Psychology Study Proposal: The Relationship Between Neuroticism and Depressive Disorders

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Personality is defined as the sets of behavioural, cognitional, and emotional characteristics of an individual that make them unique. Psychologist Gordon Allport suggested that personality is the "dynamic organization within the individual of those psychophysical systems that determine his characteristics, behaviour and thought" (Allport, 1961, p. 28). While there has been no confirmed definition for personality, impactful theories developed over time have prospected the various aspects of personality, from its effect on behaviour to the influence genetic instincts and environment have on personality, as according to Freud's psychodynamic theory.

One of the aspects explored by psychologists is the understanding of traits. A trait refers to a specific dimension of personality that can be devised into smaller categories. Trait theories believed that personality is comprised of broad dispositions, known as traits. These theories depict that traits are genetically based, can predict behaviour and can be identified, described, and measured. Psychologist Hans Eysenck believed that genetics determined your personality. His work was popularised through his development of the Super Traits: Extraversion, Neuroticism and Psychoticism. Neuroticism refers to your level of emotional stability and your tendency to experience negative feelings. Research into this trait has shown that those who score highly in neuroticism are more emotionally reactive and may be more susceptible to certain feelings and emotional disorders such as anger, anxiety, and depression.

Previous research has shown that neuroticism is highly correlated in those who suffer from depression.

A 2008 study aimed to examine the association between personality and depression to benefit the understanding and treatment for major depressive disorders (MDD). The research involved reviewing a selected range of past-reviewed manuscripts. Results from these manuscripts showed that patients with MDD differed from non-depressive individuals in term of traits such as neuroticism. It stated that "individuals with high levels of neuroticism have a higher likelihood of developing MDD, than those with lower levels of [neuroticism]." (Bagby, M et al, 2008). This is further explored in the Cardiff Depression Study (Farmer et al, 2000, 2001) that aimed to examine whether Neuroticism and Extraversion are involved in the development of depressive episodes in an individual. The study consisted of 108 participants with depression and 105 without. Results showed that the 108 individuals with depression showed a mean neuroticism score of 19.57, as compared to the 105 non-depressive individuals with a mean score of 8.72. Both studies described have shown that depression can be seen to have a strong relationship dependent on levels of neuroticism.

Furthermore, a 2018 study by Brittany C. Speed conducted an investigation on 508 adolescent girls from the ages of 12-15 to determine the relationships that extraversion and neuroticism had with reward positivity (ΔRewP) , a construct relating to event-related potential component's sensitivity to reward. Results showed that those who scored highly in neuroticism displayed a decrease in reward positivity due to having low levels of positive emotionality, of which showed to be heavily associated with reward positivity (Speed. B et al, 2018).

Similarly, a 2015 study by researcher Christian Hakulinen conducted research using 10 prospective community cohorts in the aim of determining the relationship between depression and personality traits. Results from the cross-section and longitudinal analysis of data, collected from 117 899 participants, showed that those who expressed low extraversion, low conscientiousness, but high neuroticism, were associated to have depressive symptoms (Hakulinen. C et al, 2015.). This again, shows that although each defined trait can play a role in the influence of depression, neuroticism appears to have the greatest impact.

The purpose of the current research is to support the recent findings of Hakulinen, Farmer and Bagby in a different population, in order to test the validity of these studies in an adolescent based population. This correlational study will be investigating the relationship between neuroticism and depressive disorders in adolescents, aged 16 to 18.

The aim of this investigation is to determine the relationship between neuroticism and those who suffer from depressive disorders.

It is hypothesized that adolescents, aged 16-18, who score above 50% in Neuroticism, as measured according to score on a Big Five Personality Test, will demonstrate higher levels of depression than those who don't, as measured via scores on a Depression Scale.

Method of Study:

The participants decided for this experiment, as based on prior research, is adolescents aged 16 to 18 years. This sample will be achieved through stratified sampling, in which a portion of 150, male and female, participants from each sub-categorical age group, within the desired 16-18 age range, will be selected. This sampling method is highly representative of the entire target population, which allows for data to be easily generalised.

Materials:
- Pen
- Paper
- Big Five Personality Survey (See Appendix 1)
- Depression Scale Questionnaire (See Appendix 2)
- Consent form
- Unique Identification Code (UIC)
- Computer
- WiFi
- Email

Procedure:

Once the sample has been selected, each participant will receive a consent form via their email address. This form would outline the purpose of the investigation to ensure that participants are fully briefed, as well as informing the participant about their rights when choosing whether or not to participate in the investigation. This ensures that participants are aware that the study is investigating depression, which may be sensitive to some people.

If a participant chooses to take part, the consent form must be signed, either by a parent or guardian if the participant is under 18, then returned to the researcher prior to the investigation.

On the day of the investigation, participants will receive their own Unique Identification Code, as well as the two self-report surveys either via postage or email. The first survey, the Personality survey, will be used to determine an individual's neuroticism scores. High neuroticism can be defined as a score above 50%. This survey will contain 30 questions where the participant will read each question and rate each question on how well they relate to the question, on scale from Strongly disagree to strongly agree. A sample of this survey can be seen in Appendix 1, in which were inspired by both the *Eysenck Personality Test* (*Eysenck Personality Questionnaire.* 2007) and the *Big Five Personality Test* ("The Big Five Personality Test", n.d.).

Participants then received a second survey, the Depression Scale, in which particpants are to read each question and rate them on a scale of strongly disagree to strongly agree. Questions used in this survey were inspired by the *Anxiety and Depression checklist* (K-10) ("Beyond Blue", n.d.) and the *Zung Self Rating Depression Scale* (Zung, 1965). Once each survey has been complete, researcher will collect the surveys from the individual, and allow for debriefing so that the participants can ask any further questions.

Researchers will then review collected data and determine scores according to the weighting of each question. An example of what this will look like can be seen in Appendix 3.

Extraneous variables:

Identified participant extraneous variables would include various forms of substance use such as anti-depressants, or any medication or drugs that can alter one's mood. This can influence data as it does not give an accurate representation of one's feelings at a normal standard. This will be controlled with the consent form, to clarify whether a participant, who may have MDD or any other mental illness, is on a medication that can possibly alter their mood. Situational variables such as home or school environment in the forms of bullying, abuse, school stress etc. can alter data as such situations may not be causing depression, but influence similar symptoms, as well as influence their choice of answers in the given time of the investigation. This will also be controlled with the consent form, containing an additional background survey, or gathering school reports on each individual. Those with intense situational conditions will be considered outliers in this investigation. Experiment bias and demand characteristics can influence data as the experimenter may present clues, or the individual may begin to understand the connection between neuroticism and depression, which may influence how they respond. This will be controlled by presenting participants with the surveys beforehand and providing them further insight after completing each survey, as well as having multiple researchers to avoid bias.

Uncontrolled Variables:

Variables that will be left uncontrolled will include the participant's level of education or literacy standard as such characteristics will not heavily impact the outcomes from this study. However, participants may struggle to interpret the surveys, though will still not impact the data as the study is not investigating topics such as intelligence, for which that education level would not be necessary. The time of day of which the participant will need to complete the survey will not be controlled as, due to a large population and limited access to participants, researchers will not be able to ensure where or when the individual completes the survey.

Data

In this correlational study, the data to be collected will be quantitative via scores on each of the self-report surveys, by the means of close-ended questions, on a Likert scale from Strongly disagree to

Strongly agree. Advantages of the self-report survey include that data is easy to obtain. However, a disadvantage of this data is that it is subjective, of which results obtained cannot be easily replicated. Advantages of using quantitative data allow for a large number of results to be collected in a short period of time, which allows for data to be generalised and increases the accuracy of the data. However, the data is limited to numerical outcomes and lacks sufficient detail.

Raw data will be collected in a table format, highlight each individual, by their UIC, gender, and results from both surveys, specifically results of those who score highly in neuroticism. Data will then be reviewed and collated into groups displaying a high neuroticism score (greater than 50%), in which will be graphed using a scatterplot displaying those with high scores in neuroticism, and their respective scores on the Depression Scale.

Ethical considerations

Informed consent will be adhered to by the means of the consent form that are to be returned before the investigation. This will ensure that researchers have written confirmation from those who choose to take part. Participants under the age of 18 will require informed consent from a parent or guardian. In this, **voluntary participation** will be adhered to as selected participants can choose whether or not to participate by either filling out the consent form or not.

Confidentiality must be adhered to, to ensure that the identity of the participant is protected in any published documents. This will be achieved by assigning each participant with a Unique Identification Code to ensure that no names are mentioned when data is collected.

Withdrawal rights will be adhered to by allowing each participant to withdraw from research whenever they feel they need to. There will be no consequence for a participant who chooses to withdraw from the study.

Debriefing and Deception will need to be adhered to as to ensure that each participant is fully aware of the content surrounding the investigation. This will be achieved by outlining the purpose and parameters surrounding the investigation in the consent form. Debriefing would then be achieved by outlining the purpose of the experiment before participant receives the survey in which participants can ask the researcher questions, as well as after the investigation to allow the researcher to answer any further queries.

Reliability and Validity

To ensure validity in this study, researchers will need to ensure that the stated extraneous variables are controlled to reduce the effect on the results. However, particular extraneous variables such as situational instances, like abuse, can display a more severe case of depressive symptoms, regardless of whether the individual has depression or not. Cases as such would be considered outliers and removed from the averaged, collated data to improve the internal validity of the study. Validity can also be ensured by the self-report surveys as both are intended to measure the variables each were designed around by using questions in the survey that correlate to the intended variable or depression or neuroticism. This would improve internal validity as the data collection method would be able to measure the intended variable it needs to measure.

However, the use of the self-report surveys reduces reliability as data collected using this method is highly subjective, which is hard to replicate using different individuals. However, test-retest reliability can still be ensured as the surveys can be used by different individuals, and by understanding past research, is expected to obtain similar scores. Interrater reliability will also be

ensured by using multiple researchers to observe the findings to reduce the effects of experimenter bias and maintain consistent judgements between researchers on the current data.

Conclusion:

Identified limitations in this study can be seen in the sampling method. Using stratified sampling, though is highly representative of the target population, can be time consuming and expensive. As the sampling method is intended to draw in a large sample population, access to participants is also limited. Another possible limitation from this would be the use of printed surveys as, since the population is quite large, and researchers have limited access to participants, printing and postage of surveys and consent can be very expensive. Because of this, it would probably be considered to email the consent and surveys, for participants to complete online.

Other limitations include that data will be highly subjective due to the Likert self-report surveys, as well as the fact that a person's mood can fluctuate depending on the time of day, number of hours slept and current situational status that can influence their responses to the questions in the survey. This, in turn, does not provide an accurate representation of depression, or one's personality, as it can be heavily influenced by the changing of mood. Another limitation would include that questions from these surveys, or the overall conversation of depressive disorders, could be triggering or sensitive to a person, which may cause distress or harm their mental health.

Overall, data from this study can be generalised to the target population by means of the selected sampling method. By using stratified sampling, researchers are able to collect a large sample from each desired age in equal portions, whereby the use of a large population, allows for data to be easily applied to the target population of adolescents aged 16-18 years.

The results to be collected when conducting this study would be greatly relevant to the target population as neuroticism already demonstrates having a strong correlation to depression, as past research suggests. For example, in the 2015 study (Hakulinen, C et al, 2015.), who held a sample of 117 899 community cohort members to investigation personality traits and depression. Whilst there was no indication of participant age ranges, the large sample population and target population of the 10 communities suggest that various participants used in this study are likely to have fallen within the age range of 16-18. Current research can also be supported through the studies of (Speed, et al. 2018) whose work demonstrated neuroticism to be heavily correlated to levels of low emotionality in adolescent girls. Whilst this study explores this construct in female adolescents, the research of Farmer and Bagby display that there is a heavily correlated relationship between neuroticism and depression, such that it can be predicted and supported that results from the current study, of equal male and female adolescents, will still show that there is a relationship between these two variables, in our selected sample.

Appendix

Appendix 1

The Relationship Between Depression and Neuroticism

Personality Questionnaire

Read each of the following questions and decide which one is more appropriate to you. Ensure that you answer every question.
* Option 3 being Neither Agree nor Disagree

1) I frequently worry.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

2) I make friends easily.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

3) I am very sensitive.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

4) I accept people the way they are.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

5) I am often troubled by negative thoughts.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

6) I am quiet around others.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

7) I often feel lonely.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Appendix 2

The Relationship Between Depression and Neuroticism

Depression Scale

Read each of the following questions and decide which one is more appropriate to you. Ensure that you answer every question.
* Option 3 being Neither Agree nor Disagree

1) Sometimes, I feel so sad, that nothing can cheer me up.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

2) I sometimes feel I cannot do anything properly

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

3) I often feel helpless.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

4) I feel hopeful about the future.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

5) I get tired for no reason.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

6) I think it is wonderful to be alive.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

Strongly disagree   Strongly agree

8) I can handle stressful situations easily.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

7) I often break down crying for some or no reason.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

8) My life is full and satisfying.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

The Relationship Between Depression and Neuroticism

Continued

9) I enjoy being under pressure.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

10) I get stressed and anxious easily.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

The Relationship Between Depression and Neuroticism

Continued

9) I have noticed some weight loss.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

10) I am helpful and appreciated by others.

☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5

Strongly disagree   Strongly agree

- Survey Template Retrieved from Microsoft Word

Appendix 3

Specific symptoms, for all patients (n = 61)

Symptoms	HRSD		CSRS	
	Mean	SD	Mean	SD
Depression	1.75	1.13	1.09	1.28
Guilt	1.28	1.05	0.98	1.22
Suicidality	1.20	1.29	0.63	1.19
Initial insomnia	0.84	0.91	0.58	0.82
Middle insomnia	0.43	0.74	0.61	0.77
Delayed insomnia	0.30	0.66	0.48	0.78
Anhedonia	1.54	1.33	1.31	1.29
Retardation	0.91	0.96	1.16	1.39
Agitation	0.36	0.64	1.27	1.19
Psychic anxiety	1.28	1.16	0.98	1.14
Somatic anxiety	1.07	1.07	0.99	1.19
Appetite	0.53	0.74	0.51	0.72
Fatigability	0.70	0.75	0.55	0.72
Sexual interest	0.12	0.43	0.55	0.85
Hypochondriasis	0.55	0.82	0.72	0.98
Denial of illness	0.60	0.70	0.39	0.56
Weight loss	0.65	0.87	0.34	0.67
Total	14.15	7.57	16.96	9.79

Abbreviations: HRSD – Hamilton Rating Scale for Depression; CSRS – Carroll Self-Rating Scale.

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