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Bachelor Thesis

Examining the Influences of Anxiety Among Students, Coping Styles, and the Use of Self-Empowerment Techniques

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Abstract

Despite the abundance of research on anxiety among students, there has been a lack of research concerning the way anxiety is influenced, coping styles and self-empowerment techniques. Academic stress, financial stress and loneliness are all factors that contribute to influencing anxiety among students. This study aims to explore these influences and examine if coping styles and self-empowerment techniques can be used to mitigate the effects of anxiety among students. A survey was distributed to students through convenience sampling and is a cross-sectional study. The sample consisted of 81 participants, 58 of them reported using self-empowerment techniques and 23 of them reported not using self-empowerment techniques. The responses from the survey were analysed using Pearson correlations, a Wilcoxon test and moderation analyses. The results indicated that anxiety is positively correlated with academic stress ($r = .60$), loneliness ($r = .55$) and financial stress ($r = .26$). Additionally, coping through religion moderated the relationship between academic stress and anxiety. However, coping through religion does not moderate the relationship between financial stress and anxiety. Also, coping through acceptance does not moderate the relationship between loneliness and anxiety. Finally, there was no difference displayed between levels of anxiety and the use of self-empowerment techniques. In conclusion, this study provides insight into potential influences of anxiety among students, coping through religion and acceptance as well as the use of self-empowerment techniques. Further exploring the impact of anxiety and coping mechanisms among students is crucial for developing future research in this field.

Examining The Influences of Anxiety Among Students, Coping Styles, and the Use of Self-Empowerment Techniques

Anxiety disorder is one of the most common mental illnesses worldwide (Mohamed et al., 2021). According to Barlow (2002), anxiety is an uncontrollable, unpleasant and constant negative feeling, this can be known as *trait anxiety*. It is characterized by feelings of apprehension regarding unpredictable and unavoidable events in the future, which is also accompanied by physical feelings of tension and alertness (O'Neill & Sorochan, 2014). Occasional feelings of anxiety are common and this is categorized as *state anxiety*, although when it induces strong, constant and extreme feelings of fear and worry, it can heighten and lead to an anxiety disorder (Mohamed et al., 2021). Additionally, mental distress or concern, as well as dizziness, shortness of breath, sweating and trembling are a few symptoms associated with anxiety. These are commonly found in generalized anxiety disorder. The prevalence of any anxiety disorder among adults in the United States at some point in their lifetime is an estimated amount of 31.1% (*Any Anxiety Disorder*, 2017).

One of the most pivotal transitions in an individual's life typically occurs during the period of high school and university. This is due to varying stressful situations and factors such as advancing in school or university, increased workload or other causes such as stress in the household or their social lives (Asif et al., 2020). This stress may be reflected in developing feelings of anxiety. There were various studies conducted which tested the occurrence of anxiety among students universally. A study on student psychological well-being stated that in a sample of university students in Turkey, 41.1% were found to have anxiety. Another study found that 66.9% of medical students in India were reported to have high levels of anxiety (Asif et al., 2020). Furthermore, a survey was conducted on undergraduate students from colleges and universities across the United States in 2019. This survey found that 68% of respondents felt overwhelming anxiety at least once during the year. Overall, the survey concluded that anxiety was the most common stressor among students (Guo et al., 2021). Studies have also revealed that anxious students are reported to suffer from learning difficulties and problem-solving (Asif et al., 2020).

The current study will investigate the influences of anxiety among students as well as how they cope with it. The concept of self-enhancement in regard to patient empowerment will also be outlined. Moreover, three influencing factors of anxiety will be examined: academic

stress, financial stress, and loneliness. These influences will be correlated with different coping styles.

Anxiety is a prevalent issue among students, and it can be attributed to various factors such as academic or financial stress. The term 'academic stress' is used to describe the type of stress that individuals may experience concerning exams, assignments, educational settings, being evaluated and various academic-related issues. Academic stress is a leading factor that impacts the mental well-being of students. Around 87% of university students in the United States reported education to be their main source of stress (Barbayannis et al., 2022). Furthermore, academic stress has been linked to an increase in anxiety symptoms, it has been shown in studies that students who experience academic stress are more likely to experience anxiety. In accordance with the "stress response theory", students who are exposed to high-stress environments may experience feelings of anxiety. As a result, it can be understood that academic stress plays a major role in the emergence of anxiety (Zhang et al., 2022).

Financial stress is another factor leading to the emergence of anxiety among students and is defined as the inability of an individual to meet their financial responsibilities because of a lack of funds. This difficulty to meet one's financial obligations is also accompanied by emotional and psychological outcomes. Some of these outcomes involve trouble sleeping, anger or fearful feelings, and fatigue. Financial stress can be a serious issue, particularly for young adult students. The transition from high school to university challenges students to manage their own lives by living independently and taking control of their financial matters. According to statistics (Tesfaw & Yitayih, 2018), around two-thirds of students graduating with a bachelor's degree, graduate with some form of personal financial concern. Furthermore, financial anxiety and happiness with one's financial situation were shown to be significantly correlated; the higher one's financial pleasure, the lower their financial anxiety (Tesfaw & Yitayih, 2018).

There is also evidence which suggests that debt and loans are positively associated with psychological distress, as they increase anxiety in individuals (Ryu & Fan, 2022). Around 35% of university students have experienced financial stress over the last year, making it one of the primary sources of anxiety for undergraduates (Potter et al., 2020). As financial stress contributes to a heavy burden on one's mental health from an economic aspect, individuals during this time in their lives often find themselves struggling with social factors such as loneliness.

Another significant aspect examined as a contributor to the development of anxiety among students is loneliness. It can be defined as an undesirable and distressing emotional state that individuals actively seek to avoid. It often leads to feelings of anxiety, anger, sadness, and a sense of social isolation. Loneliness can be classified as both a circumstantial and an emotional state. Loneliness is not generally caused by being alone but by being without specific desired relationships or a particular set of relationships. Loneliness can arise from having a limited amount of social relationships, however, it can also occur when existing social relationships lack the desired significance or quality in terms of meaning (Gul, 2017).

Moreover, the transition from high school to university is accompanied by significant changes which can contribute to feelings of loneliness. Due to their increased independence and individuality within their new role, university students start making autonomous decisions. Also, many students encounter feelings of loneliness when placed in a new environment, such as a new city, where they may not know anyone. According to Weiss (2018), loneliness can be categorized into two types; emotional loneliness, which is the lack of close and intimate relationships and social loneliness, which is derived from the absence of a wider network of social relationships. Emotional loneliness may arise following a breakup or the death of close ones, while social loneliness occurs among individuals who lack social integration, such as being a member of a group of people with similar interests and experiences. Loneliness, in general, can have various impacts on health (Diehl et al., 2018). Research has therefore indicated that loneliness can be a potential indicator of anxiety, while social isolation can intensify one's sense of perceived isolation and loneliness (Owczarek et al., 2022). All the aforementioned factors have adverse effects and contribute to the development of anxiety. Nevertheless, individuals' strategies for managing these unfavourable emotions can be classified as coping styles.

While multiple factors cause anxiety, it's also important to recognize that there are essential coping styles that are utilized to help students manage and deal with their anxiety. Coping refers to the cognitive and behavioural strategies utilized to manage and handle internal and external stress. When individuals face a stressor, the different approaches they use to manage and deal with it are known as 'coping styles'. These coping styles represent a collection of stable traits that influence an individual's behavioural patterns when responding to stressful situations. These traits refer to the coping mechanisms that individuals possess which are consistent over time, situations and stressors (Pozzi et al., 2015).

Coping is commonly classified into four primary categories, problem-focused coping, emotion-focused coping, meaning-focused coping and social coping (Algorani & Gupta, 2023). Problem-focused coping involves directly addressing the source of distress by engaging in activities such as planning and problem-solving, to resolve the problem effectively. Emotion-focused coping aims to alleviate the negative emotions related to the problem by using strategies such as positive reframing, turning to religion or using humour as a means of emotional regulation. Moreover, meaning-focused coping involves the use of cognitive strategies by individuals to create and manage the meaning of the situation that they are facing. Lastly, social coping involves seeking support from others as a means of reducing stress. One may seek emotional or instrumental aid from their social network or community as a means of support (Algorani & Gupta, 2023).

Therefore, based on the influencing factors of anxiety, there are various coping styles which have been used to deal with the causes. In regard to academic pressure, it was found that the coping style most used by individuals is praying and having a perceived sense of maintaining some control over the situation (Pozzi et al., 2015). Additionally, based on various studies, the way students cope with financial stress is by praying to God, therefore coping through religion (Tesfaw & Yitayih, 2018). Lastly, the coping style that individuals have utilized to manage loneliness is coping through acceptance (Hussin et al., 2021). Coping strategies and self-empowerment techniques are interrelated, as individuals use coping strategies to adopt self-empowerment techniques. By doing so, they acquire the resources necessary to manage various difficulties and advance their personal development (Freire et al., 2020).

The concept of empowerment refers to a process by which individuals attain increased control over the choices and behaviours that influence their well-being (World Health Organization, 2009). Empowered individuals are characterized by possessing the essential knowledge, talents, perspectives, and self-understanding required to exert influence over their own behaviour, ultimately leading to improving the quality of their lives (Duarte-Díaz et al., 2022). Individuals suffering from anxiety utilize self-enhancement strategies to alleviate their symptoms and enhance their overall physical and emotional well-being (Villaggi et al., 2015). With regard to this research paper, students will be assessed based on their engagement with self-empowerment techniques.

It is imperative to understand how the variables mentioned earlier, namely, academic stress, financial stress, loneliness, coping styles and self-empowerment, interrelate and influence each other. This research report will focus on studying these aspects. The study will explore the correlation between anxiety and the three influences - academic stress, financial stress and loneliness, along with their relation to coping styles. Furthermore, the analysis will also evaluate the role of anxiety in utilizing self-empowerment techniques. Based on the above theoretical considerations, this study will examine *the influences of anxiety among students, coping styles and use of self-empowerment techniques.*

Based on this, it can be hypothesized that:

H1: Academic stress, financial stress and loneliness are positively correlated with anxiety

H2: There is a significant difference in anxiety levels between individuals who use self-empowerment techniques and individuals who do not use self-empowerment techniques

H3: The relationship between anxiety and academic stress is moderated by coping through religion.

H4: The relationship between anxiety and financial stress is moderated by coping through religion.

H5: The relationship between anxiety and loneliness is moderated by coping through acceptance
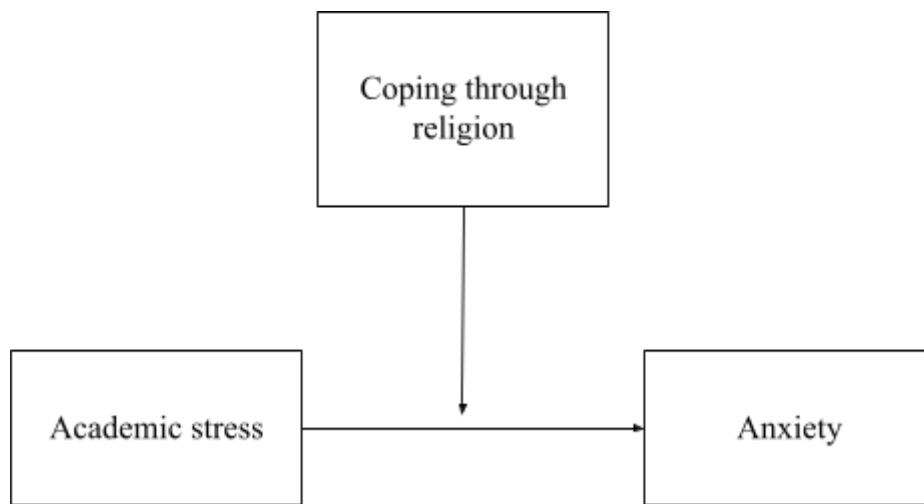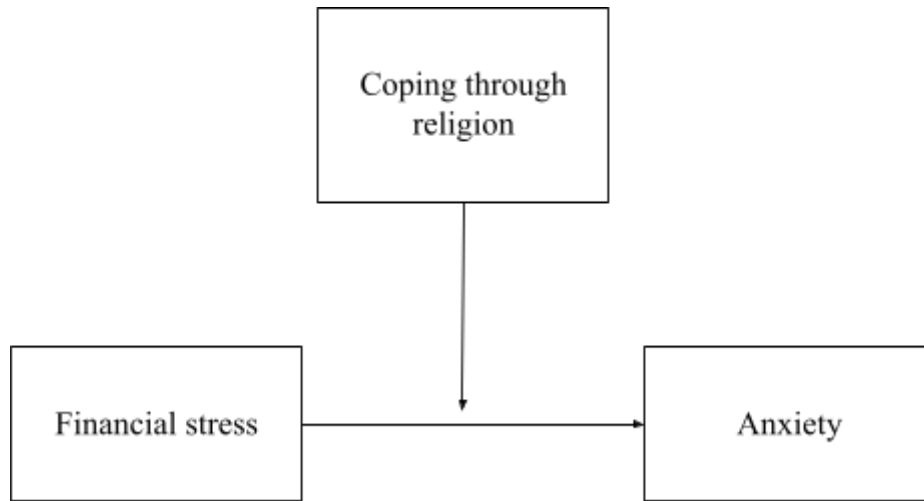
Figure 1

Model of H3
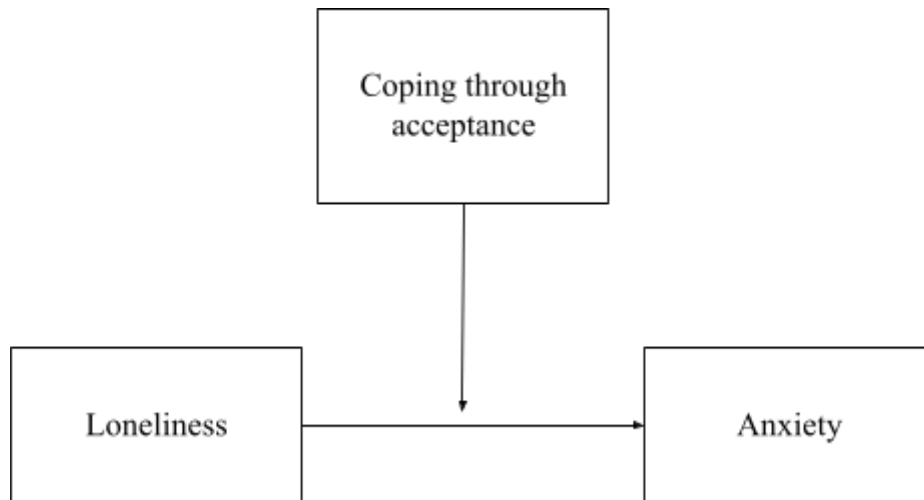
Figure 2

Model of H4

Figure 3

Model of H5

Methods

Study Design

      The BMS ethics committee reviewed this research project on April 11, 2023, under request number 230319. This study employed quantitative methods of research therefore a cross-sectional study was conducted. Participants were able to partake either directly through the

survey link or from the Sona research pool. This is a platform created by the University of Twente that lists various research studies for students to participate in (https://utwente.sona-systems.com/default.aspx?p_return_experiment_id=2610). Student researchers such as bachelor or master students are the main users of this platform in order to conduct studies and experiments for their research. Another way that the survey was accessible to people was through various social media platforms such as WhatsApp and Instagram.

Participants

There were three inclusion criteria necessary for participation in the study. These criteria were to be 18 years old and above, a student and proficient in English.

Materials and Instruments

Generalized anxiety disorder (GAD-7)

The GAD-7 instrument was used to measure an individual's health situation over the last two weeks. The scale consists of 7 items and is measured on a 4-point Likert scale, ranging from 0-3 with 0 being "not at all" to 3 being "nearly every day". An example item is "not being able to stop or control worrying". Additionally, the scores of this scale are calculated by adding all the item scores together and is determined by a single score between 0-21. Scores between 0-4 indicate minimal anxiety, 5-9 as mild anxiety, 10-14 means moderate anxiety and 15-21 as severe anxiety. The scale has an acceptable to excellent internal consistency (α = .79-.91), indicating that the scale is a very reliable construct (Williams, 2014). Also, the scale's psychometric properties among this study's dataset determined to have good internal consistency (α = 0.87)

Academic Anxiety Scale (AAS)

The AAS is an 11-item questionnaire that measures stressors by students that contribute to academic anxiety. The scale is measured on a 4-point Likert scale ranging from 1 to 4, 1 being "not at all typical of me" to 4 being "very typical of me" (Cassady et al., 2019). An example item from this scale is "I tend to put off doing school work because it stresses me". The scale is calculated by adding all items together into a single score. Scores range from 11- 44, 11-14 indicate not anxious, 15-20 suggest mild academic anxiety, 21-29 mean moderate academic anxiety and 30 - 44 imply high academic anxiety (Cassady, 2020). Therefore, the higher the

score, the more academically anxious an individual is. Furthermore, the AAS was found to have excellent internal consistency ($\alpha =.90$), indicating that it's a very reliable construct (Cassady et al., 2019). The scale's psychometric properties within this study's dataset were comparable and determined to also have excellent internal consistency ($\alpha = 0.90$).

APR financial stress scale

The APR financial stress scale is a 24-item scale that measures financial stress based on different domains. The scale measures three aspects of financial stress, affective (A), physiological (P) and relational (R). The scale is ultimately used to measure one's financial stress and can be used by researchers and practitioners depending on the situation. The construct is measured on a 5-point Likert scale, with 1 being "strongly disagree" to 5 being "strongly agree". An example of an item is "My financial situation frequently interferes with my family situation". The scale is calculated by adding up all the items together into a single score. The scales internal consistency reliability is deduced based on the three aspects of financial stress, all the dimensions, affective reaction ($a = .95$), relational behaviour ($a = .91$) and physiological responses ($a = .94$) each category showed high reliability (Heo et al., 2020). In addition, the scale's psychometric properties among this study's dataset resulted in excellent internal consistency ($a = 0.96$).

UCLA 3-item loneliness scale

The UCLA 3-item loneliness scale is used to measure feelings of loneliness and social isolation. It is known to be one of the most well-known and most used measures. The scale measures three dimensions of loneliness; relational connectedness, social connectedness and self-perceived isolation. The three-item scale was derived from the R-UCLA which is a 20-item survey. The UCLA 3-item loneliness scale is shorter and easier to administer in comparison to the 20-item instrument (Campaign to End Loneliness, 2019). It consists of three items and is measured on a 3-point Likert scale from 1 being 'hardly ever' to 3 being 'often'(Matthews et al., 2022) An example item is "How often do you feel isolated from others?". Moreover, the score for this scale is calculated by summing the total of all items and determining that higher scores indicate larger capacities of loneliness. Individuals that score 3-5 are categorized as "non-lonely" and score 6-9 as "lonely" (Campaign to End Loneliness, 2019). The scale is measured to have a

good internal consistency (α = .82) which indicates very good reliability (Trucharte et al., 2021). Additionally, the psychometric properties of this study's dataset resulted in good internal consistency (α = .84)

Brief COPE

The brief COPE is a 28-item self-report questionnaire which is designed to measure different ways to cope with a stressful life event. (Carver, 1997). The brief cope was developed as a short version of an original 60-item cope scale taken from different coping models (Buchanan, 2023). The scale was divided into three factors, problem-focused coping, emotion-focused coping and avoidant coping. There are 14 dimensions that are measured by this, scale; self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion and self-blame (Buchanan, 2023). The construct is measured on a 4-point Likert scale ranging from 1 being "I haven't been doing this at all" to 4 being "I've been doing this a lot". An example item from this scale is "I've been trying to find comfort in my religion or spiritual beliefs". The scale is calculated based on the 14 different subscales, each subscale has 2 items which need to be added together. Therefore the 2 items are added together to determine the score for each subscale. Furthermore, the reliability of the scale has a moderate to high level of internal reliability (a = .72-.84) (Rahman et al., 2021). The scale's psychometric properties in relation to this dataset resulted to have good internal consistency (a = .86).

Procedure

To conduct this study, a survey was created through Qualtrics XM (https://www.qualtrics.com/). Prior to recruiting participants, the survey was reviewed and approved by the BMS ethics committee of the University of Twente. The survey was then sent out through various platforms such as Sona research pool and social media platforms like WhatsApp and Instagram, in order to collect data from a wide range of people. The collection of data started on April 13, 2023, and was completed a few weeks later on April 29, 2023.

The survey began by informing the participants of some background information concerning the study. This included information such as what the study is about, the eligibility criteria, and the informed consent. Before the questionnaires were presented, participants were

informed that they were able to drop out of the study at any point. Then, they were asked for consent to take part in the study. If they agreed, they were directed to the survey. This directed them to a separate page in which they were asked some demographic questions such as their age, gender, nationality and pursued degree. All items in this questionnaire were implemented as forced responses, requiring the participants to respond to all questions before being able to continue to the rest of the sections.

The participants were then given the following questionnaires, all presented in different blocks. The GAD-7 was presented first, which consisted of seven questions. Participants were asked to what extent they agree with the provided statements over the previous 2 weeks. They then proceeded to the second block, which was about one's academic pressure, the AAS. The scale consisted of items that asked participants to indicate to what extent each statement was typical of their academic lifestyle. Followed by the next block, which was about financial stress, the APR financial stress scale. This construct measured a person's stress levels in regard to their financial situation. The next block of the questionnaire presented the UCLA 3-item loneliness scale. Participants were asked to respond according to how often they expressed their emotions about the scale's items. Then, the next block consisted of the Brief COPE questionnaire, which entailed coping-style items. Finally, the last block was a question posed to the participants asking if they use self-empowerment techniques or not. After completing the last question, participants were directed to a different page in which they were thanked for their participation and offered contact details in case of any questions they had.

Data analysis

To analyse the data gathered from participants through Qualtrics, the program R studio 2023.03.1+446 was used. The various packages required to conduct analyses were; tidyverse, janitor, readr, gtsummary, dplyr, stats, ggplot2, performance and survival.

The normality of residuals was checked for all variables by using the Shapiro-Wilk test. Based on some of the results, the assumption of normality was violated, due to this, non-parametric alternatives were calculated.

The first hypothesis was analyzed using a Pearson correlation coefficient with the variable's anxiety, academic stress, financial stress and loneliness. The second hypothesis was examined by conducting an independent Wilcoxon signed rank test with anxiety and "the use of

self-empowerment techniques". The third, fourth and fifth hypotheses were conducted by using moderation analyses. The third hypothesis was a moderation analysis with the variables coping through religion on the relationship between academic stress and anxiety. The fourth hypothesis was a moderation analysis with the variables coping through religion on the relationship between financial stress and anxiety. The final hypothesis was a moderation analysis between the variables coping through acceptance on the relationship between loneliness and anxiety. The significance of all the results was evaluated on the 0.05 level.

Results

Participants

In total, 124 people were recruited for this study, although the data were screened and those that failed to complete the study (n=43) were removed. Therefore, the final sample size of participants that took part in the study is 81 in total (N=81). Among this sample, 58 participants use self-empowerment techniques (n=58) and 23 participants do not use self-empowerment techniques (n=23). The various characteristics included within this study are presented in Table 1 and are split up based on the use of self-empowerment techniques and not using self-empowerment techniques.

Table 1
Sociodemographics of participants

Characteristic	Using self-empowerment techniques (n=58)	Not using self-empowerment techniques (n=23)
Age	20.47 (1.44)	20.09 (1.47)
Gender		
Female	42 (72%)	7 (30%)
Male	15 (26%)	16 (70%)
Other	1 (1.7%)	0 (0%)
Nationality		
Dutch	5 (8.6%)	1 (4.3%)

Table 1 (Continued)

Characteristic	Using self-empowerment techniques (*n=58*)	Not using self-empowerment techniques (*n=23*)
German	8 (14%)	2 (8.7%)
Other	45 (78%)	20 (87%)
Education		
Bachelor's degree	56 (97%)	21 (91%)
Master's degree	1 (1.7%)	0 (0%)
Other education	1 (1.7%)	2 (8.7%)
Anxiety scores	10.3 (5.4)	8.7 (4.7)
Academic stress scores	24 (7)	23 (9)
Financial stress scores	51 (17)	36 (12)
Loneliness scores	5.86 (1.80)	5.39 (1.90)
Coping styles		
Religion	4.34 (2.30)	3.96 (2.36)
Acceptance	5.60 (1.49)	5.57 (1.44)

Mean (SD); n(%)

Normality assumption

The assumption of normality for the variables anxiety with academic stress, financial stress and loneliness was evaluated using the Shapiro-Wilk test. The test indicated that the assumption of normality was met ($W(81) = .99$, $p = .85$), suggesting that the data displayed a normal distribution.

The second assessment of normality was tested for the variable anxiety. For this variable, the assumption of normality was violated and therefore does not display a normal distribution ($W(81) = .94$, $p < .001$).

Lastly, the assumption of normality was tested with the variables academic stress ($W(81) = .96$, $p = .147$), financial stress ($W(81) = .95$, $p < .001$) and loneliness ($W(81) = .93$, $p = .22$). The

variables academic stress and loneliness met the assumption of normality whereas financial stress variable violated the assumption. Therefore academic stress and loneliness display a normal distribution while financial stress did not.

Hypotheses testing

H1

A Pearson correlation was conducted to measure the correlation between the variables, anxiety, academic stress, financial stress and loneliness. The correlation matrix is presented below in Table 3. Anxiety showed a moderate and significant correlation with academic stress ($r = 0.59$, $p < .001$) and loneliness ($r = 0.56$, $p < .001$). In contrast, anxiety showed a weak but significant correlation with financial stress ($r = 0.26$, p = .017) (Frost, 2023).

Table 3

Pearson correlation matrix of the variable's anxiety, academic stress, financial stress and loneliness

	Anxiety	Academic stress	Financial stress	Loneliness
Anxiety	-			
Academic stress	0.59*	-		
Financial stress	0.26*	0.21	-	
Loneliness	0.56*	0.41	0.08	-

*Correlation is significant (at the 0.05 level)

H2

An independent Wilcoxon signed rank test was conducted to determine whether there was a difference in anxiety scores among participants who use self-empowerment techniques (*n*=58) and those who don't use self-empowerment techniques (*n*=23). Results of the analysis

indicated that there was no statistically significant difference in anxiety scores with using self-empowerment techniques and not using self-empowerment techniques (W= 557.5, p = .25).

H3

A moderation analysis was conducted in order to investigate the moderating effect of coping with religion on the relationship between academic stress and anxiety. By analysing the data, it can be determined that the moderator variable has a statistically significant effect on the model (t(77) = -2.18, p=.033) (see Table 4). The model explained 38.53% of the variance of the variable anxiety (R^2_{adj} = 0.39) and the overall model was significant (SE = 4.10, F(3, 77) = 17.72, p < .001). Therefore, based on these findings, it can be concluded that the hypothesis "the relationship between anxiety and academic stress is moderated by coping through religion" is accepted.

Table 4

Moderation analysis for the interaction effect of coping through religion on the relationship between anxiety and academic stress

	Estimate	*SE*	*t*	*p*
Intercept	-8.50	3.75	-2.27	.026
Academic stress	0.74	0.16	4.54	<.001
Coping through religion	1.73	0.67	2.58	.012
Interaction	-0.06	0.03	-2.18	.033

SE = Standard error, Intercept = Anxiety

H4

Another moderation analysis was conducted to investigate the moderating effect of coping through religion on the relationship between financial stress and anxiety. The results from

this analysis indicate that the moderator variable does not have a statistically significant effect on the relationship between anxiety and financial stress (t(77) = 0.89, p = .377) (see Table 5). The model explained 6.37 of the variable anxiety (R^2_{adj} = 0.064) and the overall model was significant (*SE* = 5.06, *F*(3, 77) = 2.82, *p* = 0.04). Although, due to the insignificant interaction effect, it can be concluded that the hypothesis "the relationship between anxiety and financial stress is moderated by coping through religion" is rejected.

Table 5

Moderation analysis for the interaction effect of coping through religion on the relationship between anxiety and financial stress

	Estimate	*SE*	*t*	*p*
Intercept	7.49	3.67	2.04	.045
Financial stress	0.02	0.07	0.29	.771
Coping through religion	-0.26	0.70	-0.37	.710
Interaction	0.01	0.01	0.89	.377

SE = Standard error, Intercept = Anxiety

H5

A last moderation analysis was conducted in order to test the moderating effect of coping through acceptance on the relationship between anxiety and loneliness. The results from this analysis indicate that the moderator variable did not have a statistically significant effect on the relationship between anxiety and loneliness (t(77) = -0.19, p = .851) (see Table 6). The model explained 28.85 of the variable anxiety (R^2_{adj} = 0.289) and the overall model was significant (*SE* = 4.42, *F*(3, 77) = 11.81, *p* < .001). Although, due to the insignificant interaction effect, the

hypothesis "the relationship between anxiety and loneliness is moderated by coping through acceptance" is rejected.

Table 6

Moderation analysis for the interaction effect of coping through acceptance on the relationship between anxiety and loneliness

	Estimate	SE	t	p
Intercept	-0.34	6.42	-0.05	0.958
Loneliness	1.80	1.05	1.72	0.090
Coping through acceptance	0.19	1.15	0.16	0.871
Interaction	-0.04	0.19	-0.19	0.851

SE = Standard error, Intercept = Anxiety

Discussion

The primary objective of the current research was to explore the influences of anxiety among students, coping styles and the use of self-empowerment techniques. The study focused on examining the impacts of academic stress, financial stress, and loneliness as contributing factors to anxiety levels among students. Furthermore, these influential variables were analyzed in correspondence with certain coping styles. Lastly, the relationship between anxiety and the use of self-empowerment techniques was investigated.

Key results

Concerning the first hypothesis, *academic stress, financial stress, and loneliness are positively correlated with anxiety*, results from the analyses have concluded that anxiety is indeed positively correlated with academic stress, loneliness and financial stress (Table 3). Consistent with findings, research has supported the positive and moderate correlation between

anxiety and academic stress. Observations concluded that the occurrence of anxiety among university students is significantly associated with academic stress factors, which include academic accomplishment and performance (Zhang et al., 2022). Additionally, a longitudinal study has found that loneliness increases mental health issues among students, including general anxiety (Richardson et al., 2016). Contrary to these findings, the outcome of anxiety having a weak correlation with financial stress could be due to the current study primarily consisting of individuals categorized as "other" nationalities, indicating that they are international students. Such an observation may imply that these students originate from families belonging to the middle or upper socioeconomic class. Consequently, financial stress may not have had a significant impact on them as originally anticipated. Although, regardless of this weak correlation, all three variables were found to have a positive correlation with anxiety.

Moreover, the second hypothesis states that *there is a significant difference in anxiety levels between individuals who use self-empowerment techniques and individuals who do not use self-empowerment techniques.* No difference in anxiety levels was observed between using self-empowerment techniques and not using self-empowerment techniques. Since a large majority of the population in this study reported using self-empowerment techniques, the rejection of the hypothesis can be attributed to alternative explanations. An explanation for this finding could be due to the most used coping style by the participants of this study namely, coping through *acceptance* (Table 2). Coping through acceptance means facing the truth of the situation even if it is contradictory to one's expectations or preferences. Acceptance is defined as acknowledging one's situation and giving up efforts to manage emotions while carrying on with life despite negative feelings (Nakamura & Orth, 2005). The coping style, *acceptance* involves avoiding self-help by acknowledging the situation as it is (*acceptance*). In consequence, this may explain why the sample population shows no difference in anxiety scores for the use of self-empowerment techniques.

The third hypothesis, *the relationship between anxiety and academic stress is moderated by coping through religion* was accepted. The results from this analysis depicted that the relationship between academic stress and anxiety is influenced by coping through religion (Table 4). In other words, individuals with anxiety due to academic stress, cope through religion. Consistent with research found to support this finding, a study was conducted by the University of California which revealed that university students who engage in religious activities

demonstrate improved mental and emotional well-being compared to those that do not partake in such activities. Their study depicted that 93.02% of participants acknowledged religion as reducing stress. Furthermore, students who have included spirituality in their lives reported lower levels of psychological distress in comparison to those who did not participate in any spiritual or religious activities (Agmasu, 2021) Consequently, this discovery supports the idea that coping through religion impacts the relationship between anxiety and academic stress.

In addition, the fourth hypothesis, *the relationship between anxiety and financial stress is moderated by coping through religion* was not supported by the results of this study. The results discovered that coping through religion does not influence the relationship between anxiety and financial stress (Table 5). Since financial stress and anxiety had larger evidence that do not correlate with one another, the moderation analysis would also not be supported due to the initial relationship being contradicted. Regardless, to support this discovery, a study was conducted on participants to compare the use of religious coping strategies and not using religious coping strategies. The study revealed that coping through religion did not seem to alleviate the psychological distress induced by financial stress. It was determined instead, that when someone faces financial distress, seeking social support is an approach to decreasing psychological distress. Consequently, participants in the study found it more effective to use non-religious coping strategies when dealing with financial stressors (Feil, 2012). Although, in regard to this research study, it is uncertain whether the analysis results of this research study were due to coping with religion or a lack of correlation between financial stress and anxiety at the start. Hence, it's important to consider this alternative for future studies.

At last, the fifth hypothesis, *the relationship between anxiety and loneliness is moderated by coping through acceptance* was not supported. The results of this study discovered that coping through acceptance does not influence the relationship between anxiety and loneliness (Table 6). To explain this finding, an extensive amount of research has supported the idea that individuals cope through acceptance to deal with loneliness. According to Rook (1984), he said that not being able to stay alone may make the experience of loneliness even worse. Therefore, acceptance is known to be the act of recognizing and accepting the way things are to be. Isolation can be a helpful way to cope with the pain induced by loneliness as it stops the act of denying being lonely but rather encourages acceptance (Rokach, 2018). Although the results from this study depicted otherwise. Even though acceptance is known to be the primary way of coping

with loneliness there are still various other ways to take into consideration. Namely, self-development and understanding as the next approach. This involves deepening one's understanding of oneself and making progress through involvement in organized groups such as focus groups (Rokach, 2018). Therefore, these alternative coping styles should be taken into consideration for future research on this matter.

Strengths and Limitations

Although many of the findings from this study have not been supported, there are still strengths that should be considered. One strength is that all the questionnaires administered to participants in the study were carefully chosen and had strong psychometric properties. This ensures a solid foundation and high reliability when administering the questionnaires to participants. In addition, ethical considerations were taken into account throughout the study, including factors such as anonymity and obtaining consent. Providing secure and reliable information to participants is crucial for maintaining ethical standards. Therefore, providing confidentiality of their data and obtaining consent for participation offers careful attention to ethical considerations.

Nevertheless, the current study is also accompanied by several limitations which must be considered to accurately recognize some areas of improvement for similar future studies. Firstly, the sample size of the study was not large enough to extend its findings to a wider population. Consequently, a more extensive sample size is important to gain greater generalisability. Additionally, the recruitment of participants through convenience sampling has limited the potential to generalize the data to a wider population and is not representative of an entire student population.

Another limitation refers to response bias in regard to self-reporting. The concept of 'response bias' refers to participants providing inaccurate or wrong answers. The reasons why people offer biased responses range from misunderstanding accurate measurement methods to social desirability in which the participant seeks to present themselves in a positive light during surveys (Rosenman et al., 2011). Within the frame of this research, participants were assessed based on questions regarding anxiety in order to test their anxiety levels. This may provide participants with the need to be socially desirable and try to not come off as "mentally ill" irrespective of anonymity.

A final limitation of this study is that it focused on merely two coping styles. The research specifically delved into coping through *religion* and *acceptance* since these were determined to be the most commonly used coping styles based on the influences of anxiety. However, it is important to keep in mind that individual differences exist and individuals may employ different coping styles in comparison to one another. Therefore, it is imperative to consider all different coping styles when assessing how students manage various stressors. Thus, it's vital to take these strengths and limitations into consideration when conducting future research on this topic.

Directions for Future Research

Based on the key results, strengths and limitations of the study, some recommendations can be considered for future research. As the results revealed that most of the participants were categorized as 'other' nationalities, this indicates that they belong to high-class socioeconomic statuses. Although this study did not assess socioeconomic status, the sample population consisted of students at the University of Twente and others. This study consisted of mostly international students, hence the "other" nationality contains 80% of the population (Table 1). Therefore, studying a population that includes individuals from a variety of socioeconomic backgrounds will possibly alter the results and provide differentiated scores for the financial stress variable.

In addition, while this study assessed three variables that influence anxiety, academic stress, financial stress and loneliness, it is important to note that these are not the only factors that influence students in the development of anxiety. Thus, it would be essential for future research to explore other variables that influence anxiety among students in order to gain a more comprehensive understanding of this topic.

Another future direction consists of exploring the variable of self-empowerment techniques more in-depth. While the current study primarily focused on using and not using self-empowerment techniques, it is also important to understand the type of techniques that students use to deal with their anxiety. This will enhance the understanding of various ways that individuals can self-empower in order to promote their personal growth.

Conclusion

To summarize, the general scope of the research focused on anxiety among students, its influences, coping styles and the use of self-empowerment techniques. Throughout this study, multiple insights were established. That is, anxiety is correlated with academic stress, loneliness and financial stress. Also, coping through religion moderates the relationship between anxiety and academic stress. In contrast to these findings, the study showed no relationship between anxiety and financial stress. Also, there was no difference in anxiety scores between using self-empowerment techniques and not using self-empowerment techniques. Moreover, the relationship between anxiety and financial stress was seen to not be moderated by coping through religion. Regardless of the discrepancies with the previous analyses, it's still important to consider the variables and possible alternatives for future research.

All aspects considered, anxiety is a well-known and growing disorder which is common among students. Many individuals are at the point in their lives where anxiety heightens, and these individuals may be unclear of the influences as well as ways to cope with them. Therefore, enabling individuals to understand the source of their anxiety, how to cope with it and techniques to self-empower will provide them with insight and more awareness of their behaviours. In conclusion, a large amount of work still remains to be done in order to have a more extensive understanding of anxiety among students. Although, this study provided an initial step to understanding some factors that influence anxiety among students, influences, coping styles and the use of self-empowerment techniques.

References

Agmasu M (2021) The Contribution of Religion in Academic Stress Reduction Among Woldia
    University Psychology Undergraduate Students. Qual Prim Care.
    https://www.primescholars.com/articles/the-contribution-of-religion-in-academic-stress-r
    eduction-among-woldia-university-psychology-undergraduate-students.pdf

Algorani, EB., & Gupta, V. (2023). Coping Mechanisms. National Library of Medicine.
    https://www.ncbi.nlm.nih.gov/books/NBK559031/

Allen, A. B., & Leary, M. R. (2010). Self-Compassion, Stress, and Coping. *Social and*
    Personality Psychology Compass, *4*(2), 107–118.
    https://doi.org/10.1111/j.1751-9004.2009.00246.x

Any Anxiety Disorder. (2017). National Institute of Mental Health (NIMH).
    https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder#:~:text=An%20estimate
    d%2031.1%25%20of%20U.S

Asif, S., Mudassar, A., Shahzad, T. Z., Raouf, M., & Pervaiz, T. (2020). Frequency of
    depression, anxiety and stress among university students. Pakistan Journal of Medical
    Sciences, 36(5). https://doi.org/10.12669/pjms.36.5.1873

Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022).
    Academic Stress and Mental Well-Being in College Students: Correlations, Affected
    Groups, and COVID-19. *Frontiers in Psychology*, *13*.
    https://doi.org/10.3389/fpsyg.2022.886344

Buchanan, B. (2023, March 1). *Coping Orientation to Problems Experienced Inventory*
    (Brief-COPE). NovoPsych.
    https://novopsych.com.au/assessments/formulation/brief-cope/#:~:text=The%20Brief%2
    DCOPE%20is%20a,associated%20with%20negative%20life%20experiences

Campaign to End Loneliness. (2019). The UCLA Loneliness Scale.
    https://www.campaigntoendloneliness.org/wp-content/uploads/Loneliness-Measurement-
    Guidance1-1.pdf

Carver, C. S. (1997). You want to measure coping but your protocol'too long: Consider the brief cope. International journal of behavioral medicine, 4(1), 92-100.

Cassady, J.C. (2020). *Academic Anxiety Scale.* Academic Anxiety Resource Center. https://sites.bsu.edu/aarc/research/academic-anxiety-scale/

Cassady, J. C., Pierson, E. E., & Starling, J. M. (2019). Predicting Student Depression With Measures of General and Academic Anxieties. *Frontiers in Education*, *4*. https://doi.org/10.3389/feduc.2019.00011

Diehl, K., Jansen, C. H., Ishchanova, K., & Hilger-Kolb, J. (2018). Loneliness at Universities: Determinants of Emotional and Social Loneliness among Students. *International Journal of Environmental Research and Public Health*, *15*(9), 1865. https://doi.org/10.3390/ijerph15091865

Duarte-Díaz, A., González-Pacheco, H., Rivero-Santana, A., Ramallo-Fariña, Y., Perestelo-Pérez, L., Álvarez-Pérez, Y., Peñate, W., Carrion, C., & Serrano-Aguilar, P. (2022). Increased Patient Empowerment Is Associated with Improvement in Anxiety and Depression Symptoms in Type 2 Diabetes Mellitus: Findings from the INDICA Study. *International Journal of Environmental Research and Public Health*, *19*(8), 4818. https://doi.org/10.3390/ijerph19084818

Feil, J. K. (2012). Coping with Economic Stressors: Religious and Non-Religious Strategies for Managing Psychological Distress [Master's thesis, Minnesota State University, Mankato]. Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato. https://cornerstone.lib.mnsu.edu/etds/153/

Freire, C., Del Mar Ferradás, M., Regueiro, B., Rodríguez, S., Valle, A., & Núñez, J. C. (2020). Coping Strategies and Self-Efficacy in University Students: A Person-Centered Approach. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.00841

Frost, J. (2023). Interpreting Correlation Coefficients. *Statistics by Jim*. https://statisticsbyjim.com/basics/correlations/

Guo, A., Crum, M. A., & Fowler, L. A. (2021). Assessing the Psychological Impacts of COVID-19 in Undergraduate Medical Students. *International Journal of Environmental Research and Public Health*, *18*(6), 2952. https://doi.org/10.3390/ijerph18062952

Gul, S., (2017) A Study of Loneliness and Academic Anxiety Among College Students. The Communications, 25(2). https://files.eric.ed.gov/fulltext/ED607088.pdf

Heo, W., Cho, S., & Lee, P. (2020). APR Financial Stress Scale: Development and Validation of a Multidimensional Measurement. Journal of Financial Therapy, 11(1). https://doi.org/10.4148/1944-9771.1216math

Hussin, N. M. S. F., Daud, N. a. I. A., Taibi, N. M., & Hussin, N. M. S. F. (2021). Loneliness, Coping Strategies and Perceived Social Support among Students of Public Universities in Malaysia during the Covid-19 MCO. *International Journal of Business and Society*, *22*(3), 1402–1419. https://doi.org/10.33736/ijbs.4311.2021

Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). II. MORE THAN JUST CONVENIENT: THE SCIENTIFIC MERITS OF HOMOGENEOUS CONVENIENCE SAMPLES. *Monographs of the Society for Research in Child Development*, *82*(2), 13–30. https://doi.org/10.1111/mono.12296

Martin, P. (2003). The epidemiology of anxiety disorders: a review. *Dialogues in Clinical Neuroscience*, *5*(3), 281–298. https://doi.org/10.31887/dcns.2003.5.3/pmartin

Matthews, T., Bryan, B. T., Danese, A., Meehan, A. J., Poulton, R., & Arseneault, L. (2022). Using a Loneliness Measure to Screen for Risk of Mental Health Problems: A Replication in Two Nationally Representative Cohorts. International journal of environmental research and public health, 19(3), 1641. https://doi.org/10.3390/ijerph19031641

Mohamad, N. E., Sidik, S. M., Akhtari-Zavare, M., & Gani, N. A. (2021). The prevalence risk of anxiety and its associated factors among university students in Malaysia: a national cross-sectional study. *BMC Public Health*, *21*(1). https://doi.org/10.1186/s12889-021-10440-5

Nakamura, Y. M., & Orth, U. R. (2005). Acceptance as a Coping Reaction: Adaptive or not? *Swiss Journal of Psychology*, *64*(4), 281–292. https://doi.org/10.1024/1421-0185.64.4.281

O'Neill, M., & Sorochan, J. (2014). Anxiety. In *Springer eBooks* (pp. 195–197).

https://doi.org/10.1007/978-94-007-0753-5_98

Owczarek, M., Nolan, E., Shevlin, M., Butter, S., Karatzias, T., McBride, O., Murphy, J., Vallières, F., Bentall, R. P., Martinez, A. P., & Hyland, P. (2022). How is loneliness related to anxiety and depression: A population-based network analysis in the early lockdown period. *International Journal of Psychology*, *57*(5), 585–596. https://doi.org/10.1002/ijop.12851

Potter, D., Jayne, D., & Britt, S.,(2020) Financial Anxiety Among College Students: The Role of Generational Status. Journal of Financial Counseling and Planning. 31(2) 284-295. http://dx.doi.org/10.1891/JFCP-17-00033

Pozzi, G., Frustaci, A., Tedeschi, D., Solaroli, S., Grandinetti, P., Di Nicola, M., & Janiri, L. (2015). Coping strategies in a sample of anxiety patients: factorial analysis and associations with psychopathology. *Brain and Behavior*, *5*(8). https://doi.org/10.1002/brb3.351

Rahman, H. A., Bani-Issa, W., & Naing, L. (2021). Psychometric properties of brief-COPE inventory among nurses. *BMC Nursing*, *20*(1). https://doi.org/10.1186/s12912-021-00592-5

Richardson, T., Elliott, P., Roberts, R., & Jansen, M. (2016). Longitudinal Relationships between Loneliness and Mental Health in University Students. *ResearchGate*.https://www.researchgate.net/publication/309385763_Longitudinal_Relationships_between_Loneliness_and_Mental_Health_in_University_Students

Rokach, A. (2018). Effective Coping with Loneliness: A Review. *Open Journal of Depression*, *07*(04), 61–72. https://doi.org/10.4236/ojd.2018.74005

Rosenman, R., Tennekoon, V., & Hill, L. G. (2011). Measuring bias in self-reported data. *International Journal of Behavioural and Healthcare Research*, *2*(4), 320. https://doi.org/10.1504/ijbhr.2011.043414

Ryu, S., & Fan, L. (2022). The Relationship Between Financial Worries and Psychological Distress Among U.S. Adults. *Journal of Family and Economic Issues*, *44*(1), 16–33. https://doi.org/10.1007/s10834-022-09820-9

Tesfaw, A., & Yitayih, T., (2018) A Study on Financial Stress and Coping Strategies among

Students in Rift Valley University, Ethopia. humaity & Social Sciences Journal (1): 01-10. DOI: 10.5829/idosi.hssj.2018.01.10

Trembath, D., Germano, C., Johanson, G., & Dissanayake, C. (2012). The Experience of Anxiety in Young Adults With Autism Spectrum Disorders. *Focus on Autism and Other Developmental Disabilities*, *27*(4), 213–224. https://doi.org/10.1177/1088357612454916

Trucharte, A., Calderón, L., Cerezo, E., Contreras, A., Peinado, V., & Valiente, C. (2021). Three-item loneliness scale: psychometric properties and normative data of the Spanish version. *Current Psychology*, *42*(9), 7466–7474. https://doi.org/10.1007/s12144-021-02110-x

Villaggi, B., Provencher, H., Coulombe, S., Meunier, S., Radziszewski, S., Hudon, C., Roberge, P., Provencher, M. D., & Houle, J. (2015). Self-Management Strategies in Recovery From Mood and Anxiety Disorders. *Global Qualitative Nursing Research*, *2*, 233339361560609. https://doi.org/10.1177/2333393615606092

Williams, N. (2014). The GAD-7 questionnaire. *Occupational Medicine*, *64*(3), 224. https://doi.org/10.1093/occmed/kqt161

World Health Organization. (2009). *Patient empowerment and health care*. WHO Guidelines on Hand Hygiene in Health Care - NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK144022/

Zhang, C. C., Shi, L., Tian, T., Zhou, Z. H., Peng, X., Shen, Y. R., Li, Y., & Ou, J. (2022). Associations Between Academic Stress and Depressive Symptoms Mediated by Anxiety Symptoms and Hopelessness Among Chinese College Students. *Psychology Research and Behavior Management*, *Volume 15*, 547–556. https://doi.org/10.2147/prbm.s353778