Understanding the Relation Between Anxiety and Depression Symptoms

Samantha Koo | Professor Charles Sanislow (Faculty Sponsor)
Department of Psychology | QAC Summer Apprenticeship 2022

Introduction

- Many mental disorders are often conceptualized as discrete conditions with distinct patterns of behavior and distress (Krueger, 1999).
- However, comorbidity, the co-occurrence of more than one disorder in the same individual, creates a dilemma in developing distinguishable diagnostic criteria. Pure cases of a mental disorder are atypical and are not representative of the larger population.
- The "P" factor, or the general factor of psychopathology, implies that there are shared psychopathological mechanisms that function across multiple mental disorders (Caspi et al. 2014).
- Anxiety and depression are both internalizing disorders found to be highly comorbid with each other. Sleep disturbance, psychomotor agitation/retardation, fatigue, and loss of concentration are symptoms shared by both Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) (Zbozinek et al., 2013).
- The Tripartite Model of Anxiety and Depression, proposed by Lee Anna Clark and David Watson, attempts to explain the overlap between symptoms of anxiety and depression.
- This model divides anxiety and depression symptoms into three distinct categories – general distress, physiological hyperarousal (specific anxiety), and anhedonia (specific depression) (Clark & Watson, 1991).

Research Questions

- What is the interaction between Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) symptoms?
- Why are GAD and MDD commonly found to co-occur in individuals?
- Should clinical disorders continue to be conceptualized as discrete conditions and should treatment be approached as such?

Hypotheses

- H1: Comorbidity is due to criterion overlap (eg. similar criteria) between GAD and MDD
- H2: Comorbidity is due to shared psychological and biological mechanisms

This study examined the relation between GAD and MDD symptoms using exploratory factor analysis.

Predictions

- Given the three categories of the Tripartite model, it was predicted that symptoms would be split into three factors. The three factors would contain symptoms that fell under general distress, physiological hyperarousal, and anhedonia.

Data and Methods

- Data used in this study is from the National Comorbidity Survey Replication (NCS-R) Survey, which contains data from a national sample of 10,000 respondents. The National Comorbidity Survey (NCS) Series was designed to examine the prevalence, risk factors, and consequences of psychiatric morbidity and comorbidity in the United States (ICPSR, 2022).

Data and Measures (continued)

- Variables were selected by finding survey questions that corresponded with the symptoms outlined in the Diagnostic and Statistical Manual of Disorders (DSM) for Major Depressive Disorder and Generalized Anxiety Disorder.
- There were a total of six anxiety variables. Included were restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbance.
- There were originally a total of ten symptom variables for depression. Included were depressed mood, loss of interest, weight loss, weight gain, sleep disturbance, psychomotor agitation/retardation, fatigue, worthlessness/guilt, difficulty concentrating, and thoughts of death/suicidal ideation. Of the depression variables, depressed mood, loss of interest, and weight gain were not unable.
- In GAD and MDD, four symptoms overlap: sleep disturbance, psychomotor agitation/retardation, fatigue, and loss of concentration. Given the high comorbidity rates between anxiety and depression, these four variables were of key interest in whether they showed any relation.

Results

Table 1. *Results of exploratory factor analysis with a three-factor solution*

	Disruptions in Motivation	Disruptions in Arousal & Regulation	Disruptions in Cognition
Anxiety Symptoms			
Restlessness	.230	**.383**	.214
Easily fatigued	**.821**		.106
Difficulty concentrating	.410	.243	**.516**
Irritability	.413	.167	.172
Muscle tension	.482	.270	
Sleep disturbance	.188	**.974**	
Depression Symptoms			
Weight loss		.168	.236
Sleep disturbance		**.735**	.239
Psychomotor agitation/retardation	.357		.404
Fatigue	**.587**		.223
Worthlessness/guilt	.258		.211
Difficulty concentrating	.220	.117	**.926**
Thoughts of death/suicidal ideation	.128	.147	.167
Variance Explained	14.9%	14.4%	12.4%
Cumulative Variance	14.9%	29.3%	41.7%

- Exploratory factor analysis was conducted to evaluate the model fit. A 3-factor model demonstrated a superior fit over a 1- or 2-factor model.
- The variables identified as significant reflect the basic mechanisms that have been shown to be related to both anxiety and depression.
- The first factor is the motivation system with fatigue as a central feature.
- The second factor is the arousal and regulation system with sleep disturbance and restlessness as central features.
- The third factor is the cognition system with difficulty concentrating as a central feature.
- These three systems are transdiagnostic and present across anxiety and depression
- A polychoric correlation between a composite score of depression and anxiety symptoms was conducted which gave an output of 0.432 indicating a moderate relationship.

Discussion and Conclusion

- The 3-factor model indicates that the symptoms of anxiety and depression can be split into the three core systems recognized in GAD and MDD.
- Further model testing and theorizing should be conducted in the future to better understand why these models overlap.
- Further model testing and theorizing should be conducted in the future to better understand how the other symptoms of GAD and MDD might play a different role than those shown to be significant.
- The findings of this study suggest that the complex relationship of the overlap between GAD and MDD can be linked to the similarities in their symptoms, but also their similarities in their mechanisms.
- Following a framework such as the National Institute of Mental Health's Research Domain Criteria (RDoC), which focuses on disruptions in normal functions by instead utilizing observable behavior and neurobiological measures, could be beneficial and examining the neurobehavioral fields relevant to mental disorders (Morris et al. 2022).
- In addition to the overlap in criterion, the findings suggest that there is another component that is crossing through GAD and MDD that relates to psychological and biological mechanisms.
- The mechanisms that have been shown to be related to both anxiety and depression suggest a better place to focus future efforts and research.
- Further research should be conducted to gain a better understanding of these mechanisms so as to aid in the development of treatment and diagnosis.

References

1) Caspi, A., Houts, R., Belsky, D., Goldman-Mellor, S., Harrington, H., Israel, S., Meier, M., Ramrakha, S., Shalev, I., Poulton, R., Moffitt, T. (2014). The p factor: One general psychopathology factor in the structure of psychiatric disorders? *Clinical Psychology Science, 2(2) 119-137*. https://doi.org/10.1177/2167702613497473
2) Clark, L., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100(3), 316-336.* DOI:10.1037/0021-843X.100.3.316
3) Krueger, R. F. (1999). The structure of common mental disorders. *Arch Gen Psychiatry, 56(10), 921-926.* doi:10.1001/archpsyc.56.10.921
4) Morris, S., Sanislow, C., Pacheco, J., Vaidyanathan, U., Gordon, J., Cuthbert, B. (2022). Revisiting the seven pillars of RDoC. BMC Medicine, 20(220). https://doi.org/10.1186/s12916-022-02414-0
5) Zbozinek, T., Rose, R., Wolitzky-Taylor, K., Sherbourne, C., Sullivan, G., Stein, M., Roy-Byrne, P., Craske, M. (2013). Diagnostic overlap of generalized anxiety disorder and major depressive disorder in a primary care sample. *Depression & Anxiety, 29(12), 1065-1071*. https://doi.org/10.1002/da.22026

Acknowledgements

I would like to thank Charles Sanislow, Manolis Kaparakis, Valerie Nazzaro, Maryam Gooyabadi, Jennifer Rose, and the other QAC professors for their help and support in my research. I would also like to thank Emma Tuhabonye, Ethan Brill-Cass, and Prakriti Mittal for their kindness and encouragement.