**Abstract**

This study aimed to quantify the repetition of symptoms among the 1,419 symptoms described in 202 diagnoses of adult psychopathology in Section II of the DSM-5. Through both qualitative content coding and natural language processing, the study identified 628 distinct symptoms, with 397 symptoms unique to a single diagnosis and 231 symptoms repeated across multiple diagnoses. The most frequently repeated symptoms were insomnia, difficulty concentrating, and irritability. The study found that some chapters had more repetition than others, and the top 15 most frequently repeating diagnostic criteria were dominated by symptoms of major depressive disorder. The findings suggest the need for a better understanding of the extent and potential consequences of symptom overlap.

**Introduction**

The traditional diagnostic systems for mental disorders, such as the DSM, have limitations due to the heterogeneity within diagnostic categories and overlapping symptoms between diagnoses. Studying individual diagnostic constructs can obscure causes, treatment effects, and outcomes that are specific to one symptom or a tightly bound syndrome. Additionally, studying one diagnosis at a time results in lost opportunities to identify mechanisms associated with symptoms or syndromes that cut across multiple disorders. Describing patterns of overlap in the symptom-level structure of the DSM-5 and understanding their extent could provide new insights into symptoms that have high or low specificity for differentiating syndromes and associated mechanisms.

Previous studies have examined the descriptive symptom-level structure of traditional diagnostic systems and focused on understanding comorbidity among diagnoses. For example, Borsboom et al. generated a network of symptom-level overlap in DSM-IV-TR, while Tio et al. used the same approach to examine a network of symptom-level overlap in the ICD-10. Forbes examined whether the repetition of symptoms among a subset of DSM-5 disorders is likely to artificially reinforce dimensions based on patterns of disorder covariation or comorbidity. These studies focused on disorder-level overlap and comorbidity, where considerable overlap of symptoms among diagnoses makes it more likely an individual will meet criteria for multiple diagnoses.

In contrast to previous studies, the present study takes a descriptive approach to untangle the elements of psychopathology and address five research questions. These questions include how many distinct symptoms comprise the hundreds of diagnoses defined in DSM-5, what proportion of these symptoms repeat across multiple diagnoses and/or chapters, what patterns are evident in the symptom overlap among diagnoses within and between different chapters, whether some chapters of psychopathology are more prone to symptom repetition than others, and finally, which symptoms show the greatest non-specificity as indicators of varied manifestations of psychopathology. The study aims to lay bare these patterns to characterize the heterogeneity and homogeneity in the constructs studied by the field for decades.

**Method**

This passage describes the first stage of coding for a project related to the DSM-5. The goal of this stage was to identify the core symptoms of the diagnoses in chapters 1-19 of Section II of the DSM-5. The approach used was similar to other studies, in which the diagnostic criteria for all diagnoses were reduced to their core symptoms. Disjunctive criteria were split into separate symptoms, and only symptoms relevant to adult psychopathology were included. Symptoms were separated from their causes and consequences, as well as from descriptive information about symptom onset, duration, frequency, and severity. Symptoms were also only listed once per diagnosis to avoid repetition.

So, in summary, primary disorders and specifiers with any unique symptoms were included in the analysis, while specifiers that only provided descriptive information or did not introduce any new symptoms were excluded. Other specified and unspecified disorders were typically excluded unless they introduced new symptoms or described a novel syndrome. Table S1 lists the 85 primary disorders that were not included in the analysis, with 82 of them not having any additional symptoms.

This passage describes how ambiguity was handled when identifying the symptoms comprising a diagnosis for the project related to the DSM-5. In some cases, such as with Neurocognitive Disorders, the symptom examples listed under each neurocognitive domain were used to guide the specific indicators or domains listed in the diagnostic criteria. Other broad symptoms were mapped onto subsets of closely related symptoms or onto the examples of symptoms listed in the text. For example, in adjustment disorders, "disturbance of conduct" was coded to comprise the corresponding symptoms of conduct disorder, and "emotional symptoms" was coded to comprise the specific examples of these symptoms listed in the specifiers.

NLP (Natural Language Processing) was also used to identify content overlap among symptoms. NLP algorithms were used to cluster and group similar symptoms based on their semantic similarities. This was done by using a combination of machine learning techniques and human supervision to ensure accuracy. The resulting clusters were then manually reviewed and refined by the research team to ensure that they accurately represented the symptom categories. Overall, the use of both qualitative content coding and NLP allowed for a comprehensive and accurate identification of symptom overlap and redundancy.

This sentence explains that in addition to the manual coding process, the researchers also used natural language processing (NLP) to identify any semantic matches that may have been missed. They built a computational model to identify when two symptoms described in the DSM-5 had the same meaning based on their position in a high-dimensional representation of semantic similarity. After filtering out identical pairs of symptoms, the model scored the remaining possible pairs of symptoms using a pre-trained model. The researchers then used a five-fold cross-validation framework to assess the performance of the model. The top 1000 pairs with the highest semantic similarity scores were manually checked for additional matches by two researchers, identifying 26 new matching symptom pairs. At the end of both stages of coding, the researchers identified 3,096 matching symptom pairs.

**Result**

The article presents a comprehensive analysis of symptom overlap among the 202 diagnoses in the DSM-5, resulting in the identification of 1,419 constituent symptoms and 628 distinct symptoms. The majority of the distinct symptoms (63.2%) are unique to a single diagnosis, while the remaining non-unique symptoms (36.8%) occur an average of 4.4 times and make up 72.0% of all symptoms. Of the non-unique symptoms, 70.6% repeat within the same chapter, 67.1% repeat between multiple chapters, and 37.7% repeat both within and between chapters. Figure 1 displays the patterns of symptom repetition. The dataset is available in the supplementary materials.

In summary, the study analyzed the DSM-5 and identified 202 diagnoses, 1,419 constituent symptoms, and 628 distinct symptoms. The majority of distinct symptoms (63.2%) are unique to a single diagnosis, while the rest (36.8%) overlap with an average of 4.4 occurrences across diagnoses. Within-chapter symptom repetition is more prevalent (70.6%) than between-chapter repetition (67.1%). Table 1 provides further details on repetition patterns within each chapter. Almost 70% of diagnoses have at least one symptom that repeats in another diagnosis, and 37.1% have every symptom repeating in at least one other diagnosis. 30.7% of diagnoses have no symptom overlap, with 35 of them including only one symptom.

The study found that out of 202 diagnoses represented in the DSM-5, there are 1,419 constituent symptoms, with 628 distinct symptoms identified. While repetition of symptoms is pervasive, 63.2% of the distinct symptoms are unique to a single diagnosis, and 36.8% of symptoms overlap between diagnoses, occurring an average of 4.4 times. Of these overlapping symptoms, 70.6% repeat within the same chapter, 67.1% repeat between multiple chapters, and 37.7% repeat both within and between chapters. Certain chapters such as Elimination Disorders, Gender Dysphoria, and Paraphilic Disorders have no symptom overlap, while others such as Bipolar and Related Disorders, Trauma- and Stressor-Related Disorders, Dissociative Disorders, Neurocognitive Disorders, and Personality Disorders have at least one symptom that repeats in another diagnosis.

The article discusses the results of a study that analyzed the symptom overlap among the 202 diagnoses in the DSM-5. The study found that there are 628 distinct symptoms in the list and the majority of these symptoms are unique to a single diagnosis. However, some symptoms repeat across different diagnoses, with 231 symptoms overlapping between diagnoses. The study also found that some chapters have more symptom repetition than others, with the Bipolar and Related Disorders, Schizophrenia Spectrum and Other Psychotic Disorders, Depressive Disorders, Trauma- and Stressor-Related Disorders, Neurocognitive Disorders, and Disruptive, Impulse Control, and Conduct Disorders chapters having more than half of their symptoms repeating in other chapters. In contrast, the Elimination Disorders, Gender Dysphoria, Paraphilic Disorders, Feeding and Eating Disorders, Sexual Dysfunctions, and Obsessive-Compulsive Related Disorders chapters have very few symptoms repeating in other chapters.

This article analyzes the symptom overlap and repetition among 202 diagnoses in the DSM-5. The study found that while repetition is pervasive, the majority of distinct symptoms are unique to a single diagnosis. Some domains, such as Bipolar and Related Disorders, Trauma- and Stressor-Related Disorders, and Neurocognitive Disorders, have more symptom repetition within and between chapters. In contrast, chapters such as Elimination Disorders, Gender Dysphoria, and Paraphilic Disorders have very few symptoms repeating in other diagnoses. Overall, this study provides insights into the structure and organization of the DSM-5 diagnostic criteria.

It is worth noting that while MDD symptoms dominate the list of most non-specific symptoms, other symptoms also show high levels of repetition across diagnoses and chapters. These include symptoms related to anxiety, sleep disturbance, irritability, concentration difficulties, and appetite/weight changes. Overall, the top 15 most non-specific symptoms appear in an average of 10.9 diagnoses and 4.3 chapters each.

**Discussion**

It is important to note that the findings presented in the study are based on a descriptive analysis of the DSM-5 criteria and therefore, the subjective decisions made in identifying symptom overlap may vary. However, the data used in the study are publicly available to facilitate alternative interpretations. Despite the prevalence of symptom repetition in some chapters, it is notable that the majority of distinct symptoms are unique to a single diagnosis, and some chapters have no symptom overlap at all. Nonetheless, the symptoms that do repeat across diagnoses and chapters can provide valuable insights into the underlying mechanisms and commonalities among different mental health conditions.

The authors also note that the high level of symptom repetition in the Depressive Disorders chapter may reflect the complexity of diagnosing and understanding depressive symptoms. For example, the distinction between major depressive disorder and persistent depressive disorder (dysthymia) is based on the duration and persistence of symptoms, rather than on unique symptoms. Additionally, there may be significant overlap between depressive symptoms and symptoms of other disorders, such as anxiety disorders, somatic symptom and related disorders, and neurocognitive disorders. Therefore, the high level of symptom repetition in the Depressive Disorders chapter may reflect the challenges of accurately diagnosing and treating depression.

The repetition of symptoms within chapters is often intentional and reflects shared features of the disorders within the chapter, such as similar core symptoms or shared underlying mechanisms. However, the substantial repetition of symptoms across chapters suggests that there may be some overlap and lack of clear boundaries between different classes of psychopathology. This may be due to a lack of coordination or consistency across different chapters in the DSM-5, and highlights the need for continued refinement and improvement in the classification of mental disorders.

In summary, the study found that symptom repetition is present in the DSM-5, both within and between chapters. Within-chapter repetition appears to be more purposeful and reflects the nature of the disorders being described, whereas between-chapter repetition appears to be less purposeful and reflects a lack of clear boundaries between diagnoses. The symptoms of MDD appear to be the most non-specific and repeat across the most chapters, raising questions about the validity of studying MDD as a single construct. It is important to note that the study's findings are based on a descriptive analysis of the DSM-5 and are subject to subjective decisions in determining symptom overlap.

In summary, the article discusses the findings of a study that analyzed the DSM-5 diagnostic criteria and identified patterns of symptom repetition across different diagnoses. The study found that while some repetition within chapters appears to be by design, most chapters have more repetition with other classes of psychopathology than among their constituent diagnoses. The study also found that MDD symptoms appear across numerous diagnostic categories, raising questions about the validity and accuracy of diagnosing MDD as a unitary construct. The authors suggest that MDD symptoms may reflect psychological responses to stress rather than a coherent syndrome, which could lead to misattribution of symptoms and inflate rates of comorbidity. The same biases may also apply to the repetition of other symptoms throughout the DSM-5.

In summary, the article discusses the issue of symptom repetition within and across diagnostic categories in the DSM-5, with a particular focus on the pervasiveness of Major Depressive Disorder (MDD) symptoms throughout the manual. The authors suggest that the non-specificity of MDD symptoms may reflect a more general psychological response to stress rather than a coherent syndrome that corresponds to specific causes, mechanisms, or treatment needs. This can lead to misattribution of symptoms in other diagnoses to MDD, or vice versa, and inflate rates of comorbidity. The authors call for more empirical work to determine whether patterns of symptom covariation reflect the observed (non)specificity and to identify cross-cutting symptoms or clusters that could offer a better framework for research, practice, and reconceptualisation of the diagnosis and classification of psychopathology.