1	2.934	1.000	.00	.00	.01
	2	.047	7.884	.03	.28	.84

3	.018	12.612	.97	.72	.16

a. Dependent Variable: NormPHQ

Tables X2. Collinearity statistics for the mediation analysis with Depression as the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	4.778	.317		15.075	.000		
	SAPStotal	.029	.006	.291	4.677	.000	.980	1.021
	COMtotal	-.004	.002	-.129	-2.068	.040	.980	1.021

a. Dependent Variable: NormQOLS

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	SAPStotal	COMtotal
1	1	2.934	1.000	.00	.00	.01
	2	.047	7.884	.03	.28	.84
	3	.018	12.612	.97	.72	.16

a. Dependent Variable: NormQOLS

Tables X3. Collinearity statistics for the mediation analysis with Quality of Life as the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.547	.400		3.867	.000		
	GenComp	-.008	.008	-.094	-.989	.324	.377	2.652
	DomComp	.005	.009	.056	.568	.571	.342	2.922
	CompAff	-.005	.012	-.038	-.475	.635	.532	1.880
	PerEnComp	.020	.020	.080	.977	.329	.502	1.991
	SAPSstandards	-.023	.018	-.091	-1.275	.204	.665	1.503
	SAPSdiscrepency	.072	.011	.465	6.647	.000	.691	1.447

a. Dependent Variable: NormGAD

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	GenComp	DomComp	CompAff	PerEnComp	SAPSstandards	SAPSdiscrepency
1	1	6.701	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.139	6.941	.01	.05	.03	.00	.02	.01	.23
	3	.052	11.331	.07	.02	.02	.15	.10	.03	.39
	4	.044	12.281	.04	.06	.30	.13	.23	.01	.06
	5	.036	13.620	.04	.27	.03	.19	.52	.00	.00
	6	.017	20.030	.05	.51	.60	.52	.10	.08	.25
	7	.010	25.575	.79	.09	.01	.00	.02	.86	.07

a. Dependent Variable: NormGAD

Tables X4. Collinearity statistics for the hierarchical regression with Anxiety as the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	1.290	.451		2.860	.005		
	GenComp	-.002	.009	-.024	-.244	.807	.377	2.652
	DomComp	.001	.011	.007	.070	.944	.342	2.922
	CompAff	.001	.013	.008	.100	.920	.532	1.880
	PerEnComp	.005	.023	.020	.236	.814	.502	1.991
	SAPSstandards	-.010	.020	-.037	-.496	.620	.665	1.503
	SAPSdiscrepency	.060	.012	.359	4.884	.000	.691	1.447

a. Dependent Variable: NormPHQ

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	GenComp	DomComp	CompAff	PerEnComp	SAPSstandards	SAPSdiscrepency
1	1	6.701	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.139	6.941	.01	.05	.03	.00	.02	.01	.23
	3	.052	11.331	.07	.02	.02	.15	.10	.03	.39
	4	.044	12.281	.04	.06	.30	.13	.23	.01	.06
	5	.036	13.620	.04	.27	.03	.19	.52	.00	.00

	6	.017	20.030	.05	.51	.60	.52	.10	.08	.25
	7	.010	25.575	.79	.09	.01	.00	.02	.86	.07

a. Dependent Variable: NormPHQ

Tables X5. Collinearity statistics for the hierarchical regression with Depression as the dependent variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	5.315	.369		14.400	.000		
	GenComp	.003	.008	.039	.404	.686	.377	2.652
	DomComp	-.017	.009	-.196	-1.932	.055	.342	2.922
	CompAff	.029	.011	.220	2.706	.007	.532	1.880
	PerEnComp	-.031	.019	-.137	-1.642	.102	.502	1.991
	SAPSstandards	-.035	.017	-.155	-2.141	.033	.665	1.503
	SAPSdiscrepency	.064	.010	.454	6.368	.000	.691	1.447

a. Dependent Variable: NormQOLS

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	GenComp	DomComp	CompAff	PerEnComp	SAPSstandards	SAPSdiscrepency
1	1	6.701	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.139	6.941	.01	.05	.03	.00	.02	.01	.23
	3	.052	11.331	.07	.02	.02	.15	.10	.03	.39
	4	.044	12.281	.04	.06	.30	.13	.23	.01	.06
	5	.036	13.620	.04	.27	.03	.19	.52	.00	.00
	6	.017	20.030	.05	.51	.60	.52	.10	.08	.25
	7	.010	25.575	.79	.09	.01	.00	.02	.86	.07

a. Dependent Variable: NormQOLS

Tables X6. Collinearity statistics for the hierarchical regression with Quality of Life as the dependent variable

Appendix Y

Assumption Testing for Normality of Independent Variables

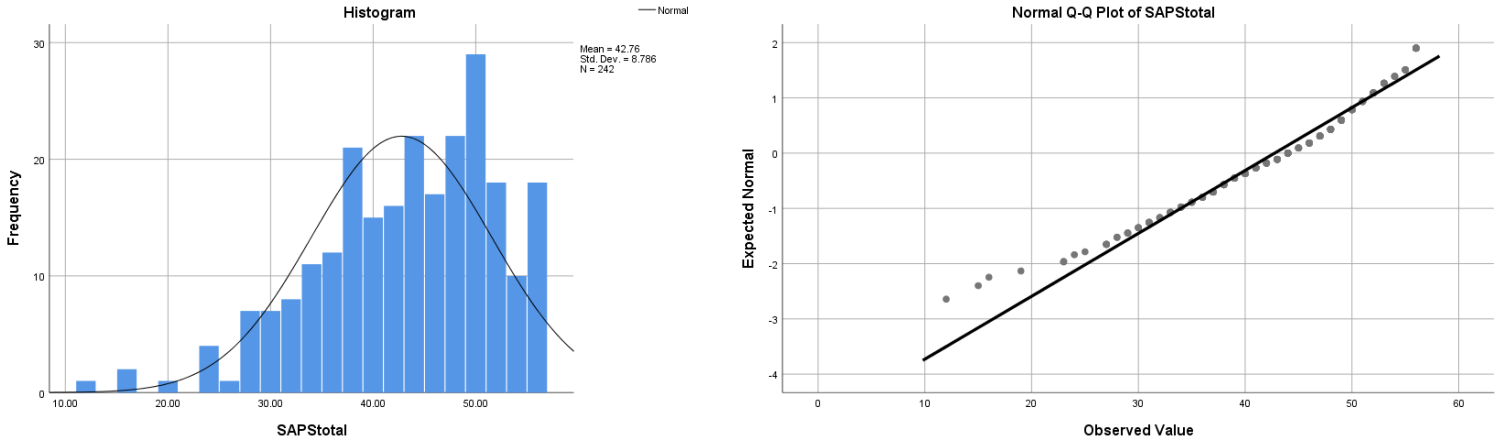


Figure Y1. The histogram and P-P Plot demonstrate non-normal distribution of the total SAPS scores data.

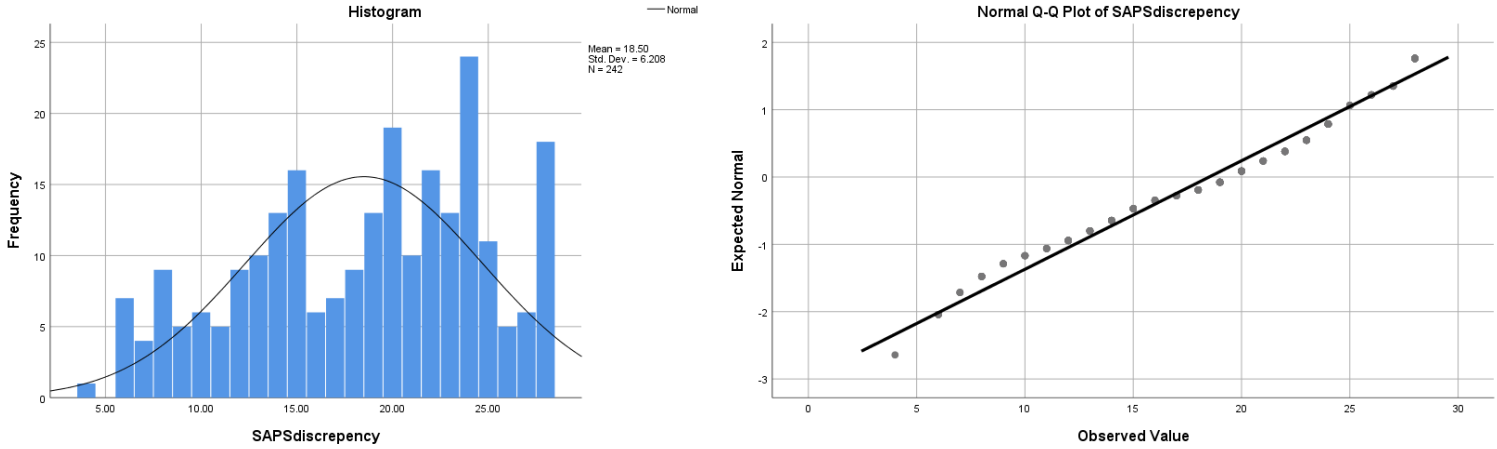


Figure Y2. The histogram and P-P Plot demonstrate non-normal distribution of the SAPS Standards subscale score data.

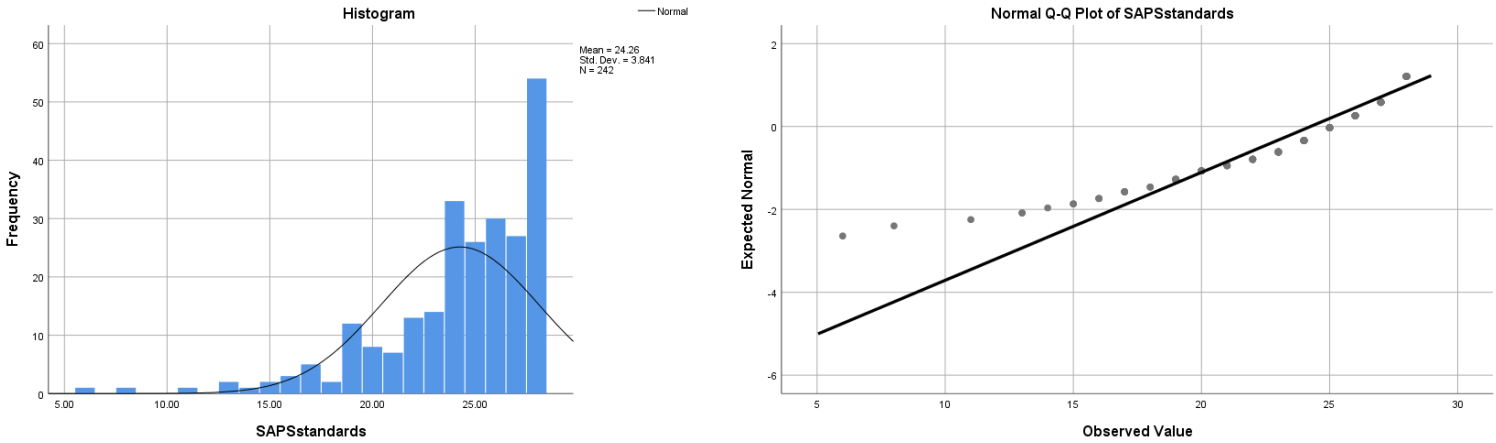


Figure Y3. The histogram and P-P Plot demonstrate non-normal distribution of the SAPS Discrepancy subscale score data.

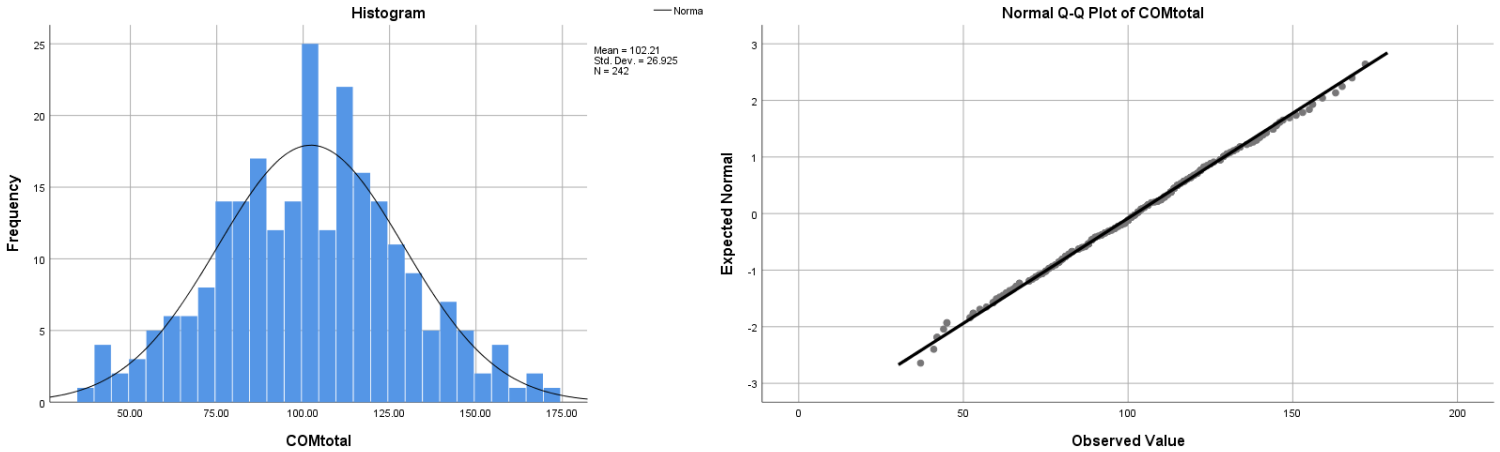


Figure Y4. The histogram and P-P Plot demonstrate a normal distribution of the COMS total score data.

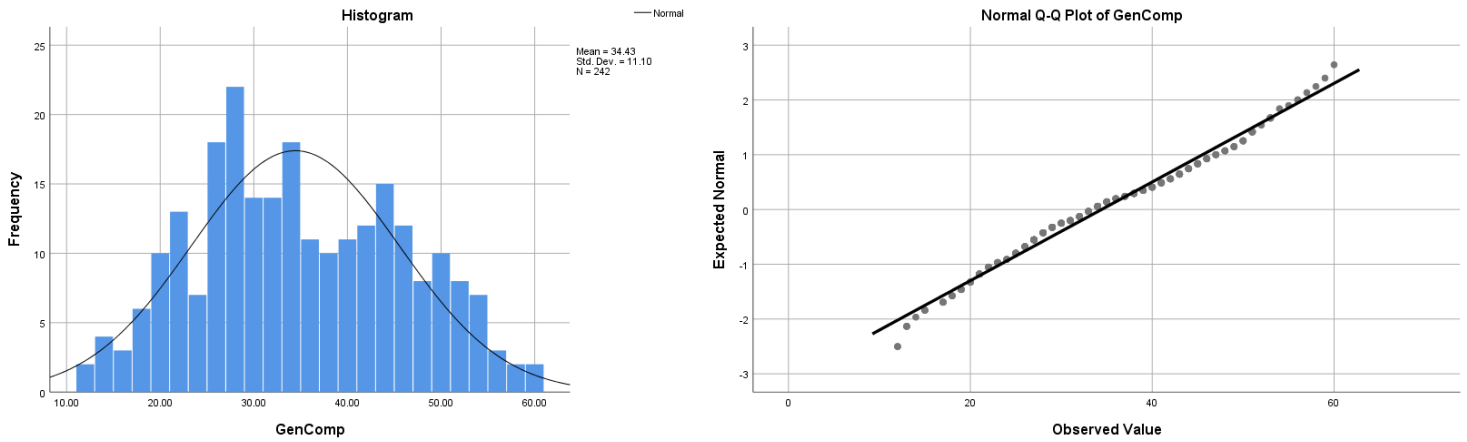


Figure Y5. The histogram and P-P Plot demonstrate a normal distribution of the COMS General Competitiveness subscale score data.

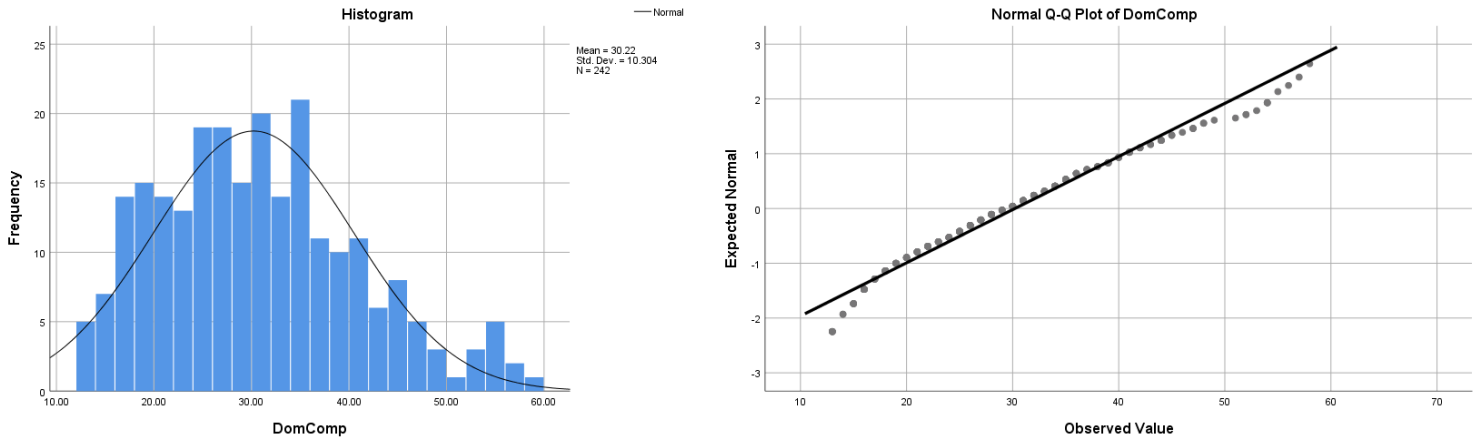


Figure Y6. The histogram and P-P Plot demonstrate a non-normal distribution of the COMS Dominant Competitiveness subscale score data.

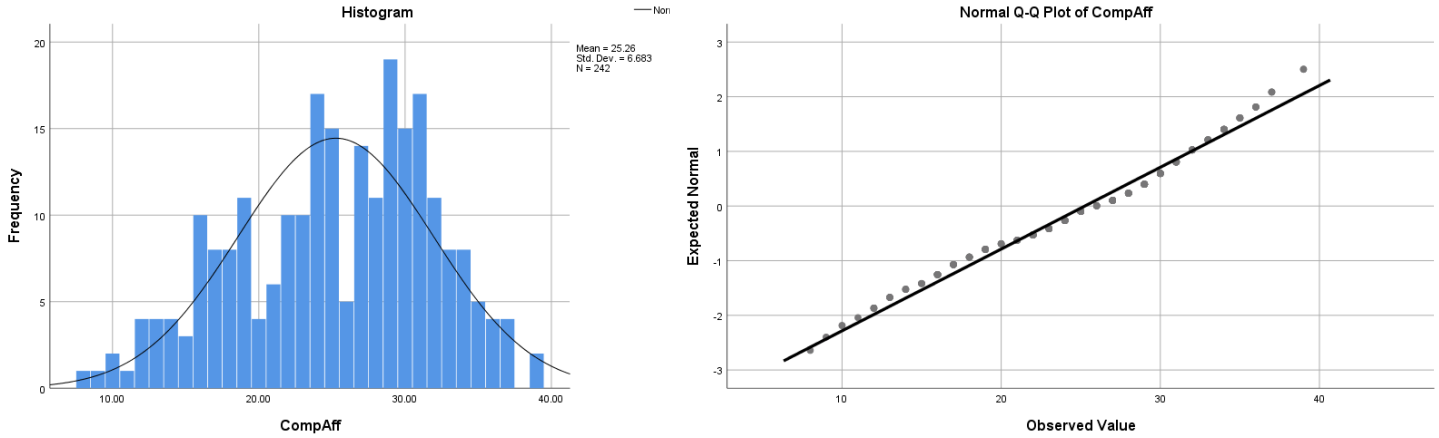


Figure Y7. The histogram and P-P Plot demonstrate a normal distribution of the COMS Competitive Affectivity subscale score data.

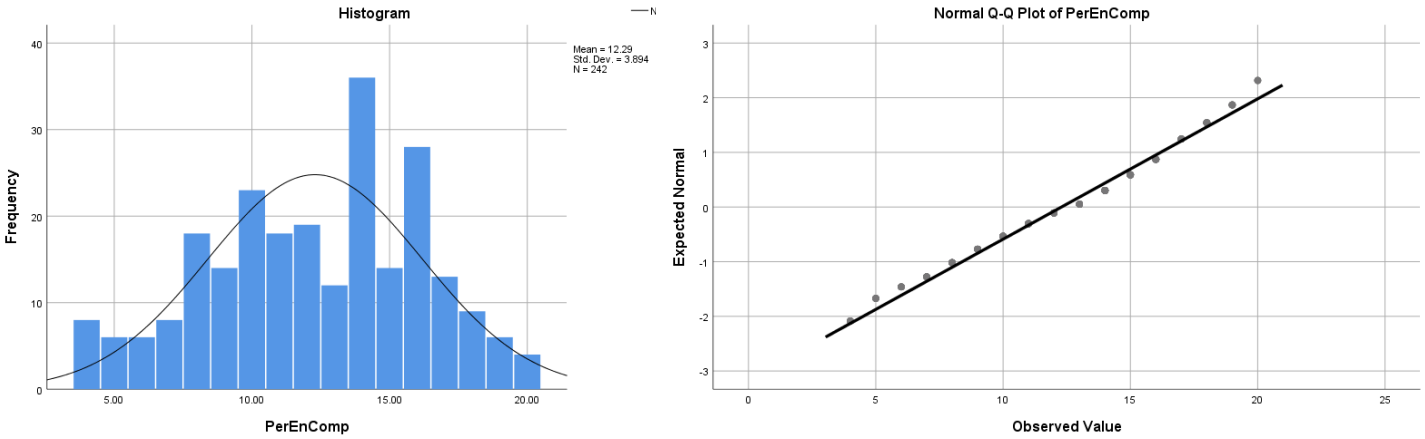


Figure Y8. The histogram and P-P Plot demonstrate a normal distribution of the COMS Personal Enhancement Competitiveness subscale score data.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SAPStotal	.098	242	.000	.959	242	.000
SAPSstandards	.176	242	.000	.847	242	.000
SAPSdiscrepency	.099	242	.000	.958	242	.000
COMtotal	.029	242	.200	.996	242	.815
GenComp	.080	242	.001	.980	242	.002
DomComp	.061	242	.031	.971	242	.000
CompAff	.096	242	.000	.976	242	.000
PerEnComp	.124	242	.000	.974	242	.000

a. Lilliefors Significance Correction

Table Y1. Testing the assumption of normality of independent variables. The results suggest that all variables except total competitiveness score violate the assumption of normality.

Levene's Test of Equality of Error Variances[a]

	Levene Statistic	df1	df2	Sig.
COMtotal	1.104	2	239	.333
	1.006	2	239	.367
	1.006	2	229.682	.367
	1.181	2	239	.309
GenComp	.959	2	239	.385
	1.167	2	239	.313
	1.167	2	237.627	.313
	1.009	2	239	.366
DomComp	.282	2	239	.754
	.299	2	239	.742
	.299	2	234.706	.742
	.314	2	239	.731
CompAff	2.070	2	239	.128
	2.121	2	239	.122
	2.121	2	237.076	.122
	2.082	2	239	.127
PerEnComp	7.634	2	239	.001
	5.814	2	239	.003
	5.814	2	223.750	.003
	7.554	2	239	.001
SAPStotal	.720	2	239	.488
	.696	2	239	.500
	.696	2	230.491	.500
	.710	2	239	.493
SAPSstandards	2.427	2	239	.090
	1.651	2	239	.194
	1.651	2	231.608	.194
	2.157	2	239	.118
SAPSdiscrepency	1.081	2	239	.341
	1.267	2	239	.284
	1.267	2	236.591	.284
	1.131	2	239	.325

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Year

Table Y2. Testing the assumption of homogeneity of variance of independent variables. The results suggest that the Personal Enhancement Competitiveness subscale of the COM violates the assumption of homogeneity of variance.