

Re-Classifying Recurrent Violent Behavior? Considerations, Caveats and Neuroethical Concerns for Psychiatry and Social Engagement

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Abstract

Human violent behavior is a complex phenomenon that is ranked among the most urgent global public health concerns, and remains a prevalent and challenging scientific, social, ethical, legal, and political problem.

Of particular note are the occurrence, basis, and developmental – and psychosocial effects – of recurrent violent behavior (RVB).

We opine that RVB should be a diagnostic psychiatric classifier that warrants diligent assessment, evaluation, reporting, observation and treatment in light of the repetitive pattern of physical and/or psychosocial harm to others, potential escalation, and/or possible predisposition and advancement to subsequent criminality.

Recent calls for improved mental health and public safety, taken together with the missional foci of the new DSM-5, ICD-10 and BRAIN initiative suggest, support, if not prompt consideration of both more accurate classification of psychiatric conditions and states, and more pragmatic, prudent integration of neuroscience and neurotechnology within psychiatry.

This approach could be criticized as overtly materialist, pathologizing, and medicalizing violence and its treatment; as well, there are possible burdens and risks and need for neuroethical scrutiny when using assessment and/or interventional neuroscience and neurotechnology to affect not only medical outcomes, but potentially socio-legal actions.

Therefore, we posit that any such attempt at revising classification of RVB should seek to (1) maximize individual and social benefits versus burdens, and in this way (2) be fully aligned with ethical obligations of psychiatry – if not medicine writ-large - as a public good.

Keywords: Violence; Psychiatry; Classification; Neurotechnology; Neuroethics

Abbreviations: RVB: Recurrent Violent Behavior

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Citation: Herrera-Ferrá K, Giordano J. Re-Classifying Recurrent Violent Behavior? Considerations, Caveats and Neuroethical Concerns for Psychiatry and Social Engagement. *Acta Psychopathol.* 2016, 2:1.

Received: July 31, 2015; **Accepted:** January 22, 2016; **Published:** February 06, 2016

Introduction

By definition, human violent behavior can be regarded as intentional, overtly harmful conduct that represents a multi-etiological phenomenon [1-3]. Human violence has been studied widely within social, psychological, legal, political, medical, ethical and humanitarian communities; such studies have

yielded a variety of classifications that focus upon type, severity, frequency, context and physical/psychological impacts. This diversity of perspectives has provided statistics depicting violent acts, and numbers and age cohorts of perpetrators – and victims - of human violent behavior.

For example, data provided by the World Health Organization (WHO) illustrate that violent behavior is responsible for the deaths

of more than 1.3 million people each year, and as such has been recognized not only as a social/legal problem, but also has been identified as one of the most urgent global public health concerns [4]. Thus, despite certain claims, such as those of cognitive scientist Steven Pinker, that violent behavior is decreasing within and among modern human populations [5, 6], violent behavior – whether diminished or not- still remains a prevalent, urgent and challenging problem affecting human health. Moreover, given that violent behavior both appears to have certain etiologic bases during development, and is manifest and expressed in juveniles, there is increasing interest in addressing (early) causes and acts of violence in youths [7-17].

In the main, violent behavior, and most particularly, recurrent violent behavior (RVB), can be regarded as (1) an expressed trait of certain neuropsychiatric disorders (conduct disorder, psychosis, post-traumatic stress disorder-PTSD, personality disorders, brain tumor, etc.) [18, 19] and/or (2) a socially (mal) adaptive and/or reactive behavior [4, 20-22]. In this essay, we opine that RVB in childhood and adulthood represents - and therefore should be characterized as - a sentinel psychiatric feature that warrants diligent assessment, evaluation, reporting, observation and treatment. We posit that this classification of RVB reflects its maladaptive, repetitive and persistent pattern of physical and/or psychosocial harm, potential escalation, and/or probable predisposition and advancement to subsequent chronic criminality [7, 8, 10, 11, 14, 15, 18, 23-29]. In this light, we also argue that approaches to assessment and treatment of RVB must be interdisciplinary, and that new technologies and techniques from the neural and cognitive sciences may increasingly afford information and tools that are ever more viable in their potential use and value.

Recurrent Violent Behavior as a Psychiatric Classifier

Violent behavior has a variety of known etiologies [1-4, 12, 13]. From a bio-psychosocial perspective, violence can be defined as a primeval neuro-cognitively driven set of actions that occurs in different species of animals, including humans, in response to an external or internal stimuli (real or imaginary, such as actual or perceived threat or attack, being in psychological or physical pain, physiological urges), and/or exists as part of a behavioral repertoire that has been rewarded and reinforced in the past [30]. Motivations for violence can be diverse, but bio-psychosocially, violent behavior can be regarded as (1) proactive - being offensive and predatory [30, 31], or (2) reactive - being defensive, in response to threat¹. Neuroscientific evidence has demonstrated the involvement of key brain areas and networks in initiating and subserving aggression and violence [30, 37, 40-42].

The WHO provides a definition that is meaningful to establish a prudent and pragmatic approach to the classification and address of RVB. Accordingly, this definition states that: “Violence is the

intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation” [43]. As well, the WHO typology of violence [1] as being physical, sexual, or psychological is important in establishing three sub-types according to the victim-perpetrator relationship or context; namely:

- Self-directed violence: Where perpetrator and victim are the same subject (e.g. self-abuse and suicide).
- Interpersonal violence: When violence is between individuals (e.g. family, intimate partner violence, community violence). This type of violence includes child maltreatment, intimate partner violence, elder abuse, youth violence, assault by strangers, violence related to property crimes, and violence in workplaces and other institutions.
- Collective violence: Which refers to violence perpetrated by larger groups of individuals (e.g. social, political and/or economic violence)

While we focus upon psychiatric classification of self-directed and inter-personal violence due to the individual neuro-cognitive factors involved, we also acknowledge that individual-to-group and group-to-individual contexts may be (reciprocally) influenced by social and psychobiological factors. Such dynamics are not beyond the scope of psychiatry and/or social psychology (and social neuroscience; see for example: Cacioppo [34, 38, 44], Sapolsky [36], Green and Monahan [45, 46] for overviews). Thus, classifications of RVB may involve individual as well as collective foci. This prompts questions of whether, when, and in whom RVB should be considered to be significantly injurious so as to be medically, as well as psychosocially and legally addressed.

In order to classify RVB as a distinct medical entity, an accurate description is a first and necessary step toward developing what Szasz has referred to as a “description to prescription” approach [47]. To be sure, such first steps must be taken prudently, in order to avoid mis-characterization (e.g. - over-, under- and/or inapt diagnosis), and therefore misappropriation of treatment [48]. Herein, we define RVB as a maladaptive, repetitive and persistent pattern of intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in physical injury, psychological or social harm², maldevelopment, or death. The pattern represents a clinically significant disturbance in an individual’s emotional regulation that reflects dysfunction in the biological, psychological, social and/or developmental processes involved in cognitive and behavioral functioning³.

We believe that this description firmly grounds RVB as a plausible diagnostic psychiatric classifier, regardless of etiology (e.g. arising from or in neurologic, psychiatric, metabolic, oncologic, infectious, pharmacological or immunologic disorder, alteration

¹ As such, reactive violence could be considered as appropriate (dependent upon context and concepts of acceptance within a given social environment, e.g. acceptability, neuro-cognitive processes of ecological and social consequences operative in decision-making and behavioral execution). Complete discussion of social attractors and constraints of violence are beyond the scope of this work, for review, see references [32-42].

² We have added “maladaptive, repetitive, persistent and social harm” to the WHO’s definition

³ This is part of the DSM-5 definition of a mental disorder (see below)

or imbalance), and enables identification of RVB as an overt behavioral variation that demands further assessment toward mitigation. We are cautious to avoid frank causalism, and instead assume a more descriptivist approach [49] in order to nest RVB within (other) medically diagnostic entities.

Despite the currency of the 5th edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-5) and the tenth edition of the International Classification of Diseases (ICD-10) as tools for codification of psychiatric disorders, and that both diagnostic resources include violent behavior within their classification schemes, particular taxonomic issues become apparent when addressing RVB in or as a mental disorder. For example, the DSM-5 defines a mental disorder as:

"[A] syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Social deviant behavior... and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual as described above" [18].

Embracing this definition, RVB as a socially deviant behavior is not a disorder unless causality is at least partially known, and even then, RVB is only a sign of certain conditions (e.g. as in paranoid schizophrenia) or in some cases, a diagnostic criterion (e.g. Conduct Disorder).

On the other hand, the ICD-10 explicitly states that violence is a mental or behavioral disorder of psychological development (excluding those symptoms, signs and abnormal clinical and laboratory findings that are not elsewhere classified; R00-R99). Section R- 45.6 specifically refers to physical violence, addressing symptoms and signs involving emotional state [19]. Yet, although both the DSM-5 and ICD-10 demonstrate intent to somehow position violent behavior as part of a mental malady or deviance, these approaches tend to offer weak scientific description, definition and/or classification. We assert that this leaves RVB inadequately and vaguely addressed, and as such may allow individuals with RVB to proverbially "fall between the cracks", with diminished possibility for being accurately identified, diagnosed and hence, included in apt, sound, and early intervention. Hence, we posit that if there were a psychiatric classifier regarding repetitive violence, individuals expressing such behavior could be medically evaluated and treated before they entered the legal/criminal-justice system.

In summary we are suggesting RVB not to be an indicator of possible psychiatric disorder (as we are aware that this behavior is currently part of psychiatric diagnosis), but a psychiatric classifier. This taxonomic modification will nest RVB as a medical entity and hence, demand medical (and more immediate) attention, identification, evaluation, and treatment.

Aligning Classification with a Neurotechnological Turn

Recent advancements – and ongoing investments – in the

neural and cognitive sciences (such as those vested within the United States' Brain Research through Advancing Innovative Neurotechnology – BRAIN – initiative) have focused upon the translational viability of new devices and techniques for assessment and treatment of neuro-psychiatric disorders and conditions [50]. Such efforts, coupled with societal and governmental calls for both improved mental health care [51], and for approaches toward reducing social violence, have prompted examination of the roles of neurotechnology, neurology, and psychiatry in public safety [52].

We offer that increased capabilities in non-invasive assessment neurotechnologies (e.g. - neurogenetics, various forms of neuroimaging, such as functional magnetic resonance imaging, diffusion tensor or kurtotic imaging; quantitative and/or magnetic encephalography) - if and when taken with other forms of assessment (such as behavioral indices, social metrics, etc.) - could enable improved methods for evaluating brain structures and functions involved in different types of aggression and violence, and enhanced insight to those neurobiological substrates and processes that are putatively operative in RVB [21, 22, 52-58]. However, here too, caution must be exercised as there is defined risk in pathologizing a socio-legal problem in order to justify and engage medical surveillance, and perhaps intervention.

Neuroscientific and Neurotechnological Interventions

Indeed, a more formalized diagnostic classification of RVB could be important to development of more precise medical approaches to modifying, mitigating or even preventing RVB through a variety of interventional means. Such interventions include psychological counseling, environmental modification, use of selective pharmacological agents, and/or as consistent with incentives developed under the BRAIN initiative, the use of specific types of neurotechnologies (e.g. - transcranial electrical and magnetic stimulation; tES, TMS, respectively [13, 21, 22, 54, 56, 57, 59-65]). Of course, it is also possible to engage the use of other, more invasive types of neurotechnological intervention, such as deep brain stimulation (DBS), although this remains far more contentious [66, 67].

Our goal in this work is to appeal for more rigorous codification of RVB as a classifier (with or without presence of other mental disorder(s) as primary or known cause). In this way, we petition to the aforementioned calls within both professional and public communities for increased research and translation of neuroscientific techniques and tools that can enable more accurate assessment, diagnosis and safe and effective treatment of psychiatric disorders [68], and reductions in social violence.

Neuroethical and Socio-Legal Concerns

Yet, this too is not without issue. Diagnostic language, codifications, and labels can, and often do exert broader socio-legal effects [69, 70]. Hence, it is important to consider the consequences of any taxonomic modification [71, 72]. As regards our proposal, concerns may arise from: (1) nesting RVB

as a psychiatric classifier; (2) the risk of stigmatization and social discrimination, and (3) implications within and for the clinical, social, legal, and perhaps political arenas.

As well, we are aware that the approach we advocate may foster criticism of the reliance upon neurobiological variables as reductive and overtly materialistic; misinterpretation and misuse of neuroscientific findings; and the pathologization and medicalization of violence [53, 73-75]. These concerns are reflected in, and supported by recent debate(s) about the validity and value of diagnoses and treatment of a variety of neuropsychiatric conditions, inclusive of those with potentially legal implications [70, 76-78].

In legal contexts, caution must be taken against relying upon diagnostic labels as explanation, justification or excuse for individuals' behaviors (i.e. - the "my brain made me do it" defense) [45, 79-81]. Moreover, although the legal admissibility of neuroscientific evidence remains a somewhat contentious issue [53, 66, 75, 82-88], there are concerns about the potential use of assessment neurotechnologies (and diagnostic classifications and labels) to direct and justify legal action, including perhaps the use of other neurobiological interventions (such as legally-mandated surveillance, and even pharmacological and/or neurotechnological "treatment" [52, 89-93] to mitigate and/or prevent violence). Axiomatically, the use of RVB as a classifier might incur pejorative connotations of criminality or psychopathy, and presuppositions of violence might lead to discrimination and social exclusion [52]. Such social stigma could foster a "self-fulfilling prophecy" of both self-perception as antisocial, and role assumption to engage violent acts [94].

Nevertheless, we contend that an individual who presents increased risk of serial violence must be accurately and correctly classified, given the profundity of risk (to self, others, and society). Indubitably, it is a very difficult – if not impossible- task to completely balance what may be implicitly pejorative and what may be clinically relevant, especially if the main objective is the best interest of the patient. With this in mind, we believe that a more *satisficing*⁴ goal is to clarify descriptive terms and classifications so as to enable more accurate assessment and diagnosis, the best care possible for the individual, and the greatest good(s) of medicine as a humanitarian endeavor within the social realm [95].

Accordingly we also acknowledge and encourage the need for scrutiny and rigorous address of the possible hazards when using neurotechnology and neurotechnologically-based classifications in psychiatry and socio-legal contexts [55, 67, 96]. Toward these ends we have developed, and advocate here, a multi-step paradigm for evaluating the potential (technical, medical, and ethico-legal and social) benefits, burdens and risks that could be incurred by the use of any diagnostic and/or interventional neurotechnology in medicine. This paradigmatic approach entails: (1) posing key questions related to the type, goals, and uses of the neurotechnology considered; (2) defining and addressing dimensions of effect; (3) identifying those ethical issues, questions or problems and if/how these relate to capacities, consequences,

character or contexts of use and effect; and (4) discerning if and how certain neurotechnologies should be employed - and why - to maximize beneficial consequences in particular contexts [67].

Conclusion

Although violent behavior has become, and remained a global health concern in the last decades, we posit that it is not being effectively assessed, identified, approached, and/or contained, especially when manifested in a repetitive and persistent pattern. We opine that this is due, at least in part, to inadequate representation in classification, diagnosis and prognosis as a medical condition. We are aware that a medical approach must be careful of those ways that categorizations and labels incur meaning(s) within the various communities that will employ and respond to classifications and diagnoses. Here, effects and manifestations move beyond medicine into the social and legal milieu. Labeling and categorization can be used to profile, in both the literal (and valid) and more derogatorily biased sense, and this can lead to socio-legal attitudes and postures that can rapidly escalate to frank denigration [97].

Still, the social gravitas of RVB is borne by ongoing current events, and has prompted calls - not least of which from United States' President Barack Obama - for the medical community to fortify assessment and treatment of those with psychiatric conditions and disorders [98]. As consistent with the BRAIN initiative, the prudent use of neurotechnology may be instrumental to such pursuits. Equally important is the need to appropriately situate and interpret neuroscientific information with other psychological, behavioral and social variables, and define what these factors "mean". In other words, what clinical picture do they represent?

We believe that a more accurate classification of RVB will be important to effectively translate these efforts into relevant evaluation and treatment. Therefore, we posit that any and all methods of assessment and intervention should strive to: (1) maximize individual and social benefits versus burdens, and in this way (2) be more aligned with ontological claims and ethical obligations of psychiatry, if not medicine writ-large, as a public good. However, with each step, it will be vital to elucidate and address the neuroethico-legal issues, questions and problems that any efforts toward translating brain science to psychiatric practice may evoke or involve.

To conclude, we have opined that as we move to improve upon extant diagnostic and therapeutic tools and techniques in psychiatry, it will be important to characterize and establish RVB as a clinical entity to be treated and mitigated. How, when, and in whom treatments should be applied, and what the nature and extent of such treatments should entail will require additional, and perhaps ongoing deliberation about decisional-algorithms or protocols that can and should be developed and used.

⁴A "satisficing" decision entails evaluation of available alternatives until an acceptability threshold is met. The term *satisficing*, a combination of *satisfy* and *suffice*, was introduced by Herbert A. Simon in 1956, and communicates an option that is satisfactorily sufficient, given the limitations of context involved.

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