Simplifying Treatment Approaches For Antidepressants: Proposing A Revised Classification System

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Abstract:

In an effort to streamline treatment methods, this study suggests reclassifying antidepressants according to their modes of action, which would provide a more rational and epistemic nomenclature. In order to assess its usefulness, comprehension, practical impact, and interest level among doctors who prescribe a lot, the study compared the new categorization to traditional classifications. Group A received the traditional categorization while Group B received the new one. Both groups consisted of 156 individuals. There were statistically significant variations in interest levels, utility, comprehension, and contribution, and the new classification was clearly preferred across all metrics. These results indicate that the suggested categorization approach has potential to improve clinical decision-making about antidepressant prescriptions by offering benefits in terms of readability, usefulness, and physician engagement.

Introduction:

A thorough analysis of the primary global sources of literature on psychiatry, including the most pertinent psychopharmacology textbooks and the most recent iterations of the most widely accepted guidelines for the treatment of major depressive disorder (MDD) in adults, reveals that the classification of antidepressants currently in use lacks a logical and epistemic nomenclature that would enable prompt identification of the most common adverse drug reactions (ADRs) and pertinent pharmacodynamic interactions. There have been suggestions for additional classes in recent years. As stated in the 2017 World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for the treatment of unipolar depressive disorders, none of them have, however, yet gained universal acceptance.defines the terms "logical" and "epistemic" as follows:

- **Logical:** All elements must be included in the categorization, and it must be exclusive (items can only be included in one category).

- **Epistemic:** A distinct criterion that serves the intended aims and has heuristic fertility is required for the classification. Conversely, the phrase "heuristic fertility" suggests that it contributes to the production of knowledge.

The aforementioned issue has been resolved as of late thanks to the development of a systematic methodology based on the mechanism of action of medications by Neuroscience-Based Nomenclature, Second Edition (NbN2). The major goal of the NbN is to make prescriptions for mental drugs less confusing. The NbN attempts to alter this strategy and link the nomenclature with the medication's mode of action in order to prevent arbitrary descriptors based on indication. But there are a few drawbacks to this classification, which are as follows:

1. A few antidepressant mechanisms of action are only partially described; for example, desipramine and nortriptyline are identified as noradrenergic modulators. These medications do, however, also function as weaker serotonergic modulators. Linking each medication to significant adverse drug reactions (ADRs) and pertinent "pharmacodynamic" interactions is one of the many reasons it is crucial to take into account both activities.

2. It is confounding that drugs are not categorised as Selective Serotonin Reuptake Inhibitors (SSRIs) but rather by their general mode of action (reuptake inhibitor) or by their pharmacological target (serotonin, for example), rather than by their unique mechanisms of action.

3. This class excludes several antidepressants that are "multimodal." Based on current understanding, medications that act on many molecular targets of distinct classes linked to the antidepressant effect (e.g., transporters, receptors, or enzymes) ought to be classified as multimodal.

4. The FDA (U.S. Food and Drug Administration) highlights certain "warnings and precautions" at the beginning of the complete prescribing information, but these are not taken into account.

5. It lacks the "heuristic fertility" required to produce or acquire information, just like the other classes in use today.

While the suggested new categorization, in contrast to the NbN, only includes antidepressant pharmaceuticals and excludes all other psychotropic drugs, the aforementioned drawbacks have been addressed, as this study will demonstrate. However, as will also be discussed, the objectives of this new classification diverge from the primary goal stated for the NbN.

The World Health Organisation (WHO) reported in 2017 that depression is one of the major global public health issues and the primary cause of disability globally. This makes it extremely relevant

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to teach the medical community the fundamentals of managing these medications through a new classification that makes it possible to identify potentially dangerous interactions and ADRs with speed.

Goals the first is to classify antidepressants according to their mechanisms of action in a logical and epistemic manner. Secondly, to evaluate whether the new classification, as opposed to conventional classifications, enables medical professionals who prescribe a lot of antidepressants to find the drug based on its mechanism of action and quickly connect it to pertinent adverse drug reactions and pharmacodynamic interactions, including medications that are advised as 'first line'. Third, to determine whether, in contrast to the conventional categorization, high prescribers find this classification to be helpful and simple to use.

Literature Review:

Anand and Charney, (2000) and is sensitive to change in homeostasis both internally and externally. It is also responsive to environmental cues from the outside. The norepinephrine that is released after the activation of its neurons is responsible for mediating the effects by interacting with a- and P-adrenoceptors that are present both presynaptically and postsynaptically and thereby mediating the effects.

Wong and colleagues, (2000) This was a noteworthy observation. Because of some of these contradictory comments, researchers were compelled to consider the

alternate mechanism of action of a number of different noradrenergic reuptake inhibitors applied to the treatment of depression. In contrast to this alternative, it has been demonstrated that the facts

Oreland and Harro, (2001) density seems to represent a homeostatic reaction to the effects of antidepressants. Therefore, it is possible that some antidepressants raise endogenous norepinephrine levels, which causes the -adrenoceptors to be stimulated for an extended period of time. This could lead to modifications in the expression, phosphorylation, and/or subcellular distribution of 3-receptors, as well as adaptation of intracellular signal transduction pathways, which would explain the reported decrease in receptor quantity.

Rogoz and Skuza (2006) possess antidepressant qualities. oxcarbazepine, a keto-analogue of the anti-epileptic medication carbamazepine, has been shown in animal models of depression to have an antidepressant-like effect. This effect may be attributed to its ability to modulate dopaminergic neurotransmission. Dopamine agonist amphetamine is known to increase dopamine and norepinephrine release from nerve terminals while preventing their absorption.

Rygula et al.(2008) On the basis of the fact that the antidepressant medicines listed above were effective because of their capacity to raise norepinephrine levels, it was hypothesised that there was a connection between a relative lack of norepinephrine and the onset of symptoms of depression.

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Research Methodology:

1. Research Design:

A comparative, prospective, longitudinal, experimental, and randomised investigation was conducted once the first phase was completed.

2. Population:

Criteria for inclusion:

Included were doctors who administer antidepressants frequently. These include cardiologists, psychiatrists, general practitioners (GPs), clinicians, and medical students pursuing training in the aforementioned disciplines in Argentina.

We included medical professionals who spoke Spanish and were prepared to take part in the research as well as attend depression treatment courses offered by scientific associations and/or healthcare organisations (public hospitals, universities).

Requirements for exclusion:

Excluded from consideration were experts who may be biassed due to their greater knowledge of adverse drug reactions and antidepressant medication interactions, such as physicians who have previously taken part in antidepressant clinical trials, university professors of pharmacology, master's degree holders in psych neuropharmacology, and so on.

3. Sample Size:

We used an expected difference of 16% of correct answers between the group that received the standard classification (group A) and the group that received the new classification (group B) to determine the sample size. We also used an alpha error of 0.05 and statistical power of 0.2, which led to a significance level of $p \leq 0.05$. The WHO statistical programme was used to do the statistical analysis.

Data Analysis:

Table 1: Acceptability of the Proposal Classification

Utility	GROUP A(standard classification)N=156	GROUPB(new classification)N=156	P value
Useful Medium Useless	89(57.05) 63 (40.38) 4 (2.56)	128 (82.05) 26 (16.67) 2 (1.28)	<0.0001

Fig. 1: Acceptability of the Proposal Classification

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Table 1 shows how 156 people in the traditional classification (Group A) and 156 people in the new antidepressant classification (Group B) felt about the two options. The new categorization was deemed beneficial by 82.05% of Group B, whereas 57.05% of Group A found the traditional classification useful. With a highly significant difference (p < 0.0001), it was evident that the new classification was preferred. Clinical decision-making in the prescription of antidepressants may benefit from this.

Table 2: Acceptability of the Proposal Classification

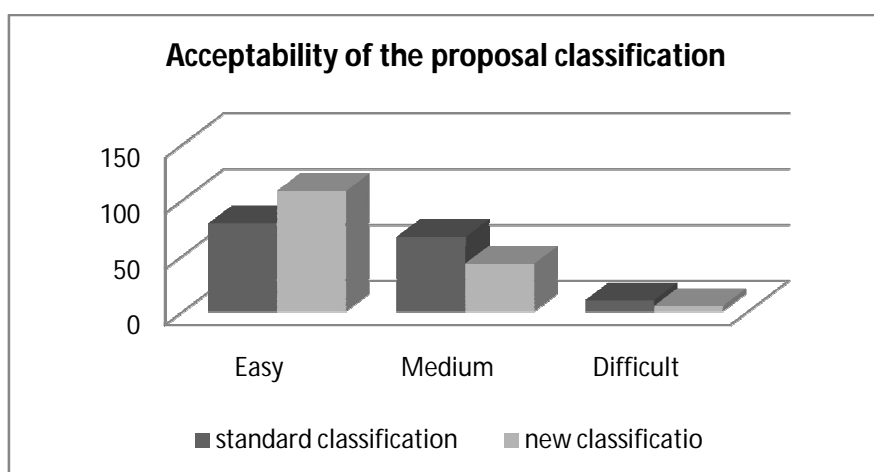| Understanding	GROUP A (standard classification) N=156	GROUP B (new classification) N=156	P value
Easy	79 (50.64)	108 (69.23)	
Medium	67 (42.95)	43 (27.56)	0.003
Difficult	10 (6.41)	5 (3.21)	

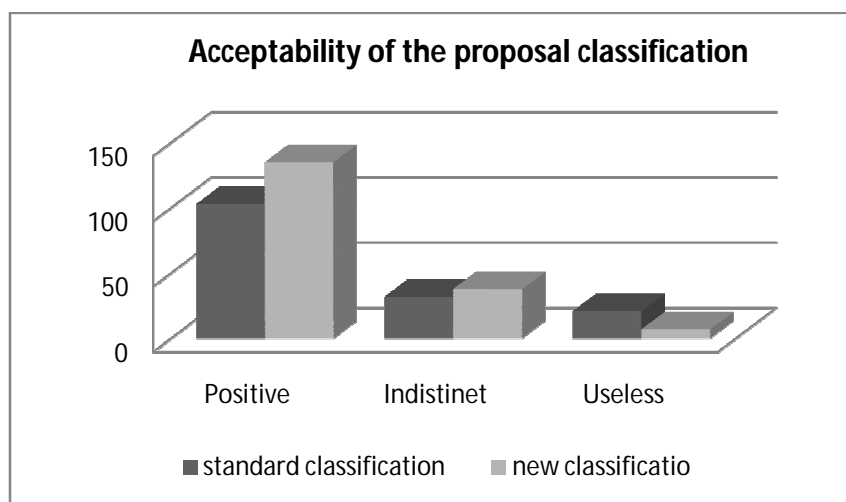**Fig. 2:Acceptability of the Proposal Classification**

Table 2 shows the level of acceptability of the old categorization system (Group A) and table B shows the level of acceptability of the new system (Group B) among 156 participants each. The standard classification was deemed easy to understand by 79 individuals (50.64%) in Group A, mediumly difficult by 67 (42.95%), and difficult by 10 (6.41%). With 108 participants (69.23%) finding it easy to grasp, 43 (27.56%) classifying it as medium level, and 5 (3.21%) calling it challenging, the new classification fared better in Group B.

A statistically significant difference exists between the two groups (p = 0.003), suggesting that the new classification is preferred due to its simplicity of understanding. As a result, doctors may find the new categorization system easier to understand and use when making clinical decisions about antidepressant prescriptions.

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Table 3: Acceptability of the Proposal Classification

Contribution	GROUP A (standard classification) N=156	GROUP B (new classification) N=156	P value
Positive Indistinet Useless	103 (66.03) 32 (20.51) 21 (13.46)	135 (71.15) 38 (24.36) 7 (4.49)	<0.0001

Fig. 3: Acceptability of the Proposal Classification

Both the old (Group A) and the new (Group B) classification systems were tested with 156 individuals each, and the results are shown in the table. Only 66.03 percent of people in Group A thought the traditional categorization was good, but 71.15 percent of people in Group B thought the new categorization was good. With a highly significant difference (p < 0.0001), it was evident that the new classification was preferred. There may be some advantages to this for clinical decision-making when prescribing antidepressants.

Table 4: Acceptability of the Proposal Classification

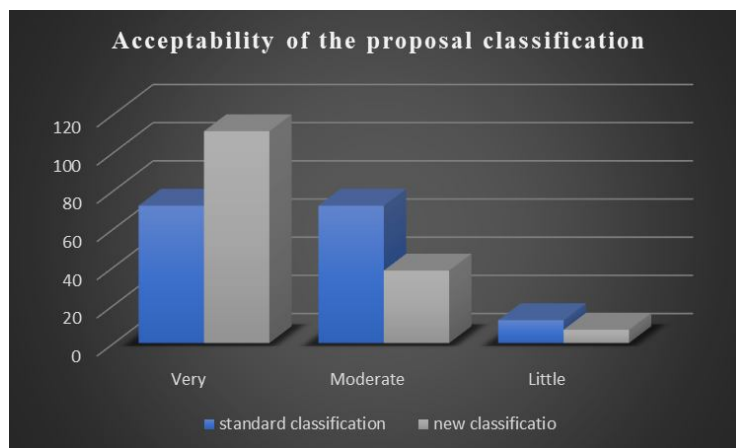| Interest	GROUP A (standard classification) N=156	GROUP B (new classification) N=156	P value
Very Moderate Little	72 (46.15) 72 (46.15) 12 (7.69)	111 (71.15) 38 (24.36) 7 (4.49)	<0.0001

Fig. 4:Acceptability of the Proposal Classification

Both the old (Group A) and the new (Group B) classification systems were tested with 156 individuals each, and the results are shown in the table. Very high interest in the new categorization was shown by 71.15 percent in Group B and 46.15 percent in Group A. With a highly significant difference (p < 0.0001), it was evident that the new classification was preferred. This could be a good way to get doctors on board with the new system and boost their incentive to use it in the clinic.

Conclusion:

This study's findings show that high-prescribing doctors are more interested in, and able to use, the proposed revised classification system for antidepressants based on their mechanisms of action than standard classifications. Clinical decision-makers now have access to a more user-friendly and informative framework thanks to the new classification system, which also fixes issues with previous classifications. A more streamlined approach to treatment, better drug administration, and better patient care in the management of depression and related disorders are all possible outcomes of implementing this updated classification system.

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