

Title: Anxiety and the effects of sleep and exercise.

Abstract:

Two questionnaires were given out to 48 participants, the first questionnaire was a Self-Efficacy for Exercise scale (Resnick, B., & Jenkins, L. S. 2000). The second questionnaire used was a Hamilton anxiety scale (Hamilton, M, 1959.) It is predicted that high levels of exercise and sleep will have lower levels of anxiety felt. The results were collaborated by using a 2 x 2 anova mixed subjects test for spss analysis for scores to be concluded. Studies show that people who exercise regularly, rarely suffer from anxiety, whereas individuals who do not exercise regularly increase their risk of some form of anxiety. The economic burden of anxiety disorders was estimated to cost over £42.3 billion pounds in the 1990's (Greenburg et al, 1999.) There have been several different studies carried out that have proven that exercise improves an individual's sense of well-being. (DHHS, 2002.)

Introduction:

Studies show that individuals who sleep less than seven hours a night may experience anxiety. Whereas people who sleep more than eight hours a day are less likely to suffer from some form of anxiety. The NHS (2010) states that chronic sleep deprivation can cause long-term mood disorders including anxiety. Vollert et al, have stated during their research on sleep deprivation in rats that deprivation of sleep has been reported to be antigenic, due to the cause of oxidative damage in the brain. Even though this research is based on rats and not humans, this may also be suggested to be applicable to human brains. Given this information it can be proposed that sleep will affect an individual's overall anxiety levels. Studies show that people who exercise regularly, have a healthy lifestyle and diet, rarely suffer from anxiety, whereas individuals who do not exercise regularly actually increase their risk of experiencing from some form of anxiety. The economic burden of anxiety disorders is estimated to cost over £42.3 billion pounds in the 1990's (Greenburg et al, 1999.) There have been a number of different studies carried out that have shown that exercise actually improves an individual's self-esteem levels and sense of well-being. (DHHS, 2002.) Van Minnen et al (2010) has found in their studies that adults who exercise on a regular basis experience lower levels of anxiety. This supports the notion that exercise creates a protective effect against the development of mental disorders. Anxiety is described as a form of stress on an individual that creates an

individual to feel physical effects within their body. This can be perceived as a cause of an individual suffering from mental health issues due to high levels of anxiety. Anxiety can also cause anxiety attacks, palpitations and even compulsive disorders. The NHS states that chronic sleep deprivation can cause long-term mood disorders including anxiety. Given this information it can be said that sleep will affect an individual's anxiety levels, and this could also affect their energy levels for exercise. Samuels, (2008) and Venter, (2014) both state that for athletes sleep is named as a highly valued commodity to enable recovery. It has been noted that sleep restriction may cause negative effects towards training performance (Lastella, Lovell, & Sargent, 2014; Sargent et al., 2014). Anxiety levels can cause a detrimental effect on an individual's mood as well as their sleep pattern. It is predicted that that high levels of exercise will have lower anxiety levels, compared to those who have low levels of exercise, these individuals will suffer from higher levels of anxiety. It is also predicted that those with high levels of sleep, will suffer from lower levels of anxiety and vice versa for those with low levels of sleep they will suffer from higher levels of anxiety. This survey will be a mixed, 2x2 anova test for spss analysis for scores to be concluded.

Rationale:

A survey was carried out to detect whether individuals who sleep less than seven hours per night and also do not exercise regularly have increased anxiety levels. To be able to collate the correct data for analysis this study was carried out on individuals to determine their perceived anxiety and exercise levels and whether these were contributory factors towards anxiety levels for the participants. There have been a number of different studies carried out that have shown that exercise actually improves an individual's self-esteem levels and sense of well-being. (DHHS, 2002.) Van Minnen et al (2010) has found in their studies that people who exercise regularly, have a healthy lifestyle and diet, rarely suffer from anxiety, whereas individuals who do not exercise regularly actually increase their risk of experiencing from some form of anxiety. This previous information suggests that exercise and sleep are contributory factors towards anxiety, therefore individuals should participate regularly with exercise and ensure healthy levels of sleep to help combat

their anxiety levels. The lack of physical exercise has been an increasing concern raised by many professionals as this can contribute towards obesity, (WHO, 2004.) Whilst there have been many studies carried out on the benefits of physical activity, it is still alarming that approximately 23%-34% of the population of males and 35%-53% of females within the population (aged between 11-15 years) are not meeting the guidelines of recommended exercise which is 60 minutes per day. The National Sleep Foundation states that adults need between 7-8 hours of sleep per night to ensure that good health is maintained. Even so, data shows that a high majority of individuals do not get a sufficient amount of sleep. Applicable to these findings, chronic deprivation of sleep is described to promote pathological anxiety within individuals (Telama, et al, 2005.) It is reported that 70% of individuals affected by anxiety disorders are also deprived of sleep.

Aims:

The aim of this study is to test whether sleep and exercise could affect individuals with their amount of anxiety. This research will help to confirm previous findings and the importance of sleep and exercise for those who deal with anxiety related issues.

Hypothesis 1=

People who do not exercise will have higher anxiety levels than those who do exercise.

Hypothesis 2

People who sleep less than eight hours will have higher anxiety levels than those who sleep more than 8hrs a day.

Interaction

High levels of exercise with high levels of sleep will have lower anxiety levels.

Methodology:

Design:

Two questionnaires were given out to 48 participants, the first questionnaire was a Self-Efficacy for Exercise scale (Resnick, B., & Jenkins, L. S. 2000). (See appendices 2) The second questionnaire is a Hamilton anxiety scale (Hamilton, M,

1959.). Consent was obtained by each individual before they completed the relevant questionnaires. The right to withdraw was accepted for each participant during or after the results were collected. A written debrief was offered to each participant once they had completed the questionnaires. All data was collated and analysed using SPSS. Results were split in to, two categories low and high for the correct analysis to be performed. This is a related study as participants took part in all parts and answered both questionnaires.

Participants:

48 Participants were asked to fill in two separate questionnaires (see appendices 3 & 4 for relevant questionnaires.) Twenty-four of the participants were fellow students of the principle researcher, whom are studying applied psychology at UWTSD, Carmarthen University. The remaining twenty-four participants were family members and friends of the principle researcher. Consent was gained by the principle researcher for each participant, before questionnaires were given out to be answered. There were 15 male and 33 females who participated. Their ages ranged from 18 - 40 yrs.

Materials:

2 separate questionnaires were used the first questionnaire was called The Hamilton Anxiety rating scale was used due to its proven reliability of scores gained from previous researchers (see appendices 3 for information). The second questionnaire (see appendices 4 for information) given out to participants was a Self-Efficacy for Exercise (SEE) Scale, this was used due to its simplistic approach to see whether participants engaged, in any form of physical activity recently, and what were the reasons. No sleep scale was used, but a question on whether an individual slept on average, less than five hours per night or more than five hours per night was asked, as well their age range and gender. (See appendix 2). Half of the participants were chosen as they were fellow students also studying Level 5 Applied Psychology at UWTSD. The second half were chosen randomly as they were all previously known privately to the primary researcher.

Procedure:

See appendices 1.

Results:

Table one- this table shows the mean and std deviation for the two hypotheses (1st) low sleep and low exercise and then (2nd) low sleep and high exercise. *A two-way ANOVA was carried out to evaluate the reliability of the hypothesis and showed the following results: A significant main effect for sleep and exercise. Sleep – $F(600) = 1.534, p=0.00$. Exercise – $F(63.5) = 1.534, p=0.00$. A significant main effect for high exercise and high sleep.*

condition	mean	Std. Deviation
Low sleep, low exercise	7.92	4.85
Low sleep, high exercise	3.42	1.08
High sleep, low exercise	28.9	6.65

Table 2 shows the means and standard deviations for the interaction effect, (high sleep, high exercise as well as the high sleep and low exercise. *Sleep, exercise – $F(6.72) = 118.5, p=0.000$*

Condition	mean	Std. Deviation
High sleep, high exercise	58.0	6.72
Total - low	18.4	12.1
Total - high	30.7	28.3

These results agree with previous research that shows, individuals that have low sleep levels and low exercise levels, are more prone to experience higher levels of anxiety, compared to those who experience high levels of sleep and high levels of exercise.

Discussion:

The aim of this survey was to examine whether exercise and sleep influenced an individual's levels of anxiety. Previous research on the effects of sleep and exercise on an individual's anxiety levels has shown significant importance in mental health and well-being awareness. During the 1990' it was estimated that anxiety disorders costed the economy over £42.3 billion pounds (Greenburg et al, 1999.) Whilst this

research supported both hypotheses and the interaction there were limitations within this study. This survey was on a tight time limit due to, the need for the results to be returned and collaborated, in a short time period for submission. If more time had been allocated, the primary researcher could have ensured, a broader level of participants to be involved. This research did not consider any external social factors that any of the participants may have been dealing with at the time of the survey. Van Minnen et al have stated that diet also has an effect towards individual's mental health, this was not considered by the primary researcher, thus could have affected the results obtained. There were more women who participated within the survey, this could have also affected the end results. Even so, this research has confirmed previous findings towards the importance of sleep and exercise for those who deal with anxiety related issues. Future research is needed to create longitudinal studies towards the effects of exercise and sleep on anxiety disorders. Research similarly based on combatting the effects of anxiety disorders within an individual will enable the NHS to cut the overall cost of the economic burden

References:

DHHS, 2002.

Greenburg et al, 1999.

Hamilton, M, 1959.

<https://www.nhs.uk/live-well/sleep-and-tiredness/why-lack-of-sleep-is-bad-for-your-health/> Sleep boosts mental wellbeing.

Resnick, B., & Jenkins, L. S. (2000). Testing the Reliability and Validity of the Self-Efficacy for Exercise Scale. *Nursing Research*, 49.

Lastella, Lovell, & Sargent, 2014; Sargent et al., 2014)

NHS Information Centre. *Health Survey for England 2010*; Health and Social Care Information Centre: London, UK, 2011.

Streeter CC, Whitfield TH, Owen L et al. Effects of yoga versus walking on mood, anxiety, and brain GABA levels: a randomized controlled MRS study. *J. Altern. Complement. Med.* 16(11), 1145–1152 (2010).

Samuels, (2008)

Telama, r.; Yang, X.; Vikari, J.; VALMAKKI, I.; Wanne, O.; Raitakari, O. Physical activity from childhood to adulthood: A 21-year tracking and study. *Amer, J. Prev. Med.* 2005, 14, 49-55.

Venter, (2014

Vollert, Zagaar, Hovatta, Taneja, Vu, Dao, . . . Salim. (2011). Exercise prevents sleep deprivation-associated anxiety-like behaviour in rats: Potential role of oxidative stress mechanisms. *Behavioural Brain Research*, 224(2), 233-240.

WHO. *Young People: Need to Move for Health and Well-being*; World Health Organisation: Geneva, Switzerland, 2004.

Appendix 1:

Procedure:

The survey was carried out discretely with all participants being given the questionnaires at individual times and allowed to take them home to do at their leisure, so the participants did not feel any peer pressure to answer questions in any way that did not apply to themselves individually. Consent was gained by each participant before hand and a written de-brief was also given with each questionnaire. The self-efficacy questionnaire has nine questions with a rating scale. The rating scale or total score range is rated between 0-10. The scores were split into two groups, the first group was a low group with the scores 0-4, they were defined as the participants not being very confident in their ability to exercise for twenty minutes three times per week. The second group was a high group with the participants whose scores were between 5-10, these were defined as the group whom, are very confident that they were able to exercise three times per week for twenty minutes per session. The Hamilton Anxiety Rating Scale (HAM-A) is a widely used and well-validated tool for measuring the severity of a person's anxiety levels. This questionnaire has 14 questions and took around 15 minutes to complete for each participant. There was no sleep scale offered to participants due to the NHS, (2014) stating that adults need between 6-9 hours' sleep per night for them to be able to function correctly. There were 15 male and 33 females who participated. Their ages ranged from 18 - 40 yrs. All data was collated and analysed using SPSS. Results were split in to, two categories low and high for the correct analysis to be performed. This survey was a related study as participants took part in all parts and answered both. Questionnaires. There were time limits regarding this study/survey due to the deadline or need of information/scores to be collated ready for submission.

Appendix 2:

Please circle the answer that relates to yourself

Male

Female

Age group 18-29 30- 40 40+

On average how much sleep do you get per night?

Under 5 hours

Over 5 hours

Appendix 3:

Self-Efficacy for Exercise (SEE) Scale

About: This scale is a self-report of exercise self-efficacy.

Items: 9

Reliability: Internal consistency = 0.92.

Validity: Mental and physical health scores on the SF-12

Predicted efficacy expectations as measured by the SEE Scale.

Furthermore, SEE efficacy expectations predicted exercise.

Scoring:

Total score is calculated by summing the responses to each question. This scale has a range of total scores from 0-90. A higher score indicates higher self-efficacy for exercise.

References:

Resnick, B., & Jenkins, L. S. (2000). [Testing the Reliability and Validity of the Self-Efficacy for Exercise Scale](#). *Nursing Research*, 49.

Appendix 3 cont:

Self-efficacy For Exercise (SEE) Scale

How confident are you right now that you could exercise three times, per week for 20 minutes if:

	Not Confident							Very Confident			
1. The weather was bothering you	0	1	2	3	4	5	6	7	8	9	10
2. You were bored by the program or activity	0	1	2	3	4	5	6	7	8	9	10
3. You felt pain when exercising	0	1	2	3	4	5	6	7	8	9	10
4. You had to exercise alone	0	1	2	3	4	5	6	7	8	9	10
5. You did not enjoy it	0	1	2	3	4	5	6	7	8	9	10
6. You were too busy with other activities	0	1	2	3	4	5	6	7	8	9	10
7. You felt tired	0	1	2	3	4	5	6	7	8	9	10
8. You felt stressed	0	1	2	3	4	5	6	7	8	9	10
9. You felt depressed	0	1	2	3	4	5	6	7	8	9	10

HAMILTON ANXIETY RATING SCALE (HAM-A)



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Appendix 4 cont:

HAMILTON ANXIETY RATING SCALE (HAM-A)

Instructions for the Clinician:

The Hamilton Anxiety Rating Scale (HAM-A) is a widely used and well-validated tool for measuring the severity of a patient's anxiety. It should be administered by an experienced clinician.

The HAM-A probes 14 parameters and takes 15-20 minutes to complete the interview and score the results. Each item is scored on a 5-point scale, ranging from 0=not present to 4=severe.

The major value of HAM-A is to assess the patient's response to a course of treatment, rather than as a diagnostic or screening tool. By administering the scale serially, a clinician can document the results of drug treatment or psychotherapy.

Developed in 1959 by Dr. M. Hamilton, the scale has proven useful not only in following individual patients but also in research involving many patients. HAM-A Scoring Instructions:

Sum the scores from all 14 parameters.

14-17 = Mild Anxiety

18-24 = Moderate Anxiety

25-30 = Severe Anxiety

Appendix 5:

SPSS analysis

Univariate Analysis of Variance Between-Subjects Factors

		Value Label	N
sleep	1.00	low	24
	2.00	high	24
exercise	1.00	low	24
	2.00	high	24

Descriptive Statistics

Dependent Variable: anxiety

sleep	exercise	Mean	Std. Deviation	N
low	low	7.9167	4.85159	12
	high	3.4167	1.08362	12
	Total	5.6667	4.13539	24
high	low	28.9167	6.65321	12
	high	58.0000	6.72850	12
	Total	43.4583	16.23196	24
Total	low	18.4167	12.14376	24
	high	30.7083	28.27425	24
	Total	24.5625	22.40432	48

Tests of Between-Subjects Effects

Dependent Variable: anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	22335.062 ^a	3	7445.021	260.657	.000
Intercept	28959.187	1	28959.187	1013.888	.000
sleep	17138.521	1	17138.521	600.036	.000
exercise	1813.021	1	1813.021	63.476	.000
sleep * exercise	3383.521	1	3383.521	118.460	.000
Error	1256.750	44	28.563		
Total	52551.000	48			
Corrected Total	23591.812	47			

a. R Squared = .947 (Adjusted R Squared = .943)

Estimated Marginal Means

1. sleep

Estimates

Dependent Variable: anxiety

sleep	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
low	5.667	1.091	3.468	7.865
high	43.458	1.091	41.260	45.657

Pairwise Comparisons

Dependent Variable: anxiety

(I) sleep	(J) sleep	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
low	high	-37.792*	1.543	.000	-40.901	-34.682
high	low	37.792*	1.543	.000	34.682	40.901

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	17138.521	1	17138.521	600.036	.000
Error	1256.750	44	28.563		

The F tests the effect of sleep. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

2. exercise

Estimates

Dependent Variable: anxiety

exercise	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
low	18.417	1.091	16.218	20.615
high	30.708	1.091	28.510	32.907

Pairwise Comparisons

Dependent Variable: anxiety

(I) exercise	(J) exercise	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound

low	high	-12.292*	1.543	.000	-15.401	-9.182
high	low	12.292*	1.543	.000	9.182	15.401

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: anxiety

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	1813.021	1	1813.021	63.476	.000
Error	1256.750	44	28.563		

The F tests the effect of exercise. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

3. sleep * exercise

Dependent Variable: anxiety

sleep	exercise	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
low	low	7.917	1.543	4.807	11.026
	high	3.417	1.543	.307	6.526
high	low	28.917	1.543	25.807	32.026
	high	58.000	1.543	54.891	61.109

Appendix 5:

Consent form:

Anxiety: sleep and exercise

Consent to take part in research

I..... voluntarily agree to participate in this research study.

I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.

I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.

I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.

I understand that participation involves answering a list of questions from two questionnaires, to enable the primary researcher to complete a level 5 research paper.

I understand that I will not benefit directly from participating in this research.

I understand that all information I provide for this study will be treated confidentially.

I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.

I understand that disguised extracts from my answers may be quoted in a level 5 research paper

I understand that if I inform the researcher that myself or someone else is at risk of harm, they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.

I understand that signed consent forms will be retained in [specify location, security arrangements and who has access to data] until [specific relevant period – for students this will be until the exam board confirms the results of their dissertation].

I understand that a transcript of my interview in which all identifying information has been removed will be retained for [specific relevant period – for students this will be two years from the date of the exam board].

I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.

I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Stacy Waldman (1701928) - BSC Honours Applied Psychology – UWTSD, Carmarthen university -

Signature of research participant -----

Date -----

Signature of researcher ----- I believe the participant is giving informed
consent to participate in this study ----- Date -----

Appendix 6:

Study Debrief Sheet:

Study Debrief Sheet

Anxiety: sleep and exercise

Thank you for taking part in the study.

The aim of this study was to explore anxiety related to sleep and exercise. We specifically wanted to find out whether sleep and exercise affected anxiety levels.

If you wish to withdraw your data from the study, you must tell the researcher now. After this point, all of your data will remain confidential/anonymous and we will not trace it back to you.

If taking part in this study has raised any questions, please speak to the researchers on Stacy Waldman- 1701928@studentuwtsd.com or contact the academic supervisor Charlotte Greenway- c.greenway@uwtsd.ac.uk

Thank you once again for taking time to participate in this study.

Stacy Waldman (1701928)

BSc Honours Applied Psychology

University of Wales Trinity Saint David, Carmarthen

Study Title: Anxiety: sleep and exercise

Thank you for taking part in the study.

The aim of this study was to explore Anxiety. We specifically wanted to find out whether anxiety affected sleep and exercise levels.

If you wish to withdraw your data from the study, you must tell the researcher now. After this point, all of your data will remain confidential/anonymous and we will not trace it back to you.

If taking part in this study has raised any questions please speak to the researchers on Stacy Waldman 1701928@studentuwtsd.com or contact the academic supervisor, Charlotte Greenway- c.greenway@uwtsd.ac.uk .Thank you once again for taking time to participate in this study.

Student name: Stacy Waldman (1701928)

BSc Honours Applied Psychology

University of Wales Trinity Saint David, Carmarthen

Appendix 7:

Ethics form

APPLICATION FOR ETHICAL APPROVAL

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity. Please see Checklist for details of process for different categories of application.

SECTION A: About You (Principal Researcher)

Full Name:	Stacy Waldman		
Tick all boxes which apply:			
Member of staff:	Student: ✓	Honorary research fellow:	
Faculty/School/Centre: Psychology			
Campus: Carmarthen			
E-mail address: 1701928@student.uwtsd.ac.uk			
Contact Telephone Number: 07534194009			
For students:			
Student Number:	1701928	Undergraduate	
Programme of Study:	Applied Psychology	Taught Postgraduate	
Director of Studies/Supervisor:	Charlotte Greenway	Research	

SECTION B: Approval for Research Activity

Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)	YES	NO	
			Date
	Research Degrees Committee		
	Faculty Research Committee		

If Yes, please indicate source of approval (and date where known):	Other (write in) School ethics board	07.11.18
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Approval in principle **must** be obtained from the relevant source prior to seeking ethical approval.

SECTION C: External Ethical Guidance Materials

Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines.	
Code of Ethics and Conduct (2018)	
BPS Code of Human Research Ethics (2nd edition, 2014)	✓
The General Data Protection Regulation (GDPR)	✓

SECTION D: External Collaborative Research Activity

Does the research activity involve collaborators outside of the University?	YES		NO	✓
If Yes, please provide the name of the external organisation and name and contact details for the main contact person:				
Institution				
Contact person name				
Contact person e-mail address				

Where research activity is carried out in collaboration with an external organisation

Does this organisation have its own ethics approval system?	YES		NO	
If Yes, please attach a copy of any final approval (or interim approval) from the organisation				

SECTION E: Details of Research Activity

Indicative title:	The effects of sleep and exercise on anxiety		
Proposed start date:	16.10.18	Proposed end date:	9.11.18
Purpose of research activity (including aims and objectives) Outline the purpose, aims and objectives of the research activity, including key research questions. Show briefly how existing research has informed the proposed activity and explain what the research activity will add and how it addresses an area of importance. (Maximum 300 words)			
Studies show that individuals who sleep less than seven hours a night may experience anxiety. Whereas people who sleep more than eight hours a day are less likely to suffer from some form of anxiety. The NHS (2014) states that chronic sleep deprivation can cause long-term mood disorders including anxiety. Given this information it can be said that sleep will effect an individual's anxiety levels and this could also affect their energy levels for exercise. Vollert et al, have stated during their			

research on sleep deprivation in rats that deprivation of sleep has been reported to be antigenic, due to the cause of oxidative damage in the brain. Given this information it can be proposed that sleep will effect an individual's overall anxiety levels. Studies show that people who exercise regularly, have a healthy lifestyle and diet, rarely suffer from anxiety, whereas individuals who do not exercise regularly actually increase their risk of experiencing from some form of anxiety.

The economic burden of anxiety disorders were estimated to cost over £42.3 billion pounds in the 1990's (Greenburg et al, 1999.)

There have been a number of different studies carried out that have proven that exercise actually improves an individual's self-esteem levels and sense of well-being. (DHHS, 2002.) Van Minnen et al (2010) has found in their studies that adults who exercise on a regular basis experience lower levels of anxiety. This supports the notion that exercise creates a protective effect against the development of mental disorders.

DV= ANXIETY

IV 1- EXERCISE OR NO EXERCISE

IV 2- high SLEEP OR low SLEEP levels

HYPOTHESIS 1

People who do not exercise will have higher anxiety levels than those who do exercise

HYPOTHESIS 2

People who sleep less than eight hours will have higher anxiety levels than those who sleep more than 8hrs a day.

INTERACTION

Individuals who do not exercise and sleep less than eight hours will have the highest levels of anxiety.

(this box should expand as you type)

Proposed methods

Provide a brief summary of all the methods that **may** be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. (Maximum 600 words)

Two questionnaires will be given out to at least 48 participants, the first questionnaire will be a Self-Efficacy for Exercise scale (Resnick, B., & Jenkins, L. S. 2000). Which has nine questions with a rating scale. The rating scale or total score range is rated between 0-10. The scores will be split into two groups the first group will be a low group with the scores 0-4, this will define the participants as not very confident in their ability to exercise for twenty minutes three times per week. The second group will be a high group with the participants whose scores are between 5-10, these will be defined as the group whom, are very confident that they would be able to exercise three times per week for twenty minutes per session.

The second questionnaire is a Hamilton anxiety scale (Hamilton, M, 1959.). The Hamilton Anxiety Rating Scale (HAM-A) is a widely used and well-validated tool for measuring the severity of a patient's anxiety. This questionnaire has 14 questions and will take around 15 minutes to complete for each participant.

There will be no sleep scale offered to participants due to the NHS, (2014) stating that adults need between 6-9 hours sleep per night for them to be able to function correctly. Consent will be obtained by each individual before they complete the relevant questionnaires.

The right to withdraw will be accepted for each participant during or after the results have been collected. A verbal debrief will be offered to each participant once they have completed the questionnaires.

All data will be collated and analysed using SPSS. Results will be split in to, two categories low and high for the correct analysis to be performed.

Gender and age will be taken for demographic purposes
(this box should expand as you type)

Location of research activity
Identify all locations where research activity will take place.

D003 – computer lab. Carmarthen campus.
At friends and families homes.
(this box should expand as you type)

Research activity outside of the UK
If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural sensitivities or vulnerabilities of participants.

N/A
(this box should expand as you type)

SECTION F: Scope of Research Activity

Will the research activity include:	YES	NO
Use of a questionnaire or similar research instrument?	✓	
Use of interviews?		✓
Use of diaries?		✓
Participant observation with their knowledge?		✓
Participant observation without their knowledge?		✓
Use of video or audio recording?		✓
Access to personal or confidential information without the participants' specific consent?		✓
Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?		✓
Performance of any acts which may cause embarrassment or affect self-esteem?		✓

Investigation of participants involved in illegal activities?		✓
Use of procedures that involve deception?		✓
Administration of any substance, agent or placebo?		✓
Working with live vertebrate animals?		✓
Other primary data collection methods, please explain in this box Experiment (see above)		✓

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

Who are the intended participants:	YES	NO
Students or staff at the University?	✓	
Adults (over the age of 18 and competent to give consent)?	✓	
Vulnerable adults?		✓
Children under 18?		✓
Prisoners?		✓
Young offenders?		✓
Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?		✓
People engaged in illegal activities?		✓
Others (please identify):		✓

Participant numbers and source

Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?

Approx 24 students whom are part of the level 5 research methods cohort with 24 friends and family members. Why half from each?
this box should expand as you type)

Information for participants:	YES	NO	N/A
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Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	✓		
Will you tell participants that their participation is voluntary?	✓		
Will you obtain written consent for participation?	✓		
Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	✓		
If the research is observational, will you ask participants for their consent to being observed?			✓
Will you tell participants that they may withdraw from the research at any time and for any reason?	✓		
With questionnaires, will you give participants the option of omitting questions they do not want to answer?	✓		
Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	✓		
Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	✓		
If NO to any of above questions, please give an explanation			
Participants will be answering questionnaires on their expected fitness and anxiety levels			
(this box should expand as you type)			

Information for participants:	YES	NO	N/A
Will participants be paid?		✓	
Is specialist electrical or other equipment to be used with participants?		✓	
Are there any financial or other interests to the investigator or University arising from this study?		✓	
Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?		✓	
If YES to any question, please provide full details			
(this box should expand as you type)			

SECTION H: Anticipated Risks

Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.

If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.

Whilst there has been no physical risk assessment carried out by the principle researcher, on any of the chosen participants, the principle researcher will carefully explain to each chosen participant that answers and all identifiable information will remain anonymous, it will also be explained verbally during the de-brief that scores are not a medical diagnosis of anxiety levels and scores are purely for the research of a level 5 research project.

Risks to participants

For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information

Emotional distress. Participants may be upset if their fitness levels are low, or if they perceive that their anxiety levels are high, compared to others. In the debriefing I will explain that these results are confidential, with no names or other knowledgeable information being stored on any of the participants and all results will remain anonymous throughout. Relevant website details will be offered to each participant if it is deemed by the researcher to be required.

https://youngminds.org.uk/find-help/conditions/anxiety/?qclid=EAlaIQobChMlv8GPi5rR3gIVjbHtCh30VAT8EAAYAiAAEqJffPD_BwE

(this box should expand as you type)

If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities

N/A

(this box should expand as you type)

Risks to investigator

For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest

The main risk to the primary researcher could be receiving abusive comments from individuals who perceive their scores to be low, the primary researcher will direct the participants to a link where a complaint can be made directly to the university.

<https://www.uwtsd.ac.uk/governance-management/external-complaints/>; If any participants suffer from any of the effects of anxiety from completing these questionnaires there is available support on https://youngminds.org.uk/find-help/conditions/anxiety/?qclid=EAlaIQobChMlv8GPi5rR3gIVjbHtCh30VAT8EAAYAiAAEqJffPD_BwE

(this box should expand as you type)

University/institutional risks For example: adverse publicity, financial loss, data protection
Minimal as I will follow BPS and University guidelines. The following is a link to the complaints department within the UWTSD university Carmarthen. https://www.uwtsd.ac.uk/governance-management/external-complaints/ (this box should expand as you type)
Adverse outcomes List measures put in place to limit any adverse effects or outcomes of research activity where appropriate. Include any emergency protocols.
I will follow the University's emergency protocols if need be. (this box should expand as you type)

Disclosure and Barring Service			
If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	YES	NO	N/A
Has a DBS certificate been obtained?			✓

SECTION I: Feedback, Consent and Confidentiality

Feedback What feedback will be provided to participants, how will this be done and when?
Debriefing – Written debrief will be given to each participant following the completion of relevant questionnaires but what will you say? (this box should expand as you type)
Informed consent Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded.
I will explain to all participants that I am doing research on a research project, all information will remain confidential throughout. Answers to questionnaires will only be viewed by the primary researcher. All participants will have the right to withdraw if they choose to. Participants can contact myself if there are any raised concerns due to the questionnaires. Full consent will be obtained before-hand by participants filling in a consent form to enable the primary researcher consent to use their scores. What are you saying about your study – the actual variables? (this box should expand as you type)
Confidentiality / Anonymity Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.
No names/personal information will be attached to the individual scores. (this box should expand as you type)

SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

	YES	NO
Does the research activity involve personal data (as defined by the Data Protection Act)? "personal data" means data which relate to a living individual who can be identified— (a) from those data, or (b) from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller, and includes any expression of opinion about the individual and any indication of the intentions of the data controller or any other person in respect of the individual.		✓
If YES, provide a description of the data and explain why this data needs to be collected: (this box should expand as you type)		
Does it involve sensitive personal data (as defined by the Data Protection Act)? "Sensitive personal data" means personal data consisting of information as to – (a) the racial or ethnic origin of the data subject, (b) his political opinions, (c) his religious beliefs or other beliefs of a similar nature, (d) whether he is a member of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992), (e) his physical or mental health or condition, (f) his sexual life, (g) the commission or alleged commission by him of any offence, or (h) any proceedings for any offence committed or alleged to have been committed by him, the disposal of such proceedings or the sentence of any court in such proceedings.		✓
If YES, provide a description of the data and explain why this data needs to be collected: (this box should expand as you type)		
Will the research activity involve storing personal data on one of the following:	YES	NO
Manual files (i.e. in paper form)?	✓	
University computers?	✓	
Private company computers?		✓
Home or other personal computers?		✓
Laptop computers/ CDs/ Portable disk-drives/ memory sticks?		✓
"Cloud" storage or websites?		✓
Other – specify:		

For all stored data, explain the measures in place to ensure data confidentiality, including details of password protection, encryption and anonymisation:

There will be no personal data that will be identifiable to an individual participant, as all data will be raw scores, these will be processed through SPSS. All questionnaires will be safely stored at my home in a cabinet, for a period of twelve months so that an external examiner or marker can view them if it is so requested.

(this box should expand as you type)

Will the research activity involve any of the following activities:	YES	NO
Electronic transfer of data in any form?	✓	
Sharing of data with others at the University?		✓
Sharing of data with other organisations?		✓
Export of data outside the European Union or importing of data from outside the UK?		✓
Use of personal addresses, postcodes, faxes, emails or telephone numbers?		✓
Publication of data that might allow identification of individuals?		✓
Use of data management system?		✓
Data archiving?		✓

If YES to any question, please provide full details, explaining how this will be conducted in accordance with the Data Protection Act (and/or any international equivalent):

Raw data will be transferred onto SPSS software whilst at UWTSD campus, Carmarthen for the results to be determined.

(this box should expand as you type)

List all who will have access to the data generated by the research activity:

The principal researcher

(this box should expand as you type)

List who will have control of, and act as custodian(s) for, data generated by the research activity:

The principal researcher

(this box should expand as you type)

Give details of data storage arrangements, including where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.

Raw data will be analysed in SPSS formation during class. All completed questionnaires will be stored safely at my home for a period of twelve months.

(this box should expand as you type)

SECTION K: Declaration

The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants.

In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's [Research Ethics and Integrity Code of Practice](#)

Signature of applicant:	Stacy Waldman	Date:	6/11/2018
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For students:

Director of Studies/Supervisor:	Dr Charlotte Greenway
Signature:	
Date:	

For staff:

Head of School/Assistant Dean:	
Signature:	
Date:	

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

✓	I have read the guidance notes supplied before completing the form.
✓	I have completed ALL RELEVANT sections of the form in full.
✓	I confirm that the research activity has received approval in principle
	I have attached a copy of final/interim approval from external organisation (where appropriate)
✗	I have attached a full risk assessment (and have NOT completed Section H of this form) (where appropriate)
✓	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
✓	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Head of School.

RESEARCH STUDENTS AND STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name.

You will be informed of the outcome of your claim by email; therefore it is important that you check your University and personal email accounts regularly.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

This form is available electronically from the Academic Office web pages:

<http://www.uwtsd.ac.uk/academic-office/>

Application Process

All staff research projects and all research students must submit the Ethical Approval Form to the **University Ethics Committee** via the Academic Office (pgresearch@uwtsd.ac.uk). Staff research directly in relation to personal study for taught undergraduate or Masters programmes should be submitted via the Faculty procedures explained below.

Taught masters and taught undergraduate research Ethical Approval Forms are considered **within Faculties**. Faculties will provide details of the specific processes for this. Where the Ethical issues within any single ethical application are of particular concern the Faculty will refer these to the University Ethics Committee. Any student activity that involves the collection of primary data needs to undergo Ethical approval, this includes assignment work as well as dissertations.

Notes for guidance in completion of this form

Section A: About You

Please complete all relevant sections

Section B: Approval for research activity

Research proposals must be approved in principle before applying for Ethical Approval. The proposal approval only becomes final when the ethical approval is received.

The process for proposal approval varies according the individual and programme of study:

- Research students, by application on form PG1 to the Research Degrees Committee
- Taught students by review of research proposal within Faculties (Faculties provide specific details of these processes)
- Staff, by agreement by the Head of School/Assistant Dean

Section C: External Ethical Guidance materials

Many discipline areas are required to operate with the discipline specific codes of research ethics (for example health, psychology, education etc.), any such codes must be listed and you must tick to confirm that you have consulted with these.

Section D: External Collaborative Research Activity

Provide details of the external collaborative partners, where appropriate you might want to submit a copy of the external collaboration agreement with the Ethical Approval Form. If the partner requires the research to be subject to its own internal Ethical approval process then please provide details of that process and a copy of any final (or interim) approvals received from the organisation.

Section E: Details of Research Activity

Remember that the individuals reviewing this Ethical Approval Form may not have seen your research proposal, and also may not be experts in the specific area of your research. The information provided should therefore be jargon free and clearly stated.

Indicative Title: please use the same title as used on the research proposal.

Purpose: the Ethical approval process will want to ensure that the methods you propose are adequate and appropriate to address the research aims and objectives. Excessive additional data collection can be seen as unethical.

Proposed Methods: the Ethical approval process seeks to ensure that you understand the methods that are intended, and that the implementation of those methods will be appropriate and without unnecessary impact on respondents. Please be specific.

Location: this needs to mention geographical location and also local situation (for example, within Local Authority Offices in Cardiff, using a private room but close to other individuals). If you are collecting data within an organisational setting then you need to explain the permissions that you have obtained to do this.

Research Activity outside of the UK: please complete this section in detail, and note any guidance you have received. Also describe your own familiarity (or not) with the location that you will be utilising.

Section F: Scope of Research Activity

Please tick ALL of the research activities that might be undertaken. If any additional types of activity are intended then please add an extra box and describe these.

If you have answered no to all questions in F then sections G and J do not need to be completed. Section H should be considered, and may be completed. Signatures are still required in section K.

Section G: Intended Participants

Please tick all categories that might apply.

Numbers & Source: if you are using a series of different methods or research activities please list numbers for each stage/phase. Be clear about how you will find respondents. Will you use intermediaries, and if so how? How will you ensure compliance with your sampling strategy?

Information for participants: all participants should be appropriately informed about the research, what is expected of them and what will happen to the information that they provide. The Ethical review process does not ask to see this documentation, but requires this to be reviewed and approved by the Director of Studies in the case of research students, the supervisor/module tutor in relation to students on taught programmes and the Head of School/Assistant Dean in relation to staff research.

Section H: Anticipate Risks

All research carries some level of risk. The answers you provide to questions in this section will be reviewed to ensure that you have an appropriate understanding of the type of risks involved and how you can mitigate against these risks. If you have completed a full risk assessment, as required for example for laboratory work, field work, clinical tests, diving operations, or by a collaborative partner, you may append that to this form. In that case, please tick the box indicating this has been provided. You will not then be required to complete Section H.

Risk to participants Think very carefully about how your actions/questions/discussions might affect the people you are involving as participants. You might identify the risk as small

but it would still be a risk. Many types of question have the potential to make respondents less content with their life / job; you need to recognise and try to ameliorate any such effects. If these are business owners, time with you may reduce profit.

In some locations physical risk is very real to both participants and yourself, please consider this.

Risk to you, the researcher Think about where you will meet people, if there are any dangers involved in the location. If you are meeting people as individuals think about using a public place. In general do not visit people in their own homes or remote locations. If you are talking to individuals about certain issues think about how their responses might affect you emotionally. What about the risk of collecting insufficient data?

Risk to the University When undertaking your research, you are acting as a member of the University (student or staff). Professionalism is important, so it is important to be well organised and well prepared. Punctuality, clarity etc. are all part of this. What will you do to ensure this? You must ensure you do not harm the good name of the University in any way and do nothing to undermine the reputation of the research it conducts and sponsors. Upholding high standards of conduct and integrity are vital in this regard. You must also conduct the research in such a way to minimise the potential for claims of negligence made against the University, its researchers and any collaborating individual or organisation. In this respect you should always comply with ethical, legal and professional frameworks, obligations and standards as required by statutory and regulatory authorities, as well as the university's Research Integrity and Ethics Code of Practice. Research misconduct in this respect can take many forms, including:

- fabrication: making up results or other outputs (eg, artefacts) and presenting them as if they were real
- falsification: manipulating research processes or changing or omitting data without good cause
- plagiarism: using other people's material without giving proper credit
- failure to meet ethical, legal and professional obligations: for example failure to declare competing interests; misrepresentation of involvement or authorship; misrepresentation of interests; breach of confidentiality; lack of informed consent; misuse of personal data; and abuse of research subjects or material
- improper dealing with allegations of misconduct: failing to address possible infringements such as attempts to cover up misconduct and reprisals against whistle-blowers

Adverse Outcomes. Think carefully about the possibilities, and cover here

Section I: Feedback, Consent and Confidentiality

Feedback to participants: outline your approach. Will interview transcripts be shared with respondents to check accuracy? Will summaries of questionnaire analysis be made available to respondents in some way? Will an overview report be provided? How and when?

Informed consent: Draft letter / e-mail / or heading (or footer) section of questionnaire must be approved by DoS/supervisor (if research student), supervisor/module tutor if taught student, or Head of School / Assistant Dean if a member of staff.

Confidentiality/Anonymity. Explain clearly how you will ensure confidentiality and anonymity.

Section J: Data Protection and Storage

Before completing this section it is necessary to read the University's Research Data Management information. The questions that follow are designed to ensure compliance with the Data Protection Act as well as established research protocols.

Many research activities will involve electronic transfer of data and use of data management systems in the summarisation and analysis of data. You will need to explain these in relation to compliance with the Data Protection Act.

Think carefully about who will have access to your data, this will include supervisors and examiners. Also that a thesis will be made available via the University library and the British Library system. If you are seeking an access bar for a period of time after completion then mention it here. If you will provide a copy of your findings, or intend to give a presentation, to

a facilitating/ supporting/accessing organisation then explain that in this section. But also think about the general principle of data sharing, as explained in the Research Data Management information.

In terms of storage of data please ensure security, and also mitigate against loss of data.

Section K: Declaration

Ensure the appropriate countersignatures have been provided

Look carefully at the checklist and ensure that you comply with and tick all that are relevant to your research.