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## Mental Health Disorders and the Terrorist: A Research Note Probing Selection Effects and Disorder Prevalence

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### ABSTRACT

Recent research on lone-actor terrorism has found a high prevalence of mental health disorders among these offenders. This research note addresses two shortcomings in these existing studies. First, it investigates whether selection effects are present in the selection process of terrorist recruits. Second, it builds on the argument that mental health problems and terrorist behavior should not be treated as a yes/no dichotomy. Descriptive results of mental health disorders are outlined utilizing a number of unique datasets.

### ARTICLE HISTORY

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Academic research on the link between mental health problems and terrorist activity has had a long, inconsistent, occasionally frustrating, and well-documented history. Early studies highlighted very specific mental disorders like psychopathy<sup>1</sup> or personality disorders such as narcissism.<sup>2</sup> Later, highly influential literature reviews were correct to question the data quality, assumptions, and methodological rigor of many of these early “studies.”<sup>3</sup> These reviews were nuanced, well argued, and offered a roadmap ahead for future research. However, over the past ten years, many of the citations that these reviews accrued made three fundamental misconceptions that have each impaired the study of mental illness and terrorist involvement. Collectively these misconceptions led to the false idea that mental health problems have nothing to do with terrorism. In reality, what the reviews illustrated was the lack of evidence to suggest that very specific forms of mental illness *caused* terrorism.

The first fundamental misconception is that the citations treat terrorism, and more importantly what it means to be a terrorist, in an aggregated, often generic fashion. They fail to acknowledge that being a bomb-maker may be different than being a bomb-planter; that being a foreign fighter may differ from being a terrorist attacking the homeland; that being a terrorist financier may be different than being a gunman; and that being a lone-actor may be different than being a group-actor. Their roles, functions, expectations, and experiences may differ in terms of recruitment, (self-)selection, routine activities while “being” a terrorist, and ultimately disengagement.<sup>4</sup> This is a surprising, almost universally adopted position and occurred despite Victoroff’s argument that “terrorist groups typically exhibit hierarchical organization, with various *roles* ... [that] ... may attract individuals with different

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predispositions who perhaps play their roles because of profoundly different psychological factors” and that “any empirical study claiming to characterize ‘the psychology of terrorists’ might be very misleading if it fails to stratify its findings according to level and role.”<sup>5</sup>

Second, they treat mental disorder in a similarly static and dichotomous fashion. The very earliest studies spoke of very specific mental disorders. The reviews were also equally careful in their terminology. The citations of the latter were simply not. Instead, arguments that the terrorist is mentally ill or is not abound. There is next to no acknowledgment that clinical diagnoses of mental health problems span a wide range, from common mental health disorders such as depression to severe pathology such as schizophrenia as well as disorders of personality and neurodevelopment.<sup>6</sup>

Third, the citations assume that because of the flaws inherent in the early studies, there is no relationship. What the reviews show is the lack of scientific rigor and not scientific evidence to the contrary. Instead they point towards factors explaining why mental health problems may not be so prevalent (e.g., selection effects in the recruitment process). Merari sums up this misconception brilliantly:

By and large, the opinion that terrorists do not have a common psychological profiles rests on the absence of research rather than on direct findings. A scientifically sound conclusion that terrorists have no common personality traits must be based on many comparative studies of terrorists from different countries and functions, using standard psychological tests and clinical interviews. As such studies have not been published, the only scientifically sound conclusion for now is that *we do not know* whether terrorists share common traits, but we cannot be sure that such traits do not exist.<sup>7</sup> (emphasis in the original)

Recent research on lone-actor terrorists has begun to overcome the first fundamental error. Several studies now highlight that mental disorder is more common in lone-actor terrorists than group-actors.<sup>8</sup> Corner and Gill<sup>9</sup> also demonstrated that lone-actor terrorists with a mental health disorder were just as likely to engage in a range of rational attack planning behaviors as those lone-actors without mental health disorders. This ran contrary to speculation within the wider literature that irrationality, spontaneity, and incapability would be more heavily associated with terrorist attacks attributed to lone-actors with mental health disorders.

This research note attempts to address the other two fundamental errors. First, it investigates whether selection effects are present. Second, it builds on the argument that mental health problems and terrorist behavior should not be treated as a yes/no dichotomy. Descriptive results of mental health disorders are outlined utilizing a number of unique datasets.

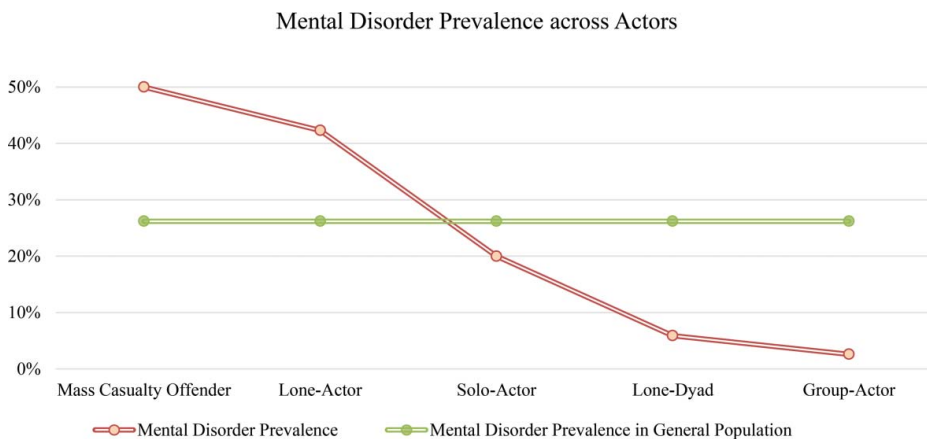
## Selection Effects

Many reviews of the literature on terrorist psychology speculate that selection effects play a large role in why there is very low prevalence of mentally disordered terrorists within terrorist groups.<sup>10</sup> This rests on a few core assumptions. First, wanting to be a terrorist is not enough to become a terrorist. Second, terrorist groups are selective in who they recruit. Third, they prioritise certain traits that correspond to what they believe makes a good recruit (e.g., trustworthiness, ability to follow instructions, discretion). Fourth, individuals with mental disorders are identifiable in the recruitment stage. To varying degrees, these assumptions are plausible. Indeed illustrative examples correspond with some of them.<sup>11</sup>

We are interested in whether this selection effect plays out over much larger samples than isolated illustrate examples. While Corner and Gill<sup>12</sup> and Gruenewald et al.<sup>13</sup> illustrate that mental health disorders are more likely in lone-actors than group-actors, this research note disaggregates even further. It looks at mental health prevalence across five actor types<sup>14</sup> including lone-mass murderers (who kill four or more people in a 24-hour period absent of a motivating ideology),<sup>15</sup> lone-actor terrorists, solo-actor terrorists (who conducted an act of terrorism by themselves but were directed and controlled by a larger terrorist organization), lone-dyads (a group of two terrorists), and terrorist group members. These five actor types therefore encompass a continuum of actors; from loners without an ideology and fictive kin, to loners with an ideology and fictive kin, to loners who have had some interaction with terrorist groups, to those who act in combination with only one co-offender to those who have acted within and alongside a wider group structure. Figure 1 examines the rates of mental disorder across these five groups. It illustrates a negative association between mental disorder and the degree to which the individual co-offends. In other words, the more isolated the individual is in terms of the number of co-offenders and support networks, the more likely that individual will also have mental health problems. Group-actors demonstrate significantly lower levels of mental disorder than would be expected within a general population.<sup>16</sup> This appears to affirm the selection effect mechanism.

### Disaggregating Mental Health Problems

Despite empirical advancements in terrorism research, mental disorder as a variable for explaining terrorist behavior remains dichotomous; a trait long discarded in psychopathological research of related crime disciplines. Following deinstitutionalisation, the prevailing belief was that mental disorder had been criminalized, and those with a mental disorder were more dangerous and criminally inclined.<sup>17</sup> Hiday and Burns<sup>18</sup> assert that the disproportionately high levels of anti-social personality disorder and substance abuse or dependence in prison settings distort this observation. However, multiple different disorders have been linked to violence and criminality. Brugha et al.<sup>19</sup> highlight that weighted prevalence of psychosis in prisons was over ten times greater than the general population (52 per thousand compared to 4.5 per thousand). Elbogen and Johnson<sup>20</sup> statistically demonstrated that



**Figure 1.** Mental disorder prevalence across a range of actors.

schizophrenia, bipolar disorder and major depressive disorder were only reliable predictors of violence when there was substance abuse/dependence co-morbidity. In a cross sectional survey of disorder prevalence across nonviolent men, violent men, and gang members, Coid et al.<sup>21</sup> noted prevalence differences across six disorder groups (psychosis, anxiety, depression, alcohol dependence, drug dependence, anti-social personality disorder). Gang members bore the highest prevalence across all disorder groups. Prevalence differences between violent men and gang members ranged between 11.2 percent for depression, and 56.6 percent for anti-social personality disorder. Fazel, Doll, and Langström<sup>22</sup> performed a systematic meta-analysis of 25 surveys concerning mental disorder prevalence in juvenile detention settings, observing gender differences in prevalence of four disorder groups. Psychotic illness and conduct disorder held equal prevalence across genders, however, major depression (29.2 percent compared to 10.6 percent) and attention deficit hyperactivity disorder (ADHD) (18.5 percent compared to 11.7 percent) were more frequently identified in females. These investigations highlight the importance for terrorism research in expanding beyond dichotomous reasoning.

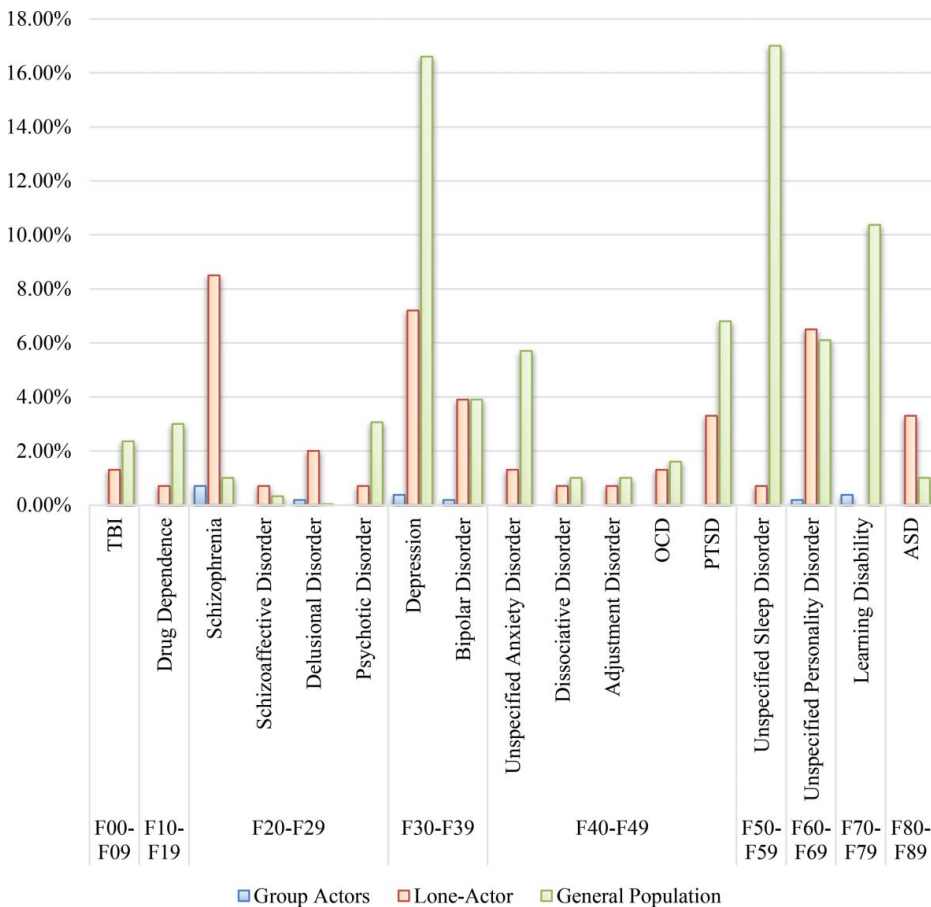
While Corner and Gill<sup>23</sup> outlined the importance of looking at mental health disorders across the spectrum they neglected to (a) outline the prevalence of each disorder within their lone-actor terrorist sample and (b) compare this to a base rate of the general population. This research note attempts to address these shortcomings. Fortunately, mental disorders are now reliably categorized by international systems and have led to detailed information about their prevalence in the general population. Diagnostic and Statistical Manual of Mental Disorders (DSM) operationalized models include the Diagnostic Interview Schedule, and the Epidemiological Catchment Area Programme. The World Health Organization (WHO) followed suit in the late 1980s with a measure based on International Classification of Diseases (ICD) criteria, the Composite International Diagnostic Interview (CIDI).<sup>24</sup> Unlike the DSM-designed measures, subsequent surveys utilizing the CIDI include more information regarding role impairments and disability, hold international representation, and subsequent inferences regarding prevalence, correlates, and patterns of mental disorder are deemed more valid.<sup>25</sup>

Surveys that utilize the CIDI present multiple facets of data concerning mental disorders, including prevalence, age of onset, disorder life course, distribution of severity, proportion of those treated, time difference between onset and treatment, and treatment patterns. The surveys highlight that a substantial proportion of each included population meet criteria for one or more mental disorders during their life. These disorders are often pervasive, with early onset, and cause significant impairment.<sup>26</sup> Kessler and Üstün<sup>27</sup> note, that due to constraints in measuring mental disorder (exclusion of population with high proportions of severe mental disorders, e.g., homeless, survey nonresponse due to refusal by the mentally disordered, and systematic non-reporting following errors or failures) bias in prevalence underestimations mean that data are often considered conservative. Such constraints affect reporting, particularly influencing the few terrorism-based studies that use open source data.<sup>28</sup> Kessler and Üstün demonstrate cross-national differences in surveys in their analysis of World Mental Health surveys in 17 countries. Prevalence for any disorder ranged from 12.0 percent (Nigeria) to 47.4 percent (United States) with an average prevalence of 27.43 percent.<sup>29</sup>

To overcome these constraints, this research note utilized multiple psychiatric epidemiological studies to calculate the average prevalence rates of multiple disorders in the general

population.<sup>30</sup> We then compared these rates to the same listed mental disorders in the lone-actor and group-actor terrorist populations examined in Corner and Gill.<sup>31</sup>

The descriptive statistics highlight inherent differences in the types of mental disorders suffered by terrorists—particularly lone-actors—as compared to a general population. There are only three disorders that have a substantially higher prevalence in the lone-actor population (see Figure 2), the most noteworthy being schizophrenia. Schizophrenia has long been accepted as having a prevalence of 1 percent (upper end)<sup>32</sup> in general populations, and has a contentious link to violent behavior.<sup>33</sup> Delusional disorders also hold a litigious link with violence.<sup>34</sup> Those with delusional disorders hold stringent beliefs, seen by others as inconceivable. Parallel to this, lone-actors show high preponderance of single-issue ideologies; highly personal grievances linked to political aims. Autism spectrum disorders (ASD) also show a higher than expected prevalence in the lone-actor sample. Although individuals with ASD are not linked to violent behaviors, social interaction deficits impair an individual's ability to maintain functional relationships. However, these individuals often foster intense online relationships,<sup>35</sup> a trait noted in lone-actors with ASD.<sup>36</sup> Depression is also often quoted in the media as being a cause of disaffected individuals “snapping” and going on a



**Figure 2.** Mental disorder prevalence across terrorist actors and the general population.

violent rampage. The comparably low prevalence in these descriptive statistics, alongside evidence that mental disorder is rarely attributed as a direct cause of violence,<sup>37</sup> however, supports Corner and Gill's<sup>38</sup> assertion that lone-actor motivation is embedded in an ideological cause, developed over time, alongside a myriad of other proximal and distal risk factors not just mental disorder. Phrases such as "loon wolf" that imply the mental disorder was the (often irrational) driving force should therefore be avoided.<sup>39</sup>

In order to understand how to counter, prevent, or disrupt a problem, we first need to understand the problem itself. The only way to understand such complex problems is by moving toward finer-grained interpretations and testing data. This research note provides a further call for terrorism researchers to be more exact; both in terms of the types of terrorist they are researching and by what exactly they mean by mental health problems. These calls are not new. They were all more or less mentioned within the seminal literature reviews mentioned earlier. However, they were simply overlooked. The contention of the main literature reviews that some mental disorders do not play a leading role in causing terrorist involvement holds true. However, there is a large gap between identifying something as not causal and dismissing it as irrelevant. It is in this gap that a rigorous, data-driven, behaviorally oriented scientific study of the terrorist can prosper. Disaggregated and comparative approaches, as proposed here, have the potential for major practical and conceptual benefits for the field of research moving forward.<sup>40</sup> Future research must delve deeper into issues around selection-effects via first-hand interviews, investigate how mental health problems co-occur with other risk factors, analyse how these co-occurrences are sequenced in the individual's pathway toward violent action, and whether the symptoms of the mental health disorder were prevalent at the time of the offending. They must also attempt to understand whether and how mental health problems can be a by-product of terrorist engagement rather than a driving force compelling people to engage in terrorism in the first place. The study of the individual terrorist and mental health disorders appeared to be unnecessary a few years ago. It now looks to have an exciting future due to a growth in (a) how we conceptualize "the terrorist" and (b) granular level datasets of terrorist behavior.

## Notes

1. For example: H. H. A. Cooper, "Psychopath as Terrorist," *Legal Medical Quarterly* 2 (1978), p. 253.
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4. Paul Gill and Emily Corner, "Disaggregating Terrorist Offenders: Implications for Research and Practice," *Criminology and Public Policy* 12 (2013), pp. 93–101.
5. Victoroff, "The Mind of the Terrorist," emphasis in the original.
6. A simple search of the citation history of these seminal reviews showed the following quotes that cited this body of work (emphasis added): "Horgan has emphasized that there are no *individual psychological traits* that distinguish terrorists from a general population," in Jerrold M. Post, *The Mind of the Terrorist: The Psychology of Terrorism from the IRA to al-Qaeda* (New York: Palgrave Macmillan, 2007); "Every study that has seriously examined the psychological state of terrorists finds that they fall within the *bounds of normality*," in Rick O'Gorman, "The Evolutionary Logic

- of Terrorism: Understanding Why Terrorism is an Inevitable Human Strategy in Conflict,” in Andrew Silke, ed., *The Psychology of Counter-Terrorism* (Oxon: Routledge, 2010), pp. 62–75; “We can be fairly certain that most of these individuals will not meet *international diagnostic criteria for mental or personality disorders*,” in Edgar Jones and Kamaldeep Bhui, “The New Ethics of Research into Terrorism,” *British Medical Journal* 337 (2008).
7. Ariel Merari, *Driven to Death: Psychological and Social Aspects of Suicide Terrorism* (Oxford: Oxford University Press, 2010), pp. 253–254.
  8. Emily Corner and Paul Gill, “A False Dichotomy? Mental Illness and Lone-Actor Terrorism,” *Law and Human Behaviour* 39 (2015), pp. 23–34; Jeff Gruenewald, Steve Chermak, and Joshua Freilich, “Distinguishing ‘Loner’ Attacks from Other Domestic Extremist Violence,” *Criminology & Public Policy* 12 (2013), pp. 65–91; Christopher Hewitt, *Understanding Terrorism in America* (New York: Routledge, 2003); Paul Gill, John Horgan, and Paige Deckert, “Bombing Alone: Tracing the Motivations and Antecedent Behaviors of Lone-Actor Terrorists,” *Journal of Forensic Sciences* 59 (2014), pp. 142–159; Paul Gill, *Lone-Actor Terrorists: A Behavioural Analysis* (London: Routledge, 2015).
  9. Corner and Gill, “False Dichotomy?”
  10. Anton W. Weenik, “Behavioral Problems and Disorders among Radicals in Police Files,” *Perspectives on Terrorism* 9 (2015), pp. 17–33.
  11. See, for example, John Horgan, *Disengaging from Terrorism* (London: Routledge, 2009).
  12. Corner and Gill, “False Dichotomy?”
  13. Gruenewald et al., “Distinguishing ‘Loner’ Attacks from Other Domestic Extremist Violence.”
  14. See, Paul Gill, James Silver, John Horgan, Emily Corner, and Noemie Bouhana “Similar Crimes, Similar Behaviors? Comparing Lone Actor Terrorists and Solo Mass Murderers,” under review; Gill et al., “Bombing Alone” and see Corner and Gill, “False Dichotomy?” for a full outline on data collection protocols.
  15. Gill et al., “Similar Crimes, Similar Behaviors?”
  16. Jordi Alonso et al., “Prevalence of Mental Disorders in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMED) Project,” *Acta Psychiatrica Scandinavica* 109 (2004), pp. 21–27; Ronald Kessler and T. Bedirhan Üstün, *The WHO World Mental Health Surveys: Global Perspectives on the Epidemiology of Mental Disorders* (Cambridge, UK: Cambridge University Press, 2008).
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  23. Corner and Gill, “False Dichotomy?”
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27. Kessler and Üstün, *The WHO World Mental Health Surveys*.
  28. Corner and Gill, "False Dichotomy?"; Gill et al., "Similar Crimes, Similar Behaviors?"; Anton Weenik, "Behavioral Problems and Disorders among Radicals in Police Files."
  29. Kessler and Üstün, *The WHO World Mental Health Surveys*.
  30. Maja Altarac and Ekta Saroha, "Lifetime Prevalence of Learning Disability among US Children," *Pediatrics* 119 (2007), pp. 77–83; Eric Fombonne, "Epidemiology of Pervasive Developmental Disorders," *Pediatric Research* 65 (2009), pp. 591–598; Hans W. Hoek, "Incidence, Prevalence and Mortality of Anorexia Nervosa and other Eating Disorders," *Current Opinions in Psychiatry* 19 (2006), pp. 389–394; Yueqin Huang, Roman Kotov, Giovanni de Girolamo, Antonio Preti, Matthias Angermeyer, Corina Benjet, et al., "DSM-IV Personality Disorders in the WHO World Mental Health Surveys," *British Journal of Psychiatry* 195 (2009), pp. 46–53; Ronald Kessler, Matthias Angermeyer, James C. Anthony, Ron de Graaf, Koen Demyttenaere, Isabelle Gasquet, et al., "Lifetime Prevalence and Age-of-Onset Distributions of Mental Disorders in the World Health Organization's World Mental Health Survey Initiative," *World Psychiatry* 6 (2007), pp. 168–176; R. Kessler and T. Üstün, *The WHO World Mental Health Surveys: Global Perspectives on the Epidemiology of Mental Disorders*; Amir A. Khan, Kristen C. Jacobson, Charles O. Gardner, Carol A. Prescott, and Kenneth S. Kendler, "Personality and Comorbidity of Common Psychiatric Disorders," *British Journal of Psychiatry* 186 (2005), pp. 190–196; Roy H. Lubit, Curley L. Bonds, and Michael A. Lucia, "Sleep Disorders" *Medscape*, last modified 28 January 2015. Available at <http://emedicine.medscape.com/article/287104-overview#a0156> (accessed 27 September 2015); Bichitra N. Patra and Siddarth Sarkar, "Adjustment Disorder: Current Diagnostic Status," *Indian Journal of Psychological Medicine* 35 (2013), pp. 4–9; Jonna Perälä, Jaana Suvisaari, Samuli L. Saarni, Kimmo Kuoppasalmi, Erkki Isometsä, Sami Pirkola, et al., "Lifetime Prevalence of Psychotic and Bipolar I Disorders in a General Population," *Archives of General Psychiatry* 64 (2007), pp. 19–28; Luis Salvador-Carula, Geoffrey M. Reed, Leila M. Vaez-Azizi, Sally A. Cooper, Rafael Martinez-Leal, Marco Bertelli, et al., "Intellectual Developmental Disorders: Towards a New Name, Definition and Framework for 'Mental Re-Tardation/Intellectual Disability' in ICD-11," *World Psychiatry*, 10 (2011), pp. 175–180; David Spiegel, Richard J. Loewenstein, Roberto Lewis-Fernandez, Vedat Sar, Daphne Simeon, Eric Vermetten, et al., "Dissociative Disorders in DSM-5," *Depression and Anxiety* 28 (2011), pp. 824–852; Fernanda Tagliaferri, Christian Compagnone, Marjan Korsic, Franco Servadei, and Jess Kraus, "A Systematic Review of Brain Injury Epidemiology in Europe," *Acta Neurochirurgica* 148 (2006), pp. 255–268.
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