The Impact of Worry on Academic Performance

Abdalla A. M. Hamid[1]

Abstract

Worry is a basic cognitive characteristic of generalized anxiety disorder. It represents an effort to engage in mental problem solving of a problem whose consequences are vague or uncertain. The main objective of this study was to examine the impact of worry on academic performance. Another objective was to examine age and gender differences in worry. A sample of 366 undergraduate students was selected from United Arab Emirates university. One hundred thirty-eight (37.7%) of the participants were male and 228 (62.3%) were female ranging in age from 18 to 30 years (mean age = 21.28 years, SD = 1.66).The Anxious Thoughts Inventory- 22 items was used to measures worry. This inventory gauges three types of worry: social worry, health worry, and meta-worry. The Grade Point Average (GPA) was used to measure academic performance. The results showed gender differences in social worry but not in health or meta-worries.No significant differences were found in academic performance in relation to age. Students who reported elevated levels of health worry and social worry (type 1 worry) had higher academic performance. Results were discussed in light of relevant literature and previous findings.

Keywords: Worry, Anxiety, Academic Performance, Gender, Age

1. Introduction

Excessive worry, focused on multiple everyday events, is a basic cognitive characteristic of generalized anxiety disorder (American Psychiatric Association, 2013; Grol, et al., 2018. The other basic characteristic of anxiety is emotionality which denotes increased physiological arousal and symptoms as well as affective reactions (Bonaccio, Reeve, & Winford, 2012; Brodish & Devine, 2009).Worryrefers to a string of repetitive negatively affect-laden images and thoughts that are difficult to control (Thompson, Webber, & Montgomery, 2002; Barahmand, 2008).Worry represents an effort to engage in mental problem solving of a problem whose consequences are vague or uncertain (Grol, et al., 2018).It usually involves conscious expectation of possible negative outcomes or fear of failure (Williams, 1996; Barahmand, 2008).

Wells identified two types of worry; type 1 and type 2 (Wells, 2010; Bahrami&Yousefi, 2010). Type 1 worry refers to concern or worry about physical health and social worry and it is related to positive metacognitive beliefs. The concern in worry may be related to performance in academic or other settings (Rana & Mahmood, 2010). This type of worry is not enough to result in generalized anxiety disorder. Type 1 is a type of coping efforts related to constructive metacognitive beliefs such as 'If I worry about harm in the future I'll be able to avoid it' (Well, 2010, p. 134). Type 2 worry is known as meta-worry which refers to worry about worry. This type of worry is represented by negative interpretation or appraisal of worry (Bahrami&Yousefi, 2010). These negative appraisals weaken the individual's sense of security that was previously provided by constructive beliefs about worry, thus, may result in anxiety. An example of negative metacognitions is "Worrying will make me lose my mind" (Wells, 2010, p 135)

A part from being a disorder, anxiety is an integral element of motivation and is important for appropriate regulation and planning of behavior (Luu, Tucker, &Derryberry, 1998). About 25-30% of college and high school students are affected by anxiety related to academic performance and other academic worries (Wolitzky-Taylor &Telch, 2010).Anxiety significantly influences both learning and academic achievement.

---
[1] Psychology Program, United Arab Emirates University, Al Ain, PO Box 15551, United Arab Emirates
Email: ahamid@uaeu.ac.ae Phone: +971507131823

It leads students to display negative attitudes toward their studies reflected in poor academic performance, bad assignments, lack of interest in learning, decreased ability to reason, poor working memory and increased distraction (Vitasari, Abdul-Wahab, Othman, Herawan&Sinnadurai, 2010). However, anxiety is believed to have both positive and negative impacts on academic performance (Vitasari, et al., 2010).

The bulk of research has shown that academic performance decreases as anxiety rises (Mihailescu, Diaconescu, Donisan, &Ciobanu, 2016). For example, Dawood, Al Ghadeer, Mitsu, Almutary, and Alenezi (2016) found that anxiety was associated with poor academic performance in undergraduate nursing students. Likewise, Weda and Sakti (2018) reported that heightened study anxiety was associated with decreased academic performance among engineering students.However, moderate level of anxiety is beneficial and of motivational power. If there is no anxiety many individuals will not be motivated to perform or to act. Hence, moderate level of anxiety is crucial to inspire students to prepare for exams and obtain high grades. However, elevated anxiety may limit concentration and negatively affects recall of information (Shakir, 2014).

Like anxiety worry impairs working memory and cognitive control (Hallion, Kusmierski, & Caulfield, 2020),distracts attention and, consequently, weakens performance in testing situations (Brodish & Devine, 2009). It decreases the capacity of the working memory and, consequently, reduces the ability to solve problems and the ability to perform (Trezise& Reeve, 2014).However, the metacognitive model of worry proposes that worry is not destructive by itself. Worry is only harmful if metacognitive beliefs are high (Bailey & Wells, 2015; Ryum, et al. (2017). Additionally, worrying reflects that the person "cares" (Erickson, et al., 2016). It represents a cognitive response concern towards challenging and testing situations (Brodish & Devine, 2009). Therefore, worry may betypically related more strongly to test performance than did emotionality.

Being an element of anxiety, worry also has a positive effect on performance known as motivational effect which inspires the individual to exert more efforts to increase performance efficacy. (Trezise& Reeve, 2014). Moderate worry is necessary to create challenge and motivationin academic settings. Getting ready for exams require a sense of responsibility which may induce feelings of threat, worry, and the need to study(Erickson, et al., 2016). Research findings associating worry with poor performance are mixed (Hallion, et al., 2020). For example, Perkins and Corr (2015) found that worrying and performance are significantly positively related. On the other hand, Thompson et. (2002) and Bonaccio, et al. (2012) reported that worry negatively related to performance.

Shakir (2014) studied the relationship between academic anxiety and academic achievements in 352 senior secondary school students. The results showed that academic achievement was negatively related to academic anxiety. Moreover, Moreover, Bonaccio, et al. (2012) reported a meta-analysis study which indicated that test anxiety is related to decreased performance on problem-solving, memory, intelligence, and aptitude tests.

Some researchersreported higher levels of worry among women while othersreported no differences in worry between men and women. For example, Williams (1996) reported that women showed more heightened levels of worry compared to men, while Rana and Mahmood (2010) found no significant gender difference in the worry aspect of test anxiety scale. Regarding age, lower levels of worry were reported among older participants (Barahmand, 2008),particularly social worry (Hamid, 2017). High academic achiever was also found to be associated with moderate levels of test anxiety (Williams, 1996).

Research addressing the relationship between worry and academic performance is scarce. As reflected in literature, most studies focused on the impact of anxiety and test anxiety on academic performance. However, anxiety has two main components; emotionality and worry. As worry represents an effort to engage in mental problem solving Grol, et al., 2018), it may be more related to academic performance. According to Wells (2010), Type 1 worry refers to concern or worry about physical health and social worry and it is related to positive and constructive metacognitive beliefs. It is also argued that the concern in worry may be related to performance in academic or other settings (Rana & Mahmood, 2010). Hence health worry and social worry may be more strongly related to academic performance than does meta-worry which involves negative appraisal of worry.The primary objective of the present study was to examine the impact of worry on academic performance. Another objective was to examine age and gender differences in worry. Based on the above reviewed literature, we hypothesized that (1) female participantwill report higher levels of health worry, social, worry, andmeta-worry than male participants.; (2) Age will be negatively correlated with health worry, social worry, and meta-worry; and (3) Worry, especially health worry and social worry, will be positively associated with academic performance.

2. Method

2.1. Participants

A sample of 366 undergraduate students was recruited from United Arab Emirates university using convenient sampling method. One hundred thirty-eight (37.7%) of the participants were male and 228 (62.3%) were female,ranging in age from 18 to 30 years (mean age = 21.28 years, SD = 1.66).Of these participants, 77.2% were Emirati and 22.7% were non-Emirati. The vast majority of the participant (89 %) were single, while 11 % were married. Their GPA range between 1.50 and 4.0.

2.2.Instrument

The Anxious Thoughts Inventory (Wells, 1994) was used to measures worry. The inventory comprised 22 items rated on a 4-point scale ranging from 1 (almost never) to 4 (almost always). The Anxious Thoughts Inventorygauges three types of worry: social worry, health worry, and meta-worry. The Anxious Thoughts Inventory was used in a previous study in UAE and was found to be highly reliable (.89) (Hamid, 2017).In the present study, the inventory was subjected to factor analysis to extract the factors. The three original dimensions or factors of worry were replicated.Cronbach's alpha coefficients for the total worry was .89. Cronbach's alpha coefficients for social worry, health worry, and meta-worry were .83, .71, and 74, respectively.

2.3. Procedures

Upon obtaining the ethical approval, participants were approached and requested to take part in the study. The objectives and importance of the research were explained to them. The participants were asked to respond to the demographic information and all questions. They were asked to signed a consent form and were told that participation in the study was optional and that they would be free to withdraw from the study at any time without any liabilities on their part. They received no compensations for taking part in the study.

2.4. Data Analysis

In order to fulfill the objectives of the study and address the impact of worry on student performance as measured by their overall GPA, and obtain statistically significant differences based on the demographic variables, the following tests were performed:

Pearson correlation analysis was conductedto test the relationship between age and health worry, social worry and meta-worry.

Independent t-test was also employed to test for any statistically significant differences in worry between participants based on their gender

One-way ANOVA test with LSD post hoc test were performed to examine differences in health worry social worry, and meta-worry in relation to GPA.

3. Results

Pearson correlation analysis results showed that age was negatively related to social worry (r= .12, p< .05). older participants reported lower levels of social worry. No significant differences were found in health worry or meta-worry.

T-tests resultsrevealed significant gender differences social worry. No differences were evident in health worry and meta-worry. Women reported more social worry compared to men (see Table 1). Cohen's d values were calculated and given in Table 1. These values are small.

Table 21 T-test results of gender differences in social worry, health worry and meta-worry

Variable	Male		Female		t	df	p	Cohen's d
	M	SD	M	SD				
Social Worry	15.544	4.524	17.320	5.070	-3.381	364	.001	0.370
Meta-Worry	13.073	3.534	13.434	3.654	-.929	364	.353	0.100
Health Worry	9.964	2.963	10.298	3.127	-1.011	364	.313	0.110

Prior to performing one-way ANOVA test, students'GPA was divided into three categories or groups (GPA< 2.49, GPA 2.50-2.99 & GPA 3.00-4.00) to enable the researchers compare the levels of worry among high academic achiever, moderate achiever and low achievers. The results revealedsignificant differencesin health worry and social worry between the three categories of academic achievement(see Table 2). LSD post hoc analyses indicated significant difference (MD) in health worry between low achievers andmoderate achievers and between low achievers and high achievers(MD= -.92, p<.05; MD= -1.46, p<.001, respectively). Those with GPA 2.49 or lower reported less health worry compared to students whose GPA was 2.50 and higher.

LSD post hoc analyses also revealed significant difference in social worry between low academic achievers and moderate achievers, and between low achievers and high achievers, and between moderate achievers and high achievers (; MD= -2.457, p<.001; MD= -3.79, p<.001; MD= -1.33, p<.05, respectively). Students with GPA 3.0 or higher reported more social worry than students whose GHA was less 2.49 or less and those whose GPA was 2.5-2.99.

Table 2. Mean, Standard Deviation, and One-Way ANOVA Statistics for Health Worry, Social Worry, and Meta-Worry across the Three Groups of High Achiever, Moderate Achievers and Low Achievers

Variable	GPA< .2.49		GPA 2.5-2.99		GPA 3.0-4.0		F	df	p	$\eta2$
	M	SD	M	SD	M	SD				
Health Worry	9.354	3.066	10.277	3.053	10.813	2.937	7.01	2, 365	.001	.086
Social Worry	14.504	4.178	16.964	4.671	18.293	5.183	19.51	2, 365	.000	.144
Meta-Worry	12.726	3.541	13.815	3.932	13.276	3.245	2.79	2, 365	.063	.048

4. Discussion

The main objective of this study was to examine the impact of worry on academic performance.

The vast majority of previous studies focused on the relationship between anxiety and academic performance. The present study is one of a few studies that tried to focus on the worry aspect of anxiety and its relationship with academic performance. It particularly focused on type 1 and type 2 worries.

The first hypothesis stated that female participants will report higher levels of health worry, social worry, and meta-worry than male participants. The results partially supported this hypothesis. Gender differences were evident in social worry but not in health worry and meta-worry. The positive association between gender and social worry in the present study concurs with the finding of Robichaud, Dugas & Conway (2003) which showed thatwomen reported higher levels of worry compared to men. However, this result is not consistent with the findings that revealed no significant sex differences in worry (i.e. Rana & Mahmood; 2010; Lenzoa, Toffleb, Tripodia&Quattropani, 2016). This shows that sex differences in worry are not as consistent as sex differences in anxiety.However, it should be noted that the previous studies cited above did not differentiate between health worry, social worry, and meta-worry.

It is well established that anxiety is more prevalent among women compared to men (Altemus, 2006; Jalnapurkar, Allen & Pigott, 2018). However, worry is only one of the two core characteristics of anxiety, besides emotionality. Hence, the nature of the relationship between worry and gender may not be similar to that of anxiety.

The second hypothesisposited that age will be negatively related to health worry, social worry, and meta-worry. The findings of the current study partially supported this hypothesis as older students reported decreased levels of social anxiety only. The result failed to detect any significant gender differences in health worry and meta-worry. This result is consistent with the findings of Hamid (2017) where age was found to be negatively associated with social worry but not with health worry or meta-worry. Barahmand (2008) also reported negative association between worry and age. The negative association between social worry and age could mean that as individuals get old, their sense of social worry decreases.

The third hypothesis postulated that social worry and health worry will be positively associated with academic performance. The results revealed significant differences in academic performance in relation to health worry and social worry. Higher academic performance was associated with higher levels of these worries. Thus, the hypothesis is supported. The findings of the present study are in congruence with Perkins and Corr's (2015) findings thatrevealed significant positive relationship between worryand academic performance. However, the results are not in line with the findings reported by Thompson et. (2002) and Bonaccio, et al. (2012) where worry negatively related to performance.

Worry represents an effort to engage in mental problem solving (Grol, et al., 2018). Hence, it may be used by students as a coping strategy to deal with demands posed on them by exams. Further, as worry denotes a cognitive response involving concern towards testing and challenging conditions (Brodish & Devine, 2009, this concern may be related to performance in academic or other settings (Rana & Mahmood, 2010). Additionally, worry also has a positive motivational effect on performance. It inspires the individual to exert more efforts to increase performance and its effectiveness. (Trezise& Reeve, 2014). Another possible explanation is that high academic achievers usually set higher academic standards. Thus, they are likely to be more concerned with their academic attainment compared to low achievers Williams (1996). Moderate level of worry is essential to generate challenge and inspiration in academic settings.

Getting ready for exams require a sense of responsibility which may induce feelings of concern or worry and the need to study (Erickson, et al., 2016). Thus, those who concern about their academic performance may exert more efforts to obtain higher grades. In addition, health worry and social worry represent type 1 worry which involves positive beliefs. Hence, students with this type of worry may believe that they will be able to deal with exam stress and achieve highly.

5. Conclusion

Worry may be a desirable factor in academic life that motivates students to study harder to meet the demands of study and get ready for their exams. Hence, it may be more positively related to academic performance than test anxiety or anxiety in general. Social worry and health worry seem to bemore positively related to academic performance than does meta-worry. More studies are needed to investigate the nature of the relationship between worry academicperformance.Particularly researchers need to know why social worry and health worry are more associated with improved academic performance than meta-worry. The present study may help academicians, researchers and educators to have better understanding of the role of worry in academic performance.

6. Limitations

This study does not inform causality because of cross sectional nature of its design. It is not clear if being a worrier predisposes a person to be high achiever or being a high achiever makes someone worry prone. A longitudinal design may help eliminating this limitation. As many studies, including the present one, suggest that women tend to worry more than men, more advanced statistical analysis may be used to control for the effect of gender in the relationship between academic performance and worry. This may extend to addressing the effect of age as well.

References

Altemus, M. (2006). Sex differences in depression and anxiety disorders: Potential biological determinants.*Hormones and Behavior*, 50, 534-538. https://doi.org/10.1016/j.yhbeh.2006.06.031

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*(5thed.). Arlington, VA: Author.

Bahrami, F., &Yousefi, N. (2010). Females Are More Anxious Than Males: A Metacognitive Perspective. *Iran J Psychiatry Behav Sci*, 5, 83-90.

Bailey, R., & Wells, A. (2015). Metacognitive beliefs moderate the relationship between catastrophic misinterpretation and health anxiety. J. Anxiety Disorders. 34, 8-14. https://doi.org/10.1016/j.janxdis.2015.05.005

Barahmand, U. (2008). Age and gender differences in adolescent worry. *Personality and Individual Differences*, 45, 778-783. https://doi.org/10.1016/j.paid.2008.08.006

Bonaccio, S., Reeve, C. L., & Winford, E. C. (2012). Text anxiety on cognitive ability test canresult in differential predictive validity of academic performance. Personality and Individual Differences, 52, 497-502. https://doi.org/10.1016/j.paid.2011.11.015

Brodish, A. B., & Devine, P. G. (2009). The role of performance–avoidance goals and worry inmediating the relationship between stereotype threat and performance. Journal of Experimental Social Psychology 45 (2009) 180-185. https://doi.org/10.1016/j.jesp.2008.08.005

Dawood, E., Al Ghadeer, H., Mitsu, R., Almutary, N., &Alenezi, B. (2016). Relationship between Test Anxiety and Academic Achievement among Undergraduate *Nursing Students. Journal of Education and Practice*, 7, 2, 2016. ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)

Erickson, T. M., Newman, M. G., Siebert, E. C., Carlile, J. A., Scarsella, G. M., &Abelson, J. L. (2014). Does Worrying Mean Caring Too Much? Interpersonal Prototypicality of Dimensional Worry Controlling for Social Anxiety and Depressive Symptoms. *Behavior Therapy*, 47, 14-28. DOI: 10.1016/j.beth.2015.08.003

Grol, M., Schwenzfeier, A. K., Stricker, J., Booth, C., Temple-McCune, A., Derakshan, N., Hirsch, C., Becker, E., & Fox, E. (2018). The worrying mind in control: An investigation of adaptive working memory training and cognitive bias modification in worry-prone individuals. *Behaviour Research and Therapy*, 103, 1-11. DOI: 10.1016/j.brat.2018.01.005

Hamid, A. A. M. (2017). The Relationship between Compulsions, Worry, and AcademicPerformance among United Arab Emirates University Students. *Horizons in Humanities and Social Sciences: An International Refereed Journal*, 2, 69-80. DOI: 10.19089/hhss.v2i2.63

Hallion, L. S., Kusmierski, S. N., & Caulfield, M. K. (2020). Worry alters speed-accuracy tradeoffs but does not impair sustained attention. *Behaviour Research and Therapy*, 128   (2020) 103597. DOI: 10.1016/j.brat.2020.103597

Jalnapurkar, I., Allen, M., & Pigott, T. (2018). Sex Differences in Anxiety Disorders: A Review.*J Psychiatry Depress Anxiety* 4: 012. DOI: 10.24966/PDA-0150/100012

Lenzoa, V., Toffleb, M. E., Tripodia, F., &Quattropani, M. C (2016). Gender Differences in Anxiety, Depression And Metacognition. CPSYC 2016: 4th International Congress on   Clinical and Counselling Psychology. http://dx.doi.org/10.15405/epsbs.2016.05.02.1

Luu, P., Tucker, D. M., &Derryberry, D. (1998). Anxiety and the motivational basis of working memory. *Cognitive Therapy and Research*, 22, 577-594. https://doi.org/10.1023/A:1018742120255

Mihailescu, A. I., U., Diaconescu, L. V., Donisan., T., &Ciobanu., A. M. (2016). The impact of anxiety and depression on academic performance in undergraduate medical students.   *European Psychiatry*, 4, 27-40. March 2016.DOI: 10.1016/j.eurpsy.2016.01.761

Perkins, A. M., &Corr P. J. (2015). Can worriers be winners? The association betweenworrying and job performance. *Personality and Individual Differences*, 38, 25-31. doi:10.1016/j.paid.2004.03.008

Rana, R. A., & Mahmood, N. (2010). The Relationship between Test Anxiety and Academic Achievement. *Bulletin of Education and Research*, 32, 63-74.

Robichaud, M., Dugas, M. J., &Conway, M. (2003). Gender Differences in Worry and Associated Cognitive-Behavioral Variables. J Anxiety Disord. 17, 501-   516. https://doi.org/10.1016/S0887-6185(02)00237-2

Ryum, T., Kennair, L. E. O, Hjemdal, O., Hagen, R., Halvorsen, J. O., &Solem, S. (2017).   Worry   and Metacognitions as Predictors of Anxiety Symptoms: A Prospective Study.   *Front. Psychol.*, 8:924. doi: 10.3389/fpsyg.2017.00924

Shakir, M. (2014). Academic Anxiety as a Correlate of Academic Achievement. *Journal of Education and Practice*, 5, 29-36.ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)

Thompson, T. Webber, K., & Montgomery, I. (2002). Performance and persistence of worriers   and   non-worriers following success and failure feedback. *Personality and Individual Differences*, 33, 837-848. https://doi.org/10.1016/S0191-8869(01)00076-9

Trezise, K., & Reeve, R. A. (2014). Working memory, worry, and algebraic ability. *Journal of   Experimental   Child Psychology*, 121, 120-136. DOI: 10.1016/j.jecp.2013.12.001

Vitasari, P., Abdul-Wahab, M. N., Othman, A., Herawan, T., &Sinnadurai, S. K. (2010). The Relationship between Study Anxiety and Academic Performance among Engineering   Students. *Procedia Social and Behavioral Sciences*, 8, 490-497.   https://doi.org/10.1016/j.sbspro.2010.12.067

Weda, S., & Sakti, A. E. F. (2018). The relationship between study anxiety and academic performance among English students. XLinguae, 11, 718-727. DOI: 10.18355/XL.2018.11.02.56

Wells, A. (1994). A multi-dimensional measure of worry: Development and preliminary validation of the anxious thought inventory. Anxiety, Stress, and Coping, 6, 289-299.

Wells, A. (2010). Metacognitive Theory and Therapy for Worry and Generalized AnxietyDisorder: Review and Status. *Journal of Experimental Psychopathology*, 1, 133-145.   DOI:10.5127/jep.007910

Williams., J. E. (1996). Gender-related Worry and Emotionality Test Anxiety for High-achieving   Students. *Psychology in /he Schools ,*33, 159-162.https://doi.org/10.1002/(SICI)1520-   6807(199604)33:2<159::AID-PITS9>3.0.CO;2-M

Wolitzky-Taylor, K. B. &Telch, M. J. (2010). Efficacy of self-administered treatments for pathological academic worry: A   randomized   controlled   trial. *Behaviour   Research   and   Therapy*, 48, 840-850. doi:10.1016/j.brat.2010.03.019