EMPIRICAL AND AUTHORITATIVE CLASSIFICATION OF NEUROPSYCHIATRIC SYNDROMES IN NEUROCOGNITIVE DISORDERS

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Abstract:
Introduction: *Research diagnostic criteria for neurodegenerative disorders (NDD) allow more precise patient diagnosis and management and facilitate research.* ***Objectives:*** *The main objective of this study is to find the empirical and authoritative classification of neuropsychiatric syndromes in neurocognitive disorders.* ***Material and methods:*** *This descriptive study was conducted in University of Lahore, Lahore during 2021 to 2022 with the permission of ethical committee of hospital. The data was collected from both male and female patients.* ***Results:*** *All the demographic and cognitive data is collected from all patients. All participants pertained to the age group of 65–91. All groups had a larger proportion of women than men, but differences in proportions between the groups were not significant. The mean education level of the CNEP and MNCD subjects was about 12 years.* ***Conclusion:*** *It is concluded that the most prevalent NPS that had significant predictive value for MNCD-AD membership were anxiety and irritability; on contrary, for ScVMNCD membership, that was depression.*

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INTRODUCTION:

Research diagnostic criteria for neurodegenerative disorders (NDD) allow more precise patient diagnosis and management and facilitate research. Research diagnostic criteria lead to the identification of relatively homogenous patient populations that can be enrolled in pharmacologic and nonpharmacologic interventional research as well as in natural history studies. Research diagnostic criteria rapidly transcend research applications and are incorporated into clinical practice. They are periodically updated to reflect advances in scientific understanding of the diagnosis, differential diagnosis, management, and underlying biology of NDD [1].

NDD affect multiple brain regions and are characterized clinically by combinations of cognitive, neuropsychiatric, motoric, and autonomic changes that comprise the phenotype of the disorders and are integrated in diagnostic criteria. In some cases, such as in the criteria for dementia with Lewy bodies (DLB), biomarkers may be included [2].

Neuropsychiatric symptoms of neurocognitive disorders have been classified into higher-order constructs, often called neuropsychiatric syndromes. As with the general psychopathology literature, these classifications have been achieved through two approaches: empirical and authoritative. The authoritative approach relies on expert panels that condense the available evidence into operational criteria, whereas the empirical approach uses statistical methods to discover symptom patterns and possible hierarchies formed by them [3]. In this article, the author reviews the strengths and weaknesses of both approaches using general psychopathology literature as a reference point. The authoritative approach, influenced by the *DSM*, has led to several sets of criteria, which could aid clinical trials, diagnostics, and communication [4]. However, unknown reliability and the complex relationships between empirical evidence and published criteria may limit the utility of current criteria. The empirical approach has been used to explore syndrome structures on the basis of rating scales for neuropsychiatric symptoms [5]. The structures suggested in these studies have not been replicated easily and have been limited by either small sample sizes, restricted breadth of neuropsychiatric assessment, or both. Suggestions for further development of both approaches are offered. First, neuropsychiatric symptoms and syndromes need to be studied with measures of broad scope and in large samples. These requirements are prerequisites not only for eliciting highly informative empirical classifications but also for understanding these symptoms at a more nuanced level. Second, both approaches could benefit from more transparency. Finally, the reliability of the available authoritative criteria should be examined [6].

Objectives

The main objective of this study is to find the empirical and authoritative classification of neuropsychiatric syndromes in neurocognitive disorders.

MATERIAL AND METHODS:

This descriptive study was conducted in University of Lahore, Lahore during 2021 to 2022 with the permission of ethical committee of hospital. The data was collected from both male and female patients. The neuropsychological investigation included CDR, MMSE, Luria's tests, ten-minute intermediate memory evaluation (TIME) test, the clock-drawing test, and the verbal fluency test. All the assessments were done for the diagnosis of MNCD subtype according to DSM-5 criteria. Meanwhile, it was interesting to inner relationships between neuropsychological features of studied MNCDs and distinguishing NPS for assessing possible clinical phenotypes. Therefore, we also examined them as the variables of interest. The severity of impairments was evaluated on a scale of 0–3, where 0 meant "not impaired" and 3 meant "the most impaired" or according to author's recommendations to the scales. The neuropsychiatric inventory (NPI) was administered to a spouse or another knowledgeable informant who could report the patient's NPS. NPI collects information on symptoms during the past month in 12 neuropsychiatric domains, i.e., agitation, delusion, hallucination, depression, anxiety, euphoria, apathy, disinhibition, irritability, aberrant motor behavior, sleep, and eating/appetite.

Statistical analysis

The data was collected and analyzed using SPSS version 20.0. All the categorical values were expressed in mean and standard deviation.

RESULTS:

All the demographic and cognitive data is collected from all patients. All participants pertained to the age group of 65–91. All groups had a larger proportion of women than men, but differences in proportions between the groups were not significant. The mean education level of the CNEP and MNCD subjects was about 12 years. About 69% of CNEP, 97% of MNCD-AD patients, and all (100%) participants with ScVMNCD had one or more NPS. Although the prevalence of NPS in both MNCD groups was

significantly higher than in cognitively normal persons, there was no difference between MNCD-AD and ScVMNCD groups. The most prevalent NPS in patients with MNCD-AD that distinguished them from cognitively normal controls and ScVMNCD group were anxiety (81.43%), irritability (67.14%), and sleep disturbances (67.14%).

Table 01: Comparison between group regarding neuro cognitive disorders

Neuropsychiatric inventory (NPI) items	Comparison groups			p-Value		
	CNEP (n = 55) n (%)	MNCD-AD (n = 70) n (%)	ScVMNCD (n = 70) n (%)	CNEP vs MNCD-AD	CNEP vs ScVMNCD	MNCD-AD vs ScVMNCD
NPI, total score (0–144)	6 (3–9)	17 (12–21)	19 (14–23)	<0.00001[a]	<0.00001[a]	0.97[a]
Total prevalence of NPS	38 (69.09)	68 (97.1)	70 (100)	<0.00001	<0.00001	0.15
Agitation	0 (0)	0 (0)	0 (0)	–	–	–
Delusion	0 (0)	0 (0)	0 (0)	–	–	–
Hallucinations	0 (0)	0 (0)	0 (0)	–	–	–
Depression	8 (14.55)	20 (28.57)	57 (81.43)	0.062	<0.00001	<0.0001
Anxiety	27 (49.10)	57 (81.43)	21 (30.0)	<0.0001	0.03	<0.0001
Euphoria	0 (0)	0 (0)	1 (1.43)	–	0.37	0.32
Apathy	0 (0)	0 (0)	33 (47.14)	–	<0.00001	<0.00001
Disinhibition	0 (0)	0 (0)	9 (12.87)	–	0.006	0.002
Irritability	8 (14.55)	47 (67.14)	22 (31.43)	<0.0001	0.03	<0.0001
Aberrant motor behavior	0 (0)	0 (0)	4 (5.71)	–	0.07	0.04
Sleep	12 (21.82)	47 (67.14)	22 (31.43)	<0.0001	0.30	<0.0001
Eating/appetite	0 (0)	3 (4.29)	5 (7.14)	0.12	0.04	0.47

DISCUSSION:

Characteristic neuropsychiatric manifestations of NDD contribute importantly to many of the diagnostic criteria, facilitate accurate diagnosis, represent key symptoms that must be managed in the course of the illness, and contribute to an evolving understanding of the biological underpinnings of neuropsychiatric symptoms and syndromes [7] . There has been progress in defining neuropsychiatric syndromes occurring in NDD and these more rigorous definitions contribute to the implementation of the diagnostic criteria. For example, the definition of apathy assists in defining the apathetic syndrome that comprises part of the diagnostic criteria for frontotemporal dementia (FTD) [8].

This review addresses the role of neuropsychiatric symptoms and syndromes in diagnosis of NDD as reflected in current research diagnostic criteria [9]. A key implication of this discussion is that diagnosticians and investigators working with NDD must be knowledgeable about the behavioral aspects of NDD as well as about the cognitive, motoric, and autonomic features [10].

CONCLUSION:

It is concluded that the most prevalent NPS that had significant predictive value for MNCD-AD membership were anxiety and irritability; on contrary, for ScVMNCD membership, that was depression. Neuropsychiatric phenomena play an increasingly important role in diagnostic criteria for NDD. Accurate recognition of neuropsychiatric phenomena improves detection and recognition of NDD. NDD criteria have facilitated studying the neurobiology of behavioral changes in NDD.

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