Understanding mental health and well-being in university students: Investigating life events and assessment-related stress

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Abstract

This study aimed to gain insight into students' mental health levels and their well-being at university. This was done through gaining understanding of students' life events and assessment-related stress. Mental health was measured by the Depression, Anxiety and Stress Scale [DASS] and life event data were collected through the Social Readjustment Rating Scale [SRRS]. These scales were administered to 103 postgraduate and undergraduate university students (male= 17, female= 86) via an online questionnaire which also asked open-ended questions. Six interviews were conducted to produce more qualitative data to elaborate on the quantitative data from the scales. Three key research questions were addressed by the current study, involving investigating life events students' experience, students' mental health levels during the assessment period and the relationships between assessment-related stress and student mental health. Statistically significant findings were produced from correlations, independent t-tests and ANOVAS comparing many different groups. These groups included students who had taken different assessment types, courses and who were also at different stages of education. According to the results of the test criteria, this sample of students was severely depressed, extremely severely anxious and severely stressed. Aspects such as gender were also investigated in addressing the research questions and hypotheses. The present study found that students may be experiencing high levels of mental distress at university, especially during assessment period. This may be due to external factors, individual to each student. This could be reported by the student to the university with the addition of more points of contact for pastoral support and mental health treatment. Assessment-related stress may make a significant contribution to mental health decline in students, as indicated by some findings. Assessment scheduling and more points of contact are given as plausible suggestions to be adjusted in order to help the well-being of students at university.

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I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

Chapter 1: Introduction

The topic of mental health at university has recently become more widely discussed amongst both students and researchers. This trend has largely stemmed from the wider understanding of mental health around the world, with an increasing number of people being aware of mental health issues than ever before. More extensive research into this area has resulted in identifying the known and potential prevalence of mental health issues such as depression and anxiety; encouraging people to talk about their issues to others. This research spreads knowledge and understanding of mental health issues through the general population, not just in research and academia. This discussion raises the question of whether this is an increase of prevalence of mental health issues, or just awareness. Regardless, students are now accessing mental health services more than ever before (Royal College of Psychiatrists, 2011).

Despite this recent increase in awareness, one could argue that disciplines like Psychology are still not able to answer many of the questions surrounding this subject. Terms such as mental health, well-being, mental and emotional well-being are often used interchangeably or not strictly defined in current research. In the current study well-being is described as differing from mental health. This difference is that well-being describes one's overall mental state and state of content, rather than susceptibility of specific disorders. According to the UK mental health charity Mind (2013), well-being describes how an individual is feeling and how well they can cope with day-to-day life.

Due to the multi-dimensional nature of mental health issues, researchers have a difficult time pinpointing exactly what aspect of the topic they should choose to investigate. The results of these types of research may provide insight into the subject, or produce practical applications in diagnosis, prevention or treatment. This study focuses on gaining

insight into what types of stresses university students experience in their lives, how these everyday stresses compare to assessment-related stress at university and what steps can be taken to support students. This study aims to approach this complex subject by narrowing its scope to investigate the student population specifically and to use a mixed methodology of both quantitative and qualitative data.

1.1 Research Questions

The research questions are:

1. What stressful life events do students experience?

2. What levels of mental health do university students experience during assessment period?

3. What are the relationships between assessment-related stress and student mental health and well-being?

   a. Are there differences between students' levels of mental health depending on type of assessment?

   b. Are there differences between students' levels of mental health depending on type of educational qualification?

   c. Are there differences between students' levels of mental health depending on year of study?

The origins of the research questions and the present study stem from an undergraduate pilot study undertaken by the researcher (Symons, 2016). This study investigated the relationships between past assessment experience on stress levels in future assessments and stress levels between assessment types. This pilot study is explained in more

detail in later chapters, but on reflection, relying on retrospective data could not yield significant findings with regards to investigating past assessment experience. However, significant results were found regarding different assessment types on levels of depression, anxiety and stress. This pilot study is what prompted the present study to not investigate the effects of past assessment experience, but choose to focus on the subjective experiences of students and how they can help to explain their levels of depression, anxiety and stress at university.

1.2 Hypotheses

In addition to the research questions, the present study also tests a number of hypotheses:

1. Students who have taken an examination recently will be associated with worse levels of mental health than those who have not taken an examination.

2. There will be a significant difference between the mental health scores of students who are studying science courses when compared to arts course students.

3. Female students will have significantly higher levels of mental distress than their male counterparts.

The first hypothesis is based on previous findings (Symons, 2016), where students who have taken an examination recently will be associated with worse levels of mental health than those who have not taken an examination. The second hypothesis is made on the basis that science subjects, such as BSc and MSc qualifications, tend to be more examination based in terms of assessment style than arts qualifications (BA, MA). The final hypothesis was made as previous research has indicated that females report higher levels of mental distress than males in many different subject areas.

1.3 Rationale for Undertaking this Research

The wider interest in the topic of student mental health and specifically assessment-related stress comes from the personal experience of the researcher. Having experienced stressful assessments throughout GCSEs, the researcher developed a fear of examinations at A-Level and at university. Much of this fear subsided once the test-anxiety was brought under control through the use of counselling. Throughout this experience, questions were raised regarding how this anxiety precisely manifested itself, the psychological methods which have been developed to treat it and the prevalence of mental health issues in general. This fed into a keen interest into the field of Psychology and the diagnosis and treatment of mental health issues. It is the hope that the present study will contribute to the field of Psychology and help to develop methods to prevent and treat mental health issues experienced by university students.

The prevalence of mental health issues at university is discussed through analysis of the literature, but is still not fully understood on a global level. At one university in the north of England, five students had committed suicide in 2016. This figure is echoed around the country, with a total 130 students from a range of universities in the UK committing suicide in 2014, according to official statistics (Office for National Statistics, 2014). What these figures may show at a glance is that there are underlying issues within UK universities which need further investigation. Other studies make the suggestion that students may not be prepared for the transition to university from another educational level (Fisher, Cavanagh & Bowles, 2011; Lowe & Cook, 2003). This can manifest in study habits picked up at school level, which may not be suited to more difficult university assessments

Universities take the incidence of mental health issues very seriously and this has resulted in increased awareness of mental health on campus, but more steps need to be taken

in order to begin to support the students concerned. This begins with getting the subjective experiences of students regarding assessments and investigating how some students can vary so much in how they approach assessments. To counterbalance this however, universities need to be able to sufficiently assess their students in order to know whether or not they have learnt the required knowledge and skills required in order to receive their qualification. The present study aimed to propose alternatives to the way some students are assessed, based upon the findings of the research. In order to carry this out, the researcher devised a strategy to work from.

1.4 Structure of Dissertation

1.4.1 Chapter 1: Introduction. This chapter explains the background and rationale behind carrying out the present study. This involves taking wider research topics and explaining how the specific research questions relate to these broad topics. All research questions and hypotheses are also clearly listed and discussed.

1.4.2 Chapter 2: Literature Review. An extensive review of relevant literature was carried out before conducting the study. This section details the findings of this search from a wide range of sources. The structure of the review is outlined at the beginning of the section. Following this, the topics of mental health and assessment stress are evaluated on a macro and micro scale, with sources from large global records, down to smaller scale studies in the UK and around the world. Mental health is also broken down into sections which investigate mental health in the general population and then young people specifically. Student well-being is also explained with research that investigates it specifically. Student suicide is discussed in order to highlight a real life issue in the student community and to reinforce the importance of the research. Terms such as test-anxiety and exam-stress are evaluated

individually, using sources to compare how certain terms are used differently in some papers but synonymously in others.

The pilot study undertaken by the researcher as an undergraduate student (Symons, 2016) is critiqued. Finally, the gaps in the literature are discussed and how the present study helps to fill these gaps, by highlighting the importance of the issues examined in the current climate of increasing mental health problems amongst university students.

1.4.3 Chapter 3: Methodology. This section describes the steps which have been taken in order to carry out this study. Beginning with a description of the participants in the study and their demographics, such as gender and course of study, it then goes on to explain how the participants were recruited. The mixed methodology of utilising both quantitative and qualitative data is also discussed with reference to the literature. This leads onto a discussion of the pilot study, for the purpose of comparing its methodology to that of the present study and how they differ. The procedure is outlined beginning with a description of the development of the questionnaire. Attention is then turned to evaluation of the DASS and SRRS (statistical scales), explaining the reasoning behind the use of these particular scales. Examples of their use in other research studies are also given, as well as mentioning how the interviews were carried out. Ethical considerations are subsequently highlighted. The purpose of this methodology section is to show the rationale behind the choices made for the way this study has been conducted. It also aids the study's replicability in the future by documenting how it was undertaken.

1.4.4 Chapter 4: Results Presentation of the results is arranged relating to each research question. The associated findings are displayed with the relevant research question. Statistical analyses are featured in labelled tables and graphs, which are then explained in more detail with surrounding text. This section displays all the quantitative analysis of the

study and consists of correlations, t-tests, ANOVA and other methods of analyses. This section also reports findings related to the the qualitative responses on the questionnaire and the follow-up interviews. Some of these data are thematically analysed for trends which explain some of the quantitative analyses in the previous section. Individual responses are also displayed, whilst maintaining anonymity by the use of coding for participants when using quotes from the interviews.

1.4.5 Chapter 5: Discussion. The implications of the findings for real world applications and how the data compares with other findings are discussed in Chapter 5. Sources mentioned in the literature review are re-visited, as well as discussion on the limitations of the study and recommendations for how to improve future research in this area.

1.4.6 Chapter 6: Conclusion. The final section highlights the key findings and implications of the study. These include making improvements to the study, how to build upon its strengths and what the results mean for application in the real world. This section also has recommendations for future research based upon its findings. The research questions are again listed with an indication as to the extent they have been answered in the present study.

Chapter 2: Literature Review

The strategy for this research involves taking multiple data points from each participant via the use of a large questionnaire and follow-up interviews. This approach is inspired by the available literature on the topic of mental health in young people, which tends to use the questionnaires to gather data. The timings of when the survey and follow-up interviews are conducted have also been considered. The questionnaire was distributed during the time of the first sets of assessments in the spring term for university students in the UK. The follow-up interviews were conducted after this in the summer term, during the assessment period at that time. This was done in order to help participants call upon their personal experiences of assessments at university easier, as they were experiencing them first-hand at the time. The decision was made to investigate post undergraduates and postgraduates at university, as this would allow for more comparisons between groups to be made. This would also allow for the findings to be more applicable to university students in the UK as a whole, rather than one group specifically. It was also suggested by the researcher that post graduate students would be likely to have more assessment experience than undergraduates, and so may be able to offer a more detailed insight into the topic.

The techniques used in the present study, such as the use of an online questionnaire and the logistics of arranging the follow-up interviews, were formed from the necessity to produce large amounts of relevant data and to maintain anonymity. As the majority of students now operate through many aspects of their lives digitally, it made sense to the researcher to distribute and get participants to complete the questionnaire online. The use of Qualtrics online questionnaire software allowed for the survey to be produced professionally and easily, and also be automatically scaled down for mobile devices if the questionnaire was accessed from one. This resulted in the questionnaire being convenient to complete across many different types of devices. The technique of using standardised scales within the

questionnaire was inspired by other research which tends to evaluate levels of certain mental health traits on tried and tested scales. This is so the self-report and qualitative data had meaningful statistics which they helped to explain and build upon. The reasons for utilising a mixed methodology of quantitative and qualitative data allowed for the findings to be both relatively easy to interpret, whilst having the background of these findings in richer detail.

Despite the convenience of online services to conduct data collection, the researcher believed that carrying out interviews face-to-face was the best option to get more detailed responses and to properly inform the participant of what they were consenting to. The interview ran a higher risk than the questionnaire of emotional distress, as it temporarily relinquished anonymity to the researcher and also asked personal questions regarding mental health. However, as it proved difficult to arrange a meaningful number of students to meet for face-to-face interviews, technology came in to help. Around half of the interviews were carried out through the use of online video chat software such as Skype, with the consent forms being sent prior to the interviewee. The adaptive techniques of the present study enabled the use of both types of interview, whilst still generating rich qualitative data. The most important aspect of how the study was conducted is the anonymity that was maintained throughout. Apart from the interviews, the participants remained completely anonymous during the survey phase as no names were able to be recorded at any point. Some students chose to leave their email addresses to be contacted for interview, but they were always aware any personally identifiable information would be held in the strictest confidence, and also not feature in the final dissertation itself. The researcher believes these techniques have helped to create a study which is replicable and valid, whilst also contributing to the topic of student mental health issues.

2.1 Structure and Themes of Literature Review

The structure of this literature review will start with outlining the research criteria used when searching for sources. This is to establish the method used when using search tools and how a range of subjects were narrowed to key terms. The next section will look at sources which investigate mental health statistics worldwide, both in the general population and in young people. The following section then narrows the range of sources to those which research mental health in the UK; again in the general population and in young people separately. Studies associated with well-being are discussed after this, also with relevance to student well-being. The last sections narrow the subject field to critiquing sources which investigate assessment-related stress and how the present study aims to improve on aspects of the previous research. Key factors are discussed, such as test anxiety, and the final section concludes with highlighting the gaps in the literature and how the present study seeks to fill these gaps.

2.2 Research Criteria and Method for Reviewing Literature

The participating universities' library resource search engine was the search tool used primarily in this literature review. This allowed all pieces of literature found through its search catalogue to be accessed in full and specific criteria to be set. For the smaller types of studies YorSearch was used for, search terms such as "Mental Health", "Depression", "Anxiety", "Stress", "Test" and "Assessment" were applied. Studies which were carried out more recently were selected for closer relevance to the present day, with the majority having been peer-reviewed. Meta-analyses and landmark studies were found through Google Scholar, as its feature to show how many times a paper has been cited aided in finding these types of studies. Websites were used only when the information for certain larger studies was needed, as it was not available in any other format.

2.3 Mental Health Statistics Worldwide

2.3.1 General Population. Studies carried out on mental health on an international scale are rare, but provide some of the most reliable insight into mental health issues on a global scale. This is mostly due to larger sample sizes and the use of many researchers carrying out studies in different locations, such as The Global Burden of Disease [GBD] (World Health Organisation [WHO], 2008). The GBD examines morbidity and mortality rates from a wide range of major diseases, as well as risk factors to health on a global and national scale. It does this by conducting multiple studies to research specific diseases all over the world. A key finding from this research is that mental health and substance abuse issues contribute to 13% of all global disease. This highlights the global issue of mental health, which is something that is hard to investigate extensively. This is why most research is carried out on a national scale.

2.3.2 Young People. Looking at mental health in young people on a global scale provides its own set of challenges. Patel, Flisher, Hetrick, & McGorry (2007) highlight some of these issues in their paper entitled "Mental health of young people: a global public-health challenge". The researchers focus on the mental health of young people aged 12-24 years and forming summaries and conclusions from around 115 separate studies. This study aids in providing a more comprehensive and global view of mental health issues in young people. This is shown throughout the paper, which stresses the importance of treatments for young people, as most mental disorders start in adolescence and are picked up in adulthood. The paper notes multiple risk factors associated with mental health issues in adolescents, with the main three types of risk factor being biological, psychological and social. Examples of biological risk factors are malnutrition, complications at birth and head trauma. Psychological risk factors include learning difficulties, a difficult temperament and neglect. Family, school (education) and community make up the three subtypes of social risk factors. Academic

failure and failure to provide an adequate educational setting are possible risk factors in mental health in adolescents.

2.4 Mental Health Statistics in England and the UK

2.4.1 General population. According to the Adult Psychiatric Morbidity Survey [APMS] (2016), a national mental health survey (N = 7500) in England, one adult in six had a common mental disorder (CMD) such as depression or anxiety. This represents a small increase in diagnosis in women and remaining stable for men since 2000. Younger women were identified as a high-risk group, as they reported higher rates of CMD, post-traumatic stress disorder (PTSD) and self-harm. The quality and rates of treatment were also investigated, as well as specific behaviours and other mental health issues, such as autism. The survey is carried out every seven years, which allows the methodology to be refined and long-term trends to be established. The survey also identified positive steps made in mental health services in the UK, such as an increase since 2007 in the number of people with CMD seeking treatment from community services and speaking with their GP.

2.4.2 Young people. According to a YouGov poll carried out around June 2016, one in four students in the UK (27%) suffers from mental health issues (Aronin & Smith, 2016). This finding was reached from a sample of British students (N = 1061), with a majority of the sample consisting of 629 18-24 year olds. Questions were asked to students such as "Do you suffer from a mental health problem?", so these findings are self-diagnosed and a number of participants may not be professionally considered to have a CMD. However, what these results imply is that a large number of students and young people in the UK have traits which they interpret as a mental health issue. This could mean that although respondents may not have an officially diagnosed CMD, they are most likely suffering from the negative traits associated with CMD's such as low self-esteem from depression, or stress from anxiety.

As reported in other research (Putwain & Daly, 2014), female students are more likely to report to suffer from a mental health issue (34%) than their male counterparts (19%). Of those which reported to have a mental health problem, most reported to suffer from depression (77%) and anxiety (74%). This suggests a widespread problem with mental health issues within our universities. A majority of students (63%) also reported that stress interferes with their day-to-day lives, as well as many reporting that the work associated with university is one of their main sources of stress (71%). This information implies that the stress caused by study and assessment at university can be the main source of stress in a student's life. This stress could affect day-to-day living which is not associated with university, such as quality of social life and participating in recreational activities. Despite this, students are now accessing student support services more frequently at university. Of total responses in the study, nearly one in five (18%) reported that they have used the mental health services at university. The large majority of these services (87%) were counselling. Three in four (75%) of students which used these services found them "very helpful" or "somewhat helpful". This suggests that mental health awareness is becoming more prominent, but there is still much more work to be done to encourage students to seek the help they need from the services available.

Trends which demonstrate that young people are more aware of mental health issues and are seeking the help they need show a positive shift for mental health and well-being in students. However, in order for this shift to continue, the rates at which young people suffer from CMDs and other mental health issues must also reduce over time. A study carried out by Pitchforth, Viner and Hargreaves (2016) aimed to investigate the rates at which student mental health problems have changed over time. Multiple sources were used to generate the large sample (N = 67386), such as using data from 15 national health surveys in the UK. Assessing these surveys over time found that the prevalence of student mental health

problems in England and the UK have been "largely stable". Scotland was found to have reported an increase in mental health problems amongst young adults. All of the data were generated from the years 2000-2014. What these findings suggest is that mental health issues in the UK may not be more prevalent overall, however, the prevalence is also not decreasing. This suggests that 14 years of mental health research and investment has not translated into significant practical applications for young people.

Suggestions for how to make improvements to the betterment of mental health in students in the UK are present in the current literature. The steps already taken by governments and educational bodies have also had a positive effect on students. A report by the Royal College of Psychiatrists (2011) investigates the state of mental health in higher education students in the UK specifically using available research and data on the subject at the time. The report suggests that some students at university are experiencing higher levels of mental disorder, but positive steps are being taken to attempt to mitigate this. The increase of counsellors and mental health advisors has aided students in seeking the treatment they need. The report also calls for closer collaboration between the mental health services of the NHS and universities, as issues with the sharing of information between the two groups can result in students not receiving the best care. Universities UK (2015) make further suggestions in their report, such as better training for teachers with regards to education about mental health. This includes awareness of mental health issues and the specific protocol for a member of staff to take when faced with a student with a possible mental health risk. This report also suggests an institutionally widespread approach regarding student well-being, incorporating student representation.

A recent study by Galante et al. (2017) aimed to assess if the use of mindfulness courses at university can raise students' resilience. Mindfulness is an approach where the individual is taught how to be aware and accept their current emotional state. Galante et al.

(2017) attribute a recent increase in its popularity to the perception amongst universities that mindfulness is a skill, rather than a mental health intervention. This study had a sample of 616 university students split into two groups. The first group (n= 309, male= 122, female, 187) received mindfulness training in their university courses. The second group (n= 307, Male= 106, Female= 201) did not receive mindfulness training. The students in the two groups self-reported their levels of psychological distress utilising the Clinical Outcomes in Routine Evaluation Outcome Measure (CORE–OM). The findings of Galante et al. (2017) suggest that mindfulness training could increase resilience to stress in some students at university. The researchers state however that further research is required to define the range of clinical interventions that are needed to benefit all students.

2.5 Student Mental Well-Being

    2.5.1 Well-being. Well-being and mental health can be interpreted as individual, yet closely related terms. According to the UK mental health charity Mind (2013), well-being describes how an individual is feeling and how well they can cope with day-to-day life. This describes overall mental state, rather than specific disorders an individual may suffer from or be prone to. This means that if one has a good mental well-being, then they will be more likely to be able to cope with daily stressors, have self-confidence and form strong social relationships. A review of literature based on well-being was carried out by Diener and Chan (2011). In this research, multiple sources were investigated using measures such as optimism and life satisfaction. In summarising their findings, Diener and Chan (2011) demonstrated that positive well-being can have a positive effect on quality of life and physical health. This shows the importance of well-being when discussing the mental health and overall quality of life for an individual.

2.5.2 Student Well-being. Research by Rania, Siri, Bagnasco, Aleo and Sasso (2014) shed light on how negative well-being can affect students. A sample of university nursing students (N = 357) were given questionnaires containing scales which provided measures of academic climate, self-esteem and well-being. Academic climate is interpreted by a scale which incorporates eight items. These items measure relationships both social and with teachers, parent's expectations, prospect of future employment and levels of academic interest. The researchers used the responses to work out levels of well-being and how they correlate with other variables, such as academic performance. The findings suggest that negative well-being can have a detrimental effect on student relationships. This could mean that not having the ability to cope with day-to-day life can affect how students form social bonds with their peers. The study stresses the importance of having a positive academic climate to facilitate better student well-being and academic performance. The major limitation of this study is its unrepresentative sample. The participants were all nursing students from a university in Italy; a sample which is difficult to apply to the global, or UK student population.

Stallman, Ohan and Chiera (2017) investigated the role of specific factors which could help to promote positive student well-being. These main factors were social support, and self-kindness. Participants were 6195 Australian university students (77.5% female) and each one carried out an online survey. This survey contained the WHO-5, which is a five-item measure of well-being. Measures for factors associated with psychological well-being were gathered through the use of the On the Track for Success (OTFS) Index, which is a 58-item measure of multiple factors. These include the factors previously mentioned, as well as measures for safety, security, belonging and self-esteem. The factor of social support was based upon responses to four items on the Index, and self-kindness was measured by only one item. The researchers describe self-kindness as "being accepting and understanding towards

oneself" (p. 2) and note that students tend to vary considerably with their capacities for self-kindness. Social support and the ability to be present in a group could greatly affect a student's capacity for self-kindness. This is because the positive reinforcement of others can help to develop an individual's ability to accept them for who they are.

Analysis of the sample demonstrated that social support is important for the capacity of self-kindness and also that the relationship between well-being and social support was partly mediated by self-kindness and being present. The researchers state that these factors "explained 39% of the variance in student well-being." (p. 1). The findings of Stallman, Ohan and Chiera (2017) suggest that being kind to oneself and finding the ability to be present could positively impact student well-being. This study has a large sample, but its findings may only be applicable to Australian students and not the global student population. Over three quarters of the participants were female also, reducing population validity. Issues with participants not completing the questionnaire truthfully are hard to mitigate, but an attempt is made to avoid this by keeping the sample anonymous. However, it could be argued that basing the measures of social support and self-kindness on only four items and one item on the OTFS Index respectively may weaken their validity. Using only a small number of items for a measure key to the study could be insufficient because these factors are multi-dimensional and may require multiples measures to full encapsulate.

2.6 Student Suicide

At one university in the UK, five students committed suicide in 2016 (Agerholm, 2016). In the UK as a whole, it is difficult to quantify an exact number of student suicides which occur, but Stanley, Mallon, Bell and Manthorpe (2009) surmised from multiple case studies and research that in 2005, the suicide rate for ages 15-24 was 8.5 students per 100,000. This was the lowest reported level in 30 years. Wider analysis of the research

suggested that the suicide rate for students in the UK is similar to the suicide rate for a particular age group.

Stanley et al. (2009) carried out a modified psychological autopsy of 20 case studies of UK students who had committed suicide. This involves gathering as much data as possible surrounding a suicide as possible, in order to help to explain it. Factors such as the motive, retrospective diagnosis and family history were considered. 18 out of 20 of the case studies were males in their early 20s studying a wide range of subjects. Most students chose more violent methods of suicide such as hanging or jumping from a height and only a few of the suicides actually took place on University grounds. Six of the case studies were suicide by jumping, with only one on a University campus. The majority of suicides were carried out at their parents' homes.

Analysis of the case studies identified multiple risk factors working in conjunction in almost all cases. Stanley et al. (2009) describe these risk factors in three broad categories. The first category was the behaviour of the individual and included risk factors, such as drug abuse, self-harm, perfectionism and mental health problems. The second category focuses on the relationships and social networks of the student where their suicidal behaviour could have been shown to others. The third and final category is specifically associated with student life, such as assessments. When applying these categories to the case studies, risk factors could be compartmentalised and more easily identified on a case by case basis. For example, in the first category of personal risk factors it was found that 14 of students had been previously diagnosed with a mental health issue at the time of their death. Depression is a large risk factor for suicide and many of the students were prescribed antidepressants, of "which a number were reported as reluctant to take." (p. 424). Eight of the students had issues with alcohol consumption, which were seen to make the depression worse. Seven of the students had previously attempted suicide and some of these had not had their attempts taken

seriously. Another eight of the students had previously discussed their suicidal thoughts with others, but only two of the male students were known to have self-harmed in the lead up to their suicide. 11 students were identified as having strong perfectionist behaviour, associated with high expectations of themselves and "an extreme fear of failure" (p.424). However, six of the students had no previous mental health issues or history of substance abuse, indicating that other factors can influence a student turning to suicide.

Stanley et al. (2009) state that one of the more stressful psychological undertakings of students is their transition into adulthood. This is a transition from reliance on their parents to forming new intimate relationships and friendships. This is part of the second category of risk factors. Six of the students had recently gone through a break-up before their deaths and two students had expressed issues with their sexuality. Another risk factor associated with social relationships with the transmission of suicidal behaviour, described as "suicide contagion" (p. 426). This was shown in two cases where their deaths occurred close to anniversaries of a suicide of a close friend. The final category of student life, which the present study is also investigating, included ten students (half the sample) had a history of failure in their academic career. Fear of failure was identified as a major risk factor in the case studies, and many students were seeking an end to their studies (to "drop out") before their deaths.

Transition periods were another risk factor in this category and the students tended to see a new academic year as more chance at failure. Overall, Stanley et al. (2009) completed a thorough analysis of a small sample of students who had taken their own lives, and through the use of qualitative data identified multiple risk factors and the impact these factors can exert, as well as the interactions between them. The findings of this study could be used to help to explain why some students decide to commit suicide and how to help to prevent them by identifying and mitigating the risk factors. A reliance on the subjective opinions of parents and close friends could have resulted in inaccuracies in events and behaviours, when

ultimately only the student would have known the true experiences which led to their decision. This study makes a good attempt at trying to overcome possible inaccurate accounts by taking a multi-faceted approach to gather as much information about the students as possible. Informed recommendations can then be made regarding how to identify and help students at risk which utilises the subjective and retrospective experiences of close family members, whilst not relying solely upon it.

Although the case studies cannot be applied to the general UK student population, further and more up-to-date research with more case studies could benefit the wider student population by using this study and others like it as a template to work from. What this study suggests is that there are many different risk factors associated with student suicide and understanding how these risk factors interact could be used to prevent it by identifying these risks before an attempt is made.

2.7 Research into Assessment-Related Stress

2.7.1 Test anxiety. Putwain and Daly (2014) state that "Test anxiety is a trait-like variable referring to enduring differences in the tendency to become anxious in situations where one's performance will be judged or evaluated" (p. 554). Test anxiety can also influence academic performance levels and in their paper, Putwain and Daly (2014) aim to investigate the prevalence of test anxiety, as well as gender differences in secondary school students.

A large sample (1215= male, 1220= female, n = 2435) of mostly Year 10 and 11 students were given a questionnaire containing items from three scales. The scales used are worry, tension and social-degradation, which combine to create a measure of test anxiety in a participant. Statements such as "During exams I find myself thinking about the consequences of failing" (p.561) were given to participants who then had to attribute how true the statement

was to them on a Likert-type scale. 16.4% of the participants self-reported high levels of test anxiety and gender differences found that the proportion was significantly higher in female pupils (22.5%) than male pupils (10.3%).

The sample used came from a range of schools in the UK and was representative of broad socio-economic backgrounds. Overall, Putwain and Daly (2014) gathered a largely representative sample of late secondary school students in the UK and suggested that around 10% of male pupils suffer from high levels of test anxiety, with female pupils more than double this proportion. This suggests that assessment in the education system may be having a detrimental effect upon students before they go to university. The study provides statistics into prevalence and gender differences in test anxiety amongst students which support their hypothesis, but the study did not provide insight for what this means for students and their well-being and academic performance.

In previous research, Putwain and Daly (2013) focused on how test anxiety relates to academic performance. A sample of UK secondary school students (N = 469) answered a questionnaire containing statements which they rated how much they agreed with a particular statement, on a Likert scale. This method was used to generate measures of test anxiety and academic buoyancy for each participant, so distinct "clusters" of varying levels of these measures could be identified in the sample.

The researchers state that academic buoyancy "describes an adaptive response to typical academic challenges such as competing deadlines, examination pressure or poor grades" (p. 158). From this, Putwain and Daly (2013) hypothesised that three clusters of test anxiety and academic buoyancy will be identified and which the participants will correspond to. It was also hypothesised that academic performance would be the lowest in the high test anxiety/low academic buoyancy cluster, and highest in the low test anxiety/high test anxiety

cluster. The third cluster, high test anxiety/high academic buoyancy, was hypothesised to have higher academic performance than high test anxiety/low academic buoyancy.

The results identified five cluster types of levels of test anxiety and academic buoyancy. Academic performance was to be highest in groups of low-mid test anxiety/high academic buoyancy. The study concludes that low academic buoyancy may reduce the ability to adapt to a difficult situation, or lower a student's "threat appraisal". Higher levels of academic buoyancy could play a protective role for students against stress caused by assessments. Higher levels of test anxiety were also shown to decrease academic performance. This data with the findings from Putwain and Daly (2014) show some of the effect and the prevalence of test anxiety in our schools. This means that many students may be at risk of harming their educational experience earlier in life, which could damage future prospects throughout educational progression. The anxiety may also carry on into Sixth Form College, university and adulthood.

2.7.2 Academic/exam stress. The term "exam stress" is used extensively in the field of academic stress, and is used synonymously with academic stress much of the time. The main difference between these terms is that exam stress usually refers to assessments specifically, as opposed to other aspects of academic stress, such as social issues. Despite the many different forms of assessment, most literature focusing on assessment stress investigates examinations as the primary source of assessment. Nakhaee, Shahabizadeh and Erfani (2013) investigated the relationship between exam stress and oxidative damage on a cellular level. This links with the present study and its use of the SRRS, which can be used to calculate a life stress score. The higher this score is, the more life stresses an individual has experienced. This represents and increased chance of becoming physically ill as a result of the physical damage caused by stress. In their study, they aimed to record specific levels of chemicals in the participants' blood during an examination period, and then again in a

vacation period. This was done in order to measure the presence of lipid and protein oxidative damage to body cells directly; a mechanism in the pathogenesis of anxiety.

Nakhaee et al. (2013) found that participants subjectively reported higher levels of anxiety during the examination period than the vacation period. This was determined by the use of a standardised anxiety scale and a test anxiety questionnaire. Levels of protein carbonyl and malondialdehyde (MDA) during the exam period were found to be significantly higher than during the vacation period. Also during the assessment period, a negative correlation was found between levels of thiol in the blood and the severity of anxiety reported. The higher levels of protein carbonyl and MDA, with the lower levels of thiol during the assessment period suggest that oxidative damage is sustained to proteins and lipids on a cellular level during stressful exam conditions. These findings also suggest that the damage to cellular compounds could lead to anxiety genesis; a biological cause of anxiety itself. The sample consisted of 51 female students from Iran and all were healthy as they had no history of chronic physical or mental illnesses.

Despite a relatively small and gynocentric sample, the results of this study could be applied to the wider population. This is because unlike many psychological studies which can change depending on external factors such as culture and personal experience, the biological methodology of the study lends it higher population validity as the biological differences between individuals tend to differ less than psychological differences. This means that despite an unrepresentative sample for a psychological study, the biological methodology allowed the research team to not only be able to apply their results to a wider population, but also be more easily replicable. Overall, Nakhaee, Shahabizadeh and Erfani (2013) used modern scientific techniques to achieve significant results that can quantifiably demonstrate how damaging assessment stress to students, both physically and mentally. The study could

have benefited from a larger and more representative sample, but its relative ease of replicability means that males and other nationalities can be studied in the same way.

2.8 Pilot Study

The present study is based upon previous research which investigated the relationship between previous assessment experience and assessment type, such as exams and essays, and student stress levels (Symons, 2016). This study used similar methodology to the present study in the use of an anonymous online questionnaire; albeit much shorter. The participants were 96 University students primarily from a university in the north of England (24 male (25%), 71 female (74%) and 1 other). The survey used in the pilot study contained questions to gather demographic data such as age group, gender, course and year of study. This was used to compare different groups of the sample and how they answered the following part of the questionnaire.

The next set of questions were answered on a Likert-type scale by the participant ranging from 1 (no stress) to 5 (high stress) on how stressful they found different assessment types. These assessment types were exams, essays, assessed group work, A-Levels and GCSE's. The final section of the questionnaire was a DASS-21 standardised scale which gathered individual depression, anxiety and stress scores. This is a shorter version of the DASS used in the present study, featuring half the total questions which reduces its internal consistency reliability, but also made the survey considerably shorter. The last question of this section then asked the open-ended question "To what extent, if any, do you feel the stress experienced in past assessments affects your stress levels in assessments at university?" Results found that students found university examinations and essays to be the most stressful types of assessment; being rated as more stressful on average than A-Levels, GCSE's and

university assessed group work. Female participants were found to report assessments as more stressful in general compared to men.

In analysing the data for the pilot study, strong moderate correlations were found between depression, anxiety and stress scores of the DASS-21 and reported stress scores for examinations. This means that as the self-report stress ratings for examinations increased, so did all three measures of the DASS-21. Fifty-nine of the participants answered the open-ended question and over half (50.1%) of these students stated that negative assessment experiences in the past could negatively affect future assessments. However, some students noted that previous assessment experience could be beneficial to future assessments as a form of developing resilience. Symons (2016) carried out a limited study with a small sample, but investigated an area which continues to be under-researched, namely assessment-related stress at University. The study mentions its limitations, such as the gynocentricity of the sample and its reliance on retrospective data when asking for stress reports on participants' experiences of taking A-Levels and GCSEs.

The present study builds upon this pilot study to provide a more in depth and longer questionnaire, with more standardised scales and open-ended questions. Details of this questionnaire will be documented in Chapter 3 (Methodology).

2.9 Gaps in Literature

Much of the available literature surrounding the topic of assessment-related stress focuses on how stress can lead to poorer academic performance. Mental health and well-being studies on students list assessment stress as one of their main stressors and seek to explain the extent of the problem. However, current literature and research has not investigated directly if assessment-related stress can have an effect on student mental health and well-being. The previously mentioned pilot study (Symons, 2016) reported findings

which suggest that certain types of assessment can be more stressful than others, with examinations being found to be the most stressful and group assessments being the least. The pilot study did not generate enough qualitative data to suggest that assessment-related stress can have an effect on student mental health and/or well-being.

Much of the current literature on assessment stress and mental health is focussed on the school years, both in the USA and UK, rather than at University (Putwain and Daly, 2013, 2014). A positive aspect of this means that more research is being carried out in an area which focuses on an earlier developmental stage. This means that research in this area could produce findings which have implications for reducing or even preventing later mental health problems amongst university students. However, this situation also reflects a scarcity in research focussing on student mental health at university, despite the student age group being more at risk of mental health issues such as depression and even suicide. The studies which investigate assessment-related stress tend to focus on relationships with academic performance (Putwain & Daly, 2013, 2014; Rania et al., 2014) or how the stress affects the individual physically (Nakhaee et al., 2013). The recommendations made from the findings of these studies rarely refer to implications for assessment styles and focus more on how the individual can take steps to deal with the inevitable stress. Other discussions state that Universities should improve their support for students (Stallman et al., 2017), but these suggestions fail to address the nature of the assessments themselves and the style or rate at which they are carried out.

The present study aims to address these gaps in the literature by having a two stage, mixed methods approach. The questionnaire gathers primarily quantitative data, with some options for open-ended responses, and a follow-up interview generates qualitative data. Using this methodology, the present study aims to provide insight into how assessment-related stress can affect student mental health and well-being. Looking at this relationship

specifically will differentiate the present study from most current literature. The aspect of assessment styles and subjective student experience will also contribute to the study of student mental health.

The study contributes to the study of student mental health by attempting to address the following research questions:

1. What stressful life events do students experience?

2. What levels of mental health do university students experience during assessment period?

3. What are the relationships between assessment-related stress and student mental health and well-being?

Chapter 3: Methodology

This section details the composition of the sample, how the study was carried out and how the data were analysed. Details of the instruments used for data collection are given with how it was distributed. Ethical issues are also discussed and addressed.

3.1 Participants

The participants were 103 (17 male and 86 female) currently studying university students (Table 3.1). The sample was largely gynocentric, with females forming over 83% of the total participant pool. Ages ranged from 18-30+ years, with the age group of 18-21 accounting for 52% of the total participants. The next largest age group was aged 22-25 years and with a total of 40 participants forming 38% of the total. The age group 26-29 had only 6% and the smallest age group of 30+ were 4% of the sample. A possible reason for why the majority of participants were aged 18-25, rather than all from 18-21, was because of the amount of both undergraduate and postgraduate close to being evenly split across the sample.

A total of 54 participants were undergraduates (First Year = 21, Second Year = 15, Third Year = 18). The remaining 50 participants were all postgraduate students (Masters = 38, PhD = 1, Other = 11). Both undergraduate and postgraduate students were used in order to compare the differences between levels of study, as well as to get an impression of University assessment stress as a whole (Table 3.2).

Table 3.1
Cross-tabulation of age bracket and gender

What is your age?	What is your gender?		Total
	Male	Female	
18-21	7	46	53
22-25	9	31	40
26-29	0	6	6
30+	1	3	4
Total	17	86	103

Table 3.2
Cross-tabulation of year of study and gender

	What is your gender?		
What is your year of study?	Male	Female	Total
First year	2	19	21
Second Year	1	14	15
Third Year	2	16	18
Masters	9	28	37
PhD	0	1	1
Other (Please Specify)	3	8	11
Total	17	86	103

The "Other" option was selected by a total of 11 participants. Their selections are listed as follows: Recently graduated = 3, PGCE = 3, fourth year = 2, foundation degree = 1, on leave of absence = 1 and left blank = 1.

Participants' choices were elicited as an open-ended question (Table 3.2) this meant that the qualitative responses required categorising in order to report the exact types of courses in a quantitative table. Some of this categorisation involved changing courses of the same type to match each other grammatically, for example, "PiE", "Psychology in Education" and "psychology in education (lower case)" were initially different responses. By recoding all variants of the course into a single type, they were made quantifiable. A total of 46 different courses are represented from the 103 participants.

Data regarding ethnicity was not collected in order to reduce as many personal identifiers that were not essential to the study as possible. This was done in order to preserve the anonymity of the participants.

Instructions regarding how to participate in the study were distributed primarily through email, as well as social media interactivity, such as through Facebook. Potential participants were told before completing the questionnaire that they must be a student in order to take part. Students were contacted all over the UK, but the majority came from Universities in the north of England. Participants were told that the study would be completely anonymous, so no names were requested, but email addresses were voluntarily left if the participant chose to sign up for a follow-up interview. These email addresses, as well as any other potentially personally identifiable information, were only viewable by the researcher. This was explained to the participant at the beginning of the questionnaire, before any other questions were asked.

For the follow-up interviews, participants were asked to sign a consent form before the interview. This was done because the interview was voice recorded and the some of the questions could be stressful to answer for some of the participants, so extra steps were needed in order to ensure the participant knew what they were consenting to. The recorded audio was used for transcription purposes, and any direct quotations were credited by the participants' gender and course of study, for example, a male student studying undergraduate philosophy would be coded as MPhil1. Participants were also told that they would be entered into a prize draw to win an Amazon voucher, in order to attract more students to take part in the research.

3.2 Expanding upon the Pilot Study

The present study will also be using a study previously carried out by the researcher (Symons, 2016) as a pilot study from which to expand the previous methodology upon. This study found significant results regarding certain relationships between UK university students (N = 96) overall stress levels and their experiences in assessments. Using

the pilot study aids in the choice of methodology of the present study, by keeping and expanding on the areas which produced data and removing variables which were found to have a negligible to non-existent relationship with any other variable. This choice was reflected in choosing to keep the use of the Depression Anxiety and Stress Scale 21 (DASS-21), but instead of using the smaller 21 question variant, the present study opts to use the full 42 question DASS. This is to increase the validity of the individual depression, anxiety and stress scores, as they will have twice the number of responses associated with them. The DASS-21 was required to have the scores doubled in calculations to make up for this.

3.3 Instruments for Data Collection

3.3.1 Questionnaire. A questionnaire and optional follow-up interview were used as the apparatus for data collection. The questionnaire contains an opening paragraph explaining to participants how their data will be used as a form of informed consent. The first few questions were used for basic demographic information such as their age range, gender, course and year of study. This was gathered so later analysis could investigate any possible relationships between these demographics and their relation to the research questions.

An online questionnaire was utilised it is offers the flexibility to be completed at any time by the participant, on all types of computer devices. Evans & Mathur (2005) highlight the strengths and weaknesses of online surveys. The strengths include low cost control of answer order and speed of application. Potential weaknesses with online surveys are unclear answering instructions, perceptions as junk mail and a perception of impersonality. The current study uses the main strengths and attempts to overcome the weaknesses in order to utilise the online survey to answer the research questions.

The main body of the questionnaire contains the full 42 question Depression Anxiety and Stress Scale (DASS) and A Social Readjustment Rating Scale (SRRS). These scales were

followed by the final statement "Please select which of the following types of formal assessment you have undertaken in the last 3 months or in the next 3 months". Many different types of assessment were able to be chosen and an "other" option was also given where the participant could manually add their own type of assessment if it wasn't one of the options. These data were asked of participants so that they could be compared with other demographic data, as well as the data gathered from the scales to investigate possible relationships between different types of assessment and how they can affect assessment-related stress.

There are links between psychological, and social and educational risk factors and their protective factors. These protective factors include positive reinforcement from academic achievement, good self-esteem and problem-solving abilities. These risk and protective factors from psychological and educational domains are linked in the present study through the use of two standardised scales for measuring stress; the Depression, Anxiety and Stress Scale [DASS], (Lovibond, & Lovibond, 1995) and the Social Readjustment Rating Scale [SRRS], (Holmes, & Rahe, 1967).

3.3.2 DASS. The Depression, Anxiety and Stress Scale [DASS], (Lovibond, & Lovibond, 1995) has 42 questions which help to measure the emotional states of depression, anxiety and stress. The participant is asked to indicate how much a particular statement applies to them. From this data three separate scores can be calculated for depression, anxiety and stress individually. The present study is using this scale as it is a reliable scale (Crawford & Henry, 2003) which can provide insight into participants' current state of mental health quantitatively. Also being used in the present study is the SRRS, which lists a number of stressful life events which the participant identifies has happened to them recently, or will happen to them soon. This scale is being used as it can help to identify external factors responsible for possible mental health issues in students, other than educational, as the scale does not contain a life event relating to taking an exam, for example. These scales have

proven reliability and validity, both internally and externally in the field of psychological research and clinical settings. They have also been used in many studies.

3.3.2.1 Use of DASS in research. Beiter et al. (2015) used the 21 question variant of the DASS in their paper titled "*The prevalence and correlates of depression, anxiety, and stress in a sample of college students*". Using a sample of American college students (N = 374), the participants were asked what they found to be significant factors of stress or "aspects" in their life, and also asked to complete the DASS-21. The results found that academic performance was the top issue amongst students, with the pressure to succeed and post-graduation plans coming in second and third concerns respectively. Positive correlations were found between levels of stress, anxiety and depression and these life aspects, meaning that higher levels of stress, anxiety and depression are associated with certain aspects of life, such as academic pressure. This study had a large, representative sample, and despite using the smaller DASS-21, they produced significant findings in the field of mental health at university.

3.3.3 SRRS. The Social Readjustment Rating Scale [SRRS], (Holmes, & Rahe, 1967) is a questionnaire which contains 43 stressful life events. These events range from "Death of a Spouse" to "Minor violations of the law" and have stress values associated with them. More stressful life events will have a higher "life change unit" or score than less stressful life events. The primary use of this scale is to determine how likely a person is to develop an illness as a result of their stress, as a higher number of life change units correlates with a higher chance of becoming sick, due to the suppression of the immune system caused by the stress experienced. The present study used the SRRS in a different way, namely to help to determine if a participant's stress is caused by external factors other than assessment stress. This is because the SRRS contains many wide ranging life events, but no life event associated

with taking an examination for example. In the present study, the SRRS will be changed slightly in order to be modernised and more in line with the British population than its original American way of phrasing. Examples of this include "mortgages over $10,000" to "mortgages over £100,000" and "vacation" to "holiday".

3.3.3.1 Use of SRRS in research. In their paper entitled "Predictive value of age for coping: the role of self-efficacy, social support satisfaction and perceived stress", Trouillet, Gana, Lourel and Fort (2009) aimed to investigate how coping changes with age. Using the SRRS and other rating scales, such as the General Self Efficacy Scale (GSES), the participants (N = 153) answered questionnaires assess various measures. These measures include self-efficacy, stress, depression and ways of coping. The sample had a wide age range from 20-88 years broken down into discrete age groups: young adults aged 20-40 (N = 38), adults aged 41-69 years (N = 68) and old adults aged 70-88 years (N = 47).

Similar to the present study, Trouillet et al. (2009) used Likert-type scales like the GSES alongside the SRRS to investigate their hypotheses. The findings of the study suggested that while age itself may not be a mediator for changes in coping with stress, coping resources relating to age, such as perceived stress and social support satisfaction, may have a mediating effect. The SRRS in this research provided data which was used with the results of other quantitative scales in order to produce new findings. Overall, Trouillet et al. (2009) had too small a sample for the findings to be applicable to the general population, but with the use of the SRRS and other scales, the researchers state this research may have produced "the first results to suggest that the influence of age on coping may be mediated by several different coping resources" (p. 364).

3.3.4 Open-Ended Questions. At the end of both the DASS and SRRS instruments is the statement "Please add further information regarding your responses to the above question, if you wish." This was inserted so that the participant had the opportunity to add any further comments. An example of this would be in the SRRS, where it was not possible for the participant to state a stressful life event more than once, or something that was not on the scale, but were free to do so in the open-ended statement section. One of the final two open-ended questions was "What is your opinion on assessment-related stress and how it could affect your mental health and/or well-being?" This was asked, as with all open-=ended questions, to generate qualitative data for later thematic analysis and to supplement the quantitative data. The specificity of the question relates to one of the research questions directly and the participant was then able to add anything else they wished to mention in the final open-ended statement.

3.4 Interviews

Interviews are taken face-to-face, as well as through Skype and other video messaging services. Audio was recorded for later transcription and analysis. Before the recording began, there was brief chat asking the participants to read and sign the consent form. They were also reminded that there are no right and wrong answers, only their opinions and personal experience. The interviews were structured with a total of nine open-ended questions around assessment-related stress and personal stresses for students outside of University.

A final question was also asked, which was "Is there anything else you would like to add or ask me?" This was asked to give the participant a final chance to mention any more information regarding any of the questions, or even ways to improve on the wording of the questions. Interactions from the researcher were kept to a minimum, but sometimes prompts

were given if the participant was struggling to answer a question, such as better summarising their answer and asking if they agreed with the condensed statement.

All qualitative data from the open-ended questions and interview were thematically analysed. The proper utilisation of thematic analysis can help to interpret complicated and dense data (Braun & Clarke, 2006). Categorisation of emergent themes from the responses to open-ended questions helps to quantify the data and expand upon the quantitative data.

3.5 Mixed Methods Research Design

The present study utilises a combination of quantitative data (DASS and SRRS scales) and qualitative data (open-ended questions and interviews) in an explanatory mixed methods design. The process is sequential explanatory in design, as the questionnaire was carried out first, from which participants were recruited to a follow-up interview. However, as the questionnaire also asked open-ended questions, the present study has elements of concurrent triangulation as the open-ended questions were asked at the same time quantitative data was being gathered. The pilot study (Symons, 2016) also used a mixed methodology approach, but did not administer interviews or use the SRRS scale.

The researcher chose this explanatory mixed methods approach as it is the belief that the specific research area the present study is concerned with is not sufficiently understood or researched by the current literature to be able to pinpoint a specific measure to focus on. Multiple data points were collected to examine links between them, with the idea of encouraging further research on the data points which suggest significant relationships. The qualitative data provides data which is analysed relatively quickly, and is then interpreted from statistical tests to see their level of significance, and in turn, what the results may propose for real world applications. However, quantitative data can be restrictive as it can limit the extent which the participant can express a response. For example, asking how much

a given statement applies to an individual may be difficult to express on a scale. For the purpose of being able to gather the same data points from different participants, this concession would have to be made or else the entire study would have asked the participants to express their answers through open-ended answers. This could both overwhelm the participant when filling out the survey, as well as the researcher upon conducting analysis. This qualitative method of data collection was instead utilised at the end of each scale and at the end of the questionnaire in the form open-ended questions. This use quantitative and qualitative data collection aimed to strike the balance between generating suitable amounts of directly analysable data, whilst still allowing the participants to fully express themselves if they chose to do so. The interviews were an extension of this which only generated qualitative data, which was more time consuming to analyse, but generated rich data from relatively few responses.

Whilst mixed methods research has the benefit of collecting two types of research for a wider scope of analysis, the main drawback is that the process tends be time consuming for the researcher. Other difficulties with this methodology are discussed by O'Cathain, Murphy, & Nicholl (2010), such as the lack of integration between the two different data types. This can often lead to findings which appear to be from two separate studies, rather than bringing greater elaboration to the research questions together. Once these drawbacks are understood, steps can be taken which can attempt to mitigate their effects, as the present study did. Linking the open-ended questions (which are directly linked to the scales of the questionnaire) with some similar interview questions was one way which the present study attempts to connect the data types.

McKim (2017), examines the value of mixed methods research, by conducting a mixed methods study utilising a sample of 113 graduate students. McKim (2017) had quantitative phase where the sample read different passages of research using both individual

data types, as well as a mixed methods passage. The participants then rated how valuable they perceived each passage by answering 33 items each with a Likert-type scale. The graduate students' perceptions of mixed methods and how they reached their conclusion were part of the qualitative data phase. By using this methodology, McKim (2017) found that the sample tended to judge the mixed methods passage as more valuable as a piece of research when compared to the other two data types individually. The qualitative data of the study suggested possible reasons for the results in the quantitative stage. The sample suggested that a mixed methods approach could provide more evidence for interpretation of the findings, which could then lead to the reader of the study having more confidence in the results.

The success of the primarily explanatory mixed methods approach used in the present study is shown through elaboration of the results in the discussion chapter. Results from the scales were able to be expanded upon, but as the number of students which replied to interview was small (N= 6), the qualitative data was limited in how much it could be applied to the larger sample size of the total number of students who responded to the questionnaire (N = 103). Ultimately, the previously mentioned drawbacks from O'Cathain et al. (2010) such as the time-consuming and inherently difficult nature of carrying out a mixed methods study were not completely mitigated by the present study. However, there was some successful integration between the two data types as the interviews offered alternative views towards personal experience with assessment-related stress. The open-ended questions at the end of each scale on the questionnaire also served to expand upon the quantitative findings, which are presented in the results and discussion chapter.

3.6 Procedure

Participants were first informed about the present study through the use of social media and emails distributed through the university. An anonymous link was generated

which led to the questionnaire and this link was sent to students in the hope of them taking part. The Education Department at the participating university helped by distributing the link to the questionnaire to both undergraduate and postgraduate education students. This was undertaken by the department sending a template email to all education students, where the researcher provided a brief introduction to the research as well. This was done closer to the start of the academic year and in line with the first set of assessments most students were taking at the time. The rationale for this was to keep the subject of assessments fresh in the participants' memory.

Some grammatical and technical changes were made to the questionnaire whilst it was active, as feedback from the initial responses described issues with completing the questionnaire on mobile devices. Once this was rectified, questions were better understood and the survey could be completed on mobiles and tablets. This resulted in a surge of respondents which totalled 90 participants.

Extra efforts such as follow-up emails to previously asked students and the help of some colleges of the participating university in the north of England. the total was brought up to 104. As participants were asked to leave their email if they wished to take part in the follow-up interview, they were contacted later in the academic year around the summer term assessment period. This was done for the same reason as the previous sample for the survey; to have personal experience of assessment fresh in the participants' minds. Of the total number of participants, 35 provided their email address to be contacted for a follow-up interview.

A room was booked at the participating university for two weeks and an online poll (DoodlePoll) was created which allowed participant to select a slot in hourly increments from 10am-5pm. This poll was sent in an email which was sent individually to the participants so

that each student couldn't see who else received an email, again to preserve anonymity. The option of sending a mass email to all accounts with a closed recipient list was an option that was not chosen just in case it failed, or was not used correctly. The email thanked the participant for taking part in the survey and asked them to book a slot in the poll for a follow-up interview in the room which was booked. An option for Skype interviews was also given for those who could not make it to the university for a face-to-face interview. Participants were also told that upon completion of either a face-to-face or Skype interview that they would be entered into a prize draw for a £50 Amazon voucher.

Out of the 35 questionnaire respondents who left an email address and who were contacted, only 10 students replied or booked a date on the poll for a face to face interview. Two students replied stating they were unable to take part. Once participants booked a time slot for the room, they were contacted again via email to explain where to meet. One participant failed to show for their booked slot, but those who turned up met with the researcher and went to the booked room for an interview. The researcher subsequently explained the topic of the research and that the interview would focus on their personal opinion and experiences, rather than right or wrong answers. Before the interview began, the student was given an informed consent form to read through and sign. This was in line with the rules of ethics at the participating university and stated how long the data would be kept, the right to withdraw data within two weeks and who would be able to access the data. The participants also consented to having their data used in publications and further research.

Anonymity was a high priority at the interview stage, so extra steps were taken to ensure this. This included making the time slots an hour apart, despite a 30 minute interview, so the researcher could properly prepare for the next interview, and also so other participants would not see one another leaving or entering the room. Another measure taken to protect

anonymity was not asking for the participants' names and asking them not to mention any names during the interview recording.

The participants who were interviews had also completed the questionnaire, but their responses were not discussed at the interview. This was to reduce the amount of personally identifiable information as far as possible coming from a single source. The researcher took notes on each response, which helped in the thematic analysis of the full transcription, by recording the initial themes which the researcher could identify from the answers. Once interviews were completed, the identifiers for each participant (e.g. FePhil3) were added to an electronic random name chooser, and the chosen participant was sent a code for £50 on their Amazon wallet.

3.7 Ethical Considerations

Approval from the participating university's Ethic Committee for the present study to go ahead was obtained by taking in multiple ethical considerations. Firstly, anonymity of participants was highest priority, as this would help ensure that participants could answer honestly without concern that they would ever be personally identifiable for their answers. Preserving anonymity may produce more honest answers and decrease the tendency for social desirability.

Participants were also fully informed of how long their data would be kept and that it was stored on a password protected computer. A statement of consent appeared at the start of the questionnaire to inform respondents about the research study. They were also reminded that they did not have to answer every question if they found any question too stressful to answer. As the interviews contained potentially upsetting questions, interviewees were asked

to sign a full consent form before the interview began. Unlike the questionnaire, which was consented to by completing the questionnaire, the interviews had to be consented by signing the consent form. As audio recordings were taken, extra care was taken to not mention any names in the interviews as this would not be beneficial to the data, but run the risk of compromising anonymity to a wider audience if the audio recording was heard by anyone other than the researcher. Participants were also told that they had up to two weeks to request the removal of their data from the research database if they chose to do so at a later date.

Chapter 4: Results

The aim of the study is to investigate the levels of mental health which students can experience at university. By breaking down this aim into specific research questions, the relevant findings can help gain insight into what students at university in the UK are experiencing, especially during a period of assessment. The research questions form the structure of the results chapter, with each subheading reporting the data relating to each question. The research questions addressed in the current study are as follows:

1. What stressful life events do students experience?

2. What levels of mental health do university students experience during assessment period?

3. What are the relationships between assessment-related stress and student mental health and well-being?

   a. Are there differences between students' levels of mental health depending on type of assessment?

   b. Are there differences between students' levels of mental health depending on type of educational qualification?

   c. Are there differences between students' levels of mental health depending on year of study?

Multiple types of analyses were carried out on the questionnaire and interview data. All quantitative analyses were conducted using IBM's Statistical Package for the Social Sciences [SPSS]. First, the sample and its basic demographics are shown with the use of descriptive tables and frequencies. Each following section is labelled by a research question

and each section comprises the quantitative and qualitative findings relating to the question concerned. This type of analysis served the primary purpose of investigating whether responses to the questions produced statistically significant results or not. From this basis, the extent of the significance in relation to the background and other findings of the study help to create a more holistic view of student mental health. These other findings are the qualitative data gathered from open-ended questions on the questionnaire and interviews. Although these data were thematically analysed and somewhat quantified by this process, the responses themselves aimed to elaborate on the quantitative data. This mixed method approach was adapted to address each research question in the present study.

4.1 Demographic Statistics

The composition of the sample is explained in Chapter 3: Methodology. Further categorisation came in the form of grouping similar courses by qualification for further analyses (Table 4.3). This allowed for the courses of the "Other" section of the previous table to be included in the analyses individually also. The most common type of course in the sample was the BSc (30.8%, n = 32), followed by the BA (25%, n= 26). This means that over half of the sample (55.8%, n= 58) is studying for an undergraduate degree. Masters courses made up over a third (35.5%, n= 37) of the total types of qualification. With LLM (1%, n= 1), PhD (1.9%, n= 2) and PGCE (2.9%, n= 3) courses, the total of the sample in postgraduate study was under half (41.3%, n= 43). The remaining percentages came from Foundation courses (1%, n=1) and two participants who left the qualification of their subject ambiguous, so could not be determined (1.9%, n=2).

Table 4.1
Cross-tabulation of type of qualification and gender

Type of Qualification	What is your gender?		Total
	Male	Female	
BSc	4	28	32
BA	3	23	26
MSc	6	10	16
MA	3	17	20
PhD	0	2	2
PGCE	1	2	3
LLM	0	1	1
Foundation	0	1	1
Total	17	84	101

4.2 Research Question 1: What Stressful Life Events do Students Experience?

4.2.1 Quantitative analysis

To understand what life events students encounter whilst at university, the Social Readjustment Rating Scale [SRRS] was utilised in the questionnaire and answered by the whole sample (n= 104). The SRRS contains 43 separate life events and attributes a life score to each one. This life score represents how stressful the particular event is. The higher the score, the more stressful the event is. To work out how much life stress a student experiences in total, all the life events which have happened in the last 365 days are totalled and the result has three levels of implication. A total of 150 points of less indicates a relatively low amount of life stress and therefore a low chance of stress-induced physical health breakdown. A total of 151-300 total life points mean a 50% chance the individual will have a major health breakdown in the next two years as a result of the life stress. More than 300 points mean a higher 80% chance of a major health breakdown according to the Holme-Rahe statistical prediction model (Holmes & Rahe, 1967).

The table overleaf (Table 4.4) indicates the different life events which the students in this sample have experienced in the last 12 months. The number in brackets beside each item represents that item's stress score. The items are displayed in ascending order from lowest to highest stress score. Many life events which were on the SRRS were not selected by the participants and have therefore been removed from the table. The life events and their corresponding stress score, which none of the sample experienced in the last 12 months are Death of spouse (100), Divorce (73), Jail term (63), Retirement (45), Son or daughter leaving home (29) and Change in religious activities (19). A total of 678 individual life stress events across the sample of 104 were used to calculate individual SRRS scores for each participant. These scores can then be used in further analysis, such as correlations. In the present study, the most common life event that students experienced was a Change in residence (61.2%, n= 63), which has 20 as its stress score. Other more common life events were a holiday (59.2%, n= 61), Change in living conditions (52.4%, n= 54) and Begin or end of current educational level (58.3%, n= 60). These life events were scored at 13, 25 and 26 respectively for their stress values.

Table 4.2
Life events recorded by the sample on the SRRS

Life event (Life Score)	Responses		Percent of Cases
	N	Percent	
A holiday (13)	61	9.0%	59.2%
Change in number of family get-togethers (15)	15	2.2%	14.6%
Change in eating habits (15)	38	5.6%	36.9%
Change in sleeping habits (16)	44	6.5%	42.7%
Mortgage or loan less than £100,000 (17)	8	1.2%	7.8%
Change in social activities (18)	38	5.6%	36.9%
Change in recreations (19)	13	1.9%	12.6%
Change in work hours or conditions (20)	37	5.5%	35.9%
Change in residence (20)	63	9.3%	61.2%
Change in college or university (20)	43	6.3%	41.7%
Trouble with boss (23)	7	1.0%	6.8%
Revisions of personal habits (24)	27	4.0%	26.2%
Change in living conditions (25)	54	8.0%	52.4%
Spouse begins or stop work (26)	7	1.0%	6.8%
Begin or end of current educational level (26)	60	8.8%	58.3%
Outstanding personal achievement (28)	14	2.1%	13.6%
Change in responsibilities at work (29)	12	1.8%	11.7%
Trouble with in laws (29)	3	0.4%	2.9%
Mortgage over £100,000 (31)	1	0.1%	1.0%
Change in no. of arguments w/ spouse (35)	7	1.0%	6.8%
Change to a different line of work (36)	15	2.2%	14.6%
Death of a close friend (37)	3	0.4%	2.9%
Change in financial state (38)	18	2.7%	17.5%
Sex difficulties (39)	8	1.2%	7.8%
Business readjustment (39)	1	0.1%	1.0%
Gain of a new family member (39)	9	1.3%	8.7%
Pregnancy (40)	3	0.4%	2.9%
Change in health of family member (44)	16	2.4%	15.5%
Marital/Relationship reconciliation (45)	2	0.3%	1.9%
Fired/Lost job (47)	3	0.4%	2.9%
Marriage (50)	4	0.6%	3.9%
Personal injury or illness (53)	18	2.7%	17.5%
Death of close family member (63)	18	2.7%	17.5%
Marital/Relationship separation (65)	8	1.2%	7.8%
Total	678	100.0%	

The SRRS stress score for each participant was used to filter out individuals who had

very high scores and exclude them from that particular dataset. This filtering was done in

order to examine the external factors rather than life events covered in the SRRS. This includes a major source of stress for students: assessments.

4.2.2 Qualitative Analysis

The questionnaire contained open-ended questions which allowed the participants to expand upon each part of the survey. For example, the statement "Please add further information regarding your responses to the above question, if you wish" was displayed at the end of the DASS and SRRS. These optional boxes were not utilised by many of the participants, but they offered a chance to express their views further if they chose to do so.

The responses to the option to add extra information regarding the SRRS were few in number (n= 9), but also gave insight into life stresses which the SRRS has not taken into account. One response mentioned one significant life stress they are experiencing is deciding between staying and living in the city of their University, or to live back in their hometown. A similar response stated it was their international exchange year. These responses are similar as they both link to an existing item on the SRRS, a "change in residence", but offer a different take on it by being more specific and putting the item into a real world context.

Another response not covered by the SRRS was a participant who stated they had stopped taking antidepressants. This could have been covered by a general item on the SRRS such as "change in medication", but was not covered by or had any item which related to it. The remaining responses elaborated on the measures already contained within the SRRS. Two of the responses mentioned the significance of the loss of their family member. Two responses noted university-related stresses, such as assignments and changing university course.

One participant mentioned that they lose sleep because of feeling so stressed. Other responses included a critique of the SRRS in that the participant states "Of course Christmas has approached in the last 12 months. It's sort of an annual thing." And another participant simply cites "Donald Trump" as another life stress.

4.3 Research Question 2: What Levels of Mental Health do Students Experience at University during Assessment Period?

4.3.1 Quantitative Analysis

The Depression, Anxiety and Stress Scale [DASS] was administered to the whole sample (n= 103) in the online questionnaires. The DASS contains 42 items which can be used to calculate three separate variables; Depression, Anxiety and Stress. This is calculated for each participant in the sample (n= 103). This was carried out in the middle of a spring assessment period for most universities in the UK. Most assessment periods last for around one month. This means that as the items on DASS apply to the last two weeks, the results are more likely to be indicative of mental health levels for the sample during assessment period.

Compute variable in SPSS was used in order to obtain the individual depression, anxiety and stress scores for each participant. This involved separating the responses to the 42 items on the DASS into the three different categories and adding them up separately to create three scores for each participant. The table below (Table 4.5) indicates the means and standard deviations for each score of the DASS and the SRRS for the sample. The sample, (n= 103), on average, experiences "Severe" depression, "Extremely severe" anxiety and "Severe" stress levels. The mean SRRS score suggests that this sample of students has around a 50% chance of a major health breakdown in the next two years according to the Holme-Rahe statistical prediction model (Holmes & Rahe, 1967). Female students have higher

average scores for all three measures of the DASS and the SRRS compared to male students

as shown in Table 4.3.

Table 4.3
Comparing the means of all DASS scales, and SRRS with gender

What is your gender?		Depression	Anxiety	Stress	SRRS
Male	Mean	22.88	21.49	23.29	137.71
	N	17	17	17	17
	SD	10.97	6.50	9.31	84.47
Female	Mean	22.94	22.02	27.03	175.45
	N	86	86	86	86
	SD	10.53	7.58	8.86	103.45
Total	Mean	22.93	21.70	26.42	169.22
	N	103	103	103	103
	SD	10.55	7.42	9.00	101.18

Table 4.4 shows average DASS and SRRS scores for undergraduate and postgraduate

students (n= 97). Seven students from the participant pool are excluded from this analysis as

they were graduates, completing a foundation degree or taking a leave of absence.

Table 4.4
Comparing the means of all DASS scale, and SRRS with Undergraduate
and Postgraduate students.

Educational Level		Depression	Anxiety	Stress	SRRS
Undergraduate	Mean	22.36	21.49	26.20	174.69
	N	55	55	55	55
	SD	9.52	7.58	9.14	105.76
Postgraduate	Mean	21.23	20.98	25.58	151.00
	N	43	43	43	43
	SD	8.59	6.87	8.38	87.13
Total	Mean	21.87	21.27	25.93	164.30
	N	98	98	98	98
	SD	9.10	7.24	8.78	98.25

The table (Table 4.5) below shows how the levels of each score were distributed.

Using cross-tabulations in SPSS, each level of severity for all three measures of the DASS

are displayed in ascending order of severity. These values then show the number of

participant which fell into that group. Depression and stress scores were split nearly 50/50

across the sample between the lower and higher levels of severity. 'Normal – Moderate'

levels of depression and stress was found in 51.9% and 50.9% of the sample respectively.

Severe – Extremely Severe levels of the same two measures made up the remainder of each

group. A large majority of students in the sample had Severe - Extremely Severe anxiety

levels (88.5%). Over half of the sample (52.9%) had Extremely Severe levels of anxiety.

Table 4.5
DASS measures, their level of severity and how many
participants belonged to each group

Level of Severity Experienced	DASS Variable		
	Depression	Anxiety	Stress
Normal	4	2	19
Moderate	50	10	34
Severe	24	37	26
Extremely severe	26	55	25
Total	104	104	104

A cross-tabulation was also run for the SRRS stress scores in the sample. The three

categories of Table 4.8 are the percentage chance the individual has of falling ill because of

the amount of life stress they have experienced in the past year. These are a 30%, 50% and

80% chance, with the higher the chance representing more life stress experienced.

Table 4.6
SRRS scale interpretations by gender

Percentage Chance of Illness in Next 2 Years	What is Your Gender?		
	Male	Female	Total
30%	11	38	49
50%	5	36	41
80%	1	12	13
Total	17	86	103

A minority of the sample (12.5%, n= 13) experienced the highest levels of life stress, with 13 participants being at an 80% chance of developing an illness in the next two years as a result of their life stress. This group of participants were nearly all female, with only one male participant. Two groups of eight of these students had the highest rating of Extremely Severe anxiety and depression. This group of students had Severe stress levels on average (M= 29.69). More of the whole sample had a 30% chance of developing an illness (47.1%, n= 49) than those who were in the higher category of 50% of illness (40.4%, n= 41).

4.3.2 Qualitative Analysis

4.3.2.1 Questionnaire. Findings which expand upon the results of the DASS come from open-ended responses to the optional text box which states "Please add further information regarding your responses to the above question, if you wish" which appeared as the final item below the scale.

More participants (12.5%, n= 13) decided to take part in this optional response than the one for the SRRS. Two respondents stated that they are currently suffering from mental illness. Both participants stated that they had diagnosed depression and one stated they also had diagnosed anxiety and anorexia. Five of these responses stated that university work, particularly assessments, had been a significant source of the feelings they had just reported in the DASS. Two responses alluded to the significance of the week, in that the timing of the study meant that they may have had higher levels of negative mental health for the week they happened to be taking the questionnaire; a week during assessment period. One of these responses states "*I've been struggling this week more than normal to motivate myself.*" One participant blames themself to an extent as they mention "laziness" as a contribution to the feelings they expressed in the DASS. A response left by two female participants referred to

hormonal changes relating from being on/due their period, as well as the hormonal

imbalances possibly caused by contraceptives, such as the pill.

4.3.2.2 Interviews. The six participants who took part in the follow-up interviews did

not state that they suffered from any diagnosed mental health issues. However, one question

in the interview relates to the research question for this section. The question and related

responses are shown below.

What possible mental health issues have you faced in the last year?

> I don't know, I was pretty down at some points, but I don't know if I'd call it depressed. Stressed, I was pretty stressed at times. (MBAHist)

> I would say I don't have anything really major mental health wise … everyone gets stressed and sad…but I wouldn't say I have anything that might count as a medical problem. I'm not on any medication at the moment (FMAPhil)

These points suggest that unless these individuals were to receive a full clinical

diagnosis, it is difficult to know whether or not one has a mental illness, or is just

experiencing emotions within the 'normal' range.

4.3.3 Gender Differences

Across all statistical measures of stress, depression, anxiety and life events, female

participants were found to report higher scores on average when compared to males. To

investigate if this difference was statistically significant, independent t-tests were run for each

score (Table 4.7). All differences were not found to be statistically significant ($p > 0.05$), so

the null hypothesis is accepted meaning that there is no significant difference between the

depression, anxiety, stress and life event scores between genders for this sample. A larger

sample of male students would have benefitted the data by provided and more balanced

sample for analysis. With the underrepresentation of males being a common theme in many

similar types of research, this is one reason why it is difficult to assess the reasons for gender differences which appear in these other findings.

Table 4.7
Independent samples t-test for differences of all DASS scores and SRRS between genders.

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Depression	Equal variances assumed	.12	.73	-.46	97	.650
	Equal variances not assumed			-.41	21.19	.68
Anxiety	Equal variances assumed	.05	.82	-1.38	99	.17
	Equal variances not assumed			-1.43	23.75	.17
Stress	Equal variances assumed	.07	.77	-1.79	100	.08
	Equal variances not assumed			-1.67	21.51	.11
SRRS	Equal variances assumed	1.55	.22	-1.41	101	.16
	Equal variances not assumed			-1.61	26.46	.11

4.3.4 Correlations

A number of Pearson's r correlations were carried out to compare the three DASS scores, life event score and age group to examine what possible relationships these measures may have with one another. Statistically significant correlations were found between age and the three statistical stress measures of the DASS. All correlations with age were weak negative correlations, so the younger the sample, the more likely they were to experience Depressive symptoms (-0.194, $p < 0.05$), Anxious symptoms (-0.197, $p < 0.05$) and stressful symptoms (-0.263).

However, two strong positive correlations were found between certain measures (Table 4.8). Depression correlates positively with stress with statistical significance (0.703, p< 0.05). This means that as levels of depression increase, so do levels of stress and vice versa, for this sample. The strongest positive correlation was between the measures of anxiety and stress (0.778, p< 0.05). This suggests that as anxiety levels increase, so do levels of stress and vice versa. Depression and anxiety (0.630, p< 0.05) moderately positively correlate together and is statistically significant, so according to this sample, as levels of depression increase, so do levels of anxiety and vice versa. The SRRS life score measure had one statistically significant correlation with Depression (0.310, p< 0.05). This weak positive correlation suggests that as the sample's life event score increased, so did depressive symptoms.

Table 4.8
Correlation matrix for age bracket, all DASS scores, and SRRS.

		What is your age?	Depression	Anxiety	Stress	SRRS
What is your age?	Pearson Correlation	1	-.194*	-.197*	-.263**	-.084
	Sig. (2-tailed)		.048	.045	.007	.399
	N	104	104	104	104	104
Depression	Pearson Correlation	-.194*	1	.630**	.703**	.310**
	Sig. (2-tailed)	.048		.000	.000	.001
	N	104	104	104	104	104
Anxiety	Pearson Correlation	-.197*	.630**	1	.778**	.187
	Sig. (2-tailed)	.045	.000		.000	.057
	N	104	104	104	104	104
Stress	Pearson Correlation	-.263**	.703**	.778**	1	.118
	Sig. (2-tailed)	.007	.000	.000		.232
	N	104	104	104	104	104
SRRS	Pearson Correlation	-.084	.310**	.187	.118	1
	Sig. (2-tailed)	.399	.001	.057	.232	
	N	104	104	104	104	104

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Fig 4.1
Correlation matrix scatterplot of all DASS and SRRS scores
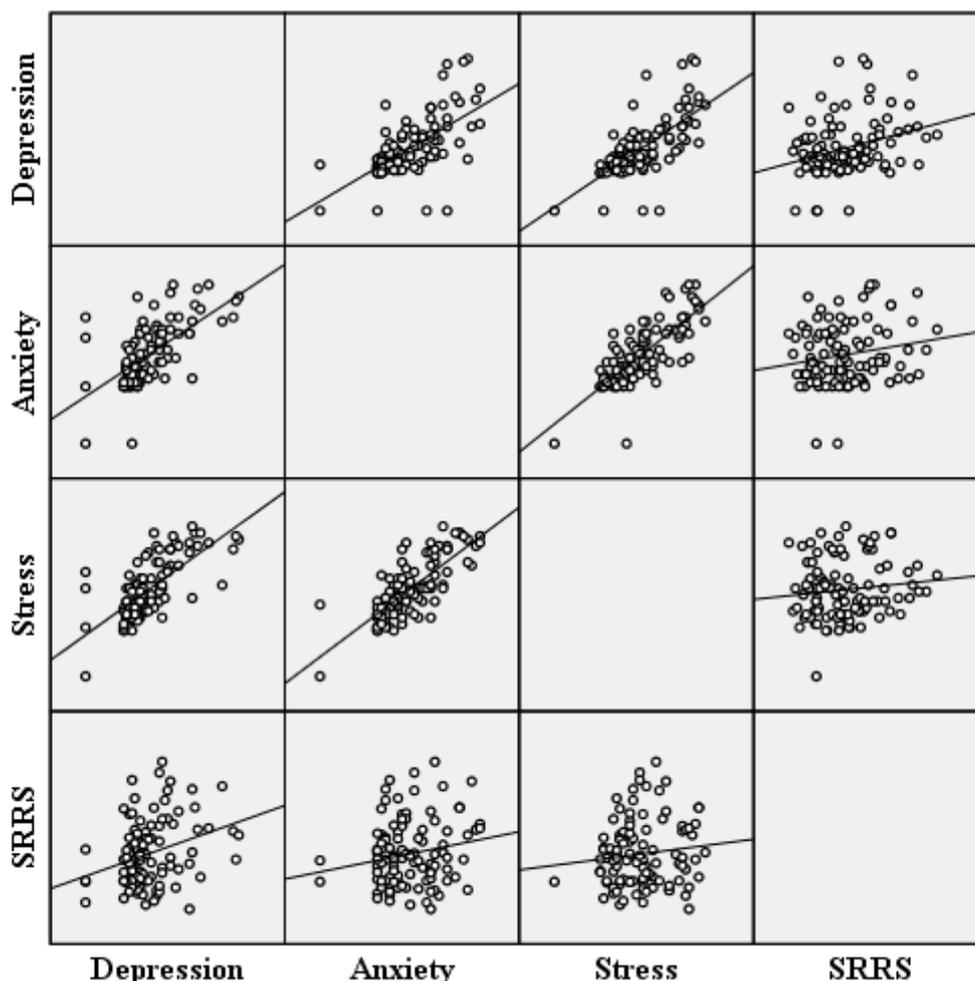
The scatterplot matrix (Fig 4.1) helps to visualise the correlations between all measures of the DASS and SRRS. The all correlations are positive and vary in strength. Some outliers can be seen in every graph, but the line of best fit shows the correlation of the overall sample.

4.4 Research Question 3: What are the Relationships Between Assessment-Related Stress and Student Mental Health and Well-Being?

To investigate this research question, attention is focused on three relationships which are components of assessment-related stress. The first component is assessment type, which

compares differences in DASS and SRRS scores across exams, essays and assessed group work. The second component is qualification type. This was identified to compare the different content and assessment styles depending on the type of qualification the participant was undertaking. The final part of assessment-related stress is year of study, as the intensity of assessment tends to increase the further along the educational level. All of these components are compared with the participant's mental health scores in order to compare possible relationships. The three components of assessment-related stress are separated into three sections in order to address this research question.

4.4.1 Research question 3 a) Are there differences between student's levels of mental health depending on type of assessment? The following analyses were conducted through the use of filtering the participants by their SRSS stress score measures. Participants with over 300 life units were excluded from the analyses, as it was more likely that their high mental health scores were due to factors other than assessment stress. This reduced the participant pool to a total size of 91 for the following cross-tabulations and t-tests.

The three scores of depression, anxiety and stress were converted into normal, mild, moderate, severe and extremely severe ranks for each score. Each of these ranks was then cross-tabulated with three distinct assessment types: exams, essays and assessed group work. This was undertaken to see if there were any relationships between groups which may need further investigation, as well as to analyse how this sample differ in measures of mental health depending on which assessments are taken. Upon carrying out this analysis through cross-tabulations, no findings could be directly established. Instead of showing all cross-tabulations, the means for each group are compared in type of assessment.

4.4.1.1 Examinations. The following table (Table 4.9) was created after running cross-tabulations using the sample of 91 students who do not have a life stress

score of 300 or more. As none of the comparisons yielded any indications for further analysis, they are summed up by comparing their means. The means range from 1.00-5.00, with 1.00 = normal, 2.00 = mild, 3.00 = moderate, 4.00 = severe and 5.00 = extremely severe. The sample of 91 students was split into 27 students who did not expect to take, or had taken an exam in the next/last three months. The remaining 64 students formed the group which had taken an exam in the last three months, or expect to do so in the next three months.

Both groups were moderately-severely depressed, with the mean for those who had not taken an examination (3.74) being slightly higher than the mean for students which had taken or expect to take an exam (3.47). This finding goes against one of the hypotheses of the research which stated that there would be higher mental health scores in the category which had taken examinations. Both measures of anxiety and stress supported the hypothesis however. The mean anxiety level for both groups was severe, with the score being slightly higher in the group which has recently taken an exam (4.36) when compared to the group which had not (4.30).

The mean stress level was moderate for both groups, with a slightly higher score for those who had recently taken an examination (3.50) compared to the other group (3.30).

Independent samples t-tests were carried out in SPSS in order to see if any of these differences were statistically significant. The results of the t-tests found that none of the differences seen below were statistically significant.

Table 4.9
Mean DASS scores between students that have/have not taken an examination in the last three months.

Undertaken an Exam in +/- 3 months		Depression Score	Anxiety Score	Stress Score
No Exam	Mean	3.74	4.30	3.30
	N	27	27	27
	SD	.98	.91	1.20
Yes Exam	Mean	3.47	4.36	3.50
	N	64	64	64
	SD	.94	.82	1.13

4.4.1.2 Essays using the same scales from 1.00-5.00 as the examination mean comparisons; the means of the sample of 91 students are split into two groups and displayed for each DASS measure. Only eight students form the group which had not written an essay in the last three months, or expected to hand one in within the next three months. This leaves the remaining 83 students forming the group which had/will have to write an essay in the last three or next three months. Across all three measures of depression, anxiety and stress, the group who had not written or expect to write an essay had a higher mean score. Their average scores were high severe depression (M= 4.75), extremely severe anxiety (M= 5.00) and high severe stress (M= 4.75). The other group's mean scores were moderate depression (M= 3.43), severe anxiety (M= 4.28) and moderate stress (M= 3.31). This meant that the no essay group reported higher levels of all three mental health scores than those who had taken/about to take an essay. An independent samples t-test was conducted to see if the difference in scores between groups were statistically significant (Table 4.13). The test yielded two statistically significant differences between the two groups, in anxiety level ($t = 2.37$, $p < 0.05$) and stress level ($t = 3.60$, $p < 0.05$). This means that the higher scores in anxiety and stress are likely to be due to the student having another form of

assessment, such as an examination, or another external factor not considered by the study (Tables 4.10, 4.11).

Table 4.10
Mean DASS scores between students that have/have not
taken an essay in the last three months.

Undertaken an Essay in +/- 3 Months		Depression Score	Anxiety Score	Stress Score
No Essay	Mean	4.75	5.00	4.75
	N	8	8	8
	SD	.71	.00	.71
Yes Essay	Mean	3.43	4.28	3.31
	N	83	83	83
	SD	.90	.86	1.10

Table 4.11
Independent Samples t-Test

DASS Score	Equal Variances Assumed?	Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Depression Score	Yes	1.94	.17	4.01	89	.00
	No			4.90	9.34	.00
Anxiety Score	Yes	13.43	.00	2.37	89	.02
	No			7.66	82.00	.00
Stress Score	Yes	4.64	.03	3.60	89	.00
	No			5.17	10.62	.00

4.4.1.3 Assessed Group Work means were compared (Table 4.12) between those who had taken part in assessed group work in the last three months, or expected to do so in the next three months (N = 33), and those who had not (N = 58). The students which had not taken part in assessed group work had higher mental health scores across all three measures of the DASS. An independent samples t-test was carried out to investigate if these differences were statistically significant. The results of this test demonstrated no statistically significant findings between any of the differences of the mental health measures between the two groups. This analysis

could suggest that assessed group work does not directly interact with mental health levels in students.

Table 4.12
Mean DASS scores between students that have/have not has assessed group work in the last/next three months.

Undertaken Group Work in +/- 3 Months		Depression Score	Anxiety Score	Stress Score
No Group Work	Mean	3.66	4.40	3.62
	N	58	58	58
	SD	1.02	.90	1.11
Yes Group Work	Mean	3.36	4.24	3.12
	N	33	33	33
	SD	.82	.75	1.17

These findings address research question 3 a) with the statistically significant result for the differences in anxiety and stress scores for students that had already or were expected to complete an essay in the next/last three months versus those that did not. This finding indicates that assessment type may have an effect on different levels of mental health for students. However the question was not conclusively answered as findings for differences in other types of assessment were not statistically significant.

4.4.2 Research Question 3 b) Are there differences between student's levels of mental health depending on type of educational qualification? A one-way ANOVA was carried out on the three DASS scores and the SRRS life event score in relation to course by qualification type in order to see if the differences in their means were statistically significant (Tables 4.13, 4.14). The results of the one-way ANOVA show that there is no statistical significance between any of the means of the DASS measures or SRRS score and the type of qualification. These results mean that the null hypothesis is accepted, which is that there is no statistically significant relationships between the differences in mental health scores and the

type of qualification for which the student is studying. In light of these findings, the

researcher decided not to use post-hoc tests, regardless of homogeneity of variance.

Table 4.13
Means and standard deviations for all DASS score, and
SRRS for each qualification type

		N	Mean	SD	Std. Error
Depression	BSc	32	25.31	11.95	2.11
	BA	26	21.12	9.21	1.81
	MSc	17	20.47	6.12	1.49
	MA	20	21.95	10.53	2.35
	Total	95	22.59	10.12	1.04
Anxiety	BSc	32	22.88	6.88	1.21
	BA	26	20.58	8.38	1.64
	MSc	17	19.53	4.98	1.21
	MA	20	22.60	8.14	1.82
	Total	95	21.59	7.33	.75
Stress	BSc	32	28.41	9.12	1.61
	BA	26	24.69	9.58	1.88
	MSc	17	23.29	7.47	1.81
	MA	20	27.35	8.00	1.79
	Total	95	26.25	8.85	.91
SRRS	BSc	32	166.47	92.17	16.29
	BA	26	186.15	118.30	23.20
	MSc	17	148.82	73.68	17.87
	MA	20	139.80	80.59	18.02
	Total	95	163.08	95.20	9.77

Table 4.14
ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Depression	Between Groups	378.28	3	126.09	1.24	.30
	Within Groups	9252.71	91	101.68		
	Total	9630.99	94			
Anxiety	Between Groups	172.11	3	57.37	1.07	.37
	Within Groups	4874.88	91	53.57		
	Total	5046.99	94			
Stress	Between Groups	384.60	3	128.20	1.67	.18
	Within Groups	6979.34	91	76.70		
	Total	7363.94	94			
SRRS	Between Groups	28504.30	3	9501.43	1.05	.37
	Within Groups	823471.02	91	9049.13		
	Total	851975.32	94			

4.4.3 Research Question 3 c) Are there differences between student's levels of mental health depending on year of study? Another one-way ANOVA (Tables 4.15 - 4.18) was carried out to compare undergraduates and postgraduates and their mean differences in all the stress scores. The undergraduates were split into the three year choices in the questionnaire and 38 Master's students make up the postgraduates. The descriptives show that the mean scores for each measure are usually highest for first year students, with second year undergraduates and Master's students tending to have lower scores on average.

The results of the ANOVA suggest that there is no statistical significance between the mean differences of the undergraduate years and master's mental health. However, as the ANOVA reported a p value slightly above 0.05 (p = 0.055) for Anxiety, the researcher decided to run post-hoc analysis to see if the differences may possibly not be due to chance and exactly which groups the mean differences are between. All measures failed the Levene's test for homogeneity of variance, with anxiety again closer to a valid p value (p = 0.066) than any other measure. The post-hoc test reports a statistically significant result between the first and second year groups, with anxiety decreasing significantly first year to second year. The

sample may have benefited from more second (N = 15) and first year (N = 23) students

responding to the survey in order for these post-hoc tests to be valid. These findings suggest

that there may be significant differences between undergraduate and postgraduate mental

health levels, but a larger sample is required to investigate this possibility further.

Table 4.15
Means and standard deviations for all DASS scores, and SRRS
for each level of study

Year of Study		N	Mean	SD	Std. Error
Depression	First year	21	25.52	11.14	2.43
	Second Year	15	19.47	7.50	1.94
	Third Year	18	21.44	8.51	2.01
	Masters	38	20.45	7.93	1.29
	Total	92	21.64	8.94	.93
Anxiety	First year	21	23.95	8.60	1.88
	Second Year	15	17.53	5.95	1.54
	Third Year	18	22.22	6.54	1.54
	Masters	38	20.74	6.60	1.07
	Total	92	21.24	7.19	.75
Stress	First year	21	27.33	10.27	2.24
	Second Year	15	24.27	8.86	2.29
	Third Year	18	27.11	7.94	1.87
	Masters	38	24.76	7.33	1.19
	Total	92	25.72	8.40	.88
SRRS	First year	21	202.33	102.85	22.44
	Second Year	15	164.87	118.77	30.67
	Third Year	18	159.22	97.53	22.99
	Masters	38	152.11	85.43	13.86
	Total	92	167.04	98.14	10.23

Understanding mental health and well-being in university students: Investigating life events and assessment-related stress.

Table 4.16
ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Depression	Between Groups	442.35	3	147.45	1.90	.14
	Within Groups	6828.81	88	77.60		
	Total	7271.16	91			
Anxiety	Between Groups	387.57	3	129.19	2.64	.06
	Within Groups	4313.17	88	49.01		
	Total	4700.74	91			
Stress	Between Groups	155.96	3	51.99	.73	.54
	Within Groups	6266.25	88	71.21		
	Total	6422.21	91			
SRRS	Between Groups	35804.74	3	11934.91	1.25	.30
	Within Groups	840789.09	88	9554.42		
	Total	876593.83	91			

Table 4.17
Test of Homogeneity of Variances

DASS Measure	Levene Statistic	df1	df2	Sig.
Depression	2.272	3	88	.086
Anxiety	2.481	3	88	.066
Stress	1.457	3	88	.232
SRRS	1.527	3	88	.213

Table 4.18
Post-hoc test between first year and second year students

(I) What is your year of study? - Selected Choice	(J) What is your year of study? - Selected Choice	Mean Difference (I-J)	Std. Error	Sig.
First year	Second Year	6.42[*]	2.37	.039
Second Year	First year	-6.42[*]	2.37	.039

4.4.4 Qualitative analyses.

4.4.4.1 Open-ended question. An open-ended question was asked close to the end of the questionnaire which was "What is your opinion on assessment-related stress and how it could affect your mental health and/or well-being?" Of the 104 participants who took part in the study, 70 responses were collected. This means that 34 participants chose not to answer this question. Answers varied from one sentence, to around 200 words. Students noted their opinions on mental health and well-being with regards to assessment-related stress and many took example from personal experience. Thematic analysis was carried out on these responses in order to identify emerging themes. This involved reading every response and identifying the key themes within. Broader categories were then identified at the beginning of the analysis, starting with the way the student answered the question. One of these broad categories was Group A, where 41 out of the 70 respondents believed that assessment-related stress could have a profound and negative impact on mental health and well-being for students.

The remaining 29 students (Group B) did not believe that there was as strong a connection between the two topics and that other factors were responsible. The latter group of responses included those which stated other life events are more stressful than assessments, as well as those that believed the stress caused by assessments could have a positive and motivational attribute. This suggested emergent themes within the broad categories.

Group A contained 41 respondents who answered the question: "What is your opinion on assessment-related stress and how it could affect your mental health and/or well-being?" in direct contrast to Group B. Group A comprises respondents who believed

that high levels of assessment-related stress could have a negative effect on student mental health and well-being. Five participants stated this without providing a reason or an example. Eight responses mentioned sleep loss and disruption as a major symptom of stress caused by assessments. These participants state that this then effects their mental health and well-being in a negative way. Five different participants mentioned that the deadlines are the most stressful and damaging aspect of assessments. More specifically, a common thread between these responses is that multiple deadlines in a shorter period of time are mentioned as significant sources of stress. Procrastination was listed as a source of stress by three participants.

These themes in Group A, as well as the individual responses which were not shared with any other, also suggested emergent themes, such as a lack of control over the scenario and negative cycles. The lack of control comes from external sources out of the students' sphere of influence. These include the deadlines which are set and the subjective experience of different assessment types. For example, one Female undergraduate Group A participant stated that they find examinations are the most stressful type of assessment as failure in them can effect stress levels in subsequent exams. However, another participant from the same group stated that she finds essay writing the most stressful as they feel it is like going in blind due to the lack of structure and freedom that is had with an essay compared to an exam. Both of these responses share the common theme of a lack of control as the student has not say over what type of assessment they would prefer to take.

The other emergent theme of negative cycles comes from the mental and physical effects of stress. The loss of sleep caused by stress is likely to lead to more stress, which will then lead to more loss of sleep etc. One student mentioned a feeling of hopelessness which feeds into more stress during assessments. The topic of

procrastination is also a negative cycle as students put off work because it is stressful, but this leads to more stress in the long term.

One theme within Group B (n= 29) emerged from a combination of smaller sub-themes. Five respondents stated how too much stress can have a negative effect, but the right amount can help to push through the assessment and strive to do well. This relates to the Yerkes-Dodson law (Yerkes & Dodson, 1908) which was the foundation of the Hebbian version of the Yerkes-Dodson bell-curve (Diamond, Campbell, Park, Halonen & Zoladz, 2007). This states that there is an increase with performance associated with arousal (stress) which continues up until point where too much arousal begins to have a detrimental effect on the individuals' performance.

Another sub-theme identified in Group B was that external stresses have a larger impact on student mental health than assessments. This corresponded to three participants. These responses stated that they believe that life stresses tended to effect stress levels more than assessments, but that these external stresses also make the assessment experience more stressful. So these participants suggest that assessments could be a less stressful experience if the student does not have significant life stresses. A theme similar to this is one mentioned by another three participants. This theme is that proper preparation for the assessment is the difference between a stressful and non-stressful assessment experience. One of these responses states that "Time management is everything". This suggests an emergent common theme with the other aspects of Group B in that these students share an aspect of resilience and preparedness.

A theme of preparedness was dominant in Group B and suggested that having the feeling of preparation is the reason why these particular participants did not

personally find assessments particularly stressful or detrimental to their mental health.

Six individual respondents in Group B stated that they did not find assessments stressful, but gave no specific reason why.

4.4.4.2 Interviews. Face to face interviews were carried with 6 participants using a set of structured questions. Some of these questions directly relate to the opinions and experiences of students regarding assessment-related stress and their mental health. There were two questions asked in the interviews which directly related to this topic. The participants answered these questions differently and in varying detail, as the following responses demonstrate:

What is your opinion and personal experience with stress related to your assessments and how it relates or not to your mental health?

I think stress can be healthy, because it makes you motivated to actually get on with it. I don't think most of my stress or anxiety has been from my assessments. It's mainly been from personal aspects. I think just getting help definitely helps with your stress levels. (FBScPiE)

I'd say personally assessment related stress is my biggest overall cause of stress. When it's happening it has loads of direct impact on my life, just day to day routine, from sleeping to eating. I'll sleep less, I'll eat less. I'll have a lot less enjoyment out of things I do like my down time. It becomes guilt instead of enjoyment. (MMScCompSci)

I think stress is definitely a part of every student's experience, but I think there is a point where people can't deal with it and I think that it's important to recognise that anxiety is a real mental health issue (FeMAPhil)

What is your opinion on how different assessment types may affect your stress levels, and possibly your mental health?

I can say the only one that I had a problem with was the open exams. It's just so, so horrible…I had 24 hours to write a 2000 word essay… you get yourself stressed because it's a middle ground between a closed exam and an essay which you've got weeks to write. (MBAHist)

Examinations at university cause mental health suffering, particularly for me and other international students where the education systems in Indonesia and the UK are totally different. The rules at university make some of the stress. (MGlobEd)

Personally I definitely think that exams are a lot more stressful, just because there's a big lead up and then you're stood outside with everyone and it's timed. There's just more of a group anxiety." (FeMAPhil)

Chapter 5: Discussion

This section will evaluate the findings reported in the previous results chapter with respect to each research question and discuss what implications they may have for practical applications and further research. These findings will also be discussed in relation to existing literature in the field. Attention is then given to the limitations of the current study.

5.1 Research Question 1: What Stressful Life Events do Students Experience?

A factor which may have influenced the DASS score findings is the amount of life stress, or stress outside of university each participant was experiencing at the time of data collection. This was something considered at the planning stage, as the function of the Social Readjustment Rating Scale [SRRS] (Holmes & Rahe, 1967) was twofold in the present study; to gather data on the life stress experienced by university students, and to help to filter participants to analyse the effect assessments may have on student mental health. The first function of the SRRS in the present study demonstrated that only 12.5% of the sample belonged in the highest category, which was an 80% chance of developing an illness as a result of the damage to their immune system from the life stress. These findings are comparatively less extreme than the findings of the DASS scores. This is a more positive finding as it suggests that a relatively small minority of students in the UK have extremely high life stress. Looking at results of the SRRS by category of specific life events presented more detailed findings.

Utilising a modernised form of the SRRS it was found that the mean life event score for the sample of 104 students was 169.21. This means that this sample of students, on average, have a 50% chance of a major health breakdown in the next two years due to the stress caused. The most common life events students in this sample experienced were a change in residence (61.2%), a holiday (59.2%), Begin or end of current educational level

(58.3%) and a change in living conditions (52.4%). Most of these life events are associated with student life and a holiday is common amongst the general population, which is reflected by its low stress score of 13. According to the SRRS, a start or completion of education level is roughly twice as stressful as a holiday, as it has a stress score of 26.

A relatively common, yet high stress score life event which was experienced by students was the death of a close family member. This life event had a stress score of 65 and was experienced by 17.5% of the sample, which means that a student who has been through this life event is at a much higher risk of having a higher overall stress level. The most stressful life events such as a death of spouse and divorce were not experienced, most likely due to the average age of the sample.

The second use of the SRRS in the present study was to filter out participants who had very high life stress scores, in order to study the rest of the sample separately. This was done so the effects of assessment-related stress on student mental health could be analysed. The assumption was made that as the SRRS covers a multitude of stressful life events, and even prescribes quantifiable values to them, so it could be used as a filter in this manner. This is because the SRRS does not have a stress event or score for undergoing an assessment.

Previous research has shown the real stress that assessments can cause for students, such as the study conducted by Nakhaee, Shahabizadeh and Erfani (2013), which demonstrates the damage to cells caused by exam stress which can then lead physical illness through immune system suppression. Despite the all-encompassing nature of the SRRS, it does not have a life event which relates in any way to undertaking an assessment. This means that not only are assessments not in the SRRS, but that there is no way to attribute a stress score to it in order to compare to other life events. In view of this, the study excluded the 12.5% of the sample which had the highest stress scores; a total of 13 participants. The

remaining 91 students were now more likely to have their DASS scores due to the effect of assessment-related stress than certain life stresses.

Another reason why the results of the analysis may be influenced by assessment-related stress is because of the timing of the survey. The survey was administered during the first major assessment period of the academic year, which was the spring assessment period. This means that most of the participants would have been undertaking assessments around that point and would be experiencing the stress at the time. This keeps the topic of assessment-related stress fresh in the participants' mind and may also explain the very high DASS scores, especially in anxiety. The fact that these assessments contribute to students' education progression and ultimately the successful completion of their course could be a source of this pressure. This is something addressed again in discussing the qualitative findings.

In undertaking qualitative analysis of the data, the responses to the question "What is your opinion on assessment-related stress and how it could affect your mental health and/or well-being?" were categorised and thematically analysed. Two responses to this question, both from the group which responded to the question by stating that assessment-related stress did not have a major impact on mental health, stated that external life stressors are worse in terms of stress than assessments. Others in this group named positive attributes of assessments, in the feeling of accomplishment when one is complete or if you do well. This links to the way individual students deal with assessment-related stress on a personal level. The aspect of the assessment contributing to the progression of the course can be feared or can also be used as a source of encouragement, depending on the individual student.

5.2 Research Question 2: What Levels of Mental Health do Students Experience at University during Assessment Period?

The questionnaire was administered to the sample during a spring assessment period for most universities in the UK, lasting around one month. As the items on the DASS apply up to the last two weeks, the findings were likely to be indicative of mental health levels for students during an assessment period. With respect to the DASS, the mean Depression, Anxiety and Stress scores for the participants show concerning levels of mental health for the sample. On average, the sample was 'severely depressed', 'extremely severely anxious' and 'severely stressed'. With the DASS being used at a clinical level to indicate signs of mental illness in adults, these measures alone may indicate a serious mental health issue in UK Universities.

The consistency and reliability of the DASS have been measured in other literature (Brown, Chorpita, Korotitsch & Barlow, 1997), which has demonstrated that the questions on the scale can assess the three measures accurately. Although there is no clinical cut-off for any of the measures on the DASS scale, the mean levels experienced by the sample could suggest that clinical or near-clinical levels of depression, anxiety and stress are being experienced by a significant number of students in this sample. If these scores have been exacerbated by the assessment period, then the amount of stress caused during this period may have a large detrimental effect on students' mental health.

The present study attempts to answer the research question with these findings alone, as they suggest a prevalence of common mental disorders [CMDs] amongst the student population. The present study suggests higher levels of CMDs than the literature discussed in the review chapter. The YouGov poll (Aronin & Smith, 2016) reported that 27% of the sample surveyed suffered from a mental health issue. The present study found that 88.5% of

the sample had Severe - Extremely Severe anxiety levels. 52.9% of the sample had Extremely Severe levels of anxiety. As these categories at the highest end of the scale, this finding specifically could indicate a major mental health issue in UK universities, but the study would need to be replicated in order to show that these figures are consistent and the methodology is reliable.

Although not directly comparable, these findings suggest that the present study reports higher levels of mental illness than in previous research. This is most likely due to the sample size difference, as Aronin and Smith (2016) had a sample size of 1061, compared to the present study's sample of 103 participants. This would mean a more diverse and representative sample in the YouGov poll. The relatively small sample size and lack of diversity from the gynocentricity of the participant pool could have been attributable to these findings. Nonetheless, the findings of the present study in this area suggest that there is a high chance that there will be a significant number of students that are suffering from mental health issues as a result of the stress experienced during assessment period.

These findings are from a sample which is partially representative of universities mostly in northern England, although more research with a larger and more diverse sample would help to extend the representation of any future findings to the rest of the UK and the global student population.

Responses to the question "What possible mental health issues have you faced in the last year?" in the interviews provided more detail for individual experiences of mental health problems for students. As with the statistical findings, the issue of anxiety appeared most often as a type of mental health problem by the students in answer to this question. One interviewee mentioned that they had an anxiety attack which was brought about from unknown reasons. Another cited anxiety and depression as their main mental health issues.

An international student stated that anxiety was the main feeling experienced when encountering language difficulties.

Although none of these responses came with any official clinical diagnosis, the words used in response to the question indicate that students are at least more aware of mental health issues. Words such as "depression" and "anxiety" are used by the participants that suggest students are aware of specific mental health problems and can distinguish them. This was highlighted by a response to this question from a male participant, where he stated "I don't know, I was pretty down at some points, but I don't know if I'd call it depressed." This participant identified that their personal mental health problems do not feel like they extend more than feeling stressed. When the interviewer prompted the participant by asking if stress was the only issue they faced, and not potential mental health risks, the student responded: "Yeah, I wouldn't really call it anything more than that." This evaluation of oneself in relation to specific mental illnesses suggests that the education of mental health problems and the specific emotions to look out for are widespread at UK universities.

5.3 Research Question 3: What are the Relationships Between Assessment-Related Stress and Student Mental Health and Well-Being?

This research question was answered by addressing three minor research questions. This allowed the main research question to be addressed from three different aspects of assessment-related stress. Students who had over 300 life units on the SRRS (n= 13), and thus had an 80% chance of physical illness in the next two years as a result of their large amount of life stress were excluded from the analysis in this section. This was due to these students having their DASS scores likely influenced by the external stress in their lives, rather than because of assessment-related stress. The three sub-questions were:

a) Are There Differences between Student's Levels of Mental Health Depending on Assessment Type?

b) Are There Differences between Student's Levels of Mental Health Depending on Qualification Type?

c) Are There Differences between Student's Levels of Mental Health Depending on Year of Study?

Question 3 a) compared means for all scores of the DASS between two groups of students. One group had expected to take or will take a particular type of assessment in the last/next three months. The other group contained students who did not have that particular assessment in the next/last three months. The three types of assessment investigated were examinations, essays and assessed group work. This part of the third research question related to a hypothesis outlined in Chapter 1. This hypothesis stated that based on previous findings (Symons, 2016), students which had recently taken or expect to take an examination will have worse levels of mental health than students who had not. This hypothesis was not confirmed by the findings of the current study.

Findings in this section reported no statistical significance between any the differences between all three DASS scores for examinations and assessed group work. However, with regards to essays, a statistically significant difference was found when running an independent samples t-test. For the DASS measures of anxiety and stress, the group of students that had not written an essay, or expect to write one in the next or last three months (n= 83) had higher average anxiety (M= 5.00) and stress (M= 4.75) scores than the group that did not fit this criteria (n= 8, anxiety, M= 4.28, stress M= 3.31). This finding alone is not enough to identify precisely how different forms of assessment can affect students' levels of mental health. However, this finding could suggest that the group that had not

completed/expected to complete an essay may have had more prominent life stresses which led to their high anxiety and stress scores.

All students in this group had the highest level of anxiety measured on the DASS (extremely severe), which could be an anomaly of the small group size, but analysis demonstrates that these differences in means are statistically significant. Further research should be carried out in this area, with the recommendation of building a study around the question of how different assessment types can affect student mental health. This research could help to generate a better understanding of how assessment effect students and lead to practical applications which transfer into changes to the assessment system.

Research question 3 b) asked if there are differences between the participants' levels of mental health depending on qualification type. The reason this was investigated was to see if more students are at risk than others, in terms of mental health, depending on the type of qualification being carried out. The results which applied to this research question displayed four groups representing course types: BSc (n= 32), BA (n=26), MSc (n= MSc) and MA (n= 20). These groups had each of their means compared and analysed for statistical significance.

No statistically significant findings were indicated by the ANOVA, which suggest there is no significant difference between the average DASS scores and SRRS scores of the students in this sample. This rejects the hypothesis made in the introduction where the researcher hypothesises that science qualification subjects such as BSc and MSc would have significantly worse levels of mental health than those in the group of art subjects such as BA and MA. This hypothesis was based upon the assumption that science subjects tend to be more examination based than arts subjects. This assumption is linked with the first hypothesis which stated that students who had recently undertaken an examination would have the highest levels of mental health compared to other assessment types. This hypothesis was

informed by a previous study of the researcher and pilot to this current study (Symons, 2016). As the first hypothesis was not confirmed, it would have been problematic to confirm the second hypothesis in the face of statistically significant ANOVA results. However, as the ANOVA yielded no statistically significant differences, this second hypothesis is rejected regardless.

Question 3 c) asked if there were statistically significant findings between students' levels of mental health depending on their year of study. Using a similar method of analysis as the results displayed for research question 3 b), an ANOVA was carried out on four groups of students. These groups were separated by year of study and were as follows: first year, second year, third year (all undergraduate) and Masters Students. All of these groups were compared by their mean DASS and SRRS scores. As with the findings of the previous research question, no statistically significant findings were found from the ANOVA.

However, for anxiety, the ANOVA reported a finding with a p value of 0.055% (p > 0.05). So although this finding may not have statistical significance, with how close it was to that level of significance, it was decided by the researcher that post-hoc test should be carried out regardless. The post-hoc analysis showed a statistically significant difference between the differences in anxiety score between first year (n= 21, M = 23.95, SD= 8.60) and second year (n= 15, M= 17.53, SD= 5.95) undergraduate students. The higher average anxiety score for first year students could means that this group experiences higher levels of anxiety on average than second year students. This may be due to first year students entering a new environment and second year students have already had a year's experience of university life.

Alternatively the first year students in this sample had higher average scores on the SRRS indicating higher levels of life stress. This higher average life stress could have resulted in the higher anxiety levels reported for first year students. However, this finding

could be surprising to many as assessments begin to count towards the final grade of the qualification in the second year of university in the UK. First year students must only pass their year to move onto the second year. One may suggest that undertaking an assessment which contributes to the final grade could be perceived as more stressful than undertaking an assessment which does not. First year students may find their first experiences of assessments at university and the prospect of getting a passing grade to continue their course as more stressful than the position of the second year students. This may be because second year students have previous experience with university assessments and feel more confident than their first year counterparts as they know what to expect.

Overall, the relationships of assessment-related stress and student mental health could not be categorically addressed with the findings of the current study. However, results of statistical significance suggest that more research should be carried out with a larger and more representative sample in key areas. These areas include how different assessment types, the contents of a particular course and the stage of education can all have an effect on student mental health. The present study suggests some of these factors can have effects on the mental health of students as indicated by their average DASS scores.

5.4 Implications of Findings for Supporting Students

The findings of the present study aim to inform the research topic of student mental health and further the development of this research area. The mixed method approach, utilising both quantitative and qualitative data has provided multiple data points for key aspects of student mental health at university to be further understood.

One example of where the present study has potential practical applications is in the findings of the quantitative data. The mean DASS scores for the sample suggest that during assessment period, students have very high levels of depression, anxiety and stress. Although

due to the sample size and makeup, the findings can be disputed as to whether they are generalisable to the rest of the UK student population. Despite this, the high mean scores suggest that steps may need to be taken to mitigate the causes of these high scores whilst at university. The quantitative findings of the present study serve as an indicator to areas which require further investigation and elaboration. The reason why the quantitative data cannot produce practical applications alone is because of the lack of statistically significant results in the findings. The lack of these types of findings mean that the differences expressed by many of the different sub-groups are not backed up statistically. With no statistical significance, the differences could be due to chance or other external factors.

However, statistically significant correlations were found. The correlations found were positive correlations between each measure of the DASS. This suggests that although emphasis is being put on separate aspects of mental health, they are interlinked and one score tends to influence the other in the same direction. This suggests that a more holistic approach is needed for students to overcome mental health issues, as tackling one aspect a time could not be the most beneficial way to overcome potential problems. The exception to this would be if a student has an abnormally high score for one type of measure, as tackling this one aspect could bring down the levels of the others as a consequence. This may be true with the sample, as anxiety was the most severely experienced out of the three measures.

Findings from analysis of the quantitative data suggest key factors, but require further research. The qualitative findings however provide direct answers to some problems, such as what steps can be taken to reduce stress at university and during assessment period for the benefit of student mental health and well-being. The interviews, for example, contained the questions: "What types of coping methods have you used to mitigate types of stress in your life, and how successful have they been?" and "What changes could/could've been made by the university which would've helped you cope with the stress better?"

Some responses to these questions suggest direct solutions to some of the problems surrounding assessment-related stress and university life. One participant mentioned that a representative on their course who one could go to and report possible mental health problems would be a good alternative to seeking out the separate services unrelated to the course studied. The participant suggested that just having this access could be more comforting, even if it was not used, as it would provide a more open connection between the course departments and the universities' mental health services. This suggestion is similar to many responses to the open questions and other interviewees, which suggest that staggering deadlines could benefit students by lowering their stress levels. They are similar in that they provide suggestions which can help students without making dramatic changes to how universities assess and look after their students.

The primary reason for assessments is that they are a way to demonstrate and grade the extent of knowledge a student has about a particular topic. The nature of assessing a person is stressful, as it is a time where the individual is being put on the spot and has tangible repercussions for their actions. The prospect of failing or not doing well is also inevitable if you are to assess someone's progress as society requires that the people holding the titles they have are properly qualified for it. This involves not awarding the qualifications to those that did not demonstrate that they meet the passing criteria. What many of the participants and the study as a whole suggests is that adjustments are made to the current way in which students are assessed. This involves introducing more leeway into a justifiably strict system, whilst still allowing for the assessments to serve their primary purpose.

5.5 Limitations of the Present Study

The modest sample size of 104 English university students allowed for multiple statistical analyses to be carried out using SPSS software. Some statistically significant

findings were found following data analysis. The quantitative analyses such as the correlations and forming sub-groups for comparison may have been more difficult to find relationships from a sample size which was smaller. However, a larger sample size may have greatly benefited the results as analyses such as t-tests and ANOVAs did not produce any statistically significant results, but with a larger sample this may have changed. Most issues arising from the sample did not come from its size, but rather its distribution and make-up. As the sample consisted of 86 female participants and 17 male participants, the overall sample was heavily gynocentric.

Regardless, an independent samples t-test was carried out in order to investigate gender differences in the participants' levels of mental health and life event scores. Descriptive analysis showed that the female participants in the present study had higher levels of depression, anxiety and stress than their male peers. Female participants also reported a higher average life event score than male students. These findings are concurrent with the findings of previous studies (APMS, 2016; Aronin, & Smith, 2016 Putwain & Daly, 2014) in that female students tend to report increased levels of depression, anxiety and stress than male students. Despite this common trend between the present study and previous research, the independent t-test results in the present study showed no statistically significant difference between genders for all mental health measures.

This was largely attributable to the lack of male representation in the sample, as they only made up 16% of the total participant pool. Because of this, the higher average mental health scores for female students when compared to male students were not statistically significant ($p > 0.05$). This means that the difference for this sample could be due to chance, rather than actual gender differences. More male students in the sample may have changed this result.

As previously mentioned, the small sample size makes for application of the findings to the wider student public limited. This low population validity also comes from the lack of diversity in the sample as most of the groups used in analysis were different sizes. This included gender, where the larger proportion of female participants compared to males limited analysis for gender differences. Despite previous research finding statistically significant differences between male and female students in their levels of mental health, the present study was only able to present these differences in descriptive statistics. Independent samples t-tests did not produce statistically significant results, but a larger and more diverse sample may have changed this.

The present study also did not gather any information on race or ethnicity of the participants. This was decided against as it was another personally identifiable attribute for the participant that could compromise anonymity. However, on reflection, with the security and privacy measures taken by the researcher, this information most likely could have been gathered and not have been at risk of compromising anonymity. Had the present study intended to look at the differences for ethnic minority students, these demographical data would have been more applicable to it. Despite not gathering this type of data on the participants, the open nature of the qualitative open questions and interviews meant that nationality and ethnicity were points made by many of the participants. For example, the present study had not considered other external life stresses not covered by the SRRS other than assessment-related stress.

A life stress unique to many international students is the stress of learning English as a second language. The stresses associated with this come from the difficulty of learning the language itself, as well as the social aspect. This social aspect was brought up in interviews as a prominent life stress as there is a considerable amount of pressure associated with speaking English well. This is in addition to the self-consciousness of potentially speaking English

poorly. With these stresses being open to a large group of students and not being considered by the present study or the SRRS, it could be beneficial to include optional demographical data relating to race and nationality in future research of this kind.

The present study tried to overcome the issues of a small sample size by maximising its outreach for the application of the survey. As students, and indeed the wider population, now tend to utilise technology such as mobile phones and computers, it was decided that an online survey would have the most accessibility. This, in combination with the survey being anonymous and taking 10 minutes to complete also aimed to encourage participants to take part. The thought process behind this was that being able to complete the survey on any device whilst not having to sign up or leave any contact information would entice students to take part in research whilst not inconveniencing themselves too much during assessment period.

However, whilst this accessibility may have been a strength for bolstering the overall sample size, its wholly opportunistic sample methodology may have not produced as honest and as well thought-out responses. Reasons for this could be that as it was a busy time for the students, they may have wished to take part in research to help out a fellow student, that is, the researcher of the present study. In doing this, some may have rushed through the survey, not fully thinking through all of their answers in order to get the survey finished as quickly as possible, whilst still contributing to the research. Possible evidence for this comes from the wide range of completion times per participant. Most participants finished the survey in around 10 minutes, but some extremes were noted around this figure. Some participants completed the survey in double this time, and it is impossible to tell for each occasion whether the person has taken the time to think through their answers, or simply left their device for a short while before returning back to the survey. The responses to the survey which were most rich in detail in the open answers tended to be those which had taken longer

to complete the survey. Conversely, almost all of the fast completion times of around 2-5 minutes left very little in response to the open questions, and many had missing values for some questions on the DASS and SRRS.

Although it is possible that some participants completed the survey too quickly, it could also be argued that the survey may have been longer than it needed to be. Previous research by Symons (2016) demonstrated that the application of the smaller DASS-21 could be used to generate the same measures whilst halving the number of questions needed to be answered by the participant, when compared to the full sized DASS used in the present study. Other research has tested both the DASS and DASS-21 and has found that both are adept at measuring what it is they intend to measure. This means both versions of the DASS are valid statistical scales which can generate depression, anxiety and stress scores individually.

To further increase accessibility to the survey, the smaller DASS-21 could have been used to gather these measures and may have encouraged participants to think longer about their responses. The present study made the assumption that the higher internal reliability and validity of the full sized DASS would be more beneficial to the research than shortening the survey. It is inconclusive whether this assumption was correct, as it cannot be known how many students would have thought more about their answers, or just completed the survey quicker. This is an example of one of the assumptions made in the present study.

Before proceeding with the methodology of the study, preliminary research was carried out through a thorough search of the available literature. The studies which related to the present study, or influenced it directly are included in the literature review chapter. These studies were used to inform many assumptions made by the present study, such as the scales being valid and reliable and the mixed methodology being appropriate for the research topic of student mental health. Other assumptions made came from logic or common knowledge,

but some assumptions would be tested for the first time in the present study. One example is the assumption that the SRRS could be utilised to filter out participants for further analysis who had high life stress. This was because they would be more likely to have high DASS values because of their life stress, rather than external factors such as assessments. Whilst this assumption may have been accurate, not all external factors were considered.

As previously mentioned, a prominent life stress for international students is learning English as a second language. This was an unforeseen life stress not covered in the SRRS or controlled as an external factor in the analysis with assessment-related stress. This could indicate that many of the participants could have had other external factors which resulted in their DASS scores, rather than it being a direct result of the assessment period. This could be a result of not using the SRRS the way it was intended, as to the best of the knowledge of the researcher, the SRRS has not been used as a filter in previous studies.

In order to control all external factors in a research study, this would require the use of a laboratory setting, a large budget or a combination of the two. As a laboratory setting raises questions of ecological validity, and with the present study having a budget of £50 for an Amazon voucher, the likelihood of controlling all external factors was near zero. However, significant steps were taken to control as many extraneous variables as possible. Much of this came from the mixed methodology approach, which allowed for quantitative analyses and statistics which could be more easily compared and understood, as well as open-ended questions and interviews to gather more rich qualitative data. This methodology resulted in subjects being brought up which were not considered by the study and would have gone unnoticed if only quantitative analyses had been undertaken.

Chapter 6: Conclusion

This section will compile the findings and discussion chapters into how they relate to the research questions. Conclusions will be drawn from how well the present study addressed each of them. General conclusions are also made, as well as further implications of the study as a whole in terms of further research and practical applications.

6.1 Research Question 1: What Stressful Life Events do Students Experience?

Utilisation of the SRRS (Holmes & Rahe, 1967) administered to all participants of the study allowed for a thorough analysis of the extent of life stress experienced by the sample. The use of this scale also allowed for individual life events to be explored and categorised by how many students experienced each type of event on the scale.

The findings generated by the current study in relation to this question suggested that, for this sample, life stress was not a major source of stress for a majority of students. Exceptions include students with over 300 life score points, which would result in them having an 80% chance of developing a physical illness as a result of their weakened immune system caused by the life stress. They also include the students which experienced the most stressful life events such as death of a close family member and a marital/relationship separation. These exceptions only account for a relatively small amount of the sample. The most common types of life stress experienced by the sample were, perhaps unsurprisingly, stresses associated with university life. Other life events which did not relate to university life were experienced by many of the participants, but not in any large number.

Overall, the findings suggest that stresses associated with university life such as a change in personal habits, living conditions/residence and changes in financial state are the most experienced by university students. By identifying these stresses within universities

themselves, students may be better equipped to prepare and deal with them. These life events require further research to understand the full extent of their potential to cause stress, as well as ways to mitigate them. For example, changes in financial state may be seen as a part of university life, but when these changes effect students on an individual basis, advice should be given based upon the situations of the students as they enter university. This would allow students to be prepared for the changes in residence or financial state as they would know exactly what to expect before they entered university.

Those students which experience the highest levels of life event stress, or particularly stressful life events may require more help than the majority of students due to the nature of their higher stress levels. These levels can have an effect on students physiologically and mentally, so access to be able to talk to a supervisor/counsellor is essential if students are to overcome these external factors whilst studying at university.

6.2 Research Question 2: What Levels of Mental Health do University Students Experience during Assessment Period?

The use of the DASS allowed the current study to gather three individual mental health scores from each participant. Coupled with the SRRS, many different aspects of mental health were measured from each of the participants. With all this data, the current study found that this sample of students experienced, on average, severe depression (M= 22.93), extremely severe anxiety (M= 21.70) and severe stress (M= 26.42) levels. These highly negative levels of mental health in the students indicated that students are under a significant amount of stress during assessment period, and this may be influencing levels of mental health.

As there were no pre- and post-test conditions, the sample could not be compared to students which were not in assessment period. However, the results have can be implied to either represent a worse state of mental health as a result of the assessment-related stress, or

represent the levels of mental health students experience regardless. Either implication suggests that there may be a serious mental health problem at UK universities which may be exacerbated by the stress caused by assessment period.

Qualitative data was the main source of specific sources of information for what levels of mental health students are experiencing. These responses differed vastly, from those that had received clinical diagnoses for mental illnesses, to those which did not consider themselves to suffer any mental health issue. What can be concluded from these findings is that there may be a significant mental health problem in universities in the UK, which could be made worse by factors such as life stress and undertaking assessments. Further research in this area with a larger-scale study could yield important findings which help students to mitigate the stress experienced at university and in their lives without it affecting their mental health to such an extent.

This could be done whilst maintaining the purpose of university and assessments themselves; to educate and ensure the student is fully deserving of their qualification.

6.3 Research Question 3: What are the Relationships between Assessment-Related Stress and Student Mental Health and Well-Being?

The current study addressed this research question by breaking it down into three sub-questions. These questions focussed on aspects of assessment-related stress specifically. These were assessment type, qualification type and year of study. These three aspects were investigated individually to see if any or all of them could have an effect on the mental health of students. Although many of the groups contained within these aspects demonstrated differences in their average scores for the DASS, only a small number were found to have any statistical significance. If a student had undertaken an essay, or expected to take an essay in the last/next 3 months, they were more likely to have higher levels of anxiety and stress

than those who had not. The reasons for this difference are not clear from the findings of the current study, but the statistically significant finding may warrant further research into how different assessment types may affect students' mental health.

Second year students had lower average levels of anxiety than first year students, and was confirmed to be statistically significant by post-hoc tests despite the initial ANOVA indicating a lower level of significance (p = 0.06). This result again suggests that further research should be carried out in this area as mitigating differences in mental health between years could help students as they progress through university, rather than carrying their possible mental health issues into further stages of education.

Overall, the current study provides evidence that aspects of assessment-related stress may have an effect on the mental health and therefore well-being of students at university. The research question could not be addressed in a way which conclusively answers how assessments can affect student mental health. The findings do however suggest an area of research which requires more interest, as little research is made into the effects of assessment-related stress on mental health. Previous studies tend to investigate the effects the stress caused can have on academic performance, but a shift in the direction of mental health may benefit students more as it could improve their well-being. A direct consequence of this may be improved academic performance during assessments, which would address concerns proposed by previous research regardless.

6.4 Final Conclusion

This study aimed to gain understanding into mental health and well-being in university students in the UK. This was done through investigating the students' life events and assessment-related stress. By breaking down this aim into research questions and sub-questions, the current study was able to frame its methodology around the research questions,

as well as the structure of the final thesis. Undertaking the research itself proved to be more challenging than expected. The questionnaires were distributed easily due to them being online and compatible/scalable to many different devices. However, once a hard ceiling was hit, the sample size could not be extended any more. The interviews were one of the most time consuming aspects of the entire study and perhaps, disappointingly, produced no standalone data and were instead utilised to supplement the other data in the study. Despite this, the interviews provide data which expand upon many quantitative findings throughout the study.

In conclusion, the present study has found evidence to suggest that mental health in students at universities in the UK may be at damagingly high levels during assessment periods. Steps should be taken which take into account the situation of the students individually. This requires more flexibility in the current education system. Assessments, which this study suggests are key sources of stress for students, could be less rigid than their current style. This could involve allowing students to choose different assessment types based on their preference, having less overall number of assessments and spacing out assessments more along the calendar. Changes like these exist depending on different universities or course type, but nationwide recognition is needed for universities to manage how student are assessed, as this may be able to help with their mental health and well-being. Small improvements, such as increasing the number of university staff which any one student can talk to in times of stress, or a course contact for personal issues may improve the well-being of students who are currently suffering from mental health related issues at university. Resiliency to stress through the use of mindfulness training may also be a subject that nay benefit students in a preventative capacity (Galante et al., 2017) .Ultimately, despite significant findings, the current study should be replicated with a much larger sample from universities all over the UK with a larger focus on student mental health and what aspects of

university can affect it. Further research in this area may help students to deal with mental health issues at university, as well as helping to prevent the mental health issues from arising in the first place.

Appendices

Appendix 1: Online Questionnaire

Questionnaire 2017

Dear Participant This questionnaire is gathering information on assessment-related stress as a part of my Masters' research project. It should take no longer than 10 minutes to complete. There is also a final question which will allow you to opt-in to be contacted via email for a follow-up interview if you wish to do so. Choosing to leave an email address to sign up and then take part in the follow-up interview will also enter you into a prize draw to win a £50 Amazon gift voucher. All of the data collected from this questionnaire will be anonymous. We will not ask for your name or any other identifying information. The data will be stored in a password protected file and will only be accessible to myself and my supervisor. The anonymous data may be used in presentations, online articles, in research reports or project summaries.   In addition, the anonymous data may be used for further analysis. Your individual data will not be identifiable, but if you do not want the data to be used in this way please do not complete the questionnaire.   If you do agree to complete the questionnaire you are free to leave any questions unanswered or to stop completing the questionnaire altogether at any point. Once the questionnaire is submitted the data cannot be withdrawn, as it is anonymous so there will be no way to identify your data. The data will be kept for approximately 5 years after which point it will be destroyed.   This research has been approved by the Department of Education, University of York Ethics Committee. If you have any questions or complaints about this research please contact Owen Symons (os595@york.ac.uk) or Chair of the Ethics Committee (education-research-administrator@york.ac.uk). By submitting this questionnaire you are agreeing to all of the points above. The deadline for submission is 10th April 2017. Many thanks for your help with this research.

What is your age?

    18-21 (1)

    22-25 (2)

    26-29 (3)

    30+ (4)

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What is your gender?

    Male (1)

    Female (2)

    Other/Prefer not to say (3)

What is your current course of study?

    _____

What is your year of study?

    First year (1)

    Second Year (2)

    Third Year (3)

    Masters (4)

    PhD (5)

    Other (Please Specify) (6) _____

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If an event listed below has happened to you in the **last 12 months, or is expected to occur soon,** please check the box at the side of that event (select as many events as appropriate).

☐ Death of spouse (1)

☐ Divorce (2)

☐ Marital/Relationship separation (3)

☐ Jail Term (4)

☐ Death of close family member (5)

☐ Personal injury or illness (6)

☐ Marriage (7)

☐ Fired/Lost job (8)

☐ Marital/Relationship reconciliation (9)

☐ Retirement (10)

☐ Change in health of family member (11)

☐ Pregnancy (12)

☐ Sex difficulties (13)

☐ Business readjustment (14)

☐ Gain of a new family member (15)

☐ Change in financial state (16)

☐ Death of a close friend (17)

☐ Change to a different line of work (18)

☐ Change in number of arguments w/ spouse (19)

☐ Mortgage over £100,000 (20)

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☐ Foreclosure of mortgage or loan (21)

☐ Change in responsibilities at work (22)

☐ Son or daughter leaving home (23)

☐ Trouble with in laws (24)

☐ Outstanding personal achievement (25)

☐ Spouse begins or stop work (26)

☐ Begin or end of current educational level (27)

☐ Change in living conditions (28)

☐ Revisions of personal habits (29)

☐ Trouble with boss (30)

☐ Change in work hours or conditions (31)

☐ Change in residence (32)

☐ Change in college or university (33)

☐ Change in recreations (34)

☐ Change in religious activities (35)

☐ Change in social activities (36)

☐ Mortgage or loan less than £100,000 (37)

☐ Change in sleeping habits (38)

☐ Change in number of family get-togethers (39)

☐ Change in eating habits (40)

☐ A Holiday (41)

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☐ Christmas Approaching (42)

☐ Minor violation of the law (43)

Please add further information regarding your responses to the above question, if you wish.

_____

_____

_____

_____

_____

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Please read each statement and indicate how much the statement applied to you over the past week.
 There are no right or wrong answers.
 Do not spend too much time on any statement.
 The rating scale is as follows: Never: Did not apply to me at all.   Sometimes: Applied to me to some degree, or some of the time.   Often: Applied to me to a considerable degree, or a good part of time.   Almost always: Applied to me very much, or most of the time.

	Never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I found myself getting upset by quite trivial things (1)				
I was aware of dryness of my mouth (2)				
I couldn't seem to experience any positive feeling at all (3)				
I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion) (4)				
I just couldn't seem to get going (5)				
I tended to over-react to situations (6)				

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I had a feeling of shakiness (eg, legs going to give way) (7)

I found it difficult to relax (8)

I found myself in situations that made me so anxious I was most relieved when they ended (9)

I felt that I had nothing to look forward to (10)

I found myself getting upset rather easily (11)

I felt that I was using a lot of nervous energy (12)

I felt sad and depressed (13)

I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting) (14)

I had a feeling of

faintness (15)

I felt that I had lost interest in just about everything (16)

I felt I wasn't worth much as a person (17)

I felt that I was rather touchy (18)

I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion (19)

I felt scared without any good reason (20)

I felt that life wasn't worthwhile (21)

I found it hard to wind down (22)

I had difficulty in swallowing (23)

I couldn't seem to get any enjoyment out of the things I did (24)

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I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat) (25)

I felt down-hearted and blue (26)

I found that I was very irritable (27)

I felt I was close to panic (28)

I found it hard to calm down after something upset me (29)

I feared that I would be "thrown" by some trivial but unfamiliar task (30)

I was unable to become enthusiastic about anything (31)

I found it difficult to tolerate interruptions to what I was doing (32)

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I was in a state of nervous tension (33)

I felt I was pretty worthless (34)

I was intolerant of anything that kept me from getting on with what I was doing (35)

I felt terrified (36)

I could see nothing in the future to be hopeful about (37)

I felt that life was meaningless (38)

I found myself getting agitated (39)

I was worried about situations in which I might panic and make a fool of myself (40)

I experienced trembling (eg, in the hands) (41)

I found it difficult to work up the initiative to do things (42)

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Please add further information regarding your responses to the above question, if you wish.

_____

_____

_____

_____

_____

Please select which of the following types of formal assessment you have undertaken in the **last 3 months** or in the **next 3 months** (select as many as appropriate).

- ☐ An examination (1)

- ☐ An essay (2)

- ☐ Assessed group work (3)

- ☐ Dissertation (4)

- ☐ Masters research paper (for publication/conference presentation) (5)

- ☐ PhD research paper (for publication/conference presentation) (6)

- ☐ Submission of PhD thesis (7)

- ☐ Work-integrated assessment (8)

- ☐ Other (please specify) (9) _____

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What is your opinion on assessment-related stress and how it could affect your mental health and/or well-being?

_____

_____

_____

_____

_____

Please add any further comments about this questionnaire, or anything else you wish to note.

_____

_____

_____

_____

_____

Thank you for completing this survey.

If you would like to take part in a follow-up interview regarding how assessment-related stress affects student mental health and well-being, please leave your email address in the box below. I will then email you with details of the follow-up interview.

Please note: Completion of the interview will enter you into a prize draw to win a £50 Amazon voucher.

_____

End of Block: Default Question Block

Understanding mental health and well-being in university students: Investigating life events and assessment-related stress.
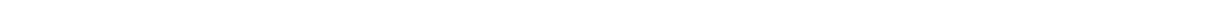
Appendix 2: Interview Questions

Interview Questions

1.   What different types of assessment have you had in the last year?

2.   What personal life stresses have you been experiencing in the last year?

3.   What possible mental health issues have you faced in the last year?

4.   What are the biggest causes of stress for you at university?

5.   What types of coping methods have you used to mitigate types of stress in your life, and how successful have they been?

6.   What changes could/could've been made by your school/college/university which would've helped you cope with the stress better?

7.   What advice could you give to someone else who is suffering from stress related to assessments?

8.   What is your opinion and personal experience with stress related to your assessments and how it relates or not to your mental health?

9.   What is your opinion on how different assessment types may affect your stress levels, and possibly your mental health?

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