STUDENT WELLBEING: A CROSS-SECTIONAL SURVEY OF MENTAL HEALTH OF UT-STUDENTS

Date: 28-08-2019

Authors:

Dr. Saskia Kelders

Kira Oberschmidt

Prof. Dr. Ernst Bohlmeijer

TABLE OF CONTENTS

Preface 3
Management summary 4
1. Aims and backgrounds of the study 5
2. Method and concepts 6
2.1 Method 6
2.2 Concepts 6
2.2.1 Demographics 6
2.2.2 (Dis)stress and wellbeing 7
2.2.3 Substance use 8
2.2.4 Predictors 9
2.2.5 Counselling 11
2.3 Data analysis 11
3. Findings 12
3.1 Demographics 12
3.2 (Dis)stress and wellbeing 13
3.2.1 Stress 13
3.2.2 Burnout 14
3.2.3 Depression 14
3.2.4 Anxiety 14
3.2.5 Wellbeing 15
3.2.6 Sleep 15
3.3 Substance use 16
3.3.1 Alcohol use 16
3.3.2 Substance use 16
3.3.3 Compulsive internet use 17
3.4 Predictors 18
3.4.1 Resilience 18
3.4.2 Stress Mindset 18
3.4.3 Intolerance of Uncertainty 18
3.4.4 Fear of missing out 18
3.4.5 Loneliness 18
3.4.6 Sense of belonging 18
3.5 Counselling 19
3.6 Relation between variables 19
3.6.1 Correlation between (dis)stress and wellbeing variables 19

3.6.2 Regression model stress 19
3.6.3 Regression model depression 20
3.6.4 Regression model anxiety 20
3.6.5 Regression model wellbeing 20
3.7 Differences between groups 21
3.7.1 Dutch and international students 21
3.7.2 Gender 22
3.7.3 LGBT 22
3.7.4 Bachelor and Master 23
3.7.5 Faculties 23
3.7.6 Students with illness 24
3.7.7 Active students 24
3.8 Comments made by participants 26
4. Conclusions 27
5. Recommendations 28
6. References 29
7. Appendices 33
A – Study programs 33
B – Nationalities 34

PREFACE

This report came into being as an initiative from the working group ‘Student stress’ under coordination of SACC. Based on both external and internal signals, the working group decided to investigate the issue of mental health in students. Towards this goal, a Bachelor thesis assignment was drafted and four Bachelor Psychology students were assigned to carry out this study under supervision of dr. Saskia Kelders. After data-collection, a small budget was made available by SACC for a student assistant to carry out data-analyses and write a draft of this report.

We would like to acknowledge the people that made this study and report possible:

The working group ‘Student stress’ for their input in setting up the study and their feedback earlier versions of the report:

- Anne-Marie Hoogland, policy officer SACC
- Carla Bruynel, diversity officer SACC
- Marieke Hofman, student advisor Technical Medicine
- Annemarie Slot, student psychologist

The students who carried out the data collection:

- Jonathan Laatsch
- Marie König
- Paula Friedrichs
- Leonie Reh

The ‘platform studiebegeleiding’ for their feedback on the set up of the study and preliminary results of the study.

And lastly Hans Oeloff (CES) who made available the budget for the student assistant.

Dr. Saskia Kelders

Kira Oberschmidt

Prof. dr. Ernst Bohlmeijer

MANAGEMENT SUMMARY

Student wellbeing and mental health are receiving increased attention in the media and national discussion. In order to assess the situation and the UT and give recommendations to improve student mental health, a student wellbeing study was conducted for the first time in the spring of 2019. The report gives insight into different aspects of students' mental health and shows which groups are at risk of developing mental health issues during their studies.
The most important findings are:

1. UT students' levels of perceived stress and depression and/ or anxiety are high; only around a fifth of students (19.2% of the sample and 20.6% based on extrapolation to the UT student population) do **not** experience at least mild depression or anxiety complaints.
2. Alcohol, drug and compulsive internet use are high in UT students.
3. Only a fraction of those that experience mental health issues has received some form of treatment in the past year.
4. Significant predictors for (dis)stress found in this study are resilience, stress mindset, intolerance of uncertainty, fear of missing out, loneliness and sense of belonging.
5. International students, women and students that identify as LGBT experience the most mental health issues.

Recommendations based on these findings:

1. **There is an urgent need for a preventive approach towards mental wellbeing**

This stepwise approach should:

- Teach all students ways to cope with stress and pressure
- Provide targeted preventive interventions for students who already experience some (dis)stress issues and/or students who score low on the identified predictors
- Minimize the number of students with moderate or severe mental health complaints, and provide easy access to professional help (e.g. supported by technology)

2. **There is a need for ongoing monitoring of mental health of UT-students**

Ongoing, longitudinal studies of the mental health of UT-students can provide us with more insight in the state of mental health of students over time, help us understand the mechanisms of why some students do and other students don't develop mental health issues, and can serve as a way to evaluate initiatives to improve student wellbeing.

3. **Attention for mental health and stress should be integrated in education**

A promising way to reach all students is to integrate attention to dealing with stress and improving mental health in regular education, e.g. as a form of academic skills as these are the skills that are needed for future professionals to succeed in an increasingly stressful and competitive world. To become the 'ultimate people first' University, this is an essential step to take.

4. **Focus on predictors of mental health issues such as resilience, stress mindset, intolerance of uncertainty, fear of missing out, loneliness and sense of belonging**

This study has confirmed some of the known predictors for (dis)stress and has shown that there is room for improvement on these factors. Research should be carried out to develop and evaluate low threshold interventions (with and without technology) that can be implemented at the UT.

5. **Specific attention should be given to identified at risk groups**

The study has identified different groups that report more mental health issues: females, international students, students who identify as LGBT and students who reported illness or disability that decreased their ability to study. Specific attention should be paid to support these at risk groups.

1. AIMS AND BACKGROUNDS OF THE STUDY

In the past years, there has been increasing attention in the Dutch public and in media about student wellbeing. This discussion was fuelled by, amongst others, the outcomes of a study into student mental health conducted at Hogeschool Windesheim (Dopmeijer, 2017). This study drew attention to the high burnout rates and low wellbeing in students. Previous research has found that lower student wellbeing can have a negative impact on their engagement and academic achievement (Lin & Huang, 2014; Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002). Therefore, the increase of wellbeing and prevention of mental illness in students is a very important topic.

As part of the activities of a working group on student wellbeing, led by Student Affairs Coaching and Counselling (SACC), a study has been set up and was carried out by Bachelor Psychology students under supervision of dr. Saskia Kelders. The goal of the current study was to get a clear picture of the mental health of students at the University of Twente. As no such study had been performed before, it was unknown how the situation at the UT compares to that described in national media (NOS, 2018; Sedee, 2018; Stoker, 2018; Van Dinther, 2018). A variety of aspects of student mental health were taken into account to give a broad overview of which factors may play a role in student wellbeing. The main aims of the study are as follows

1. To collect baseline measures of variables related to mental health– e.g. stress, depression and wellbeing in UT students.
2. To collect baseline measures for different possible predictors of these mental health variables.
3. To identify at risk groups within the UT student population based on demographic and study related characteristics.
4. To test hypotheses on the relationship between predictors, demographic variables and mental health outcomes.
5. To get insight into the counselling use and preferences of UT students.

The results of this study will be used as input for the action plan ‘student wellbeing’.

2. METHOD AND CONCEPTS

2.1 METHOD

The survey was open between April 5 and May 13, 2019. All UT students received an invitation via their student email address on April 5. The survey could be filled in on a desktop or mobile phone. It was expected that it would take the students roughly 20 minutes to finish the questionnaire. In practice, the median time participants took to fill in the survey was 25 minutes. Some participants only filled in part of the survey. However, all participants that finished a whole sub questionnaire were included in the analysis. Therefore, the number of participants sometimes differs between the questionnaires. At the end of the survey, participants were asked whether they would like to participate in a raffle, receive a summary of the results and/ or participate in a student panel.

Although the invitation to the survey was send to all students and it was emphasized that students who do not experience any mental health issues should also fill out the survey, it is likely that those students that have experienced mental health issues before are over-represented in the study. Nonetheless the results can give valuable insights, notably because of the substantial response, as roughly 15% of UT students filled in at least a substantial part of the survey. Response rates seem reasonably distributed among the faculties (see Table 1 and Appendix A for an extended overview of response rates per study program), with EEMCS having a somewhat higher response rate and ITC a substantially lower response rate.

Table 1. Response rates per faculty

Faculty	**N**	**Number of students, October 2018**	**Response rate (%)**
Behavioural, Management and Social Sciences (BMS)	433	3553	12.2%
Engineering Technology (ET)	334	2297	14.5%
Electrical Engineering, Mathematics and Computer Science (EEMCS)	458	2207	20.8
Science and Technology (TNW)	415	2536	16.3
Geo-Information Science and Earth Observation (ITC)	17	402	4.2
University College Twente (ATLAS)	25	138	18.1
Total	1682	11133	15.1

2.2 CONCEPTS

The main concepts that were investigated in this survey are (dis)stress and wellbeing, substance use, possible predictors of stress and wellbeing, and counselling experience and preference. These concepts will be discussed in more detail subsequently, together with a description of the corresponding sub-questionnaire.

2.2.1 Demographics

The questionnaire started with general demographic questions about the participants' age, gender, identification as LGBT (Lesbian, Gay, Bisexual and/or Transgender), nationality and religious belief. Then, study related demographic questions were asked about the study programs participants are currently enrolled in, their year of study, and whether they study fulltime or part-time. Lastly, participants were asked to estimate how much time they spend on sleeping, as well as different study related and private activities.

Demographic variable were included as it was expected that demographic factors influence students' wellbeing. International students often struggle with mental health for reasons like cultural differences or financial pressure (Chen, 1999; Mori, 2000). Secondly, studies have found that female students experience more stress and depression (Dixon & Kurpius, 2008; Misra, McKean, West, & Russo, 2000). Furthermore, LGBT students were also found to experience more stress and mental illness (Oswalt & Wyatt, 2011; Westefeld, Maples, Buford, & Taylor, 2001).

2.2.2 (Dis)stress and wellbeing

The concepts of (dis)stress and wellbeing consist of several aspects. These are stress, burnout, depression, anxiety, wellbeing and sleep. Each will be explained in more detail below.

2.2.2.1 Stress

Lazarus and Launier (1978) describe stress as the fit between a person and his or her environment. The better a person's abilities fit the tasks and challenges in their environment, the lower their stress levels are. When stress is defined, usually a distinction is made between distress, stress that is "*harmful and damaging*" and eustress, stress that is "*positive and beneficial*" (Ogden, 2012).

The perceived stress scale (PSS) by Cohen, Kamarck, and Mermelstein (1983) was used as a measure for stress. The 14 items of the scale are rated on a scale from 'Never' (0) to 'very often' (4). After reversing some of the items a total score is calculated. Higher levels of perceived stress are indicated by higher scores. In this study, a Cronbach alpha of .86 was found, which is in line with the Cronbach alpha of between .84 and .86 found by Cohen et al. (1983).

The PSS has been used in various studies with college students before (Deckro et al., 2002; Örücü & Demir, 2009). Especially for shorter periods of time, the test-retest reliability of the PSS is good (Lee, 2012). The PSS correlates highly with related variables like life event, depression or anxiety (Cohen et al., 1983; Lee, 2012).

2.2.2.2 Burnout

When a person experiences stress over a prolonged period of time, this is called a burnout (Vandereycken, Hoogduin, & Emmelkamp, 2012). Burnout is commonly defined based on its three dimensions – emotional exhaustion, cynicism and professional efficacy (Schaufeli et al., 2002).

The Maslach burnout inventory student scale (MBI-SS) (Schaufeli et al., 2002), which was used to measure burnout, consists of 15 questions. These are scored on a scale ranging from 'Never' (0) to 'Always' (6). For some questions, scores are reversed before the scores are calculated for the three subscales that correspond with the three dimensions of burnout mentioned above. The Cronbach alpha for the whole MBI-SS was .85 in this study, which is in between the Cronbach alpha of .76 and .98 found in other studies (Campos, Zucoloto, Bonafé, Jordani, & Maroco, 2011; Ilic, Todorovic, Jovanovic, & Ilic, 2017). For the subscales of emotional exhaustion and professional efficacy, the Cronbach alpha of .83 and .79 respectively were comparable as well, as other studies found a Cronbach alpha of .87 for the emotional exhaustion scale, and between .71 and .85 for the professional efficacy scale. Only the Cronbach alpha of the cynicism subscales was substantially lower than in other studies, .66 compared to .86 and .88 in the other studies.

The MBI-SS was specifically developed for the use in student populations. The scale has been found to show a negative correlation with engagement and to positively correlate with depression (Rostami, Abedi, Schaufeli, Ahmadi, & Sadeghi, 2014; Schaufeli et al., 2002). Lastly, the MBI-SS shows a good test-retest reliability (Campos et al., 2011; Rostami et al., 2014).

2.2.2.3 Depression

Depression is a mood disorder that is characterized by almost constant sombre mood and listlessness (Kessler, Berglund, & Demler, 2003). In order to speak of a major depressive disorder, "*distinct change of mood, characterized by sadness or irritability and accompanied by at least several psychophysiological changes*" need to be present (Belmaker & Agam, 2008)

Depression was measured with the brief patient health questionnaire mood scale (PHQ-9) (Kroenke, Spitzer, & Williams, 2001). This scale consists of nine questions that are scored on a scale from 'Not at all' (0) to 'Nearly every day' (3). Total scores fall into four categories, namely 'No depression' (0-4), 'Mild depression' (5-9), 'Moderate depression (10-14), 'Moderately severe depression (15-19) and 'Severe depression' (20-27). The Cronbach alpha of .84 was slightly lower than that of .89 found by Martin, Rief, Klaiberg, and Braehler (2006). However, the internal consistency in this study is still good.

The PHQ-9 has been validated in different student samples before (Adewuya, Ola, & Afolabi, 2006; Y. L. Zhang et al., 2013). The scale correlates with other depression and anxiety scales (Cameron, Crawford, Lawton, & Reid, 2008; Y. L. Zhang et al., 2013) and shows a good test-retest reliability (Adewuya et al., 2006; Kroenke et al., 2001).

2.2.2.4 Anxiety

The generalized anxiety disorder (GAD) is described as "*excessive, uncontrollable worry*" (Ruscio et al., 2017). Anxiety often occurs together with other mental disorders, most frequently there is a comorbidity with depression and other anxiety disorders.

Anxiety was measured with the brief measure for generalized anxiety disorder (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006). This scale consists of seven questions that are scored on a scale from 'Not at all' (0) to 'Nearly every day' (3). The total scores fall into four categories, 'Minimal anxiety' (0-4), 'Mild anxiety' (5-9), 'Moderate anxiety (10-14) and 'Severe anxiety' (15-21). The Cronbach alpha for the GAD-7 in this study was .88, while Spitzer et al. (2006) found a slightly higher value of .92 in their study.

Different studies in university students have used the GAD-7 (Choueiry et al., 2016; Han, Han, Luo, Jacobs, & Jean-Baptiste, 2013). The test-retest reliability of the scale is good (Spitzer et al., 2006). Correlation with other concepts like depression and resilience has been demonstrated in previous research (Löwe et al., 2008; Spitzer et al., 2006).

2.2.2.5 Wellbeing

Wellbeing plays a crucial role in the definition of health used by the World Health Organization (1948), which states that "*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*". Wellbeing itself has been described as "*the appraisals individuals make about the quality of their lives*" (Keyes et al., 2008). There are three dimensions of wellbeing that are distinguished in research, namely emotional, psychological and social wellbeing (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011).

The mental health continuum – short form (MHC-SF) (Keyes et al., 2008), that was used to measure wellbeing, consists of 14 questions. Items are measured on a scale ranging from 'never' (0) to 'every day' (5) and mean scores are calculated. Furthermore, mean scores for three subscales that correspond with the dimensions described above can be calculated. The Cronbach alpha in this study was.92, which is higher than that of .74 found by Keyes et al. (2008) but comparable to the Cronbach alpha of .89 found by Lamers et al. (2011). The Cronbach alpha for the scales of emotional, social and psychological wellbeing are .88, .80 and .85 respectively, while Lamers et al. (2011) found values of .83, .74 and .83.

The MHC-SF has been used in a student population before (Keyes et al., 2012). Wellbeing correlates with related variables like happiness or satisfaction with life (Lamers, Glas, Westerhof, & Bohlmeijer, 2012). The scale shows moderate test-retest reliability (Lamers et al., 2011).

2.2.2.6 Sleep

The most commonly mentioned symptoms of sleep problems are "*delay of sleep onset, difficulty staying asleep, or awakening too early*". Oftentimes, there is comorbidity between sleep problems and mental illnesses like depression or anxiety (Riemann, 2007). Therefore, sleep was also measured as one of the wellbeing concepts in this study.

A scale for the estimation of sleep problems by Jenkins, Stanton, Niemcryk, and Rose (1988) was used. This sleep problems questionnaire contains four questions that are scored on a scale ranging from 'Not at all' (0) to '22-31 days' (5). Higher total scores indicate more sleep problems. The Cronbach alpha of .77 found in this study is comparable to the .79 found by Jenkins et al. (1988).

The sleep problem scale correlates with related concepts like fatigue or depression and shows moderate test-retest reliability (Jenkins et al., 1988).

2.2.3 Substance use

The concept of substance use includes the use of alcohol, nicotine and several drugs as well as compulsive internet use.

2.2.3.1 Alcohol use

Alcohol use in general and heavy drinking specifically have been linked with many health risks (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993).

A short form of the Alcohol Use Disorder Identification Test (AUDIT-C) (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998) was used to measure heavy drinking. The three items of this scale

are scored ranging from 0 to 4 points. The answer options differ per question. By summing up the points for each answer, a total score can be calculated. Higher scores indicate more alcohol use. To identify heavy drinkers, DeMartini and Carey (2012) suggest using a cut-off score of 5 for females and 7 for males.

The AUDIT-C has been evaluated in studies of college and high school students (Barry, Chaney, Stellefson, & Dodd, 2015; Rumpf, Wohlert, Freyer-Adam, Grothues, & Bischof, 2013) and good psychometric properties are reported (de Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009).

2.2.3.2 Drug use

No suitable questionnaire to measure drug use was found. Therefore, a question was set up for this survey. 13 substances were included, namely nicotine, cannabis, cocaine, MDMA/ Ecstasy, speed, heroin, opium, ketamine, LSD, mescaline, psilocybin, Chrystal meth and Ritalin/ Adderall. Participants were asked to rate how often they had used each substance, prescriptions excluded. Answers ranged from 'Never' (1) to 'Daily' (9).

2.2.3.3 Internet use

Compulsive internet use, which is also sometimes called internet addiction, is described as "*frequently stay[ing] online longer than intended and continu[ing] their online behavior despite knowledge of problems caused or aggravated by the use of the Internet*", and there are similarities between compulsive internet use and addictions (Meerkerk, Van Den Eijnden, Vermulst, & Garretsen, 2009). Students have been studies as one of the at-risk groups for internet addiction (Kuss, Griffiths, & Binder, 2013). Therefore, compulsive internet use was also included in this study to get more insight into the prevalence at the UT, and possible correlations with the other factors.

The compulsive internet use scale (CIUS) (Meerkerk et al., 2009) consist of 14 items that are scored on a scale from 'Never' (0) to 'Very often' (4). The Cronbach alpha was .90 in this study and between .89 and .90 in the study by Meerkerk et al. (2009).

The CIUS was used in student samples before (Li, O'Brien, Snyder, & Howard, 2015) and correlates with other scales of pathological internet use and social connectedness (McIntyre, Wiener, & Saliba, 2015; Meerkerk et al., 2009).

2.2.4 Predictors

Expected predictors of (dis)stress and wellbeing are resilience, stress mindset, uncertainty, fear of missing out, loneliness and sense of belonging. For each predictor, the expected effect on (dis)stress and wellbeing is described. In this case, wellbeing is used as a synonym for all the (dis)stress and wellbeing variables.

2.2.4.1 Resilience

The first factor that is expected to be related to student wellbeing is resilience. Various slightly different definitions of resilience are being used in research. Smith et al. (2008) describe the following definitions in their study: "*the ability to bounce back or recover from stress, to adapt to stressful circumstances, to not become ill despite significant adversity, and to function above the norm in spite of stress or adversity*". Keeping this in mind, it is expected that those with higher levels of resilience experience higher wellbeing, as they are able to adapt better and to overcome stressful situations more easily. This positive effect of resilience on wellbeing has been found in earlier research with students (Abolghasemi & Varaniyab, 2010; Dunn, Iglewicz, & Moutier, 2008; Grant & Kinman, 2012).

To measure resilience, the brief resilience scale (BRS) (Smith et al., 2008) was used. This scale consists of six items, that are scored on a 5 Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). Some items are reversely scored and then a mean score is calculated. Higher mean scores indicate higher resilience. In this study, a Cronbach alpha of .81 was found for the scale. This is comparable to the Cronbach alpha of between .80 and .91 that Smith et al. (2008) found for the different samples in their study.

The psychometric qualities of the BRS have been evaluated in student samples before and were found to be good (Amat et al., 2014). Correlations have been found between resilience and concepts like optimism and coping (Rodríguez-Rey, Alonso-Tapia, & Hernansaiz-Garrido, 2016; Smith et al., 2008). The test-retest reliability of the BRS is adequate (Rodríguez-Rey et al., 2016; Smith et al., 2008)

2.2.4.2 Stress Mindset

As it was mentioned before in the description of stress, stress does not have to be viewed as fully negative, but can be either harmful or beneficial. The concept of stress mindset relates to this twofold definition. As Crum, Salovey, and Achor (2013) describe it, the stress mindset can be either "*stress is enhancing*" or "*stress is debilitating*", meaning that people perceive stress to either have positive consequences for aspects like performance or growth, or to negatively impact those aspects. Therefore, those with a more positive stress mindset are expected to experience more wellbeing, as they see the enhancing possibilities of stress instead of expecting it to inhibit them. Similar results have been found in previous research (Crum, Akinola, Martin, & Fath, 2017; Crum et al., 2013).

Stress mindset was measured with the stress mindset measure (SMM) (Crum et al., 2013). This scale contains eight statements that participants are asked to rate on a scale from 'Strongly disagree' (0) to 'Strongly agree' (4). Scores for the negatively worded items are reversed and a mean score is calculated. The higher the mean score is, the more a participant beliefs in the "*stress is enhancing*" mindset. A Cronbach alpha of .80 was found in this study, which indicates good internal consistency, though it is slightly lower than the Cronbach alpha of .86 reported by Crum et al. (2013).

Student samples were used for parts of the development of the SMM, making it adequate to use in this population (Crum et al., 2013). Stress mindset was found to correlate with similar constructs like coping and appraisal of stress. The test-retest reliability of the SMM is adequate.

2.2.4.3 Uncertainty

Intolerance of uncertainty was defined by Carleton, Norton, and Asmundson (2007) as "*intolerance of the notion that negative events may occur and there is no definitive way of predicting such events*". Higher intolerance of uncertainty leads people to feel threatened in many situations, which in turn can cause stress and anxiety. Thus, participants with higher intolerance of uncertainty are expected to experience lower wellbeing. In earlier studies, intolerance of uncertainty has been linked to anxiety and depression (Butzer & Kuiper, 2006; Carleton et al., 2012).

A short version of the intolerance of uncertainty scale (IUS) (Carleton et al., 2007) was used as a measure for intolerance of uncertainty. The scale consists of 12 items that are scored on a scale ranging from 'Not at all characteristic of me' (1) to 'Entirely characteristic of me' (5). A sum of all answers is calculated, resulting in a possible score between 12 and 60. Higher levels of intolerance of uncertainty are indicated by higher scores. The Cronbach alpha of the scale was .89 both in this study, and the original study by Carleton et al. (2007).

The IUS was developed and validated in student samples (Buhr & Dugas, 2002; Carleton et al., 2007). Correlations between the IUS and related variables like depression or anxiety have been found (Buhr & Dugas, 2002; Norton, 2005). Test-retest reliability of the IUS is good (Buhr & Dugas, 2002; Carleton et al., 2007).

2.2.4.4 Fear of missing out

Przybylski, Murayama, DeHaan, and Gladwell (2013) describe fear of missing out as the "*pervasive apprehension that others might be having rewarding experiences from which one is absent*". In the current age of social media, people are more frequently reminded of what they might be missing out on, and was found to lead to stress and poor sleep, among other negative consequences (Riordan et al., 2018). Participants that experience higher levels of fear of missing out are therefore expected to experience lower wellbeing.

To measure fear of missing out, the fear of missing out scale by Riordan et al. (2018) was used. It contains one question that is scored on a scale from 'Definitely yes' (1) to 'Definitely not'(5), thus a higher score indicates lower fear of missing out.

The correlation between the single item scale and the 10-item FoMO scale is strong (Riordan et al., 2018). Furthermore, good test-retest reliability was found.

2.2.4.5 Loneliness

Loneliness is not merely the feeling of being alone, but "*feelings of isolation, feelings of disconnectedness, and feelings of not belonging*" also play a part in this concept (Hughes, Waite, Hawkley, & Cacioppo, 2004). It is expected that more loneliness is related to lower scores on the wellbeing variables, as previous studies have shown such an effect of loneliness on depression, stress and wellbeing (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Shankar, Rafnsson, & Steptoe, 2015).

The short scale for measuring loneliness by Hughes et al. (2004) was used to determine loneliness in this study. The three items of the scale are scored from ‘Hardly ever’ (1) to ‘Often’ (3) and a mean score is calculated. Higher scores indicate higher loneliness. Hughes et al. (2004) found a Cronbach alpha of .72 in their study, while the internal consistency in this study was even higher with a Cronbach alpha of .81.

The scale was developed in a study with college students and is therefore suited to be used in this study. It correlates highly with other scales of loneliness and perceived stress and test-retest reliability is good (Cacioppo et al., 2006; Hughes et al., 2004).

2.2.4.6 Sense of belonging

Sense of belonging is part of the perceived cohesion within a group (Bollen & Hoyle, 1990). Lower levels of sense of belonging in college students were found to be related to dropping out of college (Hausmann, Schofield, & Woods, 2007). Higher levels of sense of belonging are therefore expected to be related to more wellbeing.

The sense of belonging subscale of the perceived cohesion scale by Bollen and Hoyle (1990) was used. This scale contains three items that are scored on scale ranging from ‘Strongly disagree (0) to ‘Neutral’ (5) to ‘Strongly agree’ (10). A mean score is calculated, and higher scores indicate higher sense of belonging. The Cronbach alpha for the scale was .91 in this study and between .89 and .95 in previous research on the scale (Bollen & Hoyle, 1990; Hausmann et al., 2007; Hurtado & Carter, 1997).

The sense of belonging subscales was developed for the use in college students (Bollen & Hoyle, 1990). Sense of belonging correlates with academic activity and morale (Bollen & Hoyle, 1990; Hurtado & Carter, 1997).

2.2.5 Counselling

The survey also included questions about previous counselling and situations that might have impacted the participants’ ability to study like illness or family circumstances, but also top sports or activism. At the end of the survey, participants were asked to rate whether they would seek help for mental health complaints through different channels at the UT.

2.3 DATA ANALYSIS

Descriptive statistics were used to illustrate the mean or total scores for the concepts explained above. Regression analysis was used to investigate the relationship between predictors and the (dis)stress and wellbeing variables. To illustrate the differences between groups, mean scores for the different variables were compared and an ANCOVA analysis was used to check whether these differences were significant after correcting for the predicting variables.

3. FINDINGS

3.1 DEMOGRAPHICS

In total, 2055 respondents started filling in the survey, of which 1245 answered all questions. On average, participants were 22 years old (minimum age 17, maximum age 48). In Table 2, gender, identification as LGBT (Lesbian, Gay, Bisexual and/or Transgender), religious belief and nationality are displayed. However, only the four most frequent nationalities are shown. The full table can be found in Appendix B. Moreover, Table 2 shows the frequencies of different study related factors, namely whether students study full- or part-time and in which year of their study they currently are. Comparing the gender and nationality distribution between this sample and the UT student population, the nationality distribution seems similar (70.5% Dutch based on the student numbers of 2018 vs 72.4% Dutch in this sample), but the current sample does have a higher percentage of females (45.7% in the sample compared to 35.6% in the UT population). Based on expected differences in mental health complaints between males and females, outcomes on depression and anxiety from this study will be extrapolated to the UT population by taking into account the difference in gender distribution (see section 3.2.3 and 3.2.4).

Table 2. Frequencies of demographic and study related characteristics

Gender	**N(%)**
Male	902 (53.6%)
Female	769 (45.7%)
Other	11 (0.7%)
LGBT	
Yes	168 (10%)
No	1464 (87%)
Prefer not to disclose	50 (3%)
Religious belief	
Atheist/ Agnostic/ Non-religious	1123 (66.8%)
Buddhism	13 (0.8%)
Christianity	374 (22.2%)
Hindu	54 (3.2%)
Islam	23 (1.4%)
Spirituality	45 (2.7%)
Other	50 (3%)
Nationality*	
Netherlands	1218 (72.4%)
Germany	174 (10.3%)
India	69 (4.1%)
Romania	19 (1.1%)
Fulltime or part-time student	
Fulltime	1638 (96.8%)
Part-time	50 (3%)
Year of study	
First year	375 (21.1%)
Second year	300 (17.7)
Third year	336 (19.9%)
Pre-Master	50 (1.8%)
Master	669 (39.5%)

*only the most frequently mentioned nationalities (> 1%) are displayed. An overview of all nationalities can be found in Appendix B.

Students spend an average of 38.4 hours per week on lectures, project meetings, tutorials, studying and other study related activities (n=887, minimum 0, maximum 120, standard deviation 15.4). 60.7% (n=538) spent 40 hours or less on studying each week, while 39.3% (n=349) spent more than 40 hours. Mentioned activities in the category ‘other’ were thesis and graduation work, self-study exercises, practicals, honours program, language courses and extra classes, internship and activism.

On average, students spend 4.8 hours per week on work (n=1533). However, 46.6% of participants do not work next to their studies (n=714). When only looking at the students that do work next to their studies, the average number of hours spend working per week is 9.0 (n=819). The number of students that work next to their studies is lower in this study than in a national survey of Dutch university students, were 64% work next to their studies (Van der Werf, Schonewille, & Stoof, 2017).

The participants reported spending an average of 2.6 hours per week on care for others (n=1296). When only students that do take care of others are taken into account, the average time spent rises to 5.3 hours per week (n=635). On average, the participants spent 1.8 hours on volunteering (n=1533). When only looking at those students that do volunteering work, the average number of hours spent per week is 5.0 (n=536).

Students were also asked about the occurrence of different situations that might have had an impact on their ability to study in the past year. The frequency for each situation is given below, in Table 3.

Table 3. Frequency for each situation that impacted ability to study.

Situation	N(%)
Illness	407 (24.2%)
Psychological problems	591 (35.1%)
Pregnancy or delivery	4 (0.2%)
Physical, sensory or other dysfunction	108 (6.4%)
Special family circumstance	321 (19.1%)
Recognized top level sports or top level arts	14 (0.8%)
Board position FOBOS cat. 2 (e.g study or sport organisation)	189 (11.2%)
Board position FOBOS cat. 3 (e.g. University Council, Student Union)	32 (1.9%)
Team member FOBOS cat. 4 (Twente Teams)	31 (1.8%)

3.2 (DIS)STRESS AND WELLBEING

Table 4 shows a summary of the (dis)stress and wellbeing variables. All concepts will be discussed in more detail below.

Table 4. Summary of the outcomes for the (dis)stress and wellbeing variables.

	Number of participants (n)	Mean	Minimum	Maximum	Range of the scale	Standard Deviation
Perceived Stress	1365	27.28	4	52	0-56	8.44
Burnout						
Exhaustion	1387	15.54	0	30	0-30	6.90
Cynicism	1387	8.88	0	24	0-30	5.24
Efficacy	1387	11.93	0	36	0-36	6.51
Depression	1381	8.68	0	27	0-27	5.52
Anxiety	1386	7.88	0	21	0-21	5.38
Wellbeing	1378	2.92	0	5	0-5	0.99
Emotional	1378	3.21	0	5	0-5	1.13
Social	1378	2.57	0	5	0-5	1.15
Psychological	1378	3.06	0	5	0-5	1.08

3.2.1 Stress

Perceived stress was measured with the 14-item perceived stress scale. A mean score of 27.27 was found in this study. Other research with college students has found mean values of 22.34 (Morrison & O'Connor, 2005) and 29.86 (Deckro et al., 2002).Thus, the mean score seems to be on the high side.

3.2.2 Burnout

The scores found for each of the burnout scales are comparable to those in other studies with university students. With a mean score of 15.54, emotional exhaustion is higher than in a sample of Chinese college students (Y. Zhang, Gan, & Cham, 2007), where a mean score of 12.38 was found, but lower than the mean of 16.39 found in American college students (Fang, Young, Golshan, Moutier, & Zisook, 2012). Cynicism is lower than in the Chinese sample, where the mean score was 10.33, but comparable to the American study, where the mean score was 8.83. Lastly, the personal efficacy was comparable to that of 11.58 in the American student sample, but lower than the efficacy of 15.28 found in the Chinese study.

3.2.3 Depression

Table 5 shows the number of participants that fall within each category of depressive symptoms. Extrapolating the sample results to the UT-population based on observed differences in gender distribution yielded minimal differences (Table 5). It can be seen that more than two thirds display at least some depressive symptoms. Using the same scale, Eisenberg, Gollust, Golberstein, and Hefner (2007) found that only 13.8% in their student sample experienced any depression. However, it is not clear from their study whether they used the same categories that are described here. In a study of Chinese students in America, Han et al. (2013) found that more than half of the participants (54.6%) experienced no depression. The number of mild cases in their study is comparable to the findings here (37.7%), but they find far fewer cases of moderate depression (6.2%) and barely any cases of moderately severe or severe depression (0.8% each).

Table 5. Frequency of depressive symptoms per category.

Depressive symptoms	N(%)	Extrapolated population %
No depressive symptoms	364 (26.4%)	27.7%
Mild depression	496 (35.9%)	35.6%
Moderate depression	292 (21.1%)	20.3%
Moderately severe depression	171 (12.4%)	12.2%
Severe depression	58 (4.2%)	4.0%

3.2.4 Anxiety

Table 6 shows the distribution over the categories of anxiety symptoms. Extrapolating the sample results to the UT-population based on observed differences in gender distribution yielded minimal differences (Table 6). This distribution is comparable to that described by Choueiry et al. (2016) in a study of Lebanese university students, with the exception that they find less severe anxiety (7.1% as compared to 13.7% in this study) and more cases of no or minimal anxiety (37.1% versus 31.3% in this study). However, other studies show drastically different results. In the previously mentioned study of Chinese students in America, Han et al. (2013) found that most students experience no anxiety (70.8%), some display mild symptoms (23.8%) while only a very small number suffers from moderate or severe anxiety (3.8% and 1.5% respectively).

Table 6. Frequency of anxiety symptoms per category.

Anxiety	N(%)	Extrapolated population %
Minimal Anxiety	434 (31.3%)	33.1%
Mild anxiety	461 (33.3%)	32.7%
Moderate anxiety	301 (21.7%)	21.1%
Severe anxiety	190 (13.7.%)	13.1%

Table 7 illustrates the comorbidity between depression and anxiety. Extrapolating the sample results to the UT-population based on observed differences in gender distribution yielded minimal differences. 19.2% of the participants neither falls into the diagnostic category of depression, nor of anxiety disorder (20.6 % based on the extrapolation to the UT student population). A third of the participants displays mild symptoms of either depression, anxiety, or both. Another third can be categorized as experiencing moderate or moderately severe depression and/ or anxiety. The

remaining 14.9% experience severe depression, anxiety or both. These findings are in stark contrast with those of Dopmeijer (2017). She finds that 46.7% experience no anxiety or depression and that 38.9% display mild to moderate symptoms of anxiety or depression. Only the number of students with severe anxiety or depression is comparable, with 14.4% in her study and 14.9% in this study. However, it should be noted that Dopmeijer (2017) used a different instrument to measure depression and anxiety.

Table 7. Number of participants that display symptoms of anxiety and/ or depression

Anxiety and/ or depressive symptoms	N(%)	Extrapolated population %
No anxiety or depression	257 (19.2%)	20.6%
Mild anxiety and/ or depression	449 (33.6%)	33.4%
Moderate anxiety and/ or moderate or moderately severe depression	431 (32.3%)	31.7%
Severe anxiety and/ or depression	199 (14.9%)	14.3%

3.2.5 Wellbeing

The mean wellbeing score was 2.92 for the whole MHC-SF scale. Keyes et al. (2012) found a mean score of 3.39 in their study of university students. The mean scores for emotional, social and psychological wellbeing were 3.21, 2.57 and 3.06 respectively, while Keyes et al. (2012) report mean scores of 3.78, 2.80 and 3.69 for the subscales. Overall, wellbeing thus seems to be slightly lower in UT students than in other student groups.

3.2.6 Sleep

Table 8 displays how many hours per day participants spent sleeping. More than three quarters of the students (78.5%) fall within the recommended sleep time of seven to nine hours per day. In the scale to estimate sleep problems, higher scores indicate more sleep problems. Possible scores run from 0 to 20. The mean score for the sleep questionnaire in this survey was 3.17 (answers ranged from 0 to 16, standard deviation 3.77). 5.5% of all participants would be classified as having ‘disturbed sleep’ according to the scale. Approximately 14-22% percent of the general population suffer from sleep related problems (CBS, 2018). However, it should be noted that this data was not gathered with the same questionnaire.

Table 8. Frequency of the amount of hours slept per day.

Hours of sleep per day	
<5	12 (0.8%)
5	48 (3.1%)
6	223 (14.5%)
7	556 (36.3%)
8	520 (33.9%)
9	128 (8.3)
10	37 (2.4%)
>10	9 (0.6%)

3.3 SUBSTANCE USE

3.3.1 Alcohol use

Table 9 shows the alcohol use of participants in the previous year. The mean total score for the AUDIT-C in this population was 4.51. The mean score per gender was 4.70 for males and 3.51 for females. DeMartini and Carey (2012) found a mean total score of 7.88 for males and of 6.49 for females in their study of American college students.

Van Dorsselaer and Goossens (2015) describe heavy drinking as drinking 6 or more glasses at least weekly. Using this definition, 14.7% of the participants in this study are heavy drinkers, which is slightly higher than the 12.7% found in other Dutch university students by Van Dorsselaer and Goossens (2015).

Compared to the general Dutch population, the alcohol consumption and frequency of alcohol use in this study is high. 33.2% said that they drink alcohol several times a week, while only 20.5% of the general population reported doing so (Monshouwer, Tuithof, & Van Dorsselaer, 2018). Furthermore, on typical days when they were drinking, 29% of the students reported to drinking more than 4 glasses, while only 13.7% did so in the general population. 35.3% of participants drink 6 or more glasses at least monthly, compared to 19.5% of the Dutch population.

Table 9. Alcohol use in the past year.

How often did you have a drink containing alcohol in the last year?	**N(%)**
Never	159 (12.4%)
Monthly or less	260 (20.2%)
2 to 4 times a month	439 (34.1%)
2 or 3 times per week	344 (26.7%)
4 or more times a week	84 (6.5%)
How many drinks containing alcohol did you have on a typical day when you were drinking?	
1 or 2	541 (42.1%)
3 or 4	373 (29%)
5 or 6	242 (18.8)
7 to 9	92 (7.2%)
10 or more	28 (3%)
How often did you have six or more drinks containing alcohol in the past year?	
Never	388 (30.2%)
Less than monthly	443 (34.4%)
Monthly	265 (20.6%)
Weekly	183 (14.2%)
Daily or almost daily	7 (0.5%)

3.3.2 Substance use

An overview of the results on substance use can be found in Table 10. This study investigated a lot of different substances, some of which are not frequently measured in national research. For the most frequently used substances, data from this study was compared to national data, expect for psilocybin, where no comparable data was available. It should be mentioned that both national studies are from 2015, as no newer data was available.

5.1% of participants reported to smoke daily, which is less than in the general Dutch population of university students, where 6.4% smoke every day (Van Dorsselaer & Goossens, 2015). 12.2% smokes occasionally (at least once a month), which is again less than the average for WO students in the Netherlands, which lies at 17.5%.

44.1% of the participants in this study has used Cannabis before, while only 39.3% of the general WO population have done so. 34% has used Cannabis in the last year, compared to only 15.6% of Dutch university students. These percentages are higher in the population of international students than in Dutch students. However, even when only the Dutch students are compared to those

of other Dutch universities, Cannabis use in general and in the past year is higher (40.3% has used Cannabis before, 29.7% has done so in the past year).

As for Cocaine, 5.3% in this sample have used it before, while 1.5% of WO students have done so. 3.3% used Cocaine in the last year, as opposed to 1.5% in the Dutch student population.

12.4% have used Ecstasy before, while in the general WO population 1.5% have done so. 9.3% have used Ecstasy in the last year, again compared to 1.5% of Dutch university students.

Lastly, substances that are said to enhance concentration like Speed and Ritalin or Adderall have been used by 5.4% and 5.3% respectively. In the general population of Dutch students, 11% have used such substances before (Escher, 2015).

Table 10. Frequency of substance use for different substances.

	Never	**I have used it, but not in the last year**	**Once**	**2 or 3 times**	**4 to 11 times**	**Once a month**	**Once a week**	**Several times a week**	**Daily**
Nicotine	844 (65.8%)	127 (9.9%)	47 (3.7%)	65 (5.1%)	43 (3.4%)	35 (2.7%)	21 (1.6%)	34 (2.7%)	66 (5.1%)
Cannabis	717 (55.9%)	129 (10.1%)	89 (6.9%)	116 (9%)	74 (5.8%)	64 (5%)	37 (2.9%)	41 (3.2%)	15 (1.2%)
Cocaine	1214 (94.7%)	26 (2%)	13 (1%)	18 (1.4%)	8 (0.6%)	2 (0.2%)	0	1 (0.1%)	0
MDMA/ Ecstasy	1123 (87.6%)	40 (3.1%)	36 (2.8%)	39 (3%)	39 (3%)	4 (0.3%)	1 (0.1%)	0	0
Speed	1213 (94.6%)	26 (2%)	14 (1.1%)	14 (1.1%)	10 (8%)	1 (0.1%)	0	3 (0.2%)	1 (0.1%)
Heroin	1280 (99.8%)	2 (0.2%)	0	0	0	0	0	0	0
Opium	1273 (99.3%)	5 (0.4%)	3 (0.2%)	0	0	0	0	1 (0.1%)	0
Ketamine	1248 (97.3%)	8 (0.6%)	6 (0.5%)	11 (0.9%)	5 (0.4%)	2 (0.2%)	1 (0.1%)	1 (0.1%)	0
LSD	1239 (96.6%)	15 (1.2%)	12 (0.9%)	10 (0.8%)	4 (0.3%)	2 (0.2%)	0	0	0
Mescaline	1277 (99.6%)	4 (0.3%)	1 (0.1%)	0	0	0	0	0	0
Psilocybin	1199 (93.5%)	23 (1.8%)	29 (2.3%)	21 (1.6%)	9 (0.7%)	1 (0.1%)	0	0	0
Chrystal Meth	1279 (99.8%)	2 (0.2%)	1 (0.1%)	0	0	0	0	0	0
Ritalin/ Adderall	1214 (94.7%)	29 (2.3%)	13 (1%)	8 (0.6%)	6 (0.5%)	2 (0.2%)	0	3 (0.2%)	7 (0.5%)

3.3.3 Compulsive internet use

On the Compulsive Internet Use Scale (CIUS) higher scores stand for more problematic internet usage. Scores can range from 0 to 56. The mean score in this survey was 18.52 (range 0 to 56, standard deviation 10.02). Li et al. (2015) report a mean score of 33.3 in their study of American university students. However, they only included 27 participants, and thus the comparability of the results is questionable.

According to the developers of the scale, a score of 17 or higher can already be a sign of problematic internet use (Besser et al., 2017). More than half of the participants (n=696, 54.2%) had a score of 17 or higher and thus show signs of problematic internet use.

3.4 PREDICTORS

Table 11 shows a summary of the different predicting variables. Below, the outcomes for each concept are discussed in more detail.

Table 11. Summary of the outcomes for the predicting variables.

	Number of participants (n)	Mean	Minimum	Maximum	Range of the scale	Standard Deviation
Brief resilience scale	1260	3.17	1	5	1-5	0.73
Stress Mindset	1257	1.59	0	3.63	0-4	0.63
Intolerance of uncertainty	1256	32.93	12	60	12-60	9.58
Prospective anxiety	1256	20.59	7	35	7-35	5.76
Inhibitory anxiety	1256	12.35	5	25	5-25	5.00
Loneliness	1263	5.23	3	9	3-9	1.84
Sense of belonging	1260	6.21	0	10	0-10	2.42

3.4.1 Resilience

The resilience level found in this study is comparable to those of 3.53 and 3.57 found in a student sample by Smith et al. (2008). So there seem to be no big differences between UT students and other students in this regard.

3.4.2 Stress Mindset

The mean stress mindset score in this study was 1.59, which means that participants rather perceive stress to be debilitating than enhancing. This score is comparable to the mean value of 1.62 found by Crum et al. (2013) in financial employees. However, no comparable data from student samples is available.

3.4.3 Intolerance of Uncertainty

The score for the intolerance of uncertainty and both the subscales were much higher than those mentioned by Carleton et al. (2007). They found a mean score of 25.85 in their study of undergraduate students, while in this study the mean score was 32.93. For the prospective anxiety subscale the mean score they found is 16.68, as opposed to 20.59 in this study. Lastly, for the inhibitory anxiety scale the score described in literature is 9.17, while in this study a score of 12.35 was found. Thus it seems that UT students experience more intolerance of uncertainty in general, and more uncertainty based on future events as well as more anxiety that inhibits their action.

3.4.4 Fear of missing out

545 (43.3%) reported experiencing fear of missing out to some extent. 223 (17.7%) said they might or might not experience fear of missing out, while 491 (39%) said they did not experience fear of missing out. No comparable data from other studies into fear of missing out was available.

3.4.5 Loneliness

With a mean score of 5.23, loneliness in this sample was much higher than in a student sample described by Phelan et al. (2015) where mean scores ranged between 2.35 and 2.40. In a sample of Polish university students, a mean loneliness score of 4.75 was found (Atroszko et al., 2018), which is closer to the results found here. Still, it seems that loneliness in UT students is high.

3.4.6 Sense of belonging

The average sense of belonging in this study was lower than that found in a study of Latino college students by Hurtado and Carter (1997). Here, the mean scores for the sense of belonging scale ranged from 6.76 to 8.02 for different groups, and almost all score were higher than 7. Thus, the overall sense of belonging at the UT seems to be lower compared to other college communities.

3.5 COUNSELLING

25% (n=420) reported to have received help for mental health in the past year, while the other 75% did not (n=1262). Most participants specified what kind of help they had received (n=400). Most received therapy (n=229, 57%), sometimes in combination with medication (n=42, 10,5%). Some specifically stated that they had received counselling from the UT psychologist (n=67, 16.8%). However, where only 'therapy' was mentioned, this was seen as falling into the broader category. 21 participants had had meeting with their study advisor (5.3%), 13 received medication (3.3%) and 28 mentioned various other methods of counselling (7%).

Participants were also asked where they would seek help if they experienced mental health complaints. The likelihood for each answer can be found in Table 12. Other channels where students were likely to seek help were family members (n=140, 8.3%), a psychologist (n=27, 1.6%) or a general practitioner (n=26, 1.5%). Some would seek help on the internet (n=19, 1.1%) or via an external party outside of the UT (n=17, 1%). Lastly, a partner (n=13, 0.8%) and events or sessions (n=12, 0.7%) were mentioned as possible channels.

Table 12. Likeliness of students seeking help via face-to-face channels.

	Mentor	**Study Advisor**	**Student Counsellor**	**Student Psychologist**	**Teacher**	**Friends**
Extremely likely	71 (5.7%)	263 (21.1)	111 (8.9%)	247 (19.8%)	26 (2.1%)	583 (46.8%)
Somewhat likely	239 (19.2%)	457 (36.7)	375 (30.1%)	412 (33.1%)	130 (10.4%)	415 (33.3%)
Neither likely nor unlikely	196 (15.7%)	139 (11.2%)	237 (19%)	192 (15.4%)	155 (12.4%)	110 (8.8%)
Somewhat unlikely	273 (21.9%)	199 (16%)	257 (20.6%)	210 (16.9%)	345 (27.7%)	74 (5.9%)
Extremely unlikely	466 (37.4)	187 (15%)	265 (21.3%)	184 (14.8%)	589 (47.3%)	63 (5.1%)

3.6 RELATION BETWEEN VARIABLES

3.6.1 Correlation between (dis)stress and wellbeing variables

The (dis)stress and wellbeing variables were all significantly correlated to each other, as can be seen in Table 13. Strength of the correlations ranged from moderate (e.g. between sleep and burnout) to strong (e.g. between perceived stress and anxiety). The strongest correlation existed between depression and anxiety, which is not surprising given the high comorbidity between both concepts.

Table 13. Correlation between the (dis)stress and wellbeing variables.

	Perceived stress	**Burnout**	**Depression**	**Anxiety**	**Wellbeing**	**Sleep**
Perceived stress	1					
Burnout	.660**	1				
Depression	.658**	.588**	1			
Anxiety	.677**	.528**	.709**	1		
Wellbeing	-.666**	-.625**	-.551**	-.494**	1	
Sleep	.496**	.413**	.602**	.487**	-.421**	1

** significant at .001 level.

3.6.2 Regression model stress

All expected predictors played a significant role in the regression model predicting perceived stress (R^2=.48, *F*(6, 194), p< .001). This model is presented in Table 14. Higher levels of uncertainty, fear of missing out (indicated by a lower score on the scale) and loneliness and lower levels of resilience, stress mindset and sense of belonging lead to higher perceived stress.

Table 14. Regression model of perceived stress and the predicting variables.

	B	SE B	β	Significance
Resilience	-4.67	.29	-.40	.000
Stress Mindset	-1.16	.29	-.09	.006
Intolerance of uncertainty	.13	.02	.15	.000
Fear of missing out	-.90	.15	-.13	.000
Loneliness	.77	.11	.17	.000
Sense of belonging	-.98	.19	-.11	.000

B=Unstandardized coefficient; SE B= Standard error unstandardized coefficient; β= Standardized coefficient;

3.6.3 Regression model depression

For the regression model of depression, all predicting variables played a significant role (R^2=.28, F(6, 79), p< .001). Higher levels of depression were predicted by lower levels of resilience, stress mindset and sense of belonging and by higher intolerance of uncertainty, fear of missing out and loneliness. The regression model can be found in Table 15.

Table 15. Regression model of depression and the predicting variables.

	B	SE B	β	Significance
Resilience	-1.15	.15	-.23	.000
Stress Mindset	-.55	.15	-.09	.000
Intolerance of uncertainty	.04	.01	.10	.000
Fear of missing out	-.24	.08	-.08	.002
Loneliness	.42	.06	.21	.000
Sense of belonging	-.46	.10	-.12	.000

B=Unstandardized coefficient; SE B= Standard error unstandardized coefficient; β= Standardized coefficient;

3.6.4 Regression model anxiety

In the regression model of anxiety, all predictors played a significant role (R^2=.32, F(6, 97), p< .001). High intolerance of uncertainty, fear of missing out and loneliness predicted higher anxiety, as did lower resilience, stress mindset and sense of belonging. Table 16 shows the regression model.

Table 16. Regression model of anxiety and the predicting variables.

	B	SE B	β	Significance
Resilience	-1.06	.15	-.21	.000
Stress Mindset	-.81	.15	-.14	.000
Intolerance of uncertainty	.09	.01	.23	.000
Fear of missing out	-.35	.07	-.12	.000
Loneliness	.24	.06	.12	.000
Sense of belonging	-.34	.10	-.14	.000

B=Unstandardized coefficient; SE B= Standard error unstandardized coefficient; β= Standardized coefficient;

3.6.5 Regression model wellbeing

Stress mindset and fear of missing out played no significant role in the regression model for wellbeing (R^2=.45, F(4, 256), p< .001). Higher intolerance of uncertainty and loneliness as well as lower

resilience and sense of belonging predicted lower wellbeing. The regression model can be found in Table 17.

Table 17. Regression model of wellbeing and the predicting variables.

	B	SE B	β	Significance
Resilience	5.05	.46	.27	.000
Intolerance of uncertainty	-.17	.04	-.12	.000
Loneliness	-2.59	.18	-.35	.000
Sense of belonging	3.05	.32	.22	.000

B=Unstandardized coefficient; SE B= Standard error unstandardized coefficient; β= Standardized coefficient;

3.7 DIFFERENCES BETWEEN GROUPS

Several groups within the sample were explored to determine if there are significant differences in (dis)stress and wellbeing, the predicting concepts and time spent on study and working. Furthermore, analyses were performed to check if the differences between the groups for the (dis)stress and wellbeing variables persist when controlling for the gender and nationality.

The different groups that were taken into account were Dutch and international students, Male and Female students, LGBT and non-LGBT students, Bachelor and Master students, students from the different faculties, students who did and did not report illness or disabilities that impacted their ability to study, and students who did and did not engage in activism.

3.7.1 Dutch and international students

When comparing Dutch and international students, it becomes apparent that international students do significantly worse than Dutch students on all (dis)stress and wellbeing variables and predicting variables, as can be seen in Table 18. International students also reported spending more time each week on study related activities and work, but the difference in time spent working was not significant. Most significant differences between Dutch and international students persisted when controlling for gender. However, observed differences on depression, stress mindset and time spend on study became insignificant (marginally significant for time spend on study) indicating these can be explained by gender differences instead of the difference in nationality.

Table 18. Comparison of mean values between Dutch and International students

Variable	Dutch	International	F	Significance
(Dis)stress and wellbeing				
Perceived stress	26.28	29.81	50.02	.000
Burnout	34.83	40.15	38.88	.000
Depression	2.98	4.62	55.63	.000
Anxiety	2.64	4.45	69.75	.000
Wellbeing	56.58	50.43	57.39	.000
Sleep	3.49	4.28	13.18	.000
Predictors				
Resilience	3.21	3.07	9.87	.002
Stress Mindset	1.64	1.47	19.70	.000
Intolerance of uncertainty	31.58	36.30	65.48	.000
Fear of missing out	3.08	2.64	32.53	.000
Loneliness	4.95	5.94	79.61	.000
Sense of belonging	6.52	5.42	55.88	.000
Time spent				
Studying	37.16	42.49	19.77	.000
Working	4.67	5.20	1.71	.191

3.7.2 Gender

Table 19 shows the differences in mean scores between men and women. Female students scored worse than male students on all wellbeing and predicting variables. While some differences were small, especially the significant differences in levels of perceived stress, anxiety and intolerance of uncertainty in females should be noted. When controlling for nationality, all significant differences persisted.

Table 19. Comparison of mean values between male and female students

Variable	Male	Female	F	Significance
(Dis)stress and wellbeing				
Perceived stress	25.87	28.92	22.87	.000
Burnout	35.51	37.22	3.20	.041
Depression	3.14	3.81	5.53	.004
Anxiety	2.70	3.69	12.41	.000
Wellbeing	55.50	54.17	2.96	.052
Sleep	3.29	4.22	11.72	.000
Predictors				
Resilience	3.32	3.01	28.60	.000
Stress Mindset	1.65	1.53	5.94	.003
Intolerance of uncertainty	31.93	34.11	8.19	.000
Fear of missing out	3.03	2.87	2.57	.077
Loneliness	5.20	5.27	.38	.684
Sense of belonging	6.30	6.11	1.32	.269
Time spent				
Studying	37.80	39.35	1.36	.257
Working	4.55	5.15	1.59	.205

3.7.3 LGBT

LGBT students' scores on all wellbeing and predicting variables are worse than those of non-LGBT students, as is shown in Table 20. For most variables the difference in means is rather big, but especially the much lower wellbeing and much higher burnout scores of LGBT students stand out. On average, LGBT students spent less time studying and slightly less time working than non-LGBT students did, but these differences were not significant. When controlling for gender and nationality, the effect of being an LGBT students on depression and loneliness remain significant.

Table 20. Comparison of mean values between LGBT and Non-LGBT students

Variable	LGBT	Non-LGBT	F	Significance
(Dis)stress and wellbeing				
Perceived stress	29.87	26.86	11.20	.000
Burnout	40.52	35.64	10.83	.000
Depression	4.81	3.25	12.35	.000
Anxiety	4.33	2.97	10.75	.000
Wellbeing	50.74	55.43	8.72	.000
Sleep	4.86	3.55	7.42	.001
Predictors				
Resilience	2.95	3.21	8.10	.000
Stress Mindset	1.49	1.61	2.72	.066
Intolerance of uncertainty	35.10	32.73	5.16	.006
Fear of missing out	2.75	2.98	2.09	.124
Loneliness	5.82	5.16	8.41	.000
Sense of belonging	5.94	6.27	3.70	.025
Time spent				
Studying	35.82	38.72	1.61	.201
Working	4.71	4.85	.299	.742

3.7.4 Bachelor and Master

As Table 21 illustrates, the differences between bachelor and master students were smaller than in the other groups. Generally, master students seemed to be doing slightly better than the bachelor student, except for their lower intolerance of uncertainty compared to bachelor students. However, only the difference in burnout and perceived stress were significant. Master students spent slightly less time studying but more time working than bachelor students. Here only, the difference in time spent working was significant. No significant difference remains between bachelor and master students when controlling for gender and nationality, indicating observed differences can be explained by differences in gender and nationality.

Table 21. Comparison of mean values between Bachelor and Master students

Variable	Bachelor	Master	F	Significance
(Dis)stress and wellbeing				
Perceived stress	27.78	26.62	7.25	.007
Burnout	37.39	34.73	11.09	.001
Depression	3.65	3.13	6.48	.011
Anxiety	3.29	2.94	2.83	.093
Wellbeing	54.27	55.67	3.38	.066
Sleep	3.72	3.70	.05	.821
Predictors				
Resilience	3.16	3.20	1.13	.288
Stress Mindset	1.56	1.63	3.36	.067
Intolerance of uncertainty	32.81	33.12	.31	.580
Fear of missing out	2.96	2.96	.00	.995
Loneliness	5.33	5.09	5.16	.023
Sense of belonging	6.12	6.34	2.37	.124
Time spent				
Studying	38.75	38.00	.507	.477
Working	4.19	5.77	17.77	.000

3.7.5 Faculties

In the comparison of faculties that is displayed in Table 22, ITC stands out, doing worse than the other faculties on all variables expect resilience. BMS students also generally score lower on the wellbeing variables. The differences in depression, loneliness and sense of belonging were significant. Students at ITC and ATLAS spent the most time studying, BMS students spent the least time on study related activities. BMS students did spent the most time working, while ATLAS students worked the least. These differences in time spent were significant. When controlling for gender and nationality, only a significant effect of faculty on time spent studying remains, indicating that the other observed differences can be explained by differences in gender and nationality.

Table 22. Comparison of mean values between faculties

Variable	BMS	ET	EEMCS	TNW	ITC	ATLAS	F	Significance
(Dis)stress and wellbeing								
Perceived stress	27.90	26.58	27.45	26.89	28.75	28.18	1.06	.383
Burnout	37.51	35.51	37.54	34.20	40.08	37.82	2.86	.014
Depression	3.73	2.96	3.93	2.94	5.46	3.23	4.71	.000
Anxiety	3.59	2.81	3.36	2.71	4.46	3.17	2.96	.012
Wellbeing	54.09	55.57	53.37	56.50	52.33	57.26	2.40	.035
Sleep	4.06	3.31	3.73	3.57	5.73	3.86	2.25	.048
Predictors								
Resilience	3.14	3.19	3.19	3.16	3.35	3.27	.42	.834
Stress Mindset	1.57	1.62	1.55	1.63	1.41	1.85	1.56	.169

Intolerance of uncertainty	34.43	32.01	32.89	32.16	35.27	31.41	2.71	.019
Fear of missing out	2.86	3.08	2.89	3.05	3.09	2.64	1.71	.129
Loneliness	5.26	5.15	5.51	4.97	5.91	4.68	3.66	.003
Sense of belonging	5.53	6.39	6.36	6.58	5.37	6.89	7.96	.000
Time spent								
Studying	34.13	40.49	37.19	41.72	49.17	46.38	7.99	.000
Working	6.99	4.29	4.15	3.83	3.56	3.08	10.35	.000

3.7.6 Reported illness or disability

Students that reported having suffered from an illness or disability that affected their ability to study performed worse on all wellbeing and predicting variables, as can be seen in Table 23. All differences were significant. The students who did not report an illness or disability spent less time working, but there was no significant difference in time spent studying. When controlling for gender and nationality, the effect of illness on wellbeing, anxiety and depression remained significant.

Table 23. Comparison of mean values between students who reported that illness affected their ability to study and those who do not.

Variable	No illness/disability	Reported illness/disability	F	Significance
(Dis)stress and wellbeing				.000
Perceived stress	23.90	30.08	209.55	.000
Burnout	31.33	40.53	152.18	.000
Depression	1.99	4.67	202.02	.000
Anxiety	1.92	4.18	137.29	.000
Wellbeing	59.46	50.98	140.89	.000
Sleep	2.56	4.68	106.38	.000
Predictors				
Resilience	3.45	2.95	163.43	.000
Stress Mindset	1.70	1.50	32.32	.000
Intolerance of uncertainty	31.16	34.40	36.72	.000
Fear of missing out	3.09	2.85	11.05	.001
Loneliness	4.81	5.58	57.67	.000
Sense of belonging	3.67	3.33	40.67	.000
Time spent				
Studying	38.79	38.15	.38	.540
Working	4.32	5.22	5.88	.015

3.7.7 Activism

Table 24 shows the comparison of students who engage in activism (e.g. board positions, Twente Teams; FOBOS category 2,3 or 4) and those who do not engage in activism. Not many significant differences were found between the groups. Students engaged in activism displayed significantly higher wellbeing and sense of belonging and were significantly less intolerant of uncertainty. No significant effect of activism remained when controlling for gender and nationality.

Table 24. Comparison of mean values between students who engage in activism and those who do not.

Variable	Active	Non-active	F	Significance
(Dis)stress and wellbeing				
Perceived stress	26.31	27.45	3.12	.077
Burnout	35.51	36.49	.80	.372
Depression	3.23	3.48	.75	.385
Anxiety	3.75	3.20	1.02	.313
Wellbeing	57.53	54.37	8.98	.003
Sleep	3.23	3.80	3.59	.058
Predictors				

Resilience	3.31	3.15	7.14	.008
Stress Mindset	1.61	1.59	.22	.637
Intolerance of uncertainty	30.61	33.33	12.71	.000
Fear of missing out	2.94	2.96	.04	.852
Loneliness	4.91	5.29	6.50	.011
Sense of belonging	3.85	3.42	32.24	.000
Time spent				
Studying	37.52	38.61	.57	.450
Working	5.15	4.76	.57	.449

3.8 COMMENTS MADE BY PARTICIPANTS

At the end of the survey there was room for the participants to leave remarks. In many of the answers it became clear that students see a (bigger) role for the UT in the improvement of students mental health as illustrated in the following quote.

"I believe it is important that the university has a good look at itself and the pressure it puts on its students. This because the university can have a large influence on the mental health of its students."

Of the 323 comments, most were from participants giving a more detailed description of their personal description (n=107). Furthermore, 52 participants explained what they thought to cause stress in students at the UT. For example, one participant said:

"*People shouldn't be graded because they make a test well or not. They should be graded by how they act in class, how active they are in their studies and how well they can communicate with their colleagues. Tests are just moments were people NEED to perform. This is hard for people like me to perform in one stressful moment."*

Of the 323 comments that were made, 51 were either complementing the initiative of the UT to tackle student mental health or giving more suggestions on how this could be achieved. Illustrating quotes are:

"I have a huge appreciation that the University is making time and money available for this research because I think it is very relevant."

"Evaluate the ways you use at the UT to teach and adapt to the newest research. How do we learn, what does motivate people, which skills are actually needed in the future, etc. Here is just one course, about how we actually learn."

Lastly, some participants had remarks about the survey itself (n=52), for example that it was too long and that some questions were seen as repetitive.

4. CONCLUSIONS

1. Students in this survey were found to experience high stress levels. The expected predictors played a significant role in the regression model and thus the prediction of stress.
2. There are many students that experience symptoms of depression and/ or anxiety. The number of students experiencing these symptoms was higher than in other student populations in comparable studies.
3. Many participants fall into the category of 'heavy drinkers'. This number is also slightly higher than in other university samples and much higher than in the general population.
4. Drug use is much higher at the UT than in other Dutch university students, except for smoking. Furthermore, compulsive internet use and possible internet addiction occur more often in this study than in comparable studies with student samples.
5. 25% of participants has received some form of mental health treatment in the past year, while there are 40% that display symptoms of either depression or anxiety. Therefore, there is a large groups of students whose mental health problems go untreated.
6. The groups that reported most mental health issues are females, international students, students who identify as LGBT and students who reported illness or disability that decreased their ability to study. These groups seem most in need of interventions to support their mental health.
7. Observed differences between bachelor and master students and between students of different faculties (except time spend studying) seem to be explained by differences in gender and nationality within the groups.

5. RECOMMENDATIONS

1. **There is an urgent need for a preventive approach towards mental wellbeing**

In the current situation, almost half of the students are in need of professional help for depression and/or anxiety issues. This situation is not sustainable: it is unfeasible to provide professional support for all of these students by e.g. student psychologists. Therefore, there is an urgent need for a stepwise preventive approach to:

- Teach all students ways to cope with stress and pressure
- Provide targeted preventive interventions for students who already experience some (dis)stress issues and/or students who score low on the identified predictors
- Minimize the number of students with moderate or severe mental health complaints, and provide easy access to professional help (e.g. supported by technology)

2. **There is a need for ongoing monitoring of mental health of UT-students**

This study provides a snapshot of the state of mental health of a part of the UT students. Although the sample is quite large in relation to other scientific studies and the sample seems to have a distribution of demographics that is comparable to the UT student population, as the current sample is self-selected, it is likely that students who experience mental health issues are somewhat over-represented. Moreover, as this study is cross-sectional, no interferences can be made about the causal relationship between variables. Ongoing, longitudinal studies of the mental health of UT-students can provide us with more insight in the state of mental health of students over time, help us understand the mechanisms of why some students do and other students don't develop mental health issues, and can serve as a way to evaluate initiatives to improve student wellbeing.

3. **Attention for mental health and stress should be integrated in education**

Current initiatives to improve mental health reach only few students. The study showed that only a fraction of the students that are in need for help, actually receive some form of support. A promising way to reach all students, is to integrate attention to dealing with stress and improving mental health in regular education, e.g. as a form of academic skills, as these are the skills that are needed for future professionals to succeed in an increasingly stressful and competitive world. Many students who participated in this study were positive about the University taking an active role in their mental health. To become the 'ultimate people first' University, this is an essential step to take.

4. **Focus on predictors of mental health issues, as resilience, stress mindset, intolerance of uncertainty, fear of missing out, loneliness and sense of belonging**

This study has confirmed some of the known predictors for (dis)stress and shown that there is room for improvement on these factors. Research should be carried out to develop and evaluate low threshold interventions (with and without technology) that can be implemented at the UT.

5. **Specific attention should be given to identified at risk groups**

The study has identified different groups that report more mental health issues: females, international students, students who identify as LGBT and students who reported illness or disability that decreased their ability to study. Specific attention should be paid to support these at risk groups.

6. REFERENCES

Abolghasemi, A., & Varaniyab, S. T. (2010). Resilience and perceived stress: predictors of life satisfaction in the students of success and failure. *Procedia-Social and Behavioral Sciences, 5*, 748-752.

Adewuya, A. O., Ola, B. A., & Afolabi, O. O. (2006). Validity of the patient health questionnaire (PHQ-9) as a screening tool for depression amongst Nigerian university students. *Journal of affective disorders, 96*(1-2), 89-93.

Amat, S., Subhan, M., Jaafar, W. M. W., Mahmud, Z., Ali, K. S. K., & Johari, K. (2014). Evaluation and psychometric status of the brief resilience scale in a sample of Malaysian international students. *Asian Social Science, 10*(18), 240-245.

Atroszko, P. A., Balcerowska, J. M., Bereznowski, P., Biernatowska, A., Pallesen, S., & Andreassen, C. S. (2018). Facebook addiction among Polish undergraduate students: Validity of measurement and relationship with personality and well-being. *Computers in Human Behavior, 85*, 329-338.

Barry, A. E., Chaney, B. H., Stellefson, M. L., & Dodd, V. (2015). Evaluating the psychometric properties of the AUDIT-C among college students. *Journal of Substance Use, 20*(1), 1-5.

Belmaker, R., & Agam, G. (2008). Major depressive disorder. *New England Journal of Medicine, 358*(1), 55-68.

Besser, B., Rumpf, H.-J., Bischof, A., Meerkerk, G.-J., Higuchi, S., & Bischof, G. (2017). Internet-related disorders: development of the short compulsive internet use scale. *Cyberpsychology, Behavior, and Social Networking, 20*(11), 709-717.

Bollen, K. A., & Hoyle, R. H. (1990). Perceived cohesion: A conceptual and empirical examination. *Social forces, 69*(2), 479-504.

Buhr, K., & Dugas, M. J. (2002). The intolerance of uncertainty scale: Psychometric properties of the English version. *Behaviour research and therapy, 40*(8), 931-945.

Bush, K., Kivlahan, D. R., McDonell, M. B., Fihn, S. D., & Bradley, K. A. (1998). The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. *Archives of internal medicine, 158*(16), 1789-1795.

Butzer, B., & Kuiper, N. A. (2006). Relationships between the frequency of social comparisons and self-concept clarity, intolerance of uncertainty, anxiety, and depression. *Personality and Individual Differences, 41*(1), 167-176.

Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: cross-sectional and longitudinal analyses. *Psychology and aging, 21*(1), 140.

Cameron, I. M., Crawford, J. R., Lawton, K., & Reid, I. C. (2008). Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. *Br J Gen Pract, 58*(546), 32-36.

Campos, J. A. D. B., Zucoloto, M. L., Bonafé, F. S. S., Jordani, P. C., & Maroco, J. (2011). Reliability and validity of self-reported burnout in college students: A cross randomized comparison of paper-and-pencil vs. online administration. *Computers in Human Behavior, 27*(5), 1875-1883.

Carleton, R. N., Mulvogue, M. K., Thibodeau, M. A., McCabe, R. E., Antony, M. M., & Asmundson, G. J. (2012). Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression. *Journal of anxiety disorders, 26*(3), 468-479.

Carleton, R. N., Norton, M. P. J., & Asmundson, G. J. (2007). Fearing the unknown: A short version of the Intolerance of Uncertainty Scale. *Journal of anxiety disorders, 21*(1), 105-117.

CBS. (2018). Eén op de vijf meldt slaapproblemen.

Chen, C. P. (1999). Professional issues: Common stressors among international college students: Research and counseling implications. *Journal of College Counseling, 2*(1), 49-65.

Choueiry, N., Salamoun, T., Jabbour, H., El Osta, N., Hajj, A., & Khabbaz, L. R. (2016). Insomnia and relationship with anxiety in university students: a cross-sectional designed study. *PloS one, 11*(2), e0149643.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396.

Crum, A. J., Akinola, M., Martin, A., & Fath, S. (2017). The role of stress mindset in shaping cognitive, emotional, and physiological responses to challenging and threatening stress. *Anxiety, Stress, & Coping, 30*(4), 379-395.

Crum, A. J., Salovey, P., & Achor, S. (2013). Rethinking stress: The role of mindsets in determining the stress response. *Journal of personality and social psychology, 104*(4), 716.

de Meneses-Gaya, C., Zuardi, A. W., Loureiro, S. R., & Crippa, J. A. S. (2009). Alcohol Use Disorders Identification Test (AUDIT): An updated systematic review of psychometric properties. *Psychology & Neuroscience, 2*(1), 83.
Deckro, G. R., Ballinger, K. M., Hoyt, M., Wilcher, M., Dusek, J., Myers, P., . . . Benson, H. (2002). The evaluation of a mind/body intervention to reduce psychological distress and perceived stress in college students. *Journal of American College Health, 50*(6), 281-287.
DeMartini, K. S., & Carey, K. B. (2012). Optimizing the use of the AUDIT for alcohol screening in college students. *Psychological assessment, 24*(4), 954.
Dixon, S. K., & Kurpius, S. E. R. (2008). Depression and college stress among university undergraduates: Do mattering and self-esteem make a difference? *Journal of college student development, 49*(5), 412-424.
Dopmeijer, J. (2017). *Factsheet Onderzoek Studieklimaat, gezondheid en studiesucces 2017*. Retrieved from https://www.windesheim.nl/over-windesheim/nieuws/2018/april/actieplan-studentenwelzijn-pleit-voor-integrale-aanpak/
Dunn, L. B., Iglewicz, A., & Moutier, C. (2008). A conceptual model of medical student well-being: promoting resilience and preventing burnout. *Academic Psychiatry, 32*(1), 44-53.
Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American journal of orthopsychiatry, 77*(4), 534-542.
Escher, R. (2015). '1 op 10 studenten weleens aan concentratiedoping'. *NOS*. Retrieved from https://nos.nl/op3/artikel/2029272-1-op-10-studenten-weleens-aan-concentratiedoping.html
Fang, D. Z., Young, C. B., Golshan, S., Moutier, C., & Zisook, S. (2012). Burnout in premedical undergraduate students. *Academic Psychiatry, 36*(1), 11-16.
Grant, L., & Kinman, G. (2012). Enhancing wellbeing in social work students: Building resilience in the next generation. *Social work education, 31*(5), 605-621.
Han, X., Han, X., Luo, Q., Jacobs, S., & Jean-Baptiste, M. (2013). Report of a mental health survey among Chinese international students at Yale University. *Journal of American College Health, 61*(1), 1-8.
Hausmann, L. R., Schofield, J. W., & Woods, R. L. (2007). Sense of belonging as a predictor of intentions to persist among African American and White first-year college students. *Research in higher education, 48*(7), 803-839.
Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on aging, 26*(6), 655-672.
Hurtado, S., & Carter, D. F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of education*, 324-345.
Ilic, M., Todorovic, Z., Jovanovic, M., & Ilic, I. (2017). Burnout Syndrome Among Medical Students at One University in Serbia: Validity and Reliability of the Maslach Burnout Inventory—Student Survey. *Behavioral Medicine, 43*(4), 323-328.
Jenkins, C. D., Stanton, B.-A., Niemcryk, S. J., & Rose, R. M. (1988). A scale for the estimation of sleep problems in clinical research. *Journal of clinical epidemiology, 41*(4), 313-321.
Kessler, R., Berglund, P., & Demler, O. (2003). MOOD DISORDERS: BIPOLAR AND MAJOR DEPRESSIVE DISORDERS. *Jama, 289*(23), 3095-3105.
Keyes, C. L., Eisenberg, D., Perry, G. S., Dube, S. R., Kroenke, K., & Dhingra, S. S. (2012). The relationship of level of positive mental health with current mental disorders in predicting suicidal behavior and academic impairment in college students. *Journal of American College Health, 60*(2), 126-133.
Keyes, C. L., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the mental health continuum–short form (MHC–SF) in setswana-speaking South Africans. *Clinical Psychology & Psychotherapy, 15*(3), 181-192.
Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of general internal medicine, 16*(9), 606-613.
Kuss, D. J., Griffiths, M. D., & Binder, J. F. (2013). Internet addiction in students: Prevalence and risk factors. *Computers in Human Behavior, 29*(3), 959-966.
Lamers, S. M., Glas, C. A., Westerhof, G. J., & Bohlmeijer, E. T. (2012). Longitudinal evaluation of the mental health continuum-short form (MHC-SF). *European journal of psychological assessment*.
Lamers, S. M., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. (2011). Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of clinical psychology, 67*(1), 99-110.

Lazarus, R. S., & Launier, R. (1978). Stress-related transactions between person and environment *Perspectives in interactional psychology* (pp. 287-327): Springer.
Lee, E.-H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian nursing research, 6*(4), 121-127.
Li, W., O'Brien, J. E., Snyder, S. M., & Howard, M. O. (2015). Characteristics of internet addiction/pathological internet use in US university students: a qualitative-method investigation. *PloS one, 10*(2), e0117372.
Lin, S.-H., & Huang, Y.-C. (2014). Life stress and academic burnout. *Active Learning in Higher Education, 15*(1), 77-90.
Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Medical care, 46*(3), 266-274.
Martin, A., Rief, W., Klaiberg, A., & Braehler, E. (2006). Validity of the brief patient health questionnaire mood scale (PHQ-9) in the general population. *General hospital psychiatry, 28*(1), 71-77.
McIntyre, E., Wiener, K. K., & Saliba, A. J. (2015). Compulsive Internet use and relations between social connectedness, and introversion. *Computers in Human Behavior, 48*, 569-574.
Meerkerk, G.-J., Van Den Eijnden, R. J., Vermulst, A. A., & Garretsen, H. F. (2009). The compulsive internet use scale (CIUS): some psychometric properties. *Cyberpsychology & behavior, 12*(1), 1-6.
Misra, R., McKean, M., West, S., & Russo, T. (2000). Academic stress of college students: Comparison of student and faculty perceptions. *College Student Journal, 34*(2).
Monshouwer, K., Tuithof, M., & Van Dorsselaer, S. (2018). *Factsheet riskant alcoholgebruik in Nederland*. Retrieved from
Mori, S. C. (2000). Addressing the mental health concerns of international students. *Journal of counseling & development, 78*(2), 137-144.
Morrison, R., & O'Connor, R. C. (2005). Predicting psychological distress in college students: The role of rumination and stress. *Journal of clinical psychology, 61*(4), 447-460.
Norton, P. J. (2005). A psychometric analysis of the Intolerance of Uncertainty Scale among four racial groups. *Journal of anxiety disorders, 19*(6), 699-707.
NOS. (2018). 'Studenten vallen bij bosjes uit met psychische problemen'. Retrieved from https://nos.nl/op3/artikel/2246058-studenten-vallen-bij-bosjes-uit-met-psychische-problemen.html
Ogden, J. (2012). *Health Psychology: A Textbook: A textbook*: McGraw-Hill Education (UK).
Örücü, M. Ç., & Demir, A. (2009). Psychometric evaluation of perceived stress scale for Turkish university students. *Stress and Health: Journal of the International Society for the Investigation of Stress, 25*(1), 103-109.
Oswalt, S. B., & Wyatt, T. J. (2011). Sexual orientation and differences in mental health, stress, and academic performance in a national sample of US college students. *Journal of homosexuality, 58*(9), 1255-1280.
Phelan, S. M., Burgess, D. J., Puhl, R., Dyrbye, L. N., Dovidio, J. F., Yeazel, M., . . . Przedworski, J. M. (2015). The adverse effect of weight stigma on the well-being of medical students with overweight or obesity: Findings from a national survey. *Journal of general internal medicine, 30*(9), 1251-1258.
Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior, 29*(4), 1841-1848.
Riemann, D. (2007). Insomnia and comorbid psychiatric disorders. *Sleep medicine, 8*, S15-S20.
Riordan, B. C., Cody, L., Flett, J. A., Conner, T. S., Hunter, J., & Scarf, D. (2018). The development of a single item FoMO (fear of missing out) scale. *Current Psychology*, 1-6.
Rodríguez-Rey, R., Alonso-Tapia, J., & Hernansaiz-Garrido, H. (2016). Reliability and validity of the Brief Resilience Scale (BRS) Spanish Version. *Psychological assessment, 28*(5), e101.
Rostami, Z., Abedi, M. R., Schaufeli, W. B., Ahmadi, S. A., & Sadeghi, A. H. (2014). The psychometric characteristics of Maslach burnout inventory student survey: a study students of Isfahan University*, 16*(9), 55-58.
Rumpf, H.-J., Wohlert, T., Freyer-Adam, J., Grothues, J., & Bischof, G. (2013). Screening questionnaires for problem drinking in adolescents: performance of AUDIT, AUDIT-C, CRAFFT and POSIT. *European addiction research, 19*(3), 121-127.

Ruscio, A. M., Hallion, L. S., Lim, C. C., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., . . . Bunting, B. (2017). Cross-sectional comparison of the epidemiology of DSM-5 generalized anxiety disorder across the globe. *JAMA psychiatry, 74*(5), 465-475.
Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction, 88*(6), 791-804.
Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of cross-cultural psychology, 33*(5), 464-481.
Sedee, M. (2018). Kwart van de studenten heeft burn-outklachten. *nrc.nl*. Retrieved from https://www.nrc.nl/nieuws/2018/04/07/kwart-van-de-studenten-heeft-burn-outklachten-a1598568
Shankar, A., Rafnsson, S. B., & Steptoe, A. (2015). Longitudinal associations between social connections and subjective wellbeing in the English Longitudinal Study of Ageing. *Psychology & health, 30*(6), 686-698.
Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine, 15*(3), 194-200.
Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine, 166*(10), 1092-1097.
Stoker, E. (2018). Veel burn-outs onder studenten: actieplan nodig om 'generatie van zombies' te voorkomen. *de Volkskrant*. Retrieved from https://www.volkskrant.nl/nieuws-achtergrond/veel-burn-outs-onder-studenten-actieplan-nodig-om-generatie-van-zombies-te-voorkomen~bc3cc17c/
Van der Werf, M., Schonewille, G., & Stoof, R. (2017). *Studentenonderzoek 2017*. Retrieved from
Van Dinther, M. (2018). Studenten bezwijken psychisch onder prestatiedruk: 'De psychologen zijn niet aan te slepen'. *De Volkskrant*. Retrieved from https://www.volkskrant.nl/nieuws-achtergrond/studenten-bezwijken-psychisch-onder-prestatiedruk-de-psychologen-zijn-niet-aan-te-slepen-~b4246d57/
Van Dorsselaer, S., & Goossens, F. X. (2015). *Alcohol-, tabaks- en drugsgebruik door studenten*. Retrieved from Utrecht:
Vandereycken, W., Hoogduin, C. A. L., & Emmelkamp, P. M. G. (2012). *Handboek Psychopathologie: deel 1 basisbegrippen /W. Vandereycken, C.A.L. Hoogduin*: Bohn Stafleu van Loghum.
Westefeld, J. S., Maples, M. R., Buford, B., & Taylor, S. (2001). Gay, lesbian, and bisexual college students: The relationship between sexual orientation and depression, loneliness, and suicide. *Journal of College Student Psychotherapy, 15*(3), 71-82.
World Health Organization. (1948). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. *http://www. who. int/governance/eb/who_constitution_en. pdf*.
Zhang, Y., Gan, Y., & Cham, H. (2007). Perfectionism, academic burnout and engagement among Chinese college students: A structural equation modeling analysis. *Personality and Individual Differences, 43*(6), 1529-1540.
Zhang, Y. L., Liang, W., Chen, Z. M., Zhang, H. M., Zhang, J. H., Weng, X. Q., . . . Zhang, Y. L. (2013). Validity and reliability of P atient H ealth Q uestionnaire-9 and P atient H ealth Q uestionnaire-2 to screen for depression among college students in C hina. *Asia-Pacific Psychiatry, 5*(4), 268-275.

7. APPENDICES

A – STUDY PROGRAMS

Percentage of participants for each study program, ordered by faculty

Faculty	N(%)
Behavioural, Management and Social Sciences (BMS)	**433 (25.7%)**
Communication Science	51 (3.0%)
Industrial Engineering and Management	70 (4.2%)
International Business Administration	49 (2.9%)
Management, Society and Technology	36 (2.1%)
Psychology	154 (9.2%)
Public Administration	11 (0.7%)
Business Administration	20 (1.2%)
Educational Science and Technology	21 (1.2%)
Environmental and Energy Management	3 (0.2%)
European Studies	5 (0.3%)
Philosophy of Science, Technology and Society	6 (0.4%)
Science Education and Communication	4 (0.2%)
Social Sciences and Humanities Education	3 (0.2%)
Engineering Technology (ET)	**334 (19.9%)**
Civil Engineering	60 (3.6%)
Industrial Design Engineering	112 (6.7%)
Mechanical Engineering	136 (8.1%)
Construction Management and Engineering	15 (0.9%)
Sustainable Energy Technology	11 (0.7%)
Electrical Engineering, Mathematics and Computer Science (EEMCS)	**458 (27.2%)**
Applied Mathematics	47 (2.8%)
Business & IT	57 (3.4%)
Computer Science	31 (1.8%)
Creative Technology	63 (3.7%)
Electrical Engineering	123 (7.3%)
Technical Computer Science	86 (5.1%)
Embedded Systems	25 (1.5%)
Interaction Technology	16 (1%)
Internet Science & Technology	1 (0.1%)
Systems and Control	9 (0.5%)
Science and Technology (TNW)	**415 (24.7%)**
Advanced Technology	26 (1.5%)
Applied Physics	56 (3.3%)
Biomedical Technology	97 (5.8%)
Chemical Science and Engineering	48 (2.9%)
Health Sciences	32 (1.9%)
Technical Medicine	102 (6.1%)
Nanotechnology	4 (0.2%)
Biomedical Engineering	39 (2.3%)
Chemical Engineering	11 (0.7%)
Geo-Information Science and Earth Observation (ITC)	**17 (1%)**
Geo-Information Science and Earth Observation	14 (0.8%)
Spatial Engineering	3 (0.2%)
University College Twente (ATLAS)	**25 (1.5%)**

B – NATIONALITIES

Percentage of participants for each nationality, in alphabetical order

Country	Frequency
Albania	2 (0.1%)
Andorra	2 (0.1%)
Austria	2 (0.1%)
Australia	1 (0.1%)
Aruba	1 (0.1%)
Azerbaijan	4 (0.2%)
Belgium	2 (0.1%)
Bulgaria	10 (0.6%)
Bolivia	1 (0.1%)
Bosnia and Herzegovina	1 (0.1%)
Brazil	3 (0.2%)
Canada	3 (0.2%)
Cameroon	2 (0.1%)
China	11 (0.7%)
Colombia	2 (0.1%)
Croatia	1 (0.1%)
Curacao	1 (0.1%)
Cyprus	4 (0.2%)
Germany	174 (10.3%)
Denmark	2 (0.1%)
Ecuador	9 (0.5%)
Egypt	4 (0.2%)
Eritrea	1 (0.1%)
Estonia	1 (0.1%)
Ethiopia	1 (0.1%)
Finland	1 (0.1%)
France	1 (0.1%)
Ghana	1 (0.1%)
Greece	8 (0.5%)
Hungary	1 (0.1%)
India	69 (4.1%)
Indonesia	13 (0.8%)
Iran	2 (0.1%)
Iraq	1 (0.1%)
Ireland	2 (0.1%)
Italy	11 (0.7%)
Kenya	1 (0.1%)
Latvia	7 (0.4%)
Lebanon	2 (0.1%)
Lithuania	2 (0.1%)
Luxembourg	1 (0.1%)
Malaysia	1 (0.1%)
Mexico	3 (0.2%)
Moldova	1 (0.1%)
Montenegro	1 (0.1%)
Nepal	1 (0.1%)
Netherlands	1218 (72.4%)
Nigeria	4 (0.2%)
Norway	1 (0.1%)
Pakistan	4 (0.2%)
Peru	1 (0.1%)
Philippines	1 (0.1%)
Poland	3 (0.2%)
Portugal	3 (0.2%)

Romania	19 (1,1%)
Russia	4 (0.2%)
Rwanda	2 (0.1%)
Saint Martin	1 (0.1%)
Serbia	1 (0.1%)
Slovenia	1 (0.1%)
Spain	10 (0.6%)
Sri Lanka	1 (0.1%)
South Africa	2 (0.1%)
Sudan	2 (0.1%)
Suriname	7 (0.4%)
Turkey	6 (0.4%)
Taiwan	2 (0.1%)
Tanzania	2 (0.1%)
Ukraine	3 (0.2%)
United Kingdom	1 (0.1%)
United States	4 (0.2%)
Vietnam	5 (0.3%)
Zimbabwe	1 (0.1%)